help.txt For Vim version 8.1. Last change: 2017 Oct 28

VIM - main help file

```
                                                                    k
     Move around:  Use the cursor keys, or "h" to go left,        h   l
                   "j" to go down, "k" to go up, "l" to go right.   j
Close this window: Use ":q<Enter>".
   Get out of Vim: Use ":qa!<Enter>" (careful, all changes are lost!).

Jump to a subject: Position the cursor on a tag (e.g. bars ) and hit CTRL-].
   With the mouse: ":set mouse=a" to enable the mouse (in xterm or GUI).
                   Double-click the left mouse button on a tag, e.g. bars .
        Jump back: Type CTRL-T or CTRL-O.  Repeat to go further back.

Get specific help: It is possible to go directly to whatever you want help
                   on, by giving an argument to the :help command.
                   Prepend something to specify the context:  help-context

                        WHAT                PREPEND    EXAMPLE
                    Normal mode command                :help x
                    Visual mode command       v_       :help v_u
                    Insert mode command       i_       :help i_<Esc>
                    Command-line command      :        :help :quit
                    Command-line editing      c_       :help c_<Del>
                    Vim command argument      -        :help -r
                    Option                    '        :help 'textwidth'
                    Regular expression        /        :help /[
                   See help-summary for more contexts and an explanation.

  Search for help: Type ":help word", then hit CTRL-D to see matching
                   help entries for "word".
                   Or use ":helpgrep word".  :helpgrep
```

Vim stands for Vi IMproved. Most of Vim was made by Bram Moolenaar, but only through the help of many others. See credits .

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doc-file-list Q_ct

BASIC:

quickref	Overview of the most common commands you will use
tutor	30 minutes training course for beginners
copying	About copyrights
iccf	Helping poor children in Uganda
sponsor	Sponsor Vim development, become a registered Vim user
www	Vim on the World Wide Web
bugs	Where to send bug reports

USER MANUAL: These files explain how to accomplish an editing task.

usr_toc.txt	Table Of Contents

Getting Started

usr_01.txt	About the manuals
usr_02.txt	The first steps in Vim
usr_03.txt	Moving around

usr_04.txt	Making small changes
usr_05.txt	Set your settings
usr_06.txt	Using syntax highlighting
usr_07.txt	Editing more than one file
usr_08.txt	Splitting windows
usr_09.txt	Using the GUI
usr_10.txt	Making big changes
usr_11.txt	Recovering from a crash
usr_12.txt	Clever tricks

Editing Effectively
usr_20.txt	Typing command-line commands quickly
usr_21.txt	Go away and come back
usr_22.txt	Finding the file to edit
usr_23.txt	Editing other files
usr_24.txt	Inserting quickly
usr_25.txt	Editing formatted text
usr_26.txt	Repeating
usr_27.txt	Search commands and patterns
usr_28.txt	Folding
usr_29.txt	Moving through programs
usr_30.txt	Editing programs
usr_31.txt	Exploiting the GUI
usr_32.txt	The undo tree

Tuning Vim
usr_40.txt	Make new commands
usr_41.txt	Write a Vim script
usr_42.txt	Add new menus
usr_43.txt	Using filetypes
usr_44.txt	Your own syntax highlighted
usr_45.txt	Select your language

Making Vim Run
usr_90.txt	Installing Vim

REFERENCE MANUAL: These files explain every detail of Vim.	reference_toc

General subjects
intro.txt	general introduction to Vim; notation used in help files
help.txt	overview and quick reference (this file)
helphelp.txt	about using the help files
index.txt	alphabetical index of all commands
help-tags	all the tags you can jump to (index of tags)
howto.txt	how to do the most common editing tasks
tips.txt	various tips on using Vim
message.txt	(error) messages and explanations
quotes.txt	remarks from users of Vim
todo.txt	known problems and desired extensions
develop.txt	development of Vim
debug.txt	debugging Vim itself
uganda.txt	Vim distribution conditions and what to do with your money

Basic editing

starting.txt	starting Vim, Vim command arguments, initialisation
editing.txt	editing and writing files
motion.txt	commands for moving around
scroll.txt	scrolling the text in the window
insert.txt	Insert and Replace mode
change.txt	deleting and replacing text
indent.txt	automatic indenting for C and other languages
undo.txt	Undo and Redo
repeat.txt	repeating commands, Vim scripts and debugging
visual.txt	using the Visual mode (selecting a text area)
various.txt	various remaining commands
recover.txt	recovering from a crash

Advanced editing

cmdline.txt	Command-line editing
options.txt	description of all options
pattern.txt	regexp patterns and search commands
map.txt	key mapping and abbreviations
tagsrch.txt	tags and special searches
quickfix.txt	commands for a quick edit-compile-fix cycle
windows.txt	commands for using multiple windows and buffers
tabpage.txt	commands for using multiple tab pages
syntax.txt	syntax highlighting
spell.txt	spell checking
diff.txt	working with two to four versions of the same file
autocmd.txt	automatically executing commands on an event
filetype.txt	settings done specifically for a type of file
eval.txt	expression evaluation, conditional commands
channel.txt	Jobs, Channels, inter-process communication
fold.txt	hide (fold) ranges of lines

Special issues

print.txt	printing
remote.txt	using Vim as a server or client
term.txt	using different terminals and mice
terminal.txt	Terminal window support
digraph.txt	list of available digraphs
mbyte.txt	multi-byte text support
mlang.txt	non-English language support
arabic.txt	Arabic language support and editing
farsi.txt	Farsi (Persian) editing
hebrew.txt	Hebrew language support and editing
russian.txt	Russian language support and editing
ft_ada.txt	Ada (the programming language) support
ft_rust.txt	Filetype plugin for Rust
ft_sql.txt	about the SQL filetype plugin
hangulin.txt	Hangul (Korean) input mode
rileft.txt	right-to-left editing mode

GUI

gui.txt	Graphical User Interface (GUI)
gui_w32.txt	Win32 GUI
gui_x11.txt	X11 GUI

Interfaces
 if_cscop.txt   using Cscope with Vim
 if_lua.txt   Lua interface
 if_mzsch.txt   MzScheme interface
 if_perl.txt   Perl interface
 if_pyth.txt   Python interface
 if_tcl.txt   Tcl interface
 if_ole.txt   OLE automation interface for Win32
 if_ruby.txt   Ruby interface
 debugger.txt   Interface with a debugger
 workshop.txt   Sun Visual Workshop interface
 netbeans.txt   NetBeans External Editor interface
 sign.txt   debugging signs

Versions
 vi_diff.txt   Main differences between Vim and Vi
 version4.txt   Differences between Vim version 3.0 and 4.x
 version5.txt   Differences between Vim version 4.6 and 5.x
 version6.txt   Differences between Vim version 5.7 and 6.x
 version7.txt   Differences between Vim version 6.4 and 7.x
 version8.txt   Differences between Vim version 7.4 and 8.x
                                                sys-file-list
Remarks about specific systems
 os_390.txt   OS/390 Unix
 os_amiga.txt   Amiga
 os_beos.txt   BeOS and BeBox
 os_dos.txt   MS-DOS and MS-Windows NT/95 common items
 os_mac.txt   Macintosh
 os_mint.txt   Atari MiNT
 os_msdos.txt   MS-DOS (plain DOS and DOS box under Windows)
 os_os2.txt   OS/2
 os_qnx.txt   QNX
 os_risc.txt   RISC-OS
 os_unix.txt   Unix
 os_vms.txt   VMS
 os_win32.txt   MS-Windows 95/98/NT
                                                standard-plugin-list
Standard plugins
 pi_getscript.txt Downloading latest version of Vim scripts
 pi_gzip.txt   Reading and writing compressed files
 pi_logipat.txt   Logical operators on patterns
 pi_netrw.txt   Reading and writing files over a network
 pi_paren.txt   Highlight matching parens
 pi_spec.txt   Filetype plugin to work with rpm spec files
 pi_tar.txt   Tar file explorer
 pi_vimball.txt   Create a self-installing Vim script
 pi_zip.txt   Zip archive explorer

LOCAL ADDITIONS: local-additions
 vim_faq.txt   Frequently asked questions

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 bars   Bars example

Now that you've jumped here with CTRL-] or a double mouse click, you can use CTRL-T, CTRL-O, g<RightMouse>, or <C-RightMouse> to go back to where you were.

Note that tags are within | characters, but when highlighting is enabled these characters are hidden. That makes it easier to read a command.

Anyway, you can use CTRL-] on any word, also when it is not within |, and Vim will try to find help for it. Especially for options in single quotes, e.g. 'compatible'.

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vim:tw=78:fo=tcq2:isk=!-~,^*,^\|,^\":ts=8:noet:ft=help:norl:

quickref.txt For Vim version 8.1. Last change: 2018 Apr 18

VIM REFERENCE MANUAL by Bram Moolenaar

Quick reference guide

quickref Contents

N is used to indicate an optional count that can be given before the command.

Q_lr Left-right motions

h	N	h	left (also: CTRL-H, <BS>, or <Left> key)
l	N	l	right (also: <Space> or <Right> key)
0		0	to first character in the line (also: <Home> key)
^		^	to first non-blank character in the line
$	N	$	to the last character in the line (N-1 lines lower) (also: <End> key)
g0		g0	to first character in screen line (differs from "0" when lines wrap)
g^		g^	to first non-blank character in screen line (differs from "^" when lines wrap)
g$	N	g$	to last character in screen line (differs from "$" when lines wrap)
gm		gm	to middle of the screen line
bar	N	|	to column N (default: 1)
f	N	f{char}	to the Nth occurrence of {char} to the right
F	N	F{char}	to the Nth occurrence of {char} to the left
t	N	t{char}	till before the Nth occurrence of {char} to the right
T	N	T{char}	till before the Nth occurrence of {char} to the left

```
;       N  ;            repeat the last "f", "F", "t", or "T" N times
,       N  ,            repeat the last "f", "F", "t", or "T" N times in
                           opposite direction
-------------------------------------------------------------------------------
Q_ud            Up-down motions

k       N  k            up N lines (also: CTRL-P and <Up>)
j       N  j            down N lines (also: CTRL-J, CTRL-N, <NL>, and <Down>)
-       N  -            up N lines, on the first non-blank character
+       N  +            down N lines, on the first non-blank character (also:
                           CTRL-M and <CR>)
_       N  _            down N-1 lines, on the first non-blank character
G       N  G            goto line N (default: last line), on the first
                           non-blank character
gg      N  gg           goto line N (default: first line), on the first
                           non-blank character
N%      N  %            goto line N percentage down in the file; N must be
                           given, otherwise it is the  %  command
gk      N  gk           up N screen lines (differs from "k" when line wraps)
gj      N  gj           down N screen lines (differs from "j" when line wraps)
-------------------------------------------------------------------------------
Q_tm            Text object motions

w       N  w            N words forward
W       N  W            N blank-separated  WORD s forward
e       N  e            forward to the end of the Nth word
E       N  E            forward to the end of the Nth blank-separated  WORD
b       N  b            N words backward
B       N  B            N blank-separated  WORD s backward
ge      N  ge           backward to the end of the Nth word
gE      N  gE           backward to the end of the Nth blank-separated  WORD

)       N  )            N sentences forward
(       N  (            N sentences backward
}       N  }            N paragraphs forward
{       N  {            N paragraphs backward
]]      N  ]]           N sections forward, at start of section
[[      N  [[           N sections backward, at start of section
][      N  ][           N sections forward, at end of section
[]      N  []           N sections backward, at end of section
[(      N  [(           N times back to unclosed '('
[{      N  [{           N times back to unclosed '{'
[m      N  [m           N times back to start of method (for Java)
[M      N  [M           N times back to end of method (for Java)
])      N  ])           N times forward to unclosed ')'
]}      N  ]}           N times forward to unclosed '}'
]m      N  ]m           N times forward to start of method (for Java)
]M      N  ]M           N times forward to end of method (for Java)
[#      N  [#           N times back to unclosed "#if" or "#else"
]#      N  ]#           N times forward to unclosed "#else" or "#endif"
[star   N  [*           N times back to start of comment "/*"
]star   N  ]*           N times forward to end of comment "*/"
-------------------------------------------------------------------------------
Q_pa            Pattern searches
```

```
/       N  /{pattern}[/[offset]]<CR>
                        search forward for the Nth occurrence of {pattern}
?       N  ?{pattern}[?[offset]]<CR>
                        search backward for the Nth occurrence of {pattern}
/<CR>   N  /<CR>        repeat last search, in the forward direction
?<CR>   N  ?<CR>        repeat last search, in the backward direction
n       N  n            repeat last search
N       N  N            repeat last search, in opposite direction
star    N  *            search forward for the identifier under the cursor
#       N  #            search backward for the identifier under the cursor
gstar   N  g*           like "*", but also find partial matches
g#      N  g#           like "#", but also find partial matches
gd         gd           goto local declaration of identifier under the cursor
gD         gD           goto global declaration of identifier under the cursor

pattern                 Special characters in search patterns

                        meaning                 magic   nomagic
                matches any single character    .       \.
                       matches start of line    ^       ^
                               matches <EOL>    $       $
                       matches start of word    \<      \<
                         matches end of word    \>      \>
          matches a single char from the range  [a-z]   \[a-z]
       matches a single char not in the range   [^a-z]  \[^a-z]
                  matches an identifier char    \i      \i
                   idem but excluding digits    \I      \I
                 matches a keyword character    \k      \k
                   idem but excluding digits    \K      \K
               matches a file name character    \f      \f
                   idem but excluding digits    \F      \F
               matches a printable character    \p      \p
                   idem but excluding digits    \P      \P
              matches a white space character   \s      \s
           matches a non-white space character  \S      \S

                               matches <Esc>    \e      \e
                               matches <Tab>    \t      \t
                                matches <CR>    \r      \r
                                matches <BS>    \b      \b

      matches 0 or more of the preceding atom   *       \*
      matches 1 or more of the preceding atom   \+      \+
         matches 0 or 1 of the preceding atom   \=      \=
         matches 2 to 5 of the preceding atom   \{2,5}  \{2,5}
                   separates two alternatives   \|      \|
                  group a pattern into an atom  \(\)    \(\)

search-offset           Offsets allowed after search command

   [num]        [num] lines downwards, in column 1
   +[num]       [num] lines downwards, in column 1
   -[num]       [num] lines upwards, in column 1
```

```
   e[+num]     [num] characters to the right of the end of the match
   e[-num]     [num] characters to the left of the end of the match
   s[+num]     [num] characters to the right of the start of the match
   s[-num]     [num] characters to the left of the start of the match
   b[+num]     [num] identical to s[+num] above (mnemonic: begin)
   b[-num]     [num] identical to s[-num] above (mnemonic: begin)
   ;{search-command}   execute {search-command} next
-------------------------------------------------------------------------------
Q_ma           Marks and motions

m          m{a-zA-Z}    mark current position with mark {a-zA-Z}
`a         `{a-z}       go to mark {a-z} within current file
`A         `{A-Z}       go to mark {A-Z} in any file
`0         `{0-9}       go to the position where Vim was previously exited
``         ``           go to the position before the last jump
`quote     `"           go to the position when last editing this file
`[         `[           go to the start of the previously operated or put text
`]         `]           go to the end of the previously operated or put text
`<         `<           go to the start of the (previous) Visual area
`>         `>           go to the end of the (previous) Visual area
`.         `.           go to the position of the last change in this file
'          '{a-zA-Z0-9[]'"<>.}
                        same as `, but on the first non-blank in the line
:marks     :marks       print the active marks
CTRL-O     N  CTRL-O    go to Nth older position in jump list
CTRL-I     N  CTRL-I    go to Nth newer position in jump list
:ju        :ju[mps]     print the jump list
-------------------------------------------------------------------------------
Q_vm           Various motions

%          %            find the next brace, bracket, comment, or "#if"/
                           "#else"/"#endif" in this line and go to its match
H       N  H            go to the Nth line in the window, on the first
                           non-blank
M          M            go to the middle line in the window, on the first
                           non-blank
L       N  L            go to the Nth line from the bottom, on the first
                           non-blank

go      N  go                   go to Nth byte in the buffer
:go     :[range]go[to] [off]    go to [off] byte in the buffer
-------------------------------------------------------------------------------
Q_ta           Using tags

:ta        :ta[g][!] {tag}      jump to tag {tag}
:ta        :[count]ta[g][!]     jump to [count]'th newer tag in tag list
CTRL-]        CTRL-]            jump to the tag under cursor, unless changes
                                   have been made
:ts        :ts[elect][!] [tag]  list matching tags and select one to jump to
:tjump     :tj[ump][!] [tag]    jump to tag [tag] or select from list when
                                   there are multiple matches
:ltag      :lt[ag][!] [tag]     jump to tag [tag] and add matching tags to the
                                   location list
```

```
 :tags      :tags                 print tag list
 CTRL-T     N  CTRL-T             jump back from Nth older tag in tag list
 :po        :[count]po[p][!]      jump back from [count]'th older tag in tag list
 :tnext     :[count]tn[ext][!]    jump to [count]'th next matching tag
 :tp        :[count]tp[revious][!] jump to [count]'th previous matching tag
 :tr        :[count]tr[ewind][!] jump to [count]'th matching tag
 :tl        :tl[ast][!]           jump to last matching tag

 :ptag      :pt[ag] {tag}         open a preview window to show tag {tag}
 CTRL-W_}      CTRL-W }           like CTRL-] but show tag in preview window
 :pts       :pts[elect]           like ":tselect" but show tag in preview window
 :ptjump    :ptj[ump]             like ":tjump" but show tag in preview window
 :pclose    :pc[lose]             close tag preview window
 CTRL-W_z      CTRL-W z           close tag preview window
-------------------------------------------------------------------------------
 Q_sc            Scrolling

 CTRL-E          N  CTRL-E        window N lines downwards (default: 1)
 CTRL-D          N  CTRL-D        window N lines Downwards (default: 1/2 window)
 CTRL-F          N  CTRL-F        window N pages Forwards (downwards)
 CTRL-Y          N  CTRL-Y        window N lines upwards (default: 1)
 CTRL-U          N  CTRL-U        window N lines Upwards (default: 1/2 window)
 CTRL-B          N  CTRL-B        window N pages Backwards (upwards)
 z<CR>              z<CR> or zt   redraw, current line at top of window
 z.                 z.    or zz   redraw, current line at center of window
 z-                 z-    or zb   redraw, current line at bottom of window

These only work when 'wrap' is off:
 zh              N  zh            scroll screen N characters to the right
 zl              N  zl            scroll screen N characters to the left
 zH              N  zH            scroll screen half a screenwidth to the right
 zL              N  zL            scroll screen half a screenwidth to the left
-------------------------------------------------------------------------------
 Q_in            Inserting text

 a       N  a    append text after the cursor (N times)
 A       N  A    append text at the end of the line (N times)
 i       N  i    insert text before the cursor (N times) (also: <Insert>)
 I       N  I    insert text before the first non-blank in the line (N times)
 gI      N  gI   insert text in column 1 (N times)
 o       N  o    open a new line below the current line, append text (N times)
 O       N  O    open a new line above the current line, append text (N times)
 :startinsert   :star[tinsert][!]  start Insert mode, append when [!] used
 :startreplace  :startr[eplace][!]  start Replace mode, at EOL when [!] used

in Visual block mode:
 v_b_I      I    insert the same text in front of all the selected lines
 v_b_A      A    append the same text after all the selected lines
-------------------------------------------------------------------------------
 Q_ai            Insert mode keys

 insert-index    alphabetical index of Insert mode commands

leaving Insert mode:
```

```
 i_<Esc>        <Esc>             end Insert mode, back to Normal mode
 i_CTRL-C       CTRL-C            like <Esc>, but do not use an abbreviation
 i_CTRL-O       CTRL-O {command}  execute {command} and return to Insert mode

moving around:
 i_<Up>         cursor keys       move cursor left/right/up/down
 i_<S-Left>     shift-left/right  one word left/right
 i_<S-Up>       shift-up/down     one screenful backward/forward
 i_<End>        <End>             cursor after last character in the line
 i_<Home>       <Home>            cursor to first character in the line
-------------------------------------------------------------------------------
 Q_ss           Special keys in Insert mode

 i_CTRL-V       CTRL-V {char}..   insert character literally, or enter decimal
                                     byte value
 i_<NL>         <NL> or <CR> or CTRL-M or CTRL-J
                                  begin new line
 i_CTRL-E       CTRL-E            insert the character from below the cursor
 i_CTRL-Y       CTRL-Y            insert the character from above the cursor

 i_CTRL-A       CTRL-A            insert previously inserted text
 i_CTRL-@       CTRL-@            insert previously inserted text and stop
                                     Insert mode
 i_CTRL-R       CTRL-R {0-9a-z%#:.-="}  insert the contents of a register

 i_CTRL-N       CTRL-N            insert next match of identifier before the
                                     cursor
 i_CTRL-P       CTRL-P            insert previous match of identifier before
                                     the cursor
 i_CTRL-X       CTRL-X ...        complete the word before the cursor in
                                     various ways

 i_<BS>         <BS> or CTRL-H    delete the character before the cursor
 i_<Del>        <Del>             delete the character under the cursor
 i_CTRL-W       CTRL-W            delete word before the cursor
 i_CTRL-U       CTRL-U            delete all entered characters in the current
                                     line
 i_CTRL-T       CTRL-T            insert one shiftwidth of indent in front of
                                       the current line
 i_CTRL-D       CTRL-D            delete one shiftwidth of indent in front of
                                     the current line
 i_0_CTRL-D     0 CTRL-D          delete all indent in the current line
 i_^_CTRL-D     ^ CTRL-D          delete all indent in the current line,
                                     restore indent in next line
-------------------------------------------------------------------------------
 Q_di           Digraphs

 :dig      :dig[raphs]           show current list of digraphs
 :dig      :dig[raphs] {char1}{char2} {number} ...
                                 add digraph(s) to the list

In Insert or Command-line mode:
 i_CTRL-K       CTRL-K {char1} {char2}
                                  enter digraph
```

```
i_digraph      {char1} <BS> {char2}
                                  enter digraph if 'digraph' option set
------------------------------------------------------------------------------
Q_si           Special inserts

:r         :r [file]       insert the contents of [file] below the cursor
:r!        :r! {command}   insert the standard output of {command} below the
                              cursor
------------------------------------------------------------------------------
Q_de           Deleting text

x       N  x            delete N characters under and after the cursor
<Del>   N  <Del>        delete N characters under and after the cursor
X       N  X            delete N characters before the cursor
d       N  d{motion}    delete the text that is moved over with {motion}
v_d        {visual}d    delete the highlighted text
dd      N  dd           delete N lines
D       N  D            delete to the end of the line (and N-1 more lines)
J       N  J            join N-1 lines (delete <EOL>s)
v_J        {visual}J    join the highlighted lines
gJ      N  gJ           like "J", but without inserting spaces
v_gJ       {visual}gJ   like "{visual}J", but without inserting spaces
:d      :[range]d [x]   delete [range] lines [into register x]
------------------------------------------------------------------------------
Q_cm           Copying and moving text

quote     "{char}       use register {char} for the next delete, yank, or put
:reg      :reg          show the contents of all registers
:reg      :reg {arg}    show the contents of registers mentioned in {arg}
y         N  y{motion}  yank the text moved over with {motion} into a register
v_y          {visual}y  yank the highlighted text into a register
yy        N  yy         yank N lines into a register
Y         N  Y          yank N lines into a register
p         N  p          put a register after the cursor position (N times)
P         N  P          put a register before the cursor position (N times)
]p        N  ]p         like p, but adjust indent to current line
[p        N  [p         like P, but adjust indent to current line
gp        N  gp         like p, but leave cursor after the new text
gP        N  gP         like P, but leave cursor after the new text
------------------------------------------------------------------------------
Q_ch           Changing text

r         N  r{char}    replace N characters with {char}
gr        N  gr{char}   replace N characters without affecting layout
R         N  R          enter Replace mode (repeat the entered text N times)
gR        N  gR         enter virtual Replace mode: Like Replace mode but
                           without affecting layout
v_b_r        {visual}r{char}
                        in Visual block mode: Replace each char of the
                           selected text with {char}

        (change = delete text and enter Insert mode)
c         N  c{motion}  change the text that is moved over with {motion}
v_c          {visual}c  change the highlighted text
```

```
cc          N  cc          change N lines
S           N  S           change N lines
C           N  C           change to the end of the line (and N-1 more lines)
s           N  s           change N characters
v_b_c          {visual}c   in Visual block mode: Change each of the selected
                           lines with the entered text
v_b_C          {visual}C   in Visual block mode: Change each of the selected
                           lines until end-of-line with the entered text

~           N  ~           switch case for N characters and advance cursor
v_~            {visual}~   switch case for highlighted text
v_u            {visual}u   make highlighted text lowercase
v_U            {visual}U   make highlighted text uppercase
g~             g~{motion}  switch case for the text that is moved over with
                           {motion}
gu             gu{motion}  make the text that is moved over with {motion}
                           lowercase
gU             gU{motion}  make the text that is moved over with {motion}
                           uppercase
v_g?           {visual}g?  perform rot13 encoding on highlighted text
g?             g?{motion}  perform rot13 encoding on the text that is moved over
                           with {motion}

CTRL-A      N  CTRL-A      add N to the number at or after the cursor
CTRL-X      N  CTRL-X      subtract N from the number at or after the cursor

<           N  <{motion}   move the lines that are moved over with {motion} one
                           shiftwidth left
<<          N  <<          move N lines one shiftwidth left
>           N  >{motion}   move the lines that are moved over with {motion} one
                           shiftwidth right
>>          N  >>          move N lines one shiftwidth right
gq          N  gq{motion}  format the lines that are moved over with {motion} to
                           'textwidth' length
:ce         :[range]ce[nter] [width]
                           center the lines in [range]
:le         :[range]le[ft] [indent]
                           left-align the lines in [range] (with [indent])
:ri         :[range]ri[ght] [width]
                           right-align the lines in [range]
------------------------------------------------------------------------------
Q_co              Complex changes

!           N  !{motion}{command}<CR>
                           filter the lines that are moved over through {command}
!!          N  !!{command}<CR>
                           filter N lines through {command}
v_!           {visual}!{command}<CR>
                           filter the highlighted lines through {command}
:range!     :[range]! {command}<CR>
                           filter [range] lines through {command}
=           N  ={motion}
                           filter the lines that are moved over through 'equalprg'
==          N  ==          filter N lines through 'equalprg'
```

```
v_=           {visual}=
                      filter the highlighted lines through 'equalprg'
:s          :[range]s[ubstitute]/{pattern}/{string}/[g][c]
                      substitute {pattern} by {string} in [range] lines;
                         with [g], replace all occurrences of {pattern};
                         with [c], confirm each replacement
:s          :[range]s[ubstitute] [g][c]
                      repeat previous ":s" with new range and options
&             &       Repeat previous ":s" on current line without options
:ret        :[range]ret[ab][!] [tabstop]
                      set 'tabstop' to new value and adjust white space
                         accordingly
-------------------------------------------------------------------------------
Q_vi            Visual mode

visual-index    list of Visual mode commands.

v           v           start highlighting characters  }  move cursor and use
V           V           start highlighting linewise    }  operator to affect
CTRL-V      CTRL-V      start highlighting blockwise   }  highlighted text
v_o         o           exchange cursor position with start of highlighting
gv          gv          start highlighting on previous visual area
v_v         v           highlight characters or stop highlighting
v_V         V           highlight linewise or stop highlighting
v_CTRL-V    CTRL-V      highlight blockwise or stop highlighting
-------------------------------------------------------------------------------
Q_to            Text objects (only in Visual mode or after an operator)

v_aw        N  aw       Select "a word"
v_iw        N  iw       Select "inner word"
v_aW        N  aW       Select "a  WORD "
v_iW        N  iW       Select "inner  WORD "
v_as        N  as       Select "a sentence"
v_is        N  is       Select "inner sentence"
v_ap        N  ap       Select "a paragraph"
v_ip        N  ip       Select "inner paragraph"
v_ab        N  ab       Select "a block" (from "[(" to "])")
v_ib        N  ib       Select "inner block" (from "[(" to "])")
v_aB        N  aB       Select "a Block" (from "[{" to "]}")
v_iB        N  iB       Select "inner Block" (from "[{" to "]}")
v_a>        N  a>       Select "a <> block"
v_i>        N  i>       Select "inner <> block"
v_at        N  at       Select "a tag block" (from <aaa> to </aaa>)
v_it        N  it       Select "inner tag block" (from <aaa> to </aaa>)
v_a'        N  a'       Select "a single quoted string"
v_i'        N  i'       Select "inner single quoted string"
v_aquote    N  a"       Select "a double quoted string"
v_iquote    N  i"       Select "inner double quoted string"
v_a`        N  a`       Select "a backward quoted string"
v_i`        N  i`       Select "inner backward quoted string"

-------------------------------------------------------------------------------
Q_re            Repeating commands
```

```
.           N  .          repeat last change (with count replaced with N)
q              q{a-z}     record typed characters into register {a-z}
q              q{A-Z}     record typed characters, appended to register {a-z}
q              q          stop recording
@           N  @{a-z}     execute the contents of register {a-z} (N times)
@@          N  @@            repeat previous @{a-z} (N times)
:@          :@{a-z}       execute the contents of register {a-z} as an Ex
                             command
:@@         :@@           repeat previous :@{a-z}
:g          :[range]g[lobal]/{pattern}/[cmd]
                          execute Ex command [cmd] (default: ":p") on the lines
                             within [range] where {pattern} matches
:g          :[range]g[lobal]!/{pattern}/[cmd]
                          execute Ex command [cmd] (default: ":p") on the lines
                             within [range] where {pattern} does NOT match
:so         :so[urce] {file}
                          read Ex commands from {file}
:so         :so[urce]! {file}
                          read Vim commands from {file}
:sl         :sl[eep] [sec]
                          don't do anything for [sec] seconds
gs          N  gs         goto Sleep for N seconds
------------------------------------------------------------------------------
Q_km              Key mapping

:map          :ma[p] {lhs} {rhs}    map {lhs} to {rhs} in Normal and Visual mode
:map!         :ma[p]! {lhs} {rhs}   map {lhs} to {rhs} in Insert and Command-line
                                       mode
:noremap      :no[remap][!] {lhs} {rhs}
                                    same as ":map", no remapping for this {rhs}
:unmap        :unm[ap] {lhs}        remove the mapping of {lhs} for Normal and
                                       Visual mode
:unmap!       :unm[ap]! {lhs}       remove the mapping of {lhs} for Insert and
                                       Command-line mode
:map_l        :ma[p] [lhs]          list mappings (starting with [lhs]) for
                                       Normal and Visual mode
:map_l!       :ma[p]! [lhs]         list mappings (starting with [lhs]) for
                                       Insert and Command-line mode
:cmap         :cmap/:cunmap/:cnoremap
                                    like ":map!"/":unmap!"/":noremap!" but for
                                       Command-line mode only
:imap         :imap/:iunmap/:inoremap
                                    like ":map!"/":unmap!"/":noremap!" but for
                                       Insert mode only
:nmap         :nmap/:nunmap/:nnoremap
                                    like ":map"/":unmap"/":noremap" but for
                                       Normal mode only
:vmap         :vmap/:vunmap/:vnoremap
                                    like ":map"/":unmap"/":noremap" but for
                                       Visual mode only
:omap         :omap/:ounmap/:onoremap
                                    like ":map"/":unmap"/":noremap" but only for
                                       when an operator is pending
:mapc         :mapc[lear]           remove mappings for Normal and Visual mode
```

```
:mapc       :mapc[lear]!          remove mappings for Insert and Cmdline mode
:imapc      :imapc[lear]          remove mappings for Insert mode
:vmapc      :vmapc[lear]          remove mappings for Visual mode
:omapc      :omapc[lear]          remove mappings for Operator-pending mode
:nmapc      :nmapc[lear]          remove mappings for Normal mode
:cmapc      :cmapc[lear]          remove mappings for Cmdline mode
:mkexrc     :mk[exrc][!] [file]   write current mappings, abbreviations, and
                                     settings to [file] (default: ".exrc";
                                     use ! to overwrite)
:mkvimrc    :mkv[imrc][!] [file]
                                  same as ":mkexrc", but with default ".vimrc"
:mksession  :mks[ession][!] [file]
                                  like ":mkvimrc", but store current files,
                                     windows, etc. too, to be able to continue
                                     this session later
------------------------------------------------------------------------------
Q_ab            Abbreviations

:abbreviate     :ab[breviate] {lhs} {rhs}  add abbreviation for {lhs} to {rhs}
:abbreviate     :ab[breviate] {lhs}        show abbr's that start with {lhs}
:abbreviate     :ab[breviate]              show all abbreviations
:unabbreviate   :una[bbreviate] {lhs}      remove abbreviation for {lhs}
:noreabbrev     :norea[bbrev] [lhs] [rhs]  like ":ab", but don't remap [rhs]
:iabbrev        :iab/:iunab/:inoreab       like ":ab", but only for Insert mode
:cabbrev        :cab/:cunab/:cnoreab       like ":ab", but only for
                                                Command-line mode
:abclear        :abc[lear]                 remove all abbreviations
:cabclear       :cabc[lear]                remove all abbr's for Cmdline mode
:iabclear       :iabc[lear]                remove all abbr's for Insert mode
------------------------------------------------------------------------------
Q_op            Options

:set            :se[t]                     show all modified options
:set            :se[t] all                 show all non-termcap options
:set            :se[t] termcap             show all termcap options
:set            :se[t] {option}            set boolean option (switch it on),
                                           show string or number option
:set            :se[t] no{option}          reset boolean option (switch it off)
:set            :se[t] inv{option}         invert boolean option
:set            :se[t] {option}={value}    set string/number option to {value}
:set            :se[t] {option}+={value}   append {value} to string option, add
                                           {value} to number option
:set            :se[t] {option}-={value}   remove {value} to string option,
                                           subtract {value} from number option
:set            :se[t] {option}?           show value of {option}
:set            :se[t] {option}&           reset {option} to its default value

:setlocal       :setl[ocal]                like ":set" but set the local value
                                           for options that have one
:setglobal      :setg[lobal]               like ":set" but set the global value
                                           of a local option

:fix            :fix[del]                  set value of 't_kD' according to
                                           value of 't_kb'
```

:options	:opt[ions]	open a new window to view and set options, grouped by functionality, a one line explanation and links to the help

Short explanation of each option: option-list

'aleph'	'al'	ASCII code of the letter Aleph (Hebrew)
'allowrevins'	'ari'	allow CTRL-_ in Insert and Command-line mode
'altkeymap'	'akm'	for default second language (Farsi/Hebrew)
'ambiwidth'	'ambw'	what to do with Unicode chars of ambiguous width
'antialias'	'anti'	Mac OS X: use smooth, antialiased fonts
'autochdir'	'acd'	change directory to the file in the current window
'arabic'	'arab'	for Arabic as a default second language
'arabicshape'	'arshape'	do shaping for Arabic characters
'autoindent'	'ai'	take indent for new line from previous line
'autoread'	'ar'	autom. read file when changed outside of Vim
'autowrite'	'aw'	automatically write file if changed
'autowriteall'	'awa'	as 'autowrite', but works with more commands
'background'	'bg'	"dark" or "light", used for highlight colors
'backspace'	'bs'	how backspace works at start of line
'backup'	'bk'	keep backup file after overwriting a file
'backupcopy'	'bkc'	make backup as a copy, don't rename the file
'backupdir'	'bdir'	list of directories for the backup file
'backupext'	'bex'	extension used for the backup file
'backupskip'	'bsk'	no backup for files that match these patterns
'balloondelay'	'bdlay'	delay in mS before a balloon may pop up
'balooneval'	'beval'	switch on balloon evaluation in the GUI
'balloonevalterm'	'bevalterm'	switch on balloon evaluation in the terminal
'balloonexpr'	'bexpr'	expression to show in balloon
'belloff'	'bo'	do not ring the bell for these reasons
'binary'	'bin'	read/write/edit file in binary mode
'bioskey'	'biosk'	MS-DOS: use bios calls for input characters
'bomb'		prepend a Byte Order Mark to the file
'breakat'	'brk'	characters that may cause a line break
'breakindent'	'bri'	wrapped line repeats indent
'breakindentopt'	'briopt'	settings for 'breakindent'
'browsedir'	'bsdir'	which directory to start browsing in
'bufhidden'	'bh'	what to do when buffer is no longer in window
'buflisted'	'bl'	whether the buffer shows up in the buffer list
'buftype'	'bt'	special type of buffer
'casemap'	'cmp'	specifies how case of letters is changed
'cdpath'	'cd'	list of directories searched with ":cd"
'cedit'		key used to open the command-line window
'charconvert'	'ccv'	expression for character encoding conversion
'cindent'	'cin'	do C program indenting
'cinkeys'	'cink'	keys that trigger indent when 'cindent' is set
'cinoptions'	'cino'	how to do indenting when 'cindent' is set
'cinwords'	'cinw'	words where 'si' and 'cin' add an indent
'clipboard'	'cb'	use the clipboard as the unnamed register
'cmdheight'	'ch'	number of lines to use for the command-line
'cmdwinheight'	'cwh'	height of the command-line window
'colorcolumn'	'cc'	columns to highlight
'columns'	'co'	number of columns in the display
'comments'	'com'	patterns that can start a comment line

'commentstring'	'cms'	template for comments; used for fold marker
'compatible'	'cp'	behave Vi-compatible as much as possible
'complete'	'cpt'	specify how Insert mode completion works
'completefunc'	'cfu'	function to be used for Insert mode completion
'completeopt'	'cot'	options for Insert mode completion
'concealcursor'	'cocu'	whether concealable text is hidden in cursor line
'conceallevel'	'cole'	whether concealable text is shown or hidden
'confirm'	'cf'	ask what to do about unsaved/read-only files
'conskey'	'consk'	get keys directly from console (MS-DOS only)
'copyindent'	'ci'	make 'autoindent' use existing indent structure
'cpoptions'	'cpo'	flags for Vi-compatible behavior
'cryptmethod'	'cm'	type of encryption to use for file writing
'cscopepathcomp'	'cspc'	how many components of the path to show
'cscopeprg'	'csprg'	command to execute cscope
'cscopequickfix'	'csqf'	use quickfix window for cscope results
'cscoperelative'	'csre'	Use cscope.out path basename as prefix
'cscopetag'	'cst'	use cscope for tag commands
'cscopetagorder'	'csto'	determines ":cstag" search order
'cscopeverbose'	'csverb'	give messages when adding a cscope database
'cursorbind'	'crb'	move cursor in window as it moves in other windows
'cursorcolumn'	'cuc'	highlight the screen column of the cursor
'cursorline'	'cul'	highlight the screen line of the cursor
'debug'		set to "msg" to see all error messages
'define'	'def'	pattern to be used to find a macro definition
'delcombine'	'deco'	delete combining characters on their own
'dictionary'	'dict'	list of file names used for keyword completion
'diff'		use diff mode for the current window
'diffexpr'	'dex'	expression used to obtain a diff file
'diffopt'	'dip'	options for using diff mode
'digraph'	'dg'	enable the entering of digraphs in Insert mode
'directory'	'dir'	list of directory names for the swap file
'display'	'dy'	list of flags for how to display text
'eadirection'	'ead'	in which direction 'equalalways' works
'edcompatible'	'ed'	toggle flags of ":substitute" command
'emoji'	'emo'	emoji characters are considered full width
'encoding'	'enc'	encoding used internally
'endofline'	'eol'	write <EOL> for last line in file
'equalalways'	'ea'	windows are automatically made the same size
'equalprg'	'ep'	external program to use for "=" command
'errorbells'	'eb'	ring the bell for error messages
'errorfile'	'ef'	name of the errorfile for the QuickFix mode
'errorformat'	'efm'	description of the lines in the error file
'esckeys'	'ek'	recognize function keys in Insert mode
'eventignore'	'ei'	autocommand events that are ignored
'expandtab'	'et'	use spaces when <Tab> is inserted
'exrc'	'ex'	read .vimrc and .exrc in the current directory
'fileencoding'	'fenc'	file encoding for multi-byte text
'fileencodings'	'fencs'	automatically detected character encodings
'fileformat'	'ff'	file format used for file I/O
'fileformats'	'ffs'	automatically detected values for 'fileformat'
'fileignorecase'	'fic'	ignore case when using file names
'filetype'	'ft'	type of file, used for autocommands
'fillchars'	'fcs'	characters to use for displaying special items
'fixendofline'	'fixeol'	make sure last line in file has <EOL>

'fkmap'	'fk'	Farsi keyboard mapping
'foldclose'	'fcl'	close a fold when the cursor leaves it
'foldcolumn'	'fdc'	width of the column used to indicate folds
'foldenable'	'fen'	set to display all folds open
'foldexpr'	'fde'	expression used when 'foldmethod' is "expr"
'foldignore'	'fdi'	ignore lines when 'foldmethod' is "indent"
'foldlevel'	'fdl'	close folds with a level higher than this
'foldlevelstart'	'fdls'	'foldlevel' when starting to edit a file
'foldmarker'	'fmr'	markers used when 'foldmethod' is "marker"
'foldmethod'	'fdm'	folding type
'foldminlines'	'fml'	minimum number of lines for a fold to be closed
'foldnestmax'	'fdn'	maximum fold depth
'foldopen'	'fdo'	for which commands a fold will be opened
'foldtext'	'fdt'	expression used to display for a closed fold
'formatexpr'	'fex'	expression used with "gq" command
'formatlistpat'	'flp'	pattern used to recognize a list header
'formatoptions'	'fo'	how automatic formatting is to be done
'formatprg'	'fp'	name of external program used with "gq" command
'fsync'	'fs'	whether to invoke fsync() after file write
'gdefault'	'gd'	the ":substitute" flag 'g' is default on
'grepformat'	'gfm'	format of 'grepprg' output
'grepprg'	'gp'	program to use for ":grep"
'guicursor'	'gcr'	GUI: settings for cursor shape and blinking
'guifont'	'gfn'	GUI: Name(s) of font(s) to be used
'guifontset'	'gfs'	GUI: Names of multi-byte fonts to be used
'guifontwide'	'gfw'	list of font names for double-wide characters
'guiheadroom'	'ghr'	GUI: pixels room for window decorations
'guioptions'	'go'	GUI: Which components and options are used
'guipty'		GUI: try to use a pseudo-tty for ":!" commands
'guitablabel'	'gtl'	GUI: custom label for a tab page
'guitabtooltip'	'gtt'	GUI: custom tooltip for a tab page
'helpfile'	'hf'	full path name of the main help file
'helpheight'	'hh'	minimum height of a new help window
'helplang'	'hlg'	preferred help languages
'hidden'	'hid'	don't unload buffer when it is abandon ed
'highlight'	'hl'	sets highlighting mode for various occasions
'history'	'hi'	number of command-lines that are remembered
'hkmap'	'hk'	Hebrew keyboard mapping
'hkmapp'	'hkp'	phonetic Hebrew keyboard mapping
'hlsearch'	'hls'	highlight matches with last search pattern
'icon'		let Vim set the text of the window icon
'iconstring'		string to use for the Vim icon text
'ignorecase'	'ic'	ignore case in search patterns
'imactivatefunc'	'imaf'	function to enable/disable the X input method
'imactivatekey'	'imak'	key that activates the X input method
'imcmdline'	'imc'	use IM when starting to edit a command line
'imdisable'	'imd'	do not use the IM in any mode
'iminsert'	'imi'	use :lmap or IM in Insert mode
'imsearch'	'ims'	use :lmap or IM when typing a search pattern
'imstatusfunc'	'imsf'	function to obtain X input method status
'imstyle'	'imst'	specifies the input style of the input method
'include'	'inc'	pattern to be used to find an include file
'includeexpr'	'inex'	expression used to process an include line
'incsearch'	'is'	highlight match while typing search pattern

'indentexpr'	'inde'	expression used to obtain the indent of a line
'indentkeys'	'indk'	keys that trigger indenting with 'indentexpr'
'infercase'	'inf'	adjust case of match for keyword completion
'insertmode'	'im'	start the edit of a file in Insert mode
'isfname'	'isf'	characters included in file names and pathnames
'isident'	'isi'	characters included in identifiers
'iskeyword'	'isk'	characters included in keywords
'isprint'	'isp'	printable characters
'joinspaces'	'js'	two spaces after a period with a join command
'key'		encryption key
'keymap'	'kmp'	name of a keyboard mapping
'keymodel'	'km'	enable starting/stopping selection with keys
'keywordprg'	'kp'	program to use for the "K" command
'langmap'	'lmap'	alphabetic characters for other language mode
'langmenu'	'lm'	language to be used for the menus
'langremap'	'lrm'	do apply 'langmap' to mapped characters
'laststatus'	'ls'	tells when last window has status lines
'lazyredraw'	'lz'	don't redraw while executing macros
'linebreak'	'lbr'	wrap long lines at a blank
'lines'		number of lines in the display
'linespace'	'lsp'	number of pixel lines to use between characters
'lisp'		automatic indenting for Lisp
'lispwords'	'lw'	words that change how lisp indenting works
'list'		show <Tab> and <EOL>
'listchars'	'lcs'	characters for displaying in list mode
'loadplugins'	'lpl'	load plugin scripts when starting up
'luadll'		name of the Lua dynamic library
'mzschemedll'		name of the MzScheme dynamic library
'mzschemegcdll'		name of the MzScheme dynamic library for GC
'macatsui'		Mac GUI: use ATSUI text drawing
'magic'		changes special characters in search patterns
'makeef'	'mef'	name of the errorfile for ":make"
'makeencoding'	'menc'	encoding of external make/grep commands
'makeprg'	'mp'	program to use for the ":make" command
'matchpairs'	'mps'	pairs of characters that "%" can match
'matchtime'	'mat'	tenths of a second to show matching paren
'maxcombine'	'mco'	maximum nr of combining characters displayed
'maxfuncdepth'	'mfd'	maximum recursive depth for user functions
'maxmapdepth'	'mmd'	maximum recursive depth for mapping
'maxmem'	'mm'	maximum memory (in Kbyte) used for one buffer
'maxmempattern'	'mmp'	maximum memory (in Kbyte) used for pattern search
'maxmemtot'	'mmt'	maximum memory (in Kbyte) used for all buffers
'menuitems'	'mis'	maximum number of items in a menu
'mkspellmem'	'msm'	memory used before :mkspell compresses the tree
'modeline'	'ml'	recognize modelines at start or end of file
'modelines'	'mls'	number of lines checked for modelines
'modifiable'	'ma'	changes to the text are not possible
'modified'	'mod'	buffer has been modified
'more'		pause listings when the whole screen is filled
'mouse'		enable the use of mouse clicks
'mousefocus'	'mousef'	keyboard focus follows the mouse
'mousehide'	'mh'	hide mouse pointer while typing
'mousemodel'	'mousem'	changes meaning of mouse buttons
'mouseshape'	'mouses'	shape of the mouse pointer in different modes

'mousetime'	'mouset'	max time between mouse double-click
'mzquantum'	'mzq'	the interval between polls for MzScheme threads
'nrformats'	'nf'	number formats recognized for CTRL-A command
'number'	'nu'	print the line number in front of each line
'numberwidth'	'nuw'	number of columns used for the line number
'omnifunc'	'ofu'	function for filetype-specific completion
'opendevice'	'odev'	allow reading/writing devices on MS-Windows
'operatorfunc'	'opfunc'	function to be called for g@ operator
'osfiletype'	'oft'	no longer supported
'packpath'	'pp'	list of directories used for packages
'paragraphs'	'para'	nroff macros that separate paragraphs
'paste'		allow pasting text
'pastetoggle'	'pt'	key code that causes 'paste' to toggle
'patchexpr'	'pex'	expression used to patch a file
'patchmode'	'pm'	keep the oldest version of a file
'path'	'pa'	list of directories searched with "gf" et.al.
'perldll'		name of the Perl dynamic library
'preserveindent'	'pi'	preserve the indent structure when reindenting
'previewheight'	'pvh'	height of the preview window
'previewwindow'	'pvw'	identifies the preview window
'printdevice'	'pdev'	name of the printer to be used for :hardcopy
'printencoding'	'penc'	encoding to be used for printing
'printexpr'	'pexpr'	expression used to print PostScript for :hardcopy
'printfont'	'pfn'	name of the font to be used for :hardcopy
'printheader'	'pheader'	format of the header used for :hardcopy
'printmbcharset'	'pmbcs'	CJK character set to be used for :hardcopy
'printmbfont'	'pmbfn'	font names to be used for CJK output of :hardcopy
'printoptions'	'popt'	controls the format of :hardcopy output
'prompt'	'prompt'	enable prompt in Ex mode
'pumheight'	'ph'	maximum height of the popup menu
'pumwidth'	'pw'	minimum width of the popup menu
'pythondll'		name of the Python 2 dynamic library
'pythonhome'		name of the Python 2 home directory
'pythonthreedll'		name of the Python 3 dynamic library
'pythonthreehome'		name of the Python 3 home directory
'pyxversion'	'pyx'	Python version used for pyx* commands
'quoteescape'	'qe'	escape characters used in a string
'readonly'	'ro'	disallow writing the buffer
'redrawtime'	'rdt'	timeout for 'hlsearch' and :match highlighting
'regexpengine'	're'	default regexp engine to use
'relativenumber'	'rnu'	show relative line number in front of each line
'remap'		allow mappings to work recursively
'renderoptions'	'rop'	options for text rendering on Windows
'report'		threshold for reporting nr. of lines changed
'restorescreen'	'rs'	Win32: restore screen when exiting
'revins'	'ri'	inserting characters will work backwards
'rightleft'	'rl'	window is right-to-left oriented
'rightleftcmd'	'rlc'	commands for which editing works right-to-left
'rubydll'		name of the Ruby dynamic library
'ruler'	'ru'	show cursor line and column in the status line
'rulerformat'	'ruf'	custom format for the ruler
'runtimepath'	'rtp'	list of directories used for runtime files
'scroll'	'scr'	lines to scroll with CTRL-U and CTRL-D
'scrollbind'	'scb'	scroll in window as other windows scroll

'scrolljump'	'sj'	minimum number of lines to scroll
'scrolloff'	'so'	minimum nr. of lines above and below cursor
'scrollopt'	'sbo'	how 'scrollbind' should behave
'sections'	'sect'	nroff macros that separate sections
'secure'		secure mode for reading .vimrc in current dir
'selection'	'sel'	what type of selection to use
'selectmode'	'slm'	when to use Select mode instead of Visual mode
'sessionoptions'	'ssop'	options for :mksession
'shell'	'sh'	name of shell to use for external commands
'shellcmdflag'	'shcf'	flag to shell to execute one command
'shellpipe'	'sp'	string to put output of ":make" in error file
'shellquote'	'shq'	quote character(s) for around shell command
'shellredir'	'srr'	string to put output of filter in a temp file
'shellslash'	'ssl'	use forward slash for shell file names
'shelltemp'	'stmp'	whether to use a temp file for shell commands
'shelltype'	'st'	Amiga: influences how to use a shell
'shellxescape'	'sxe'	characters to escape when 'shellxquote' is (
'shellxquote'	'sxq'	like 'shellquote', but include redirection
'shiftround'	'sr'	round indent to multiple of shiftwidth
'shiftwidth'	'sw'	number of spaces to use for (auto)indent step
'shortmess'	'shm'	list of flags, reduce length of messages
'shortname'	'sn'	non-MS-DOS: Filenames assumed to be 8.3 chars
'showbreak'	'sbr'	string to use at the start of wrapped lines
'showcmd'	'sc'	show (partial) command in status line
'showfulltag'	'sft'	show full tag pattern when completing tag
'showmatch'	'sm'	briefly jump to matching bracket if insert one
'showmode'	'smd'	message on status line to show current mode
'showtabline'	'stal'	tells when the tab pages line is displayed
'sidescroll'	'ss'	minimum number of columns to scroll horizontal
'sidescrolloff'	'siso'	min. nr. of columns to left and right of cursor
'signcolumn'	'scl'	when to display the sign column
'smartcase'	'scs'	no ignore case when pattern has uppercase
'smartindent'	'si'	smart autoindenting for C programs
'smarttab'	'sta'	use 'shiftwidth' when inserting <Tab>
'softtabstop'	'sts'	number of spaces that <Tab> uses while editing
'spell'		enable spell checking
'spellcapcheck'	'spc'	pattern to locate end of a sentence
'spellfile'	'spf'	files where zg and zw store words
'spelllang'	'spl'	language(s) to do spell checking for
'spellsuggest'	'sps'	method(s) used to suggest spelling corrections
'splitbelow'	'sb'	new window from split is below the current one
'splitright'	'spr'	new window is put right of the current one
'startofline'	'sol'	commands move cursor to first non-blank in line
'statusline'	'stl'	custom format for the status line
'suffixes'	'su'	suffixes that are ignored with multiple match
'suffixesadd'	'sua'	suffixes added when searching for a file
'swapfile'	'swf'	whether to use a swapfile for a buffer
'swapsync'	'sws'	how to sync the swap file
'switchbuf'	'swb'	sets behavior when switching to another buffer
'synmaxcol'	'smc'	maximum column to find syntax items
'syntax'	'syn'	syntax to be loaded for current buffer
'tabline'	'tal'	custom format for the console tab pages line
'tabpagemax'	'tpm'	maximum number of tab pages for -p and "tab all"
'tabstop'	'ts'	number of spaces that <Tab> in file uses

'tagbsearch'	'tbs'	use binary searching in tags files
'tagcase'	'tc'	how to handle case when searching in tags files
'taglength'	'tl'	number of significant characters for a tag
'tagrelative'	'tr'	file names in tag file are relative
'tags'	'tag'	list of file names used by the tag command
'tagstack'	'tgst'	push tags onto the tag stack
'tcldll'		name of the Tcl dynamic library
'term'		name of the terminal
'termbidi'	'tbidi'	terminal takes care of bi-directionality
'termencoding'	'tenc'	character encoding used by the terminal
'termguicolors'	'tgc'	use GUI colors for the terminal
'termwinkey'	'twk'	key that precedes a Vim command in a terminal
'termwinscroll'	'twsl'	max number of scrollback lines in a terminal window
'termwinsize'	'tws'	size of a terminal window
'terse'		shorten some messages
'textauto'	'ta'	obsolete, use 'fileformats'
'textmode'	'tx'	obsolete, use 'fileformat'
'textwidth'	'tw'	maximum width of text that is being inserted
'thesaurus'	'tsr'	list of thesaurus files for keyword completion
'tildeop'	'top'	tilde command "~" behaves like an operator
'timeout'	'to'	time out on mappings and key codes
'timeoutlen'	'tm'	time out time in milliseconds
'title'		let Vim set the title of the window
'titlelen'		percentage of 'columns' used for window title
'titleold'		old title, restored when exiting
'titlestring'		string to use for the Vim window title
'toolbar'	'tb'	GUI: which items to show in the toolbar
'toolbariconsize'	'tbis'	size of the toolbar icons (for GTK 2 only)
'ttimeout'		time out on mappings
'ttimeoutlen'	'ttm'	time out time for key codes in milliseconds
'ttybuiltin'	'tbi'	use built-in termcap before external termcap
'ttyfast'	'tf'	indicates a fast terminal connection
'ttymouse'	'ttym'	type of mouse codes generated
'ttyscroll'	'tsl'	maximum number of lines for a scroll
'ttytype'	'tty'	alias for 'term'
'undodir'	'udir'	where to store undo files
'undofile'	'udf'	save undo information in a file
'undolevels'	'ul'	maximum number of changes that can be undone
'undoreload'	'ur'	max nr of lines to save for undo on a buffer reload
'updatecount'	'uc'	after this many characters flush swap file
'updatetime'	'ut'	after this many milliseconds flush swap file
'varsofttabstop'	'vsts'	a list of number of spaces when typing <Tab>
'vartabstop'	'vts'	a list of number of spaces for <Tab>s
'verbose'	'vbs'	give informative messages
'verbosefile'	'vfile'	file to write messages in
'viewdir'	'vdir'	directory where to store files with :mkview
'viewoptions'	'vop'	specifies what to save for :mkview
'viminfo'	'vi'	use .viminfo file upon startup and exiting
'viminfofile'	'vif'	file name used for the viminfo file
'virtualedit'	've'	when to use virtual editing
'visualbell'	'vb'	use visual bell instead of beeping
'warn'		warn for shell command when buffer was changed
'weirdinvert'	'wiv'	for terminals that have weird inversion method
'whichwrap'	'ww'	allow specified keys to cross line boundaries

```
'wildchar'          'wc'      command-line character for wildcard expansion
'wildcharm'         'wcm'     like 'wildchar' but also works when mapped
'wildignore'        'wig'     files matching these patterns are not completed
'wildignorecase'    'wic'     ignore case when completing file names
'wildmenu'          'wmnu'    use menu for command line completion
'wildmode'          'wim'     mode for 'wildchar' command-line expansion
'wildoptions'       'wop'     specifies how command line completion is done
'winaltkeys'        'wak'     when the windows system handles ALT keys
'window'            'wi'      nr of lines to scroll for CTRL-F and CTRL-B
'winheight'         'wh'      minimum number of lines for the current window
'winfixheight'      'wfh'     keep window height when opening/closing windows
'winfixwidth'       'wfw'     keep window width when opening/closing windows
'winminheight'      'wmh'     minimum number of lines for any window
'winminwidth'       'wmw'     minimal number of columns for any window
'winptydll'                   name of the winpty dynamic library
'winwidth'          'wiw'     minimal number of columns for current window
'wrap'                        long lines wrap and continue on the next line
'wrapmargin'        'wm'      chars from the right where wrapping starts
'wrapscan'          'ws'      searches wrap around the end of the file
'write'                       writing to a file is allowed
'writeany'          'wa'      write to file with no need for "!" override
'writebackup'       'wb'      make a backup before overwriting a file
'writedelay'        'wd'      delay this many msec for each char (for debug)
-------------------------------------------------------------------------------
Q_ur            Undo/Redo commands

u         N  u          undo last N changes
CTRL-R    N  CTRL-R     redo last N undone changes
U            U          restore last changed line
-------------------------------------------------------------------------------
Q_et            External commands

:shell          :sh[ell]        start a shell
:!              :!{command}     execute {command} with a shell
K                  K            lookup keyword under the cursor with
                                   'keywordprg' program (default: "man")
-------------------------------------------------------------------------------
Q_qf            Quickfix commands

:cc             :cc [nr]        display error [nr] (default is the same again)
:cnext          :cn             display the next error
:cprevious      :cp             display the previous error
:clist          :cl             list all errors
:cfile          :cf             read errors from the file 'errorfile'
:cgetbuffer     :cgetb          like :cbuffer but don't jump to the first error
:cgetfile       :cg             like :cfile but don't jump to the first error
:cgetexpr       :cgete          like :cexpr but don't jump to the first error
:caddfile       :caddf          add errors from the error file to the current
                                   quickfix list
:caddexpr       :cad            add errors from an expression to the current
                                   quickfix list
:cbuffer        :cb             read errors from text in a buffer
:cexpr          :cex            read errors from an expression
:cquit          :cq             quit without writing and return error code (to
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                                    the compiler)
:make           :make [args]    start make, read errors, and jump to first
                                    error
:grep           :gr[ep] [args]  execute 'grepprg' to find matches and jump to
                                    the first one
-------------------------------------------------------------------------------
Q_vc            Various commands

CTRL-L             CTRL-L       clear and redraw the screen
CTRL-G             CTRL-G       show current file name (with path) and cursor
                                    position
ga                 ga           show ascii value of character under cursor in
                                    decimal, hex, and octal
g8                 g8           for utf-8 encoding: show byte sequence for
                                    character under cursor in hex
g_CTRL-G           g CTRL-G     show cursor column, line, and character
                                    position
CTRL-C             CTRL-C       during searches: Interrupt the search
dos-CTRL-Break     CTRL-Break   MS-DOS: during searches: Interrupt the search
<Del>              <Del>        while entering a count: delete last character
:version        :ve[rsion]      show version information
:mode           :mode N         MS-DOS: set screen mode to N (number, C80,
                                    C4350, etc.)
:normal         :norm[al][!] {commands}
                                execute Normal mode commands
Q                  Q            switch to "Ex" mode

:redir          :redir >{file}          redirect messages to {file}
:silent         :silent[!] {command}    execute {command} silently
:confirm        :confirm {command}      quit, write, etc., asking about
                                        unsaved changes or read-only files
:browse         :browse {command}       open/read/write file, using a
                                        file selection dialog
-------------------------------------------------------------------------------
Q_ce            Command-line editing

c_<Esc>         <Esc>               abandon command-line (if 'wildchar' is
                                       <Esc>, type it twice)

c_CTRL-V        CTRL-V {char}       insert {char} literally
c_CTRL-V        CTRL-V {number}     enter decimal value of character (up to
                                       three digits)
c_CTRL-K        CTRL-K {char1} {char2}
                                    enter digraph (See  Q_di )
c_CTRL-R        CTRL-R {0-9a-z"%#:-=}
                                    insert the contents of a register

c_<Left>        <Left>/<Right>      cursor left/right
c_<S-Left>      <S-Left>/<S-Right>  cursor one word left/right
c_CTRL-B        CTRL-B/CTRL-E       cursor to beginning/end of command-line

c_<BS>          <BS>                delete the character in front of the cursor
c_<Del>         <Del>               delete the character under the cursor
c_CTRL-W        CTRL-W              delete the word in front of the cursor
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 c_CTRL-U       CTRL-U              remove all characters

 c_<Up>         <Up>/<Down>         recall older/newer command-line that starts
                                       with current command
 c_<S-Up>       <S-Up>/<S-Down>     recall older/newer command-line from history
 c_CTRL-G       CTRL-G              next match when 'incsearch' is active
 c_CTRL-T       CTRL-T              previous match when 'incsearch' is active
 :history       :his[tory]          show older command-lines

Context-sensitive completion on the command-line:

 c_wildchar     'wildchar'  (default: <Tab>)
                                    do completion on the pattern in front of the
                                       cursor; if there are multiple matches,
                                       beep and show the first one; further
                                       'wildchar' will show the next ones
 c_CTRL-D       CTRL-D              list all names that match the pattern in
                                       front of the cursor
 c_CTRL-A       CTRL-A              insert all names that match pattern in front
                                       of cursor
 c_CTRL-L       CTRL-L              insert longest common part of names that
                                       match pattern
 c_CTRL-N       CTRL-N              after 'wildchar' with multiple matches: go
                                       to next match
 c_CTRL-P       CTRL-P              after 'wildchar' with multiple matches: go
                                       to previous match
------------------------------------------------------------------------------
 Q_ra           Ex ranges

 :range         ,                   separates two line numbers
 :range         ;                   idem, set cursor to the first line number
                                    before interpreting the second one

 :range         {number}            an absolute line number
 :range         .                   the current line
 :range         $                   the last line in the file
 :range         %                   equal to 1,$ (the entire file)
 :range         *                   equal to '<,'> (visual area)
 :range         't                  position of mark t
 :range         /{pattern}[/]       the next line where {pattern} matches
 :range         ?{pattern}[?]       the previous line where {pattern} matches

 :range         +[num]              add [num] to the preceding line number
                                       (default: 1)
 :range         -[num]              subtract [num] from the preceding line
                                       number (default: 1)
------------------------------------------------------------------------------
 Q_ex           Special Ex characters

 :bar       |           separates two commands (not for ":global" and ":!")
 :quote     "           begins comment

 :_%        %           current file name (only where a file name is expected)
 :_#        #[num]      alternate file name [num] (only where a file name is
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                        expected)
        Note: The next seven are typed literally; these are not special keys!
 :<abuf>    <abuf>      buffer number, for use in an autocommand (only where a
                        file name is expected)
 :<afile>   <afile>     file name, for use in an autocommand (only where a
                        file name is expected)
 :<amatch>  <amatch>    what matched with the pattern, for use in an
                        autocommand (only where a file name is expected)
 :<cword>   <cword>     word under the cursor (only where a file name is
                        expected)
 :<cWORD>   <cWORD>     WORD under the cursor (only where a file name is
                        expected) (see  WORD )
 :<cfile>   <cfile>     file name under the cursor (only where a file name is
                        expected)
 :<sfile>   <sfile>     file name of a ":source"d file, within that file (only
                        where a file name is expected)

                After "%", "#", "<cfile>", "<sfile>" or "<afile>"
                 ::p        :p          full path
                 ::h        :h          head (file name removed)
                 ::t        :t          tail (file name only)
                 ::r        :r          root (extension removed)
                 ::e        :e          extension
                 ::s        :s/{pat}/{repl}/    substitute {pat} with {repl}
------------------------------------------------------------------------------
 Q_st            Starting Vim

 -vim       vim [options]                start editing with an empty buffer
 -file      vim [options] {file} ..      start editing one or more files
 --         vim [options] -              read file from stdin
 -tag       vim [options] -t {tag}       edit the file associated with {tag}
 -qf        vim [options] -q [fname]     start editing in QuickFix mode,
                                            display the first error

        Most useful Vim arguments (for full list see  startup-options )

 -gui    -g                  start GUI (also allows other options)

 -+      +[num]              put the cursor at line [num] (default: last line)
 -+c     +{command}          execute {command} after loading the file
 -+/     +/{pat} {file} ..   put the cursor at the first occurrence of {pat}
 -v      -v                  Vi mode, start ex in Normal mode
 -e      -e                  Ex mode, start vim in Ex mode
 -R      -R                  Read-only mode, implies -n
 -m      -m                  modifications not allowed (resets 'write' option)
 -d      -d                  diff mode  diff
 -b      -b                  binary mode
 -l      -l                  lisp mode
 -A      -A                  Arabic mode ('arabic' is set)
 -F      -F                  Farsi mode ('fkmap' and 'rightleft' are set)
 -H      -H                  Hebrew mode ('hkmap' and 'rightleft' are set)
 -V      -V                  Verbose, give informative messages
 -C      -C                  Compatible, set the 'compatible' option
 -N      -N                  Nocompatible, reset the 'compatible' option
```

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-r      -r                  give list of swap files
-r      -r {file} ..        recover aborted edit session
-n      -n                  do not create a swap file
-o      -o [num]            open [num] windows (default: one for each file)
-f      -f                  GUI: foreground process, don't fork
                            Amiga: do not restart Vim to open a window (for
                                e.g., mail)
-s      -s {scriptin}       first read commands from the file {scriptin}
-w      -w {scriptout}      write typed chars to file {scriptout} (append)
-W      -W {scriptout}      write typed chars to file {scriptout} (overwrite)
-T      -T {terminal}       set terminal name
-d      -d {device}         Amiga: open {device} to be used as a console
-u      -u {vimrc}          read inits from {vimrc} instead of other inits
-U      -U {gvimrc}         idem, for when starting the GUI
-i      -i {viminfo}        read info from {viminfo} instead of other files
---     --                  end of options, other arguments are file names
--help     --help           show list of arguments and exit
--version  --version        show version info and exit
--      -                   read file from stdin
```

```
Q_ed            Editing a file

           Without !: Fail if changes have been made to the current buffer.
              With !: Discard any changes to the current buffer.
:edit_f    :e[dit][!] {file}    edit {file}
:edit      :e[dit][!]           reload the current file
:enew      :ene[w][!]           edit a new, unnamed buffer
:find      :fin[d][!] {file}    find {file} in 'path' and edit it

CTRL-^     N  CTRL-^            edit alternate file N (equivalent to ":e #N")
gf            gf  or ]f         edit the file whose name is under the cursor
:pwd       :pwd                 print the current directory name
:cd        :cd [path]           change the current directory to [path]
:cd-       :cd -                back to previous current directory
:file      :f[ile]              print the current file name and the cursor
                                   position
:file      :f[ile] {name}       set the current file name to {name}
:files     :files               show alternate file names
```

```
Q_fl            Using the argument list                  argument-list

:args      :ar[gs]              print the argument list, with the current file
                                   in "[]"
:all       :all  or :sall       open a window for every file in the arg list
:wn        :wn[ext][!]          write file and edit next file
:wn        :wn[ext][!] {file}   write to {file} and edit next file, unless
                                   {file} exists; With !, overwrite existing
                                   file
:wN        :wN[ext][!] [file]   write file and edit previous file

             in current window    in new window
:argument    :argu[ment] N        :sar[gument] N        edit file N
:next        :n[ext]              :sn[ext]              edit next file
:next_f      :n[ext] {arglist}    :sn[ext] {arglist}    define new arg list
```

```
                                                        and edit first file
:Next       :N[ext]              :sN[ext]              edit previous file
:first      :fir[st]             :sfir[st]             edit first file
:last       :la[st]              :sla[st]              edit last file
------------------------------------------------------------------------------
Q_wq            Writing and quitting

:w        :[range]w[rite][!]            write to the current file
:w_f      :[range]w[rite] {file}        write to {file}, unless it already
                                           exists
:w_f      :[range]w[rite]! {file}       write to {file}.  Overwrite an existing
                                           file
:w_a      :[range]w[rite][!] >>         append to the current file
:w_a      :[range]w[rite][!] >> {file}  append to {file}
:w_c      :[range]w[rite] !{cmd}        execute {cmd} with [range] lines as
                                           standard input
:up       :[range]up[date][!]           write to current file if modified
:wall     :wa[ll][!]                    write all changed buffers

:q        :q[uit]               quit current buffer, unless changes have been
                                   made; Exit Vim when there are no other
                                   non-help buffers
:q        :q[uit]!              quit current buffer always, discard any
                                   changes.  Exit Vim when there are no other
                                   non-help buffers
:qa       :qa[ll]               exit Vim, unless changes have been made
:qa       :qa[ll]!              exit Vim always, discard any changes
:cq       :cq                   quit without writing and return error code

:wq       :wq[!]                write the current file and exit
:wq       :wq[!] {file}         write to {file} and exit
:xit      :x[it][!] [file]      like ":wq" but write only when changes have
                                   been made
ZZ          ZZ                  same as ":x"
ZQ          ZQ                  same as ":q!"
:xall     :xa[ll][!]  or :wqall[!]
                                write all changed buffers and exit

:stop     :st[op][!]            suspend Vim or start new shell; if 'aw' option
                                   is set and [!] not given write the buffer
CTRL-Z      CTRL-Z              same as ":stop"
------------------------------------------------------------------------------
Q_ac            Automatic Commands

viminfo-file    read registers, marks, history at startup, save when exiting.

:rviminfo       :rv[iminfo] [file]      read info from viminfo file [file]
:rviminfo       :rv[iminfo]! [file]     idem, overwrite existing info
:wviminfo       :wv[iminfo] [file]      add info to viminfo file [file]
:wviminfo       :wv[iminfo]! [file]     write info to viminfo file [file]

modeline        Automatic option setting when editing a file

modeline        vim:{set-arg}: ..       In the first and last lines of the
```

```
                                        file (see 'ml' option), {set-arg} is
                                        given as an argument to ":set"

autocommand     Automatic execution of commands on certain events.

:autocmd        :au                       list all autocommands
:autocmd        :au {event}               list all autocommands for {event}
:autocmd        :au {event} {pat}         list all autocommands for {event}
                                          with {pat}
:autocmd        :au {event} {pat} {cmd}   enter new autocommands for {event}
                                          with {pat}
:autocmd        :au!                      remove all autocommands
:autocmd        :au! {event}              remove all autocommands for {event}
:autocmd        :au! * {pat}              remove all autocommands for {pat}
:autocmd        :au! {event} {pat}        remove all autocommands for {event}
                                          with {pat}
:autocmd        :au! {event} {pat} {cmd}  remove all autocommands for {event}
                                          with {pat} and enter new one
------------------------------------------------------------------------------
Q_wi            Multi-window commands

CTRL-W_s        CTRL-W s  or  :split    split window into two parts
:split_f        :split {file}           split window and edit {file} in one of
                                           them
:vsplit         :vsplit {file}          same, but split vertically
:vertical       :vertical {cmd}         make {cmd} split vertically

:sfind          :sf[ind] {file}         split window, find {file} in 'path'
                                           and edit it
:terminal       :terminal {cmd}         open a terminal window
CTRL-W_]        CTRL-W ]                split window and jump to tag under
                                           cursor
CTRL-W_f        CTRL-W f                split window and edit file name under
                                           the cursor
CTRL-W_^        CTRL-W ^                split window and edit alternate file
CTRL-W_n        CTRL-W n  or  :new      create new empty window
CTRL-W_q        CTRL-W q  or  :q[uit]   quit editing and close window
CTRL-W_c        CTRL-W c  or  :cl[ose]  make buffer hidden and close window
CTRL-W_o        CTRL-W o  or  :on[ly]   make current window only one on the
                                           screen

CTRL-W_j        CTRL-W j                move cursor to window below
CTRL-W_k        CTRL-W k                move cursor to window above
CTRL-W_CTRL-W   CTRL-W CTRL-W           move cursor to window below (wrap)
CTRL-W_W        CTRL-W W                move cursor to window above (wrap)
CTRL-W_t        CTRL-W t                move cursor to top window
CTRL-W_b        CTRL-W b                move cursor to bottom window
CTRL-W_p        CTRL-W p                move cursor to previous active window

CTRL-W_r        CTRL-W r                rotate windows downwards
CTRL-W_R        CTRL-W R                rotate windows upwards
CTRL-W_x        CTRL-W x                exchange current window with next one

CTRL-W_=        CTRL-W =                make all windows equal height & width
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```
CTRL-W_-        CTRL-W -                decrease current window height
CTRL-W_+        CTRL-W +                increase current window height
CTRL-W__        CTRL-W _                set current window height (default:
                                           very high)

CTRL-W_<        CTRL-W <                decrease current window width
CTRL-W_>        CTRL-W >                increase current window width
CTRL-W_bar      CTRL-W |                set current window width (default:
                                           widest possible)
-------------------------------------------------------------------------------
Q_bu            Buffer list commands

:buffers        :buffers  or  :files    list all known buffer and file names

:ball           :ball     or  :sball    edit all args/buffers
:unhide         :unhide   or  :sunhide  edit all loaded buffers

:badd           :badd {fname}           add file name {fname} to the list
:bunload        :bunload[!] [N]         unload buffer [N] from memory
:bdelete        :bdelete[!] [N]         unload buffer [N] and delete it from
                                           the buffer list

                in current window  in new window
:buffer         :[N]buffer [N]     :[N]sbuffer [N]     to arg/buf N
:bnext          :[N]bnext [N]      :[N]sbnext [N]      to Nth next arg/buf
:bNext          :[N]bNext [N]      :[N]sbNext [N]      to Nth previous arg/buf
:bprevious      :[N]bprevious [N]  :[N]sbprevious [N]  to Nth previous arg/buf
:bfirst         :bfirst            :sbfirst            to first arg/buf
:blast          :blast             :sblast             to last arg/buf
:bmodified      :[N]bmod [N]       :[N]sbmod [N]       to Nth modified buf
-------------------------------------------------------------------------------
Q_sy            Syntax Highlighting

:syn-on         :syntax on              start using syntax highlighting
:syn-off        :syntax off             stop using syntax highlighting

:syn-keyword    :syntax keyword {group-name} {keyword} ..
                                        add a syntax keyword item
:syn-match      :syntax match {group-name} {pattern} ...
                                        add syntax match item
:syn-region     :syntax region {group-name} {pattern} ...
                                        add syntax region item
:syn-sync       :syntax sync [ccomment | lines {N} | ...]
                                        tell syntax how to sync
:syntax         :syntax [list]          list current syntax items
:syn-clear      :syntax clear           clear all syntax info

:highlight      :highlight clear        clear all highlight info
:highlight      :highlight {group-name} {key}={arg} ..
                                        set highlighting for {group-name}

:filetype       :filetype on            switch on file type detection, without
                                        syntax highlighting
:filetype       :filetype plugin indent on
```

```
                                        switch on file type detection, with
                                        automatic indenting and settings
------------------------------------------------------------------------------
Q_gu            GUI commands

:gui            :gui                    UNIX: start the GUI
:gui            :gui {fname} ..         idem, and edit {fname} ..

:menu           :menu                   list all menus
:menu           :menu {mpath}           list menus starting with {mpath}
:menu           :menu {mpath} {rhs}     add menu {mpath}, giving {rhs}
:menu           :menu {pri} {mpath} {rhs}
                                        idem, with priorities {pri}
:menu           :menu ToolBar.{name} {rhs}
                                        add toolbar item, giving {rhs}
:tmenu          :tmenu {mpath} {text}   add tooltip to menu {mpath}
:unmenu         :unmenu {mpath}         remove menu {mpath}
------------------------------------------------------------------------------
Q_fo            Folding

'foldmethod'    set foldmethod=manual   manual folding
                set foldmethod=indent   folding by indent
                set foldmethod=expr     folding by 'foldexpr'
                set foldmethod=syntax   folding by syntax regions
                set foldmethod=marker   folding by 'foldmarker'

zf              zf{motion}              operator: Define a fold manually
:fold           :{range}fold            define a fold for {range} lines
zd              zd                      delete one fold under the cursor
zD              zD                      delete all folds under the cursor

zo              zo                      open one fold under the cursor
zO              zO                      open all folds under the cursor
zc              zc                      close one fold under the cursor
zC              zC                      close all folds under the cursor

zm              zm                      fold more: decrease 'foldlevel'
zM              zM                      close all folds: make 'foldlevel' zero
zr              zr                      reduce folding: increase 'foldlevel'
zR              zR                      open all folds: make 'foldlevel' max.

zn              zn                      fold none: reset 'foldenable'
zN              zN                      fold normal set 'foldenable'
zi              zi                      invert 'foldenable'

vim:tw=78:ts=8:noet:ft=help:norl:
```

usr_toc.txt For Vim version 8.1. Last change: 2016 Mar 25

VIM USER MANUAL - by Bram Moolenaar

Table Of Contents user-manual

==
Overview

Getting Started

Editing Effectively

Tuning Vim

Making Vim Run

Reference manual

The user manual is available as a single, ready to print HTML and PDF file

here:
        http://vimdoc.sf.net

==
Getting Started

Read this from start to end to learn the essential commands.

==
Editing Effectively

Subjects that can be read independently.

==
Tuning Vim

Make Vim work as you like it.

==========

Making Vim Run

Before you can use Vim.

==========

 vim:tw=78:ts=8:ft=help:norl:

usr_01.txt For Vim version 8.1. Last change: 2017 Jul 15

VIM USER MANUAL - by Bram Moolenaar

About the manuals

This chapter introduces the manuals available with Vim. Read this to know the conditions under which the commands are explained.

Next chapter: usr_02.txt The first steps in Vim
Table of contents: usr_toc.txt

==

01.1 Two manuals

The Vim documentation consists of two parts:

1. The User manual
   Task oriented explanations, from simple to complex. Reads from start to end like a book.

2. The Reference manual
   Precise description of how everything in Vim works.

The notation used in these manuals is explained here: notation

JUMPING AROUND

The text contains hyperlinks between the two parts, allowing you to quickly jump between the description of an editing task and a precise explanation of the commands and options used for it. Use these two commands:

        Press CTRL-] to jump to a subject under the cursor.
        Press CTRL-O to jump back (repeat to go further back).

Many links are in vertical bars, like this: bars . The bars themselves may be hidden or invisible, see below. An option name, like 'number', a command in double quotes like ":write" and any other word can also be used as a link. Try it out: Move the cursor to CTRL-] and press CTRL-] on it.

Other subjects can be found with the ":help" command, see help.txt .

The bars and stars are usually hidden with the conceal feature. They also use hl-Ignore , using the same color for the text as the background. You can make them visible with:

```
:set conceallevel=0
:hi link HelpBar Normal
```

```
        :hi link HelpStar Normal
```

==
01.2 Vim installed

Most of the manuals assume that Vim has been properly installed. If you didn't do that yet, or if Vim doesn't run properly (e.g., files can't be found or in the GUI the menus do not show up) first read the chapter on installation: usr_90.txt .

not-compatible

The manuals often assume you are using Vim with Vi-compatibility switched off. For most commands this doesn't matter, but sometimes it is important, e.g., for multi-level undo. An easy way to make sure you are using a nice setup is to copy the example vimrc file. By doing this inside Vim you don't have to check out where it is located. How to do this depends on the system you are using:

Unix:
```
        :!cp -i $VIMRUNTIME/vimrc_example.vim ~/.vimrc
```
MS-DOS, MS-Windows, OS/2:
```
        :!copy $VIMRUNTIME/vimrc_example.vim $VIM/_vimrc
```
Amiga:
```
        :!copy $VIMRUNTIME/vimrc_example.vim $VIM/.vimrc
```

If the file already exists you probably want to keep it.

If you start Vim now, the 'compatible' option should be off. You can check it with this command:

```
        :set compatible?
```

If it responds with "nocompatible" you are doing well. If the response is "compatible" you are in trouble. You will have to find out why the option is still set. Perhaps the file you wrote above is not found. Use this command to find out:

```
        :scriptnames
```

If your file is not in the list, check its location and name. If it is in the list, there must be some other place where the 'compatible' option is switched back on.

For more info see vimrc and compatible-default .

        Note:
        This manual is about using Vim in the normal way. There is an alternative called "evim" (easy Vim). This is still Vim, but used in a way that resembles a click-and-type editor like Notepad. It always stays in Insert mode, thus it feels very different. It is not explained in the user manual, since it should be mostly self explanatory. See evim-keys for details.

==
01.3 Using the Vim tutor tutor vimtutor

Instead of reading the text (boring!) you can use the vimtutor to learn your first Vim commands. This is a 30 minute tutorial that teaches the most basic Vim functionality hands-on.

On Unix, if Vim has been properly installed, you can start it from the shell:

```
vimtutor
```

On MS-Windows you can find it in the Program/Vim menu. Or execute vimtutor.bat in the $VIMRUNTIME directory.

This will make a copy of the tutor file, so that you can edit it without the risk of damaging the original.
There are a few translated versions of the tutor. To find out if yours is available, use the two-letter language code. For French:

```
vimtutor fr
```

On Unix, if you prefer using the GUI version of Vim, use "gvimtutor" or "vimtutor -g" instead of "vimtutor".

For OpenVMS, if Vim has been properly installed, you can start vimtutor from a VMS prompt with:

```
@VIM:vimtutor
```

Optionally add the two-letter language code as above.

On other systems, you have to do a little work:

1. Copy the tutor file. You can do this with Vim (it knows where to find it):

```
vim --clean -c 'e $VIMRUNTIME/tutor/tutor' -c 'w! TUTORCOPY' -c 'q'
```

This will write the file "TUTORCOPY" in the current directory. To use a translated version of the tutor, append the two-letter language code to the filename. For French:

```
vim --clean -c 'e $VIMRUNTIME/tutor/tutor.fr' -c 'w! TUTORCOPY' -c 'q'
```

2. Edit the copied file with Vim:

```
vim --clean TUTORCOPY
```

The --clean argument makes sure Vim is started with nice defaults.

3. Delete the copied file when you are finished with it:

```
del TUTORCOPY
```

==
01.4 Copyright manual-copyright

frombook

Parts of the user manual come from the book "Vi IMproved - Vim" by Steve Oualline (published by New Riders Publishing, ISBN: 0735710015). The Open Publication License applies to this book. Only selected parts are included and these have been modified (e.g., by removing the pictures, updating the text for Vim 6.0 and later, fixing mistakes). The omission of the frombook tag does not mean that the text does not come from the book.

Many thanks to Steve Oualline and New Riders for creating this book and publishing it under the OPL! It has been a great help while writing the user manual. Not only by providing literal text, but also by setting the tone and style.

If you make money through selling the manuals, you are strongly encouraged to donate part of the profit to help AIDS victims in Uganda. See iccf .

==

Next chapter: usr_02.txt The first steps in Vim

VIM USER MANUAL - by Bram Moolenaar

The first steps in Vim

This chapter provides just enough information to edit a file with Vim. Not well or fast, but you can edit. Take some time to practice with these commands, they form the base for what follows.

Next chapter: usr_03.txt Moving around
Previous chapter: usr_01.txt About the manuals
Table of contents: usr_toc.txt

02.1 Running Vim for the First Time

To start Vim, enter this command:

```
gvim file.txt
```

In UNIX you can type this at any command prompt. If you are running Microsoft Windows, open an MS-DOS prompt window and enter the command.
In either case, Vim starts editing a file called file.txt. Because this is a new file, you get a blank window. This is what your screen will look like:

```
+----------------------------------------+
|#                                       |
|~                                       |
|~                                       |
|~                                       |
|~                                       |
|"file.txt" [New file]                   |
+----------------------------------------+
        ('#" is the cursor position.)
```

The tilde (~) lines indicate lines not in the file. In other words, when Vim runs out of file to display, it displays tilde lines. At the bottom of the screen, a message line indicates the file is named file.txt and shows that you are creating a new file. The message information is temporary and other information overwrites it.

THE VIM COMMAND

The gvim command causes the editor to create a new window for editing. If you use this command:

```
vim file.txt
```

the editing occurs inside your command window. In other words, if you are running inside an xterm, the editor uses your xterm window. If you are using an MS-DOS command prompt window under Microsoft Windows, the editing occurs inside this window. The text in the window will look the same for both versions, but with gvim you have extra features, like a menu bar. More about that later.

==========

02.2 Inserting text

The Vim editor is a modal editor. That means that the editor behaves differently, depending on which mode you are in. The two basic modes are called Normal mode and Insert mode. In Normal mode the characters you type are commands. In Insert mode the characters are inserted as text.

Since you have just started Vim it will be in Normal mode. To start Insert mode you type the "i" command (i for Insert). Then you can enter the text. It will be inserted into the file. Do not worry if you make mistakes; you can correct them later. To enter the following programmer's limerick, this is what you type:

```
iA very intelligent turtle
Found programming UNIX a hurdle
```

After typing "turtle" you press the <Enter> key to start a new line. Finally you press the <Esc> key to stop Insert mode and go back to Normal mode. You now have two lines of text in your Vim window:

```
+----------------------------------------+
|A very intelligent turtle               |
|Found programming UNIX a hurdle         |
|~                                       |
|~                                       |
|                                        |
+----------------------------------------+
```

WHAT IS THE MODE?

To be able to see what mode you are in, type this command:

```
:set showmode
```

You will notice that when typing the colon Vim moves the cursor to the last line of the window. That's where you type colon commands (commands that start with a colon). Finish this command by pressing the <Enter> key (all commands that start with a colon are finished this way).

Now, if you type the "i" command Vim will display --INSERT-- at the bottom

of the window. This indicates you are in Insert mode.

```
+----------------------------------------+
|A very intelligent turtle               |
|Found programming UNIX a hurdle         |
|~                                       |
|~                                       |
|-- INSERT --                            |
+----------------------------------------+
```

If you press <Esc> to go back to Normal mode the last line will be made blank.

GETTING OUT OF TROUBLE

One of the problems for Vim novices is mode confusion, which is caused by forgetting which mode you are in or by accidentally typing a command that switches modes. To get back to Normal mode, no matter what mode you are in, press the <Esc> key. Sometimes you have to press it twice. If Vim beeps back at you, you already are in Normal mode.

==
02.3 Moving around

After you return to Normal mode, you can move around by using these keys:

```
h   left                                                    hjkl
j   down
k   up
l   right
```

At first, it may appear that these commands were chosen at random. After all, who ever heard of using l for right? But actually, there is a very good reason for these choices: Moving the cursor is the most common thing you do in an editor, and these keys are on the home row of your right hand. In other words, these commands are placed where you can type them the fastest (especially when you type with ten fingers).

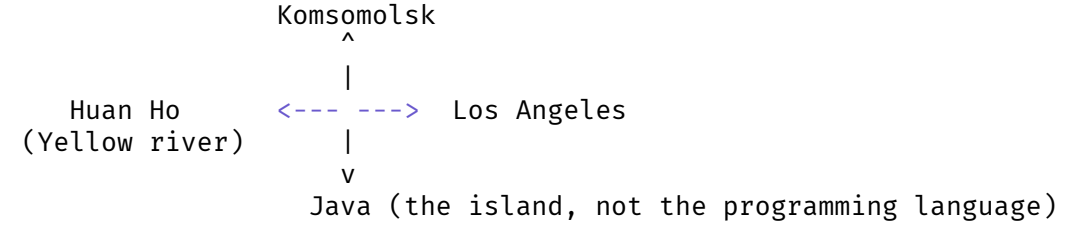
> Note:
> You can also move the cursor by using the arrow keys. If you do, however, you greatly slow down your editing because to press the arrow keys, you must move your hand from the text keys to the arrow keys. Considering that you might be doing it hundreds of times an hour, this can take a significant amount of time.
>
> Also, there are keyboards which do not have arrow keys, or which locate them in unusual places; therefore, knowing the use of the hjkl keys helps in those situations.

One way to remember these commands is that h is on the left, l is on the right and j points down. In a picture:

```
          k
     h    l
       j
```

The best way to learn these commands is by using them. Use the "i" command to insert some more lines of text. Then use the hjkl keys to move around and insert a word somewhere. Don't forget to press <Esc> to go back to Normal mode. The vimtutor is also a nice way to learn by doing.

For Japanese users, Hiroshi Iwatani suggested using this:



02.4 Deleting characters

To delete a character, move the cursor over it and type "x". (This is a throwback to the old days of the typewriter, when you deleted things by typing xxxx over them.) Move the cursor to the beginning of the first line, for example, and type xxxxxxx (seven x's) to delete "A very ". The result should look like this:

```
+----------------------------------------+
|intelligent turtle                      |
|Found programming UNIX a hurdle         |
|~                                       |
|~                                       |
|                                        |
+----------------------------------------+
```

Now you can insert new text, for example by typing:

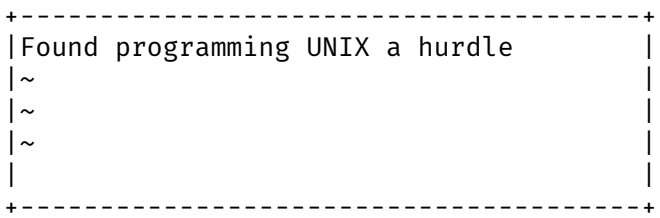
```
iA young <Esc>
```

This begins an insert (the i), inserts the words "A young", and then exits insert mode (the final <Esc>). The result:

```
+----------------------------------------+
|A young intelligent turtle              |
|Found programming UNIX a hurdle         |
|~                                       |
|~                                       |
|                                        |
+----------------------------------------+
```

DELETING A LINE

To delete a whole line use the "dd" command. The following line will then move up to fill the gap:



DELETING A LINE BREAK

In Vim you can join two lines together, which means that the line break between them is deleted. The "J" command does this.
Take these two lines:

```
A young intelligent
turtle
```

Move the cursor to the first line and press "J":

```
A young intelligent turtle
```

==========

02.5 Undo and Redo

Suppose you delete too much. Well, you can type it in again, but an easier way exists. The "u" command undoes the last edit. Take a look at this in action: After using "dd" to delete the first line, "u" brings it back.
Another one: Move the cursor to the A in the first line:

```
A young intelligent turtle
```

Now type xxxxxxx to delete "A young". The result is as follows:

```
 intelligent turtle
```

Type "u" to undo the last delete. That delete removed the g, so the undo restores the character.

```
g intelligent turtle
```

The next u command restores the next-to-last character deleted:

```
ng intelligent turtle
```

The next u command gives you the u, and so on:

```
ung intelligent turtle
oung intelligent turtle
young intelligent turtle
 young intelligent turtle
A young intelligent turtle
```

Note:

If you type "u" twice, and the result is that you get the same text back, you have Vim configured to work Vi compatible. Look here to fix this: not-compatible .
   This text assumes you work "The Vim Way". You might prefer to use the good old Vi way, but you will have to watch out for small differences in the text then.

REDO

If you undo too many times, you can press CTRL-R (redo) to reverse the preceding command. In other words, it undoes the undo. To see this in action, press CTRL-R twice. The character A and the space after it disappear:

```
        young intelligent turtle
```

There's a special version of the undo command, the "U" (undo line) command. The undo line command undoes all the changes made on the last line that was edited. Typing this command twice cancels the preceding "U".

```
        A very intelligent turtle
          xxxx                          Delete very

        A intelligent turtle
                      xxxxxx            Delete turtle

        A intelligent
                                        Restore line with "U"
        A very intelligent turtle
                                        Undo "U" with "u"
        A intelligent
```

The "U" command is a change by itself, which the "u" command undoes and CTRL-R redoes. This might be a bit confusing. Don't worry, with "u" and CTRL-R you can go to any of the situations you had. More about that in section 32.2 .

==
02.6 Other editing commands

Vim has a large number of commands to change the text. See Q_in and below. Here are a few often used ones.

APPENDING

The "i" command inserts a character before the character under the cursor. That works fine; but what happens if you want to add stuff to the end of the line? For that you need to insert text after the cursor. This is done with the "a" (append) command.
   For example, to change the line

```
        and that's not saying much for the turtle.
```

to

```
        and that's not saying much for the turtle!!!
```

move the cursor over to the dot at the end of the line. Then type "x" to delete the period. The cursor is now positioned at the end of the line on the e in turtle. Now type

```
a!!!<Esc>
```

to append three exclamation points after the e in turtle:

```
and that's not saying much for the turtle!!!
```

OPENING UP A NEW LINE

The "o" command creates a new, empty line below the cursor and puts Vim in Insert mode. Then you can type the text for the new line.
Suppose the cursor is somewhere in the first of these two lines:

```
A very intelligent turtle
Found programming UNIX a hurdle
```

If you now use the "o" command and type new text:

```
oThat liked using Vim<Esc>
```

The result is:

```
A very intelligent turtle
That liked using Vim
Found programming UNIX a hurdle
```

The "O" command (uppercase) opens a line above the cursor.

USING A COUNT

Suppose you want to move up nine lines. You can type "kkkkkkkkk" or you can enter the command "9k". In fact, you can precede many commands with a number. Earlier in this chapter, for instance, you added three exclamation points to the end of a line by typing "a!!!<Esc>". Another way to do this is to use the command "3a!<Esc>". The count of 3 tells the command that follows to triple its effect. Similarly, to delete three characters, use the command "3x". The count always comes before the command it applies to.

==
02.7 Getting out

To exit, use the "ZZ" command. This command writes the file and exits.

```
Note:
Unlike many other editors, Vim does not automatically make a backup
file. If you type "ZZ", your changes are committed and there's no
turning back. You can configure the Vim editor to produce backup
files, see 07.4 .
```

DISCARDING CHANGES

Sometimes you will make a sequence of changes and suddenly realize you were
better off before you started. Not to worry; Vim has a
quit-and-throw-things-away command. It is:

	:q!

Don't forget to press <Enter> to finish the command.

For those of you interested in the details, the three parts of this command
are the colon (:), which enters Command-line mode; the q command, which tells
the editor to quit; and the override command modifier (!).
   The override command modifier is needed because Vim is reluctant to throw
away changes. If you were to just type ":q", Vim would display an error
message and refuse to exit:

	E37: No write since last change (use ! to override)

By specifying the override, you are in effect telling Vim, "I know that what
I'm doing looks stupid, but I'm a big boy and really want to do this."

If you want to continue editing with Vim: The ":e!" command reloads the
original version of the file.

==
02.8	Finding help

Everything you always wanted to know can be found in the Vim help files.
Don't be afraid to ask!

If you know what you are looking for, it is usually easier to search for it
using the help system, instead of using Google. Because the subjects follow
a certain style guide.

Also the help has the advantage of belonging to your particular Vim version.
You won't see help for commands added later. These would not work for you.

To get generic help use this command:

	:help

You could also use the first function key <F1>. If your keyboard has a <Help>
key it might work as well.
   If you don't supply a subject, ":help" displays the general help window.
The creators of Vim did something very clever (or very lazy) with the help
system: They made the help window a normal editing window. You can use all
the normal Vim commands to move through the help information. Therefore h, j,
k, and l move left, down, up and right.
   To get out of the help window, use the same command you use to get out of
the editor: "ZZ". This will only close the help window, not exit Vim.

As you read the help text, you will notice some text enclosed in vertical bars (for example, |help|). This indicates a hyperlink. If you position the cursor anywhere between the bars and press CTRL-] (jump to tag), the help system takes you to the indicated subject. (For reasons not discussed here, the Vim terminology for a hyperlink is tag. So CTRL-] jumps to the location of the tag given by the word under the cursor.)

After a few jumps, you might want to go back. CTRL-T (pop tag) takes you back to the preceding position. CTRL-O (jump to older position) also works nicely here.

At the top of the help screen, there is the notation *help.txt*. This name between "*" characters is used by the help system to define a tag (hyperlink destination).

See 29.1 for details about using tags.

To get help on a given subject, use the following command:

```
:help {subject}
```

To get help on the "x" command, for example, enter the following:

```
:help x
```

To find out how to delete text, use this command:

```
:help deleting
```

To get a complete index of all Vim commands, use the following command:

```
:help index
```

When you need to get help for a control character command (for example, CTRL-A), you need to spell it with the prefix "CTRL-".

```
:help CTRL-A
```

The Vim editor has many different modes. By default, the help system displays the normal-mode commands. For example, the following command displays help for the normal-mode CTRL-H command:

```
:help CTRL-H
```

To identify other modes, use a mode prefix. If you want the help for the insert-mode version of a command, use "i_". For CTRL-H this gives you the following command:

```
:help i_CTRL-H
```

When you start the Vim editor, you can use several command-line arguments. These all begin with a dash (-). To find what the -t argument does, for example, use the command:

```
:help -t
```

The Vim editor has a number of options that enable you to configure and

customize the editor. If you want help for an option, you need to enclose it
in single quotation marks. To find out what the 'number' option does, for
example, use the following command:

	:help 'number'

The table with all mode prefixes can be found below: help-summary .

Special keys are enclosed in angle brackets. To find help on the up-arrow key
in Insert mode, for instance, use this command:

	:help i_<Up>

If you see an error message that you don't understand, for example:

	E37: No write since last change (use ! to override)

You can use the error ID at the start to find help about it:

	:help E37

Summary: help-summary

1) Use Ctrl-D after typing a topic and let Vim show all available topics.
   Or press Tab to complete:
	:help some<Tab>
   More information on how to use the help:
	:help helphelp

2) Follow the links in bars to related help. You can go from the detailed
   help to the user documentation, which describes certain commands more from
   a user perspective and less detailed. E.g. after:
	:help pattern.txt
   You can see the user guide topics 03.9 and usr_27.txt in the
   introduction.

3) Options are enclosed in single apostrophes. To go to the help topic for the
   list option:
	:help 'list'
   If you only know you are looking for a certain option, you can also do:
	:help options.txt
   to open the help page which describes all option handling and then search
   using regular expressions, e.g. textwidth.
   Certain options have their own namespace, e.g.:
	:help cpo-<letter>
   for the corresponding flag of the 'cpoptions' settings, substitute <letter>
   by a specific flag, e.g.:
	:help cpo-;
   And for the guioption flags:
	:help go-<letter>

4) Normal mode commands do not have a prefix. To go to the help page for the
   "gt" command:

```
        :help gt

5) Insert mode commands start with i_.  Help for deleting a word:
        :help i_CTRL-W

6) Visual mode commands start with v_.  Help for jumping to the other side of
   the Visual area:
        :help v_o

7) Command line editing and arguments start with c_.  Help for using the
   command argument %:
        :help c_%

8) Ex-commands always start with ":", so to go to the :s command help:
        :help :s

9) Commands specifically for debugging start with ">".  To go to the help
   for the "cont" debug command:
        :help >cont

10) Key combinations.  They usually start with a single letter indicating
    the mode for which they can be used.  E.g.:
        :help i_CTRL-X
    takes you to the family of Ctrl-X commands for insert mode which can be
    used to auto complete different things.  Note, that certain keys will
    always be written the same, e.g. Control will always be CTRL.
    For normal mode commands there is no prefix and the topic is available at
    :h CTRL-<Letter>. E.g.
        :help CTRL-W
    In contrast
        :help c_CTRL-R
    will describe what the Ctrl-R does when entering commands in the Command
    line and
        :help v_Ctrl-A
    talks about incrementing numbers in visual mode and
        :help g_CTRL-A
    talks about the g<C-A> command (e.g. you have to press "g" then <Ctrl-A>).
    Here the "g" stand for the normal command "g" which always expects a second
    key before doing something similar to the commands starting with "z"

11) Regexp items always start with /.  So to get help for the "\+" quantifier
    in Vim regexes:
        :help /\+
    If you need to know everything about regular expressions, start reading
    at:
        :help pattern.txt

12) Registers always start with "quote". To find out about the special ":"
    register:
        :help quote:

13) Vim script is available at
        :help eval.txt
   Certain aspects of the language are available at :h expr-X where "X" is a
```

single letter. E.g.
    :help expr-!
will take you to the topic describing the "!" (Not) operator for
VimScript.
Also important is
    :help function-list
to find a short description of all functions available. Help topics for
Vim script functions always include the "()", so:
    :help append()
talks about the append Vim script function rather than how to append text
in the current buffer.

14) Mappings are talked about in the help page :h map.txt . Use
    :help mapmode-i
    to find out about the :imap command. Also use :map-topic
    to find out about certain subtopics particular for mappings. e.g:
    :help :map-local
    for buffer-local mappings or
    :help map-bar
    for how the '|' is handled in mappings.

15) Command definitions are talked about :h command-topic, so use
    :help command-bar
    to find out about the '!' argument for custom commands.

16) Window management commands always start with CTRL-W, so you find the
    corresponding help at :h CTRL-W_letter. E.g.
    :help CTRL-W_p
    for moving the previous accessed window. You can also access
    :help windows.txt
    and read your way through if you are looking for window handling
    commands.

17) Use :helpgrep to search in all help pages (and also of any installed
    plugins). See :helpgrep for how to use it.
    To search for a topic:
    :helpgrep topic
    This takes you to the first match. To go to the next one:
    :cnext
    All matches are available in the quickfix window which can be opened
    with:
    :copen
    Move around to the match you like and press Enter to jump to that help.

18) The user manual. This describes help topics for beginners in a rather
    friendly way. Start at usr_toc.txt to find the table of content (as you
    might have guessed):
    :help usr_toc.txt
    Skim over the contents to find interesting topics. The "Digraphs" and
    "Entering special characters" items are in chapter 24, so to go to that
    particular help page:
    :help usr_24.txt
    Also if you want to access a certain chapter in the help, the chapter
    number can be accessed directly like this:

```
        :help 10.1
    goes to chapter 10.1 in  usr_10.txt  and talks about recording macros.

19) Highlighting groups.  Always start with hl-groupname.  E.g.
        :help hl-WarningMsg
    talks about the WarningMsg highlighting group.

20) Syntax highlighting is namespaced to :syn-topic e.g.
        :help :syn-conceal
    talks about the conceal argument for the :syn command.

21) Quickfix commands usually start with :c while location list commands
    usually start with :l

22) Autocommand events can be found by their name:
        :help BufWinLeave
    To see all possible events:
        :help autocommand-events

23) Command-line switches always start with "-".  So for the help of the -f
    command switch of Vim use:
        :help -f

24) Optional features always start with "+".  To find out about the
    conceal feature use:
        :help +conceal

25) Documentation for included filetype specific functionality is usually
    available  in the form ft-<filetype>-<functionality>.  So
        :help ft-c-syntax
    talks about the C syntax file and the option it provides.  Sometimes,
    additional sections for omni completion
        :help ft-php-omni
    or filetype plugins
        :help ft-tex-plugin
    are available.

26) Error and Warning codes can be looked up directly in the help.  So
        :help E297
    takes you exactly to the description of the swap error message and
        :help W10
    talks about the warning "Changing a readonly file".
    Sometimes however, those error codes are not described, but rather are
    listed at the Vim command that usually causes this.  So:
        :help E128
    takes you to the  :function  command


==============================================================================

Next chapter:  usr_03.txt   Moving around

Copyright: see  manual-copyright   vim:tw=78:ts=8:ft=help:norl:
```

VIM USER MANUAL - by Bram Moolenaar

Moving around

Before you can insert or delete text the cursor has to be moved to the right place. Vim has a large number of commands to position the cursor. This chapter shows you how to use the most important ones. You can find a list of these commands below Q_lr .

Next chapter: usr_04.txt Making small changes
Previous chapter: usr_02.txt The first steps in Vim
Table of contents: usr_toc.txt

==========

03.1 Word movement

To move the cursor forward one word, use the "w" command. Like most Vim commands, you can use a numeric prefix to move past multiple words. For example, "3w" moves three words. This figure shows how it works:

```
        This is a line with example text
          --->-->->----------------->
           w  w  w    3w
```

Notice that "w" moves to the start of the next word if it already is at the start of a word.

The "b" command moves backward to the start of the previous word:

```
        This is a line with example text
        <----<--<-<---------<---
           b   b b    2b      b
```

There is also the "e" command that moves to the next end of a word and "ge", which moves to the previous end of a word:

```
        This is a line with example text
           <-   <--- ----->   ---->
           ge    ge     e       e
```

If you are at the last word of a line, the "w" command will take you to the

first word in the next line. Thus you can use this to move through a paragraph, much faster than using "l". "b" does the same in the other direction.

A word ends at a non-word character, such as a ".", "-" or ")". To change what Vim considers to be a word, see the 'iskeyword' option. If you try this out in the help directly, 'iskeyword' needs to be reset for the examples to work:

```
:set iskeyword&
```

It is also possible to move by white-space separated WORDs. This is not a word in the normal sense, that's why the uppercase is used. The commands for moving by WORDs are also uppercase, as this figure shows:

```
              ge      b          w                            e
              <-     <-         --->                         --->
        This is-a line, with special/separated/words (and some more).
           <----- <-----         --------------------->         ----->
             gE      B                   W                        E
```

With this mix of lowercase and uppercase commands, you can quickly move forward and backward through a paragraph.

==

03.2 Moving to the start or end of a line

The "$" command moves the cursor to the end of a line. If your keyboard has an <End> key it will do the same thing.

The "^" command moves to the first non-blank character of the line. The "0" command (zero) moves to the very first character of the line. The <Home> key does the same thing. In a picture:

```
                 ^
             <------------
        .....This is a line with example text
        <-----------------   --------------->
                0                 $
```

(the "....." indicates blanks here)

   The "$" command takes a count, like most movement commands. But moving to the end of the line several times doesn't make sense. Therefore it causes the editor to move to the end of another line. For example, "1$" moves you to the end of the first line (the one you're on), "2$" to the end of the next line, and so on.
   The "0" command doesn't take a count argument, because the "0" would be part of the count. Unexpectedly, using a count with "^" doesn't have any effect.

==

03.3 Moving to a character

One of the most useful movement commands is the single-character search command. The command "fx" searches forward in the line for the single

character x. Hint: "f" stands for "Find".
   For example, you are at the beginning of the following line. Suppose you want to go to the h of human. Just execute the command "fh" and the cursor will be positioned over the h:

```
        To err is human.  To really foul up you need a computer.
        ---------->--------------->
            fh           fy
```

This also shows that the command "fy" moves to the end of the word really.
   You can specify a count; therefore, you can go to the "l" of "foul" with "3fl":

```
        To err is human.  To really foul up you need a computer.
                  --------------------->
                           3fl
```

The "F" command searches to the left:

```
        To err is human.  To really foul up you need a computer.
                  <---------------------
                            Fh
```

The "tx" command works like the "fx" command, except it stops one character before the searched character. Hint: "t" stands for "To". The backward version of this command is "Tx".

```
        To err is human.  To really foul up you need a computer.
                   <------------  ------------->
                        Th              tn
```

These four commands can be repeated with ";". "," repeats in the other direction. The cursor is never moved to another line. Not even when the sentence continues.

Sometimes you will start a search, only to realize that you have typed the wrong command. You type "f" to search backward, for example, only to realize that you really meant "F". To abort a search, press <Esc>. So "f<Esc>" is an aborted forward search and doesn't do anything. Note: <Esc> cancels most operations, not just searches.

==
03.4 Matching a parenthesis

When writing a program you often end up with nested () constructs. Then the "%" command is very handy: It moves to the matching paren. If the cursor is on a "(" it will move to the matching ")". If it's on a ")" it will move to the matching "(".

```
                           %
                        <----->
                  if (a == (b * c) / d)
                     <---------------->
                           %
```

This also works for [] and {} pairs. (This can be defined with the
'matchpairs' option.)

When the cursor is not on a useful character, "%" will search forward to find
one. Thus if the cursor is at the start of the line of the previous example,
"%" will search forward and find the first "(". Then it moves to its match:

```
               if (a == (b * c) / d)
               ---+---------------->
                          %
```

==
03.5 Moving to a specific line

If you are a C or C++ programmer, you are familiar with error messages such as
the following:

```
        prog.c:33: j   undeclared (first use in this function)
```

This tells you that you might want to fix something on line 33. So how do you
find line 33? One way is to do "9999k" to go to the top of the file and "32j"
to go down thirty-two lines. It is not a good way, but it works. A much
better way of doing things is to use the "G" command. With a count, this
command positions you at the given line number. For example, "33G" puts you
on line 33. (For a better way of going through a compiler's error list, see
usr_30.txt , for information on the :make command.)
  With no argument, "G" positions you at the end of the file. A quick way to
go to the start of a file use "gg". "1G" will do the same, but is a tiny bit
more typing.

```
            |   first line of a file   ^
            |   text text text text    |
            |   text text text text    |  gg
        7G  |   text text text text    |
            |   text text text text
            |   text text text text
            V   text text text text    |
                text text text text    |  G
                text text text text    |
                last line of a file    V
```

Another way to move to a line is using the "%" command with a count. For
example "50%" moves you to halfway the file. "90%" goes to near the end.

The previous assumes that you want to move to a line in the file, no matter if
it's currently visible or not. What if you want to move to one of the lines
you can see? This figure shows the three commands you can use:

```
                       +---------------------------+
               H -->   | text sample text          |
                       | sample text               |
                       | text sample text          |
                       | sample text               |
```

```
              M -->   | text sample text          |
                      | sample text               |
                      | text sample text          |
                      | sample text               |
              L -->   | text sample text          |
                      +---------------------------+
```

Hints: "H" stands for Home, "M" for Middle and "L" for Last.

03.6 Telling where you are

To see where you are in a file, there are three ways:

1. Use the CTRL-G command. You get a message like this (assuming the 'ruler' option is off):

   "usr_03.txt" line 233 of 650 --35%-- col 45-52

   This shows the name of the file you are editing, the line number where the cursor is, the total number of lines, the percentage of the way through the file and the column of the cursor.
   Sometimes you will see a split column number. For example, "col 2-9". This indicates that the cursor is positioned on the second character, but because character one is a tab, occupying eight spaces worth of columns, the screen column is 9.

2. Set the 'number' option. This will display a line number in front of every line:

   :set number

   To switch this off again:

   :set nonumber

   Since 'number' is a boolean option, prepending "no" to its name has the effect of switching it off. A boolean option has only these two values, it is either on or off.
   Vim has many options. Besides the boolean ones there are options with a numerical value and string options. You will see examples of this where they are used.

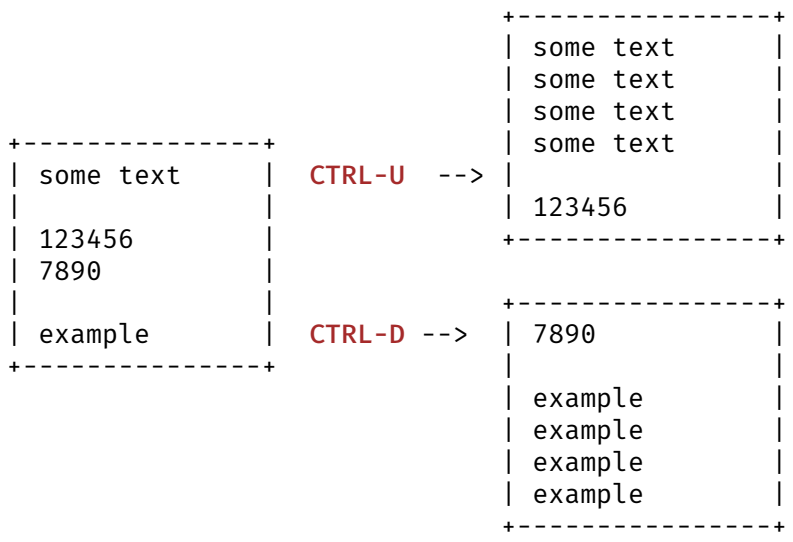
3. Set the 'ruler' option. This will display the cursor position in the lower right corner of the Vim window:

   :set ruler

Using the 'ruler' option has the advantage that it doesn't take much room, thus there is more space for your text.

03.7 Scrolling around

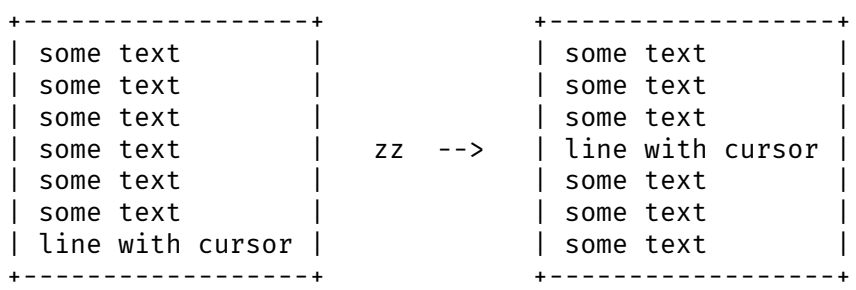
The CTRL-U command scrolls down half a screen of text. Think of looking
through a viewing window at the text and moving this window up by half the
height of the window. Thus the window moves up over the text, which is
backward in the file. Don't worry if you have a little trouble remembering
which end is up. Most users have the same problem.
   The CTRL-D command moves the viewing window down half a screen in the file,
thus scrolls the text up half a screen.



To scroll one line at a time use CTRL-E (scroll up) and CTRL-Y (scroll down).
Think of CTRL-E to give you one line Extra. (If you use MS-Windows compatible
key mappings CTRL-Y will redo a change instead of scroll.)

To scroll forward by a whole screen (except for two lines) use CTRL-F. The
other way is backward, CTRL-B is the command to use. Fortunately CTRL-F is
Forward and CTRL-B is Backward, that's easy to remember.

A common issue is that after moving down many lines with "j" your cursor is at
the bottom of the screen. You would like to see the context of the line with
the cursor. That's done with the "zz" command.



The "zt" command puts the cursor line at the top, "zb" at the bottom. There
are a few more scrolling commands, see Q_sc . To always keep a few lines of
context around the cursor, use the 'scrolloff' option.

==
 03.8   Simple searches

To search for a string, use the "/string" command. To find the word include,
for example, use the command:

	/include

You will notice that when you type the "/" the cursor jumps to the last line
of the Vim window, like with colon commands. That is where you type the word.
You can press the backspace key (backarrow or <BS>) to make corrections. Use
the <Left> and <Right> cursor keys when necessary.
   Pressing <Enter> executes the command.

	Note:
	The characters .*[]^%/\?~$ have special meanings. If you want to use
	them in a search you must put a \ in front of them. See below.

To find the next occurrence of the same string use the "n" command. Use this
to find the first #include after the cursor:

	/#include

And then type "n" several times. You will move to each #include in the text.
You can also use a count if you know which match you want. Thus "3n" finds
the third match. Using a count with "/" doesn't work.

The "?" command works like "/" but searches backwards:

	?word

The "N" command repeats the last search the opposite direction. Thus using
"N" after a "/" command searches backwards, using "N" after "?" searches
forward.

IGNORING CASE

Normally you have to type exactly what you want to find. If you don't care
about upper or lowercase in a word, set the 'ignorecase' option:

	:set ignorecase

If you now search for "word", it will also match "Word" and "WORD". To match
case again:

	:set noignorecase

HISTORY

Suppose you do three searches:

	/one
	/two
	/three

Now let's start searching by typing a simple "/" without pressing <Enter>. If you press <Up> (the cursor key), Vim puts "/three" on the command line. Pressing <Enter> at this point searches for three. If you do not press <Enter>, but press <Up> instead, Vim changes the prompt to "/two". Another press of <Up> moves you to "/one".
   You can also use the <Down> cursor key to move through the history of search commands in the other direction.

If you know what a previously used pattern starts with, and you want to use it again, type that character before pressing <Up>. With the previous example, you can type "/o<Up>" and Vim will put "/one" on the command line.

The commands starting with ":" also have a history. That allows you to recall a previous command and execute it again. These two histories are separate.

SEARCHING FOR A WORD IN THE TEXT

Suppose you see the word "TheLongFunctionName" in the text and you want to find the next occurrence of it. You could type "/TheLongFunctionName", but that's a lot of typing. And when you make a mistake Vim won't find it.
   There is an easier way: Position the cursor on the word and use the "*" command. Vim will grab the word under the cursor and use it as the search string.
   The "#" command does the same in the other direction. You can prepend a count: "3*" searches for the third occurrence of the word under the cursor.

SEARCHING FOR WHOLE WORDS

If you type "/the" it will also match "there". To only find words that end in "the" use:

```
/the\>
```

The "\>" item is a special marker that only matches at the end of a word. Similarly "\<" only matches at the beginning of a word. Thus to search for the word "the" only:

```
/\<the\>
```

This does not match "there" or "soothe". Notice that the "*" and "#" commands use these start-of-word and end-of-word markers to only find whole words (you can use "g*" and "g#" to match partial words).

HIGHLIGHTING MATCHES

While editing a program you see a variable called "nr". You want to check where it's used. You could move the cursor to "nr" and use the "*" command and press "n" to go along all the matches.
   There is another way. Type this command:

```
	:set hlsearch
```

If you now search for "nr", Vim will highlight all matches. That is a very good way to see where the variable is used, without the need to type commands.
   To switch this off:

```
	:set nohlsearch
```

Then you need to switch it on again if you want to use it for the next search command. If you only want to remove the highlighting, use this command:

```
	:nohlsearch
```

This doesn't reset the option. Instead, it disables the highlighting. As soon as you execute a search command, the highlighting will be used again. Also for the "n" and "N" commands.

TUNING SEARCHES

There are a few options that change how searching works. These are the essential ones:

```
	:set incsearch
```

This makes Vim display the match for the string while you are still typing it. Use this to check if the right match will be found. Then press <Enter> to really jump to that location. Or type more to change the search string.

```
	:set nowrapscan
```

This stops the search at the end of the file. Or, when you are searching backwards, at the start of the file. The 'wrapscan' option is on by default, thus searching wraps around the end of the file.

INTERMEZZO

If you like one of the options mentioned before, and set it each time you use Vim, you can put the command in your Vim startup file.
   Edit the file, as mentioned at not-compatible . Or use this command to find out where it is:

```
	:scriptnames
```

Edit the file, for example with:

```
	:edit ~/.vimrc
```

Then add a line with the command to set the option, just like you typed it in Vim. Example:

```
	Go:set hlsearch<Esc>
```

"G" moves to the end of the file. "o" starts a new line, where you type the ":set" command. You end insert mode with <Esc>. Then write the file:

```
ZZ
```

If you now start Vim again, the 'hlsearch' option will already be set.

==

03.9 Simple search patterns

The Vim editor uses regular expressions to specify what to search for. Regular expressions are an extremely powerful and compact way to specify a search pattern. Unfortunately, this power comes at a price, because regular expressions are a bit tricky to specify.

In this section we mention only a few essential ones. More about search patterns and commands in chapter 27 usr_27.txt . You can find the full explanation here: pattern .

BEGINNING AND END OF A LINE

The ^ character matches the beginning of a line. On an English-US keyboard you find it above the 6. The pattern "include" matches the word include anywhere on the line. But the pattern "^include" matches the word include only if it is at the beginning of a line.

The $ character matches the end of a line. Therefore, "was$" matches the word was only if it is at the end of a line.

Let's mark the places where "/the" matches in this example line with "x"s:

```
        the solder holding one of the chips melted and the
        xxx                     xxx                 xxx
```

Using "/the$" we find this match:

```
        the solder holding one of the chips melted and the
                                                    xxx
```

And with "/^the" we find this one:

```
        the solder holding one of the chips melted and the
        xxx
```

You can try searching with "/^the$", it will only match a single line consisting of "the". White space does matter here, thus if a line contains a space after the word, like "the ", the pattern will not match.

MATCHING ANY SINGLE CHARACTER

The . (dot) character matches any existing character. For example, the pattern "c.m" matches a string whose first character is a c, whose second character is anything, and whose third character is m. Example:

```
        We use a computer that became the cummin winter.
```

```
                xxx             xxx      xxx
```

MATCHING SPECIAL CHARACTERS

If you really want to match a dot, you must avoid its special meaning by putting a backslash before it.
   If you search for "ter.", you will find these matches:

```
        We use a computer that became the cummin winter.
                     xxxx                          xxxx
```

Searching for "ter\." only finds the second match.

==
03.10 Using marks

When you make a jump to a position with the "G" command, Vim remembers the position from before this jump. This position is called a mark. To go back where you came from, use this command:

```
        ``
```

This ` is a backtick or open single-quote character.
   If you use the same command a second time you will jump back again. That's because the ` command is a jump itself, and the position from before this jump is remembered.

Generally, every time you do a command that can move the cursor further than within the same line, this is called a jump. This includes the search commands "/" and "n" (it doesn't matter how far away the match is). But not the character searches with "fx" and "tx" or the word movements "w" and "e".
   Also, "j" and "k" are not considered to be a jump. Even when you use a count to make them move the cursor quite a long way away.

The `` command jumps back and forth, between two points. The CTRL-O command jumps to older positions (Hint: O for older). CTRL-I then jumps back to newer positions (Hint: I is just next to O on the keyboard). Consider this sequence of commands:

```
        33G
        /^The
        CTRL-O
```

You first jump to line 33, then search for a line that starts with "The". Then with CTRL-O you jump back to line 33. Another CTRL-O takes you back to where you started. If you now use CTRL-I you jump to line 33 again. And to the match for "The" with another CTRL-I.

```
             |  example text   ^             |
        33G  |  example text   |  CTRL-O     | CTRL-I
             |  example text   |             |
             V  line 33 text   ^             V
```

```
        |  example text   |             |
   /^The |  example text   |  CTRL-O     | CTRL-I
        V  There you are   |             V
           example text
```

Note:
CTRL-I is the same as <Tab>.

The ":jumps" command gives a list of positions you jumped to. The entry which you used last is marked with a ">".

NAMED MARKS bookmark

Vim enables you to place your own marks in the text. The command "ma" marks the place under the cursor as mark a. You can place 26 marks (a through z) in your text. You can't see them, it's just a position that Vim remembers.
To go to a mark, use the command `{mark}, where {mark} is the mark letter. Thus to move to the a mark:

```
`a
```

The command 'mark (single quotation mark, or apostrophe) moves you to the beginning of the line containing the mark. This differs from the `mark command, which moves you to marked column.

The marks can be very useful when working on two related parts in a file. Suppose you have some text near the start of the file you need to look at, while working on some text near the end of the file.
Move to the text at the start and place the s (start) mark there:

```
ms
```

Then move to the text you want to work on and put the e (end) mark there:

```
me
```

Now you can move around, and when you want to look at the start of the file, you use this to jump there:

```
's
```

Then you can use '' to jump back to where you were, or 'e to jump to the text you were working on at the end.
There is nothing special about using s for start and e for end, they are just easy to remember.

You can use this command to get a list of marks:

```
:marks
```

You will notice a few special marks. These include:

```
'       The cursor position before doing a jump
```

```
        "       The cursor position when last editing the file
        [       Start of the last change
        ]       End of the last change
```

==========

Next chapter: usr_04.txt   Making small changes

Copyright: see manual-copyright   vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Making small changes

This chapter shows you several ways of making corrections and moving text around. It teaches you the three basic ways to change text: operator-motion, Visual mode and text objects.

Next chapter: usr_05.txt Set your settings
Previous chapter: usr_03.txt Moving around
Table of contents: usr_toc.txt

==========

04.1 Operators and motions

In chapter 2 you learned the "x" command to delete a single character. And using a count: "4x" deletes four characters.

The "dw" command deletes a word. You may recognize the "w" command as the move word command. In fact, the "d" command may be followed by any motion command, and it deletes from the current location to the place where the cursor winds up.

The "4w" command, for example, moves the cursor over four words. The d4w command deletes four words.

```
        To err is human. To really foul up you need a computer.
                         ------------------>
                                d4w

        To err is human. you need a computer.
```

Vim only deletes up to the position where the motion takes the cursor. That's because Vim knows that you probably don't want to delete the first character of a word. If you use the "e" command to move to the end of a word, Vim guesses that you do want to include that last character:

```
        To err is human. you need a computer.
                        -------->
                           d2e

        To err is human. a computer.
```

Whether the character under the cursor is included depends on the command you used to move to that character. The reference manual calls this "exclusive" when the character isn't included and "inclusive" when it is.

The "$" command moves to the end of a line. The "d$" command deletes from the cursor to the end of the line. This is an inclusive motion, thus the last character of the line is included in the delete operation:

```
        To err is human. a computer.
                       ------------>
                            d$

        To err is human
```

There is a pattern here: operator-motion. You first type an operator command. For example, "d" is the delete operator. Then you type a motion command like "4l" or "w". This way you can operate on any text you can move over.

04.2 Changing text

Another operator is "c", change. It acts just like the "d" operator, except it leaves you in Insert mode. For example, "cw" changes a word. Or more specifically, it deletes a word and then puts you in Insert mode.

```
        To err is human
           ------->
             c2wbe<Esc>

        To be human
```

This "c2wbe<Esc>" contains these bits:

```
        c       the change operator
        2w      move two words (they are deleted and Insert mode started)
        be      insert this text
        <Esc>   back to Normal mode
```

If you have paid attention, you will have noticed something strange: The space before "human" isn't deleted. There is a saying that for every problem there is an answer that is simple, clear, and wrong. That is the case with the example used here for the "cw" command. The c operator works just like the d operator, with one exception: "cw". It actually works like "ce", change to end of word. Thus the space after the word isn't included. This is an exception that dates back to the old Vi. Since many people are used to it now, the inconsistency has remained in Vim.

MORE CHANGES

Like "dd" deletes a whole line, "cc" changes a whole line. It keeps the existing indent (leading white space) though.

Just like "d$" deletes until the end of the line, "c$" changes until the end of the line. It's like doing "d$" to delete the text and then "a" to start Insert mode and append new text.

SHORTCUTS

Some operator-motion commands are used so often that they have been given a single letter command:

```
        x  stands for  dl  (delete character under the cursor)
        X  stands for  dh  (delete character left of the cursor)
        D  stands for  d$  (delete to end of the line)
        C  stands for  c$  (change to end of the line)
        s  stands for  cl  (change one character)
        S  stands for  cc  (change a whole line)
```

WHERE TO PUT THE COUNT

The commands "3dw" and "d3w" delete three words. If you want to get really picky about things, the first command, "3dw", deletes one word three times; the command "d3w" deletes three words once. This is a difference without a distinction. You can actually put in two counts, however. For example, "3d2w" deletes two words, repeated three times, for a total of six words.

REPLACING WITH ONE CHARACTER

The "r" command is not an operator. It waits for you to type a character, and will replace the character under the cursor with it. You could do the same with "cl" or with the "s" command, but with "r" you don't have to press <Esc>

```
        there is somerhing grong here
        rT           rt    rw

        There is something wrong here
```

Using a count with "r" causes that many characters to be replaced with the same character. Example:

```
        There is something wrong here
                           5rx

        There is something xxxxx here
```

To replace a character with a line break use "r<Enter>". This deletes one character and inserts a line break. Using a count here only applies to the number of characters deleted: "4r<Enter>" replaces four characters with one line break.

==
 04.3   Repeating a change

The "." command is one of the most simple yet powerful commands in Vim. It repeats the last change. For instance, suppose you are editing an HTML file and want to delete all the <B> tags. You position the cursor on the first < and delete the <B> with the command "df>". You then go to the < of the next </B> and kill it using the "." command. The "." command executes the last change command (in this case, "df>"). To delete another tag, position the cursor on the < and use the "." command.

```
                          To <B>generate</B> a table of <B>contents
        f<   find first <     --->
        df>  delete to >         -->
        f<   find next <           --------->
        .    repeat df>                  --->
        f<   find next <                    ------------->
        .    repeat df>                                 -->
```

The "." command works for all changes you make, except for the "u" (undo), CTRL-R (redo) and commands that start with a colon (:).

Another example: You want to change the word "four" to "five". It appears several times in your text. You can do this quickly with this sequence of commands:

```
        /four<Enter>    find the first string "four"
        cwfive<Esc>     change the word to "five"
        n               find the next "four"
        .               repeat the change to "five"
        n               find the next "four"
        .               repeat the change
                        etc.
```

04.4 Visual mode

To delete simple items the operator-motion changes work quite well. But often it's not so easy to decide which command will move over the text you want to change. Then you can use Visual mode.

You start Visual mode by pressing "v". You move the cursor over the text you want to work on. While you do this, the text is highlighted. Finally type the operator command.
   For example, to delete from halfway one word to halfway another word:

```
              This is an examination sample of visual mode
                             ---------->
                               velllld

              This is an example of visual mode
```

When doing this you don't really have to count how many times you have to press "l" to end up in the right position. You can immediately see what text will be deleted when you press "d".

If at any time you decide you don't want to do anything with the highlighted

text, just press <Esc> and Visual mode will stop without doing anything.

SELECTING LINES

If you want to work on whole lines, use "V" to start Visual mode. You will see right away that the whole line is highlighted, without moving around. When you move left or right nothing changes. When you move up or down the selection is extended whole lines at a time.
   For example, select three lines with "Vjj":

```
                        +-------------------------+
                        | text more text          |
                     >> | more text more text     | |
        selected lines >> | text text text          | | Vjj
                     >> | text more               | V
                        | more text more          |
                        +-------------------------+
```

SELECTING BLOCKS

If you want to work on a rectangular block of characters, use CTRL-V to start Visual mode. This is very useful when working on tables.

```
                name            Q1      Q2      Q3
                pierre          123     455     234
                john            0       90      39
                steve           392     63      334
```

To delete the middle "Q2" column, move the cursor to the "Q" of "Q2". Press CTRL-V to start blockwise Visual mode. Now move the cursor three lines down with "3j" and to the next word with "w". You can see the first character of the last column is included. To exclude it, use "h". Now press "d" and the middle column is gone.

GOING TO THE OTHER SIDE

If you have selected some text in Visual mode, and discover that you need to change the other end of the selection, use the "o" command (Hint: o for other end). The cursor will go to the other end, and you can move the cursor to change where the selection starts. Pressing "o" again brings you back to the other end.

When using blockwise selection, you have four corners. "o" only takes you to one of the other corners, diagonally. Use "O" to move to the other corner in the same line.

Note that "o" and "O" in Visual mode work very differently from Normal mode, where they open a new line below or above the cursor.

When you delete something with the "d", "x", or another command, the text is saved. You can paste it back by using the p command. (The Vim name for this is put).
Take a look at how this works. First you will delete an entire line, by putting the cursor on the line you want to delete and typing "dd". Now you move the cursor to where you want to put the line and use the "p" (put) command. The line is inserted on the line below the cursor.

```
a line          a line        a line
line 2    dd    line 3    p   line 3
line 3                        line 2
```

Because you deleted an entire line, the "p" command placed the text line below the cursor. If you delete part of a line (a word, for instance), the "p" command puts it just after the cursor.

```
Some more boring try text to out commands.
                 ---->
                  dw

Some more boring text to out commands.
                 ------->
                    welp

Some more boring text to try out commands.
```

MORE ON PUTTING

The "P" command puts text like "p", but before the cursor. When you deleted a whole line with "dd", "P" will put it back above the cursor. When you deleted a word with "dw", "P" will put it back just before the cursor.

You can repeat putting as many times as you like. The same text will be used.

You can use a count with "p" and "P". The text will be repeated as many times as specified with the count. Thus "dd" and then "3p" puts three copies of the same deleted line.

SWAPPING TWO CHARACTERS

Frequently when you are typing, your fingers get ahead of your brain (or the other way around?). The result is a typo such as "teh" for "the". Vim makes it easy to correct such problems. Just put the cursor on the e of "teh" and execute the command "xp". This works as follows: "x" deletes the character e and places it in a register. "p" puts the text after the cursor, which is after the h.

```
teh     th     the
 x       p
```

==

04.6 Copying text

To copy text from one place to another, you could delete it, use "u" to undo the deletion and then "p" to put it somewhere else. There is an easier way: yanking. The "y" operator copies text into a register. Then a "p" command can be used to put it.
Yanking is just a Vim name for copying. The "c" letter was already used for the change operator, and "y" was still available. Calling this operator "yank" made it easier to remember to use the "y" key.

Since "y" is an operator, you use "yw" to yank a word. A count is possible as usual. To yank two words use "y2w". Example:

```
        let sqr = LongVariable *
                  -------------->
                        y2w

        let sqr = LongVariable *
                               p

        let sqr = LongVariable * LongVariable
```

Notice that "yw" includes the white space after a word. If you don't want this, use "ye".

The "yy" command yanks a whole line, just like "dd" deletes a whole line. Unexpectedly, while "D" deletes from the cursor to the end of the line, "Y" works like "yy", it yanks the whole line. Watch out for this inconsistency! Use "y$" to yank to the end of the line.

```
        a text line   yy        a text line            a text line
        line 2                  line 2          p      line 2
        last line               last line              a text line
                                                       last line
```

==========

04.7 Using the clipboard

If you are using the GUI version of Vim (gvim), you can find the "Copy" item in the "Edit" menu. First select some text with Visual mode, then use the Edit/Copy menu. The selected text is now copied to the clipboard. You can paste the text in other programs. In Vim itself too.

If you have copied text to the clipboard in another application, you can paste it in Vim with the Edit/Paste menu. This works in Normal mode and Insert mode. In Visual mode the selected text is replaced with the pasted text.

The "Cut" menu item deletes the text before it's put on the clipboard. The "Copy", "Cut" and "Paste" items are also available in the popup menu (only when there is a popup menu, of course). If your Vim has a toolbar, you can also find these items there.

If you are not using the GUI, or if you don't like using a menu, you have to use another way. You use the normal "y" (yank) and "p" (put) commands, but

prepend "* (double-quote star) before it. To copy a line to the clipboard:

```
"*yy
```

To put text from the clipboard back into the text:

```
"*p
```

This only works on versions of Vim that include clipboard support. More about the clipboard in section 09.3 and here: clipboard .

==========

04.8 Text objects

If the cursor is in the middle of a word and you want to delete that word, you need to move back to its start before you can do "dw". There is a simpler way to do this: "daw".

```
this is some example text.
               daw

this is some text.
```

The "d" of "daw" is the delete operator. "aw" is a text object. Hint: "aw" stands for "A Word". Thus "daw" is "Delete A Word". To be precise, the white space after the word is also deleted (the white space before the word at the end of the line).

Using text objects is the third way to make changes in Vim. We already had operator-motion and Visual mode. Now we add operator-text object.
   It is very similar to operator-motion, but instead of operating on the text between the cursor position before and after a movement command, the text object is used as a whole. It doesn't matter where in the object the cursor was.

To change a whole sentence use "cis". Take this text:

```
Hello there.  This
is an example.  Just
some text.
```

Move to the start of the second line, on "is an". Now use "cis":

```
Hello there.    Just
some text.
```

The cursor is in between the blanks in the first line. Now you type the new sentence "Another line.":

```
Hello there.  Another line.  Just
some text.
```

"cis" consists of the "c" (change) operator and the "is" text object. This stands for "Inner Sentence". There is also the "as" (a sentence) object. The

difference is that "as" includes the white space after the sentence and "is" doesn't. If you would delete a sentence, you want to delete the white space at the same time, thus use "das". If you want to type new text the white space can remain, thus you use "cis".

You can also use text objects in Visual mode. It will include the text object in the Visual selection. Visual mode continues, thus you can do this several times. For example, start Visual mode with "v" and select a sentence with "as". Now you can repeat "as" to include more sentences. Finally you use an operator to do something with the selected sentences.

You can find a long list of text objects here: text-objects .

==
 04.9   Replace mode

The "R" command causes Vim to enter replace mode. In this mode, each character you type replaces the one under the cursor. This continues until you type <Esc>.
   In this example you start Replace mode on the first "t" of "text":

        This is text.
                Rinteresting.<Esc>

        This is interesting.

You may have noticed that this command replaced 5 characters in the line with twelve others. The "R" command automatically extends the line if it runs out of characters to replace. It will not continue on the next line.

You can switch between Insert mode and Replace mode with the <Insert> key.

When you use <BS> (backspace) to make correction, you will notice that the old text is put back. Thus it works like an undo command for the last typed character.

==
 04.10 Conclusion

The operators, movement commands and text objects give you the possibility to make lots of combinations. Now that you know how it works, you can use N operators with M movement commands to make N * M commands!

You can find a list of operators here: operator

For example, there are many other ways to delete pieces of text. Here are a few often used ones:

```
x       delete character under the cursor (short for "dl")
X       delete character before the cursor (short for "dh")
D       delete from cursor to end of line (short for "d$")
dw      delete from cursor to next start of word
db      delete from cursor to previous start of word
diw     delete word under the cursor (excluding white space)
```

```
daw     delete word under the cursor (including white space)
dG      delete until the end of the file
dgg     delete until the start of the file

If you use "c" instead of "d" they become change commands.  And with "y" you
yank the text.  And so forth.


There are a few often used commands to make changes that didn't fit somewhere
else:

        ~       change case of the character under the cursor, and move the
                cursor to the next character.  This is not an operator (unless
                'tildeop' is set), thus you can't use it with a motion
                command.  It does work in Visual mode and changes case for
                all the selected text then.

        I       Start Insert mode after moving the cursor to the first
                non-blank in the line.

        A       Start Insert mode after moving the cursor to the end of the
                line.

==============================================================================

Next chapter:  usr_05.txt   Set your settings

Copyright: see  manual-copyright   vim:tw=78:ts=8:ft=help:norl:
```

VIM USER MANUAL - by Bram Moolenaar

Set your settings

Vim can be tuned to work like you want it to. This chapter shows you how to make Vim start with options set to different values. Add plugins to extend Vim's capabilities. Or define your own macros.

Next chapter: usr_06.txt Using syntax highlighting
Previous chapter: usr_04.txt Making small changes
Table of contents: usr_toc.txt

==========

05.1 The vimrc file vimrc-intro

You probably got tired of typing commands that you use very often. To start Vim with all your favorite option settings and mappings, you write them in what is called the vimrc file. Vim executes the commands in this file when it starts up.

If you already have a vimrc file (e.g., when your sysadmin has one setup for you), you can edit it this way:

```
:edit $MYVIMRC
```

If you don't have a vimrc file yet, see vimrc to find out where you can create a vimrc file. Also, the ":version" command mentions the name of the "user vimrc file" Vim looks for.

For Unix and Macintosh this file is always used and is recommended:

```
~/.vimrc
```

For MS-DOS and MS-Windows you can use one of these:

```
$HOME/_vimrc
$VIM/_vimrc
```

If you are creating the vimrc file for the first time, it is recommended to put this line at the top:

```
source $VIMRUNTIME/defaults.vim
```

This initializes Vim for new users (as opposed to traditional Vi users). See
 defaults.vim for the details.

The vimrc file can contain all the commands that you type after a colon. The
most simple ones are for setting options. For example, if you want Vim to
always start with the 'incsearch' option on, add this line your vimrc file:

```
	set incsearch
```

For this new line to take effect you need to exit Vim and start it again.
Later you will learn how to do this without exiting Vim.

This chapter only explains the most basic items. For more information on how
to write a Vim script file: usr_41.txt .

==
 05.2   The example vimrc file explained   vimrc_example.vim

In the first chapter was explained how the example vimrc (included in the
Vim distribution) file can be used to make Vim startup in not-compatible mode
(see not-compatible). The file can be found here:

```
	$VIMRUNTIME/vimrc_example.vim
```

In this section we will explain the various commands used in this file. This
will give you hints about how to set up your own preferences. Not everything
will be explained though. Use the ":help" command to find out more.

```
	set nocompatible
```

As mentioned in the first chapter, these manuals explain Vim working in an
improved way, thus not completely Vi compatible. Setting the 'compatible'
option off, thus 'nocompatible' takes care of this.

```
	set backspace=indent,eol,start
```

This specifies where in Insert mode the <BS> is allowed to delete the
character in front of the cursor. The three items, separated by commas, tell
Vim to delete the white space at the start of the line, a line break and the
character before where Insert mode started.

```
	set autoindent
```

This makes Vim use the indent of the previous line for a newly created line.
Thus there is the same amount of white space before the new line. For example
when pressing <Enter> in Insert mode, and when using the "o" command to open a
new line.

```
	if has("vms")
```

```
  set nobackup
else
  set backup
endif
```

This tells Vim to keep a backup copy of a file when overwriting it. But not on the VMS system, since it keeps old versions of files already. The backup file will have the same name as the original file with "~" added. See 07.4

```
set history=50
```

Keep 50 commands and 50 search patterns in the history. Use another number if you want to remember fewer or more lines.

```
set ruler
```

Always display the current cursor position in the lower right corner of the Vim window.

```
set showcmd
```

Display an incomplete command in the lower right corner of the Vim window, left of the ruler. For example, when you type "2f", Vim is waiting for you to type the character to find and "2f" is displayed. When you press "w" next, the "2fw" command is executed and the displayed "2f" is removed.

```
+-----------------------------------------------+
|text in the Vim window                         |
|~                                              |
|~                                              |
|-- VISUAL --                  2f     43,8   17% |
+-----------------------------------------------+
 ^^^^^^^^^^^                 ^^^^^^^^ ^^^^^^^^^^
  'showmode'                'showcmd'  'ruler'
```

```
set incsearch
```

Display the match for a search pattern when halfway typing it.

```
map Q gq
```

This defines a key mapping. More about that in the next section. This defines the "Q" command to do formatting with the "gq" operator. This is how it worked before Vim 5.0. Otherwise the "Q" command starts Ex mode, but you will not need it.

```
vnoremap _g y:exe "grep /" . escape(@", '\\/') . "/ *.c *.h"<CR>
```

This mapping yanks the visually selected text and searches for it in C files.
This is a complicated mapping. You can see that mappings can be used to do
quite complicated things. Still, it is just a sequence of commands that are
executed like you typed them.

```
if &t_Co > 2 || has("gui_running")
  syntax on
  set hlsearch
endif
```

This switches on syntax highlighting, but only if colors are available. And
the 'hlsearch' option tells Vim to highlight matches with the last used search
pattern. The "if" command is very useful to set options only when some
condition is met. More about that in usr_41.txt .

vimrc-filetype

```
filetype plugin indent on
```

This switches on three very clever mechanisms:
1. Filetype detection.
   Whenever you start editing a file, Vim will try to figure out what kind of
   file this is. When you edit "main.c", Vim will see the ".c" extension and
   recognize this as a "c" filetype. When you edit a file that starts with
   "#!/bin/sh", Vim will recognize it as a "sh" filetype.
   The filetype detection is used for syntax highlighting and the other two
   items below.
   See filetypes .

2. Using filetype plugin files
   Many different filetypes are edited with different options. For example,
   when you edit a "c" file, it's very useful to set the 'cindent' option to
   automatically indent the lines. These commonly useful option settings are
   included with Vim in filetype plugins. You can also add your own, see
    write-filetype-plugin .

3. Using indent files
   When editing programs, the indent of a line can often be computed
   automatically. Vim comes with these indent rules for a number of
   filetypes. See :filetype-indent-on and 'indentexpr'.

```
autocmd FileType text setlocal textwidth=78
```

This makes Vim break text to avoid lines getting longer than 78 characters.
But only for files that have been detected to be plain text. There are
actually two parts here. "autocmd FileType text" is an autocommand. This
defines that when the file type is set to "text" the following command is
automatically executed. "setlocal textwidth=78" sets the 'textwidth' option
to 78, but only locally in one file.

restore-cursor

```
autocmd BufReadPost *
    \ if line("'\"") > 1 && line("'\"") <= line("$") |
```

```
\   exe "normal! g`\"" |
\ endif
```

Another autocommand. This time it is used after reading any file. The complicated stuff after it checks if the '" mark is defined, and jumps to it if so. The backslash at the start of a line is used to continue the command from the previous line. That avoids a line getting very long.
See line-continuation . This only works in a Vim script file, not when typing commands at the command-line.

05.3 Simple mappings

A mapping enables you to bind a set of Vim commands to a single key. Suppose, for example, that you need to surround certain words with curly braces. In other words, you need to change a word such as "amount" into "{amount}". With the :map command, you can tell Vim that the F5 key does this job. The command is as follows:

```
:map <F5> i{<Esc>ea}<Esc>
```

Note:
When entering this command, you must enter <F5> by typing four characters. Similarly, <Esc> is not entered by pressing the <Esc> key, but by typing five characters. Watch out for this difference when reading the manual!

Let's break this down:

<F5>	The F5 function key. This is the trigger key that causes the command to be executed as the key is pressed.
i{<Esc>	Insert the { character. The <Esc> key ends Insert mode.
e	Move to the end of the word.
a}<Esc>	Append the } to the word.

After you execute the ":map" command, all you have to do to put {} around a word is to put the cursor on the first character and press F5.

In this example, the trigger is a single key; it can be any string. But when you use an existing Vim command, that command will no longer be available. You better avoid that.
One key that can be used with mappings is the backslash. Since you probably want to define more than one mapping, add another character. You could map "\p" to add parentheses around a word, and "\c" to add curly braces, for example:

```
:map \p i(<Esc>ea)<Esc>
:map \c i{<Esc>ea}<Esc>
```

You need to type the \ and the p quickly after another, so that Vim knows they belong together.

The ":map" command (with no arguments) lists your current mappings. At
least the ones for Normal mode. More about mappings in section 40.1 .

==
 05.4   Adding a package   add-package   matchit-install

A package is a set of files that you can add to Vim. There are two kinds of
packages: optional and automatically loaded on startup.

The Vim distribution comes with a few packages that you can optionally use.
For example, the matchit plugin. This plugin makes the "%" command jump to
matching HTML tags, if/else/endif in Vim scripts, etc. Very useful, although
it's not backwards compatible (that's why it is not enabled by default).

To start using the matchit plugin, add one line to your vimrc file:
        packadd! matchit

That's all! After restarting Vim you can find help about this plugin:
        :help matchit

This works, because when `:packadd` loaded the plugin it also added the
package directory in 'runtimepath', so that the help file can be found.

You can find packages on the Internet in various places. It usually comes as
an archive or as a repository. For an archive you can follow these steps:
        1. create the package directory:
                mkdir -p ~/.vim/pack/fancy
           "fancy" can be any name of your liking. Use one that describes the
           package.
        2. unpack the archive in that directory. This assumes the top
           directory in the archive is "start":
                cd ~/.vim/pack/fancy
                unzip /tmp/fancy.zip
           If the archive layout is different make sure that you end up with a
           path like this:
                ~/.vim/pack/fancy/start/fancytext/plugin/fancy.vim
           Here "fancytext" is the name of the package, it can be anything
           else.

More information about packages can be found here: packages .

==
 05.5   Adding a plugin   add-plugin   plugin

Vim's functionality can be extended by adding plugins. A plugin is nothing
more than a Vim script file that is loaded automatically when Vim starts. You
can add a plugin very easily by dropping it in your plugin directory.
{not available when Vim was compiled without the |+eval| feature}

There are two types of plugins:

    global plugin: Used for all kinds of files
  filetype plugin: Only used for a specific type of file

The global plugins will be discussed first, then the filetype ones
add-filetype-plugin .

GLOBAL PLUGINS standard-plugin

When you start Vim, it will automatically load a number of global plugins.
You don't have to do anything for this. They add functionality that most
people will want to use, but which was implemented as a Vim script instead of
being compiled into Vim. You can find them listed in the help index
standard-plugin-list . Also see load-plugins .

add-global-plugin

You can add a global plugin to add functionality that will always be present
when you use Vim. There are only two steps for adding a global plugin:
1. Get a copy of the plugin.
2. Drop it in the right directory.

GETTING A GLOBAL PLUGIN

Where can you find plugins?
- Some are always loaded, you can see them in the directory $VIMRUNTIME/plugin.
- Some come with Vim. You can find them in the directory $VIMRUNTIME/macros
  and its sub-directories and under $VIM/vimfiles/pack/dist/opt/.
- Download from the net. There is a large collection on http://www.vim.org.
- They are sometimes posted in a Vim maillist .
- You could write one yourself, see write-plugin .

Some plugins come as a vimball archive, see vimball .
Some plugins can be updated automatically, see getscript .

USING A GLOBAL PLUGIN

First read the text in the plugin itself to check for any special conditions.
Then copy the file to your plugin directory:

system	plugin directory
Unix	~/.vim/plugin/
PC and OS/2	$HOME/vimfiles/plugin or $VIM/vimfiles/plugin
Amiga	s:vimfiles/plugin
Macintosh	$VIM:vimfiles:plugin
Mac OS X	~/.vim/plugin/
RISC-OS	Choices:vimfiles.plugin

Example for Unix (assuming you didn't have a plugin directory yet):

```
mkdir ~/.vim
mkdir ~/.vim/plugin
cp /tmp/yourplugin.vim ~/.vim/plugin
```

That's all! Now you can use the commands defined in this plugin.

Instead of putting plugins directly into the plugin/ directory, you may
better organize them by putting them into subdirectories under plugin/.
As an example, consider using "~/.vim/plugin/perl/*.vim" for all your Perl
plugins.

FILETYPE PLUGINS add-filetype-plugin ftplugins

The Vim distribution comes with a set of plugins for different filetypes that
you can start using with this command:

```
:filetype plugin on
```

That's all! See vimrc-filetype .

If you are missing a plugin for a filetype you are using, or you found a
better one, you can add it. There are two steps for adding a filetype plugin:
1. Get a copy of the plugin.
2. Drop it in the right directory.

GETTING A FILETYPE PLUGIN

You can find them in the same places as the global plugins. Watch out if the
type of file is mentioned, then you know if the plugin is a global or a
filetype one. The scripts in $VIMRUNTIME/macros are global ones, the filetype
plugins are in $VIMRUNTIME/ftplugin.

USING A FILETYPE PLUGIN ftplugin-name

You can add a filetype plugin by dropping it in the right directory. The
name of this directory is in the same directory mentioned above for global
plugins, but the last part is "ftplugin". Suppose you have found a plugin for
the "stuff" filetype, and you are on Unix. Then you can move this file to the
ftplugin directory:

```
mv thefile ~/.vim/ftplugin/stuff.vim
```

If that file already exists you already have a plugin for "stuff". You might
want to check if the existing plugin doesn't conflict with the one you are
adding. If it's OK, you can give the new one another name:

```
mv thefile ~/.vim/ftplugin/stuff_too.vim
```

The underscore is used to separate the name of the filetype from the rest,
which can be anything. If you use "otherstuff.vim" it wouldn't work, it would
be loaded for the "otherstuff" filetype.

On MS-DOS you cannot use long filenames. You would run into trouble if you
add a second plugin and the filetype has more than six characters. You can
use an extra directory to get around this:

```
mkdir $VIM/vimfiles/ftplugin/fortran
```

```
        copy thefile $VIM/vimfiles/ftplugin/fortran/too.vim
```

The generic names for the filetype plugins are:

```
        ftplugin/<filetype>.vim
        ftplugin/<filetype>_<name>.vim
        ftplugin/<filetype>/<name>.vim
```

Here "<name>" can be any name that you prefer.
Examples for the "stuff" filetype on Unix:

```
        ~/.vim/ftplugin/stuff.vim
        ~/.vim/ftplugin/stuff_def.vim
        ~/.vim/ftplugin/stuff/header.vim
```

The <filetype> part is the name of the filetype the plugin is to be used for. Only files of this filetype will use the settings from the plugin. The <name> part of the plugin file doesn't matter, you can use it to have several plugins for the same filetype. Note that it must end in ".vim".

Further reading:

filetype-plugins	Documentation for the filetype plugins and information about how to avoid that mappings cause problems.
load-plugins	When the global plugins are loaded during startup.
ftplugin-overrule	Overruling the settings from a global plugin.
write-plugin	How to write a plugin script.
plugin-details	For more information about using plugins or when your plugin doesn't work.
new-filetype	How to detect a new file type.

==========

05.6 Adding a help file add-local-help

If you are lucky, the plugin you installed also comes with a help file. We will explain how to install the help file, so that you can easily find help for your new plugin.

Let us use the "doit.vim" plugin as an example. This plugin comes with documentation: "doit.txt". Let's first copy the plugin to the right directory. This time we will do it from inside Vim. (You may skip some of the "mkdir" commands if you already have the directory.)

```
        :!mkdir ~/.vim
        :!mkdir ~/.vim/plugin
        :!cp /tmp/doit.vim ~/.vim/plugin
```

The "cp" command is for Unix, on MS-DOS you can use "copy".

Now create a "doc" directory in one of the directories in 'runtimepath'.

```
        :!mkdir ~/.vim/doc
```

Copy the help file to the "doc" directory.

```
:!cp /tmp/doit.txt ~/.vim/doc
```

Now comes the trick, which allows you to jump to the subjects in the new help file: Generate the local tags file with the :helptags command.

```
:helptags ~/.vim/doc
```

Now you can use the

```
:help doit
```

command to find help for "doit" in the help file you just added. You can see an entry for the local help file when you do:

```
:help local-additions
```

The title lines from the local help files are automagically added to this section. There you can see which local help files have been added and jump to them through the tag.

For writing a local help file, see write-local-help .

==

05.7 The option window

If you are looking for an option that does what you want, you can search in the help files here: options . Another way is by using this command:

```
:options
```

This opens a new window, with a list of options with a one-line explanation. The options are grouped by subject. Move the cursor to a subject and press <Enter> to jump there. Press <Enter> again to jump back. Or use CTRL-O.

You can change the value of an option. For example, move to the "displaying text" subject. Then move the cursor down to this line:

```
set wrap        nowrap
```

When you hit <Enter>, the line will change to:

```
set nowrap      wrap
```

The option has now been switched off.

Just above this line is a short description of the 'wrap' option. Move the cursor one line up to place it in this line. Now hit <Enter> and you jump to the full help on the 'wrap' option.

For options that take a number or string argument you can edit the value. Then press <Enter> to apply the new value. For example, move the cursor a few lines up to this line:

```
set so=0
```

Position the cursor on the zero with "$". Change it into a five with "r5".
Then press <Enter> to apply the new value. When you now move the cursor
around you will notice that the text starts scrolling before you reach the
border. This is what the 'scrolloff' option does, it specifies an offset
from the window border where scrolling starts.

==
 05.8   Often used options

There are an awful lot of options. Most of them you will hardly ever use.
Some of the more useful ones will be mentioned here. Don't forget you can
find more help on these options with the ":help" command, with single quotes
before and after the option name. For example:

	:help 'wrap'

In case you have messed up an option value, you can set it back to the
default by putting an ampersand (&) after the option name. Example:

	:set iskeyword&

NOT WRAPPING LINES

Vim normally wraps long lines, so that you can see all of the text. Sometimes
it's better to let the text continue right of the window. Then you need to
scroll the text left-right to see all of a long line. Switch wrapping off
with this command:

	:set nowrap

Vim will automatically scroll the text when you move to text that is not
displayed. To see a context of ten characters, do this:

	:set sidescroll=10

This doesn't change the text in the file, only the way it is displayed.

WRAPPING MOVEMENT COMMANDS

Most commands for moving around will stop moving at the start and end of a
line. You can change that with the 'whichwrap' option. This sets it to the
default value:

	:set whichwrap=b,s

This allows the <BS> key, when used in the first position of a line, to move
the cursor to the end of the previous line. And the <Space> key moves from
the end of a line to the start of the next one.

To allow the cursor keys <Left> and <Right> to also wrap, use this command:

```
	:set whichwrap=b,s,<,>
```

This is still only for Normal mode. To let <Left> and <Right> do this in Insert mode as well:

```
	:set whichwrap=b,s,<,>,[,]
```

There are a few other flags that can be added, see 'whichwrap'.

VIEWING TABS

When there are tabs in a file, you cannot see where they are. To make them visible:

```
	:set list
```

Now every tab is displayed as ^I. And a $ is displayed at the end of each line, so that you can spot trailing spaces that would otherwise go unnoticed.
   A disadvantage is that this looks ugly when there are many Tabs in a file. If you have a color terminal, or are using the GUI, Vim can show the spaces and tabs as highlighted characters. Use the 'listchars' option:

```
	:set listchars=tab:>-,trail:-
```

Now every tab will be displayed as ">---" (with more or less "-") and trailing white space as "-". Looks a lot better, doesn't it?

KEYWORDS

The 'iskeyword' option specifies which characters can appear in a word:

```
	:set iskeyword
	 iskeyword=@,48-57,_,192-255
```

The "@" stands for all alphabetic letters. "48-57" stands for ASCII characters 48 to 57, which are the numbers 0 to 9. "192-255" are the printable latin characters.
   Sometimes you will want to include a dash in keywords, so that commands like "w" consider "upper-case" to be one word. You can do it like this:

```
	:set iskeyword+=-
	:set iskeyword
	 iskeyword=@,48-57,_,192-255,-
```

If you look at the new value, you will see that Vim has added a comma for you.
   To remove a character use "-=". For example, to remove the underscore:

```
	:set iskeyword-=_
	:set iskeyword
	 iskeyword=@,48-57,192-255,-
```

This time a comma is automatically deleted.

ROOM FOR MESSAGES

When Vim starts there is one line at the bottom that is used for messages.
When a message is long, it is either truncated, thus you can only see part of
it, or the text scrolls and you have to press <Enter> to continue.
   You can set the 'cmdheight' option to the number of lines used for
messages. Example:

```
:set cmdheight=3
```

This does mean there is less room to edit text, thus it's a compromise.

==

Next chapter: usr_06.txt   Using syntax highlighting

Copyright: see manual-copyright   vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Using syntax highlighting

Black and white text is boring. With colors your file comes to life. This not only looks nice, it also speeds up your work. Change the colors used for the different sorts of text. Print your text, with the colors you see on the screen.

Next chapter: usr_07.txt Editing more than one file
Previous chapter: usr_05.txt Set your settings
Table of contents: usr_toc.txt

06.1 Switching it on

It all starts with one simple command:

```
:syntax enable
```

That should work in most situations to get color in your files. Vim will automagically detect the type of file and load the right syntax highlighting. Suddenly comments are blue, keywords brown and strings red. This makes it easy to overview the file. After a while you will find that black&white text slows you down!

If you always want to use syntax highlighting, put the ":syntax enable" command in your vimrc file.

If you want syntax highlighting only when the terminal supports colors, you can put this in your vimrc file:

```
if &t_Co > 1
   syntax enable
endif
```

If you want syntax highlighting only in the GUI version, put the ":syntax enable" command in your gvimrc file.

06.2 No or wrong colors?

There can be a number of reasons why you don't see colors:

- Your terminal does not support colors.
	Vim will use bold, italic and underlined text, but this doesn't look
	very nice. You probably will want to try to get a terminal with
	colors. For Unix, I recommend the xterm from the XFree86 project:
	 xfree-xterm .

- Your terminal does support colors, but Vim doesn't know this.
	Make sure your $TERM setting is correct. For example, when using an
	xterm that supports colors:

		setenv TERM xterm-color

	or (depending on your shell):

		TERM=xterm-color; export TERM

	The terminal name must match the terminal you are using. If it
	still doesn't work, have a look at xterm-color , which shows a few
	ways to make Vim display colors (not only for an xterm).

- The file type is not recognized.
	Vim doesn't know all file types, and sometimes it's near to impossible
	to tell what language a file uses. Try this command:

		:set filetype

	If the result is "filetype=" then the problem is indeed that Vim
	doesn't know what type of file this is. You can set the type
	manually:

		:set filetype=fortran

	To see which types are available, look in the directory
	$VIMRUNTIME/syntax. For the GUI you can use the Syntax menu.
	Setting the filetype can also be done with a modeline , so that the
	file will be highlighted each time you edit it. For example, this
	line can be used in a Makefile (put it near the start or end of the
	file):

		# vim: syntax=make

	You might know how to detect the file type yourself. Often the file
	name extension (after the dot) can be used.
	See new-filetype for how to tell Vim to detect that file type.

- There is no highlighting for your file type.
	You could try using a similar file type by manually setting it as
	mentioned above. If that isn't good enough, you can write your own
	syntax file, see mysyntaxfile .

Or the colors could be wrong:

- The colored text is very hard to read.

Vim guesses the background color that you are using. If it is black (or another dark color) it will use light colors for text. If it is white (or another light color) it will use dark colors for text. If Vim guessed wrong the text will be hard to read. To solve this, set the 'background' option. For a dark background:

```
:set background=dark
```

And for a light background:

```
:set background=light
```

Make sure you put this _before_ the ":syntax enable" command, otherwise the colors will already have been set. You could do ":syntax reset" after setting 'background' to make Vim set the default colors again.

- The colors are wrong when scrolling bottom to top.
  Vim doesn't read the whole file to parse the text. It starts parsing wherever you are viewing the file. That saves a lot of time, but sometimes the colors are wrong. A simple fix is hitting CTRL-L. Or scroll back a bit and then forward again.
  For a real fix, see :syn-sync . Some syntax files have a way to make it look further back, see the help for the specific syntax file. For example, tex.vim for the TeX syntax.

==
06.3 Different colors :syn-default-override

If you don't like the default colors, you can select another color scheme. In the GUI use the Edit/Color Scheme menu. You can also type the command:

```
:colorscheme evening
```

"evening" is the name of the color scheme. There are several others you might want to try out. Look in the directory $VIMRUNTIME/colors.

When you found the color scheme that you like, add the ":colorscheme" command to your vimrc file.

You could also write your own color scheme. This is how you do it:

1. Select a color scheme that comes close. Copy this file to your own Vim directory. For Unix, this should work:

   ```
   !mkdir ~/.vim/colors
   !cp $VIMRUNTIME/colors/morning.vim ~/.vim/colors/mine.vim
   ```

   This is done from Vim, because it knows the value of $VIMRUNTIME.

2. Edit the color scheme file. These entries are useful:

   ```
   term            attributes in a B&W terminal
   cterm           attributes in a color terminal
   ```

```
        ctermfg         foreground color in a color terminal
        ctermbg         background color in a color terminal
        gui             attributes in the GUI
        guifg           foreground color in the GUI
        guibg           background color in the GUI
```

For example, to make comments green:

```
:highlight Comment ctermfg=green guifg=green
```

Attributes you can use for "cterm" and "gui" are "bold" and "underline". If you want both, use "bold,underline". For details see the :highlight command.

3. Tell Vim to always use your color scheme. Put this line in your vimrc :

```
colorscheme mine
```

If you want to see what the most often used color combinations look like, use this command:

```
:runtime syntax/colortest.vim
```

You will see text in various color combinations. You can check which ones are readable and look nice.

==========

06.4 With colors or without colors

Displaying text in color takes a lot of effort. If you find the displaying too slow, you might want to disable syntax highlighting for a moment:

```
:syntax clear
```

When editing another file (or the same one) the colors will come back.

:syn-off

If you want to stop highlighting completely use:

```
:syntax off
```

This will completely disable syntax highlighting and remove it immediately for all buffers.

:syn-manual

If you want syntax highlighting only for specific files, use this:

```
:syntax manual
```

This will enable the syntax highlighting, but not switch it on automatically when starting to edit a buffer. To switch highlighting on for the current buffer, set the 'syntax' option:

```
:set syntax=ON
```

==
06.5 Printing with colors syntax-printing

In the MS-Windows version you can print the current file with this command:

```
:hardcopy
```

You will get the usual printer dialog, where you can select the printer and a few settings. If you have a color printer, the paper output should look the same as what you see inside Vim. But when you use a dark background the colors will be adjusted to look good on white paper.

There are several options that change the way Vim prints:
'printdevice'
'printheader'
'printfont'
'printoptions'

To print only a range of lines, use Visual mode to select the lines and then type the command:

```
v100j:hardcopy
```

"v" starts Visual mode. "100j" moves a hundred lines down, they will be highlighted. Then ":hardcopy" will print those lines. You can use other commands to move in Visual mode, of course.

This also works on Unix, if you have a PostScript printer. Otherwise, you will have to do a bit more work. You need to convert the text to HTML first, and then print it from a web browser.

Convert the current file to HTML with this command:

```
:TOhtml
```

In case that doesn't work:

```
:source $VIMRUNTIME/syntax/2html.vim
```

You will see it crunching away, this can take quite a while for a large file. Some time later another window shows the HTML code. Now write this somewhere (doesn't matter where, you throw it away later):

```
:write main.c.html
```

Open this file in your favorite browser and print it from there. If all goes well, the output should look exactly as it does in Vim. See 2html.vim for details. Don't forget to delete the HTML file when you are done with it.

Instead of printing, you could also put the HTML file on a web server, and let others look at the colored text.

==

06.6 Further reading

usr_44.txt	Your own syntax highlighted.
syntax	All the details.

==

Next chapter: usr_07.txt Editing more than one file

Copyright: see manual-copyright vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Editing more than one file

No matter how many files you have, you can edit them without leaving Vim.
Define a list of files to work on and jump from one to the other. Copy text
from one file and put it in another one.

Next chapter: usr_08.txt Splitting windows
Previous chapter: usr_06.txt Using syntax highlighting
Table of contents: usr_toc.txt

==========

07.1 Edit another file

So far you had to start Vim for every file you wanted to edit. There is a
simpler way. To start editing another file, use this command:

```
:edit foo.txt
```

You can use any file name instead of "foo.txt". Vim will close the current
file and open the new one. If the current file has unsaved changes, however,
Vim displays an error message and does not open the new file:

```
E37: No write since last change (use ! to override)
```

Note:
Vim puts an error ID at the start of each error message. If you do
not understand the message or what caused it, look in the help system
for this ID. In this case:

```
:help E37
```

At this point, you have a number of alternatives. You can write the file
using this command:

```
:write
```

Or you can force Vim to discard your changes and edit the new file, using the
force (!) character:

```
:edit! foo.txt
```

If you want to edit another file, but not write the changes in the current file yet, you can make it hidden:

```
:hide edit foo.txt
```

The text with changes is still there, but you can't see it. This is further explained in section 22.4 : The buffer list.

==

07.2 A list of files

You can start Vim to edit a sequence of files. For example:

```
vim one.c two.c three.c
```

This command starts Vim and tells it that you will be editing three files. Vim displays just the first file. After you have done your thing in this file, to edit the next file you use this command:

```
:next
```

If you have unsaved changes in the current file, you will get an error message and the ":next" will not work. This is the same problem as with ":edit" mentioned in the previous section. To abandon the changes:

```
:next!
```

But mostly you want to save the changes and move on to the next file. There is a special command for this:

```
:wnext
```

This does the same as using two separate commands:

```
:write
:next
```

WHERE AM I?

To see which file in the argument list you are editing, look in the window title. It should show something like "(2 of 3)". This means you are editing the second file out of three files.
   If you want to see the list of files, use this command:

```
:args
```

This is short for "arguments". The output might look like this:

```
one.c [two.c] three.c
```

These are the files you started Vim with. The one you are currently editing, "two.c", is in square brackets.

MOVING TO OTHER ARGUMENTS

To go back one file:

```
:previous
```

This is just like the ":next" command, except that it moves in the other direction. Again, there is a shortcut command for when you want to write the file first:

```
:wprevious
```

To move to the very last file in the list:

```
:last
```

And to move back to the first one again:

```
:first
```

There is no ":wlast" or ":wfirst" command though!

You can use a count for ":next" and ":previous". To skip two files forward:

```
:2next
```

AUTOMATIC WRITING

When moving around the files and making changes, you have to remember to use ":write". Otherwise you will get an error message. If you are sure you always want to write modified files, you can tell Vim to automatically write them:

```
:set autowrite
```

When you are editing a file which you may not want to write, switch it off again:

```
:set noautowrite
```

EDITING ANOTHER LIST OF FILES

You can redefine the list of files without the need to exit Vim and start it again. Use this command to edit three other files:

```
:args five.c six.c seven.h
```

Or use a wildcard, like it's used in the shell:

```
:args *.txt
```

Vim will take you to the first file in the list. Again, if the current file has changes, you can either write the file first, or use ":args!" (with ! added) to abandon the changes.

DID YOU EDIT THE LAST FILE?

arglist-quit

When you use a list of files, Vim assumes you want to edit them all. To protect you from exiting too early, you will get this error when you didn't edit the last file in the list yet:

```
E173: 46 more files to edit
```

If you really want to exit, just do it again. Then it will work (but not when you did other commands in between).

==

07.3 Jumping from file to file

To quickly jump between two files, press CTRL-^ (on English-US keyboards the ^ is above the 6 key). Example:

```
:args one.c two.c three.c
```

You are now in one.c.

```
:next
```

Now you are in two.c. Now use CTRL-^ to go back to one.c. Another CTRL-^ and you are back in two.c. Another CTRL-^ and you are in one.c again. If you now do:

```
:next
```

You are in three.c. Notice that the CTRL-^ command does not change the idea of where you are in the list of files. Only commands like ":next" and ":previous" do that.

The file you were previously editing is called the "alternate" file. When you just started Vim CTRL-^ will not work, since there isn't a previous file.

PREDEFINED MARKS

After jumping to another file, you can use two predefined marks which are very useful:

```
`"
```

This takes you to the position where the cursor was when you left the file. Another mark that is remembered is the position where you made the last change:

```
`.
```

Suppose you are editing the file "one.txt". Somewhere halfway through the file you use "x" to delete a character. Then you go to the last line with "G" and write the file with ":w". You edit several other files, and then use ":edit one.txt" to come back to "one.txt". If you now use `" Vim jumps to the last line of the file. Using `. takes you to the position where you deleted the character. Even when you move around in the file `" and `. will take you to the remembered position. At least until you make another change or leave the file.

FILE MARKS

In chapter 4 was explained how you can place a mark in a file with "mx" and jump to that position with "`x". That works within one file. If you edit another file and place marks there, these are specific for that file. Thus each file has its own set of marks, they are local to the file.
So far we were using marks with a lowercase letter. There are also marks with an uppercase letter. These are global, they can be used from any file. For example suppose that we are editing the file "foo.txt". Go to halfway down the file ("50%") and place the F mark there (F for foo):

```
50%mF
```

Now edit the file "bar.txt" and place the B mark (B for bar) at its last line:

```
GmB
```

Now you can use the "'F" command to jump back to halfway foo.txt. Or edit yet another file, type "'B" and you are at the end of bar.txt again.

The file marks are remembered until they are placed somewhere else. Thus you can place the mark, do hours of editing and still be able to jump back to that mark.
It's often useful to think of a simple connection between the mark letter and where it is placed. For example, use the H mark in a header file, M in a Makefile and C in a C code file.

To see where a specific mark is, give an argument to the ":marks" command:

```
:marks M
```

You can also give several arguments:

```
:marks MCP
```

Don't forget that you can use CTRL-O and CTRL-I to jump to older and newer positions without placing marks there.

==
07.4 Backup files

Usually Vim does not produce a backup file. If you want to have one, all you need to do is execute the following command:

```
        :set backup
```

The name of the backup file is the original file with a ~ added to the end. If your file is named data.txt, for example, the backup file name is data.txt~.
   If you do not like the fact that the backup files end with ~, you can change the extension:

```
        :set backupext=.bak
```

This will use data.txt.bak instead of data.txt~.
   Another option that matters here is 'backupdir'. It specifies where the backup file is written. The default, to write the backup in the same directory as the original file, will mostly be the right thing.

        Note:
        When the 'backup' option isn't set but the 'writebackup' is, Vim will still create a backup file. However, it is deleted as soon as writing the file was completed successfully. This functions as a safety against losing your original file when writing fails in some way (disk full is the most common cause; being hit by lightning might be another, although less common).

KEEPING THE ORIGINAL FILE

If you are editing source files, you might want to keep the file before you make any changes. But the backup file will be overwritten each time you write the file. Thus it only contains the previous version, not the first one.
   To make Vim keep the original file, set the 'patchmode' option. This specifies the extension used for the first backup of a changed file. Usually you would do this:

```
        :set patchmode=.orig
```

When you now edit the file data.txt for the first time, make changes and write the file, Vim will keep a copy of the unchanged file under the name "data.txt.orig".
   If you make further changes to the file, Vim will notice that "data.txt.orig" already exists and leave it alone. Further backup files will then be called "data.txt~" (or whatever you specified with 'backupext').
   If you leave 'patchmode' empty (that is the default), the original file will not be kept.

==
07.5 Copy text between files

This explains how to copy text from one file to another. Let's start with a simple example. Edit the file that contains the text you want to copy. Move the cursor to the start of the text and press "v". This starts Visual mode. Now move the cursor to the end of the text and press "y". This yanks (copies) the selected text.
   To copy the above paragraph, you would do:

```
:edit thisfile
/This
vjjjj$y
```

Now edit the file you want to put the text in. Move the cursor to the character where you want the text to appear after. Use "p" to put the text there.

```
:edit otherfile
/There
p
```

Of course you can use many other commands to yank the text. For example, to select whole lines start Visual mode with "V". Or use CTRL-V to select a rectangular block. Or use "Y" to yank a single line, "yaw" to yank-a-word, etc.

The "p" command puts the text after the cursor. Use "P" to put the text before the cursor. Notice that Vim remembers if you yanked a whole line or a block, and puts it back that way.

USING REGISTERS

When you want to copy several pieces of text from one file to another, having to switch between the files and writing the target file takes a lot of time. To avoid this, copy each piece of text to its own register.

A register is a place where Vim stores text. Here we will use the registers named a to z (later you will find out there are others). Let's copy a sentence to the f register (f for First):

```
"fyas
```

The "yas" command yanks a sentence like before. It's the "f that tells Vim the text should be placed in the f register. This must come just before the yank command.

Now yank three whole lines to the l register (l for line):

```
"l3Y
```

The count could be before the "l just as well. To yank a block of text to the b (for block) register:

```
CTRL-Vjjww"by
```

Notice that the register specification "b is just before the "y" command. This is required. If you would have put it before the "w" command, it would not have worked.

Now you have three pieces of text in the f, l and b registers. Edit another file, move around and place the text where you want it:

```
"fp
```

Again, the register specification "f comes before the "p" command.

You can put the registers in any order. And the text stays in the register

until you yank something else into it. Thus you can put it as many times as you like.

When you delete text, you can also specify a register. Use this to move several pieces of text around. For example, to delete-a-word and write it in the w register:

```
"wdaw
```

Again, the register specification comes before the delete command "d".

APPENDING TO A FILE

When collecting lines of text into one file, you can use this command:

```
:write >> logfile
```

This will write the text of the current file to the end of "logfile". Thus it is appended. This avoids that you have to copy the lines, edit the log file and put them there. Thus you save two steps. But you can only append to the end of a file.
   To append only a few lines, select them in Visual mode before typing ":write". In chapter 10 you will learn other ways to select a range of lines.

==
07.6 Viewing a file

Sometimes you only want to see what a file contains, without the intention to ever write it back. There is the risk that you type ":w" without thinking and overwrite the original file anyway. To avoid this, edit the file read-only.
   To start Vim in readonly mode, use this command:

```
vim -R file
```

On Unix this command should do the same thing:

```
view file
```

You are now editing "file" in read-only mode. When you try using ":w" you will get an error message and the file won't be written.
   When you try to make a change to the file Vim will give you a warning:

```
W10: Warning: Changing a readonly file
```

The change will be done though. This allows for formatting the file, for example, to be able to read it easily.
   If you make changes to a file and forgot that it was read-only, you can still write it. Add the ! to the write command to force writing.

If you really want to forbid making changes in a file, do this:

```
vim -M file
```

Now every attempt to change the text will fail. The help files are like this, for example. If you try to make a change you get this error message:

```
E21: Cannot make changes, 'modifiable' is off
```

You could use the -M argument to setup Vim to work in a viewer mode. This is only voluntary though, since these commands will remove the protection:

```
:set modifiable
:set write
```

==

07.7 Changing the file name

A clever way to start editing a new file is by using an existing file that contains most of what you need. For example, you start writing a new program to move a file. You know that you already have a program that copies a file, thus you start with:

```
:edit copy.c
```

You can delete the stuff you don't need. Now you need to save the file under a new name. The ":saveas" command can be used for this:

```
:saveas move.c
```

Vim will write the file under the given name, and edit that file. Thus the next time you do ":write", it will write "move.c". "copy.c" remains unmodified.

When you want to change the name of the file you are editing, but don't want to write the file, you can use this command:

```
:file move.c
```

Vim will mark the file as "not edited". This means that Vim knows this is not the file you started editing. When you try to write the file, you might get this message:

```
E13: File exists (use ! to override)
```

This protects you from accidentally overwriting another file.

==

Next chapter: usr_08.txt Splitting windows

VIM USER MANUAL - by Bram Moolenaar

Splitting windows

Display two different files above each other. Or view two locations in the
file at the same time. See the difference between two files by putting them
side by side. All this is possible with split windows.

Next chapter: usr_09.txt Using the GUI
Previous chapter: usr_07.txt Editing more than one file
Table of contents: usr_toc.txt

==

08.1 Split a window

The easiest way to open a new window is to use the following command:

```
:split
```

This command splits the screen into two windows and leaves the cursor in the
top one:

```
+----------------------------------+
|/* file one.c */                  |
|~                                 |
|~                                 |
 one.c==============================
|/* file one.c */                  |
|~                                 |
 one.c==============================
|                                  |
+----------------------------------+
```

What you see here is two windows on the same file. The line with "====" is
the status line. It displays information about the window above it. (In
practice the status line will be in reverse video.)
   The two windows allow you to view two parts of the same file. For example,
you could make the top window show the variable declarations of a program, and
the bottom one the code that uses these variables.

The CTRL-W w command can be used to jump between the windows. If you are in

the top window, CTRL-W w jumps to the window below it. If you are in the bottom window it will jump to the first window. (CTRL-W CTRL-W does the same thing, in case you let go of the CTRL key a bit later.)

CLOSE THE WINDOW

To close a window, use the command:

```
:close
```

Actually, any command that quits editing a file works, like ":quit" and "ZZ". But ":close" prevents you from accidentally exiting Vim when you close the last window.

CLOSING ALL OTHER WINDOWS

If you have opened a whole bunch of windows, but now want to concentrate on one of them, this command will be useful:

```
:only
```

This closes all windows, except for the current one. If any of the other windows has changes, you will get an error message and that window won't be closed.

==========

08.2 Split a window on another file

The following command opens a second window and starts editing the given file:

```
:split two.c
```

If you were editing one.c, then the result looks like this:

```
+----------------------------------+
|/* file two.c */                  |
|~                                 |
|~                                 |
 two.c============================
|/* file one.c */                  |
|~                                 |
 one.c============================
|                                  |
+----------------------------------+
```

To open a window on a new, empty file, use this:

```
:new
```

You can repeat the ":split" and ":new" commands to create as many windows as you like.

08.3 Window size

The ":split" command can take a number argument. If specified, this will be the height of the new window. For example, the following opens a new window three lines high and starts editing the file alpha.c:

```
:3split alpha.c
```

For existing windows you can change the size in several ways. When you have a working mouse, it is easy: Move the mouse pointer to the status line that separates two windows, and drag it up or down.

To increase the size of a window:

```
CTRL-W +
```

To decrease it:

```
CTRL-W -
```

Both of these commands take a count and increase or decrease the window size by that many lines. Thus "4 CTRL-W +" make the window four lines higher.

To set the window height to a specified number of lines:

```
{height}CTRL-W _
```

That's: a number {height}, CTRL-W and then an underscore (the - key with Shift on English-US keyboards).
   To make a window as high as it can be, use the CTRL-W _ command without a count.

USING THE MOUSE

In Vim you can do many things very quickly from the keyboard. Unfortunately, the window resizing commands require quite a bit of typing. In this case, using the mouse is faster. Position the mouse pointer on a status line. Now press the left mouse button and drag. The status line will move, thus making the window on one side higher and the other smaller.

OPTIONS

The 'winheight' option can be set to a minimal desired height of a window and 'winminheight' to a hard minimum height.
   Likewise, there is 'winwidth' for the minimal desired width and 'winminwidth' for the hard minimum width.
   The 'equalalways' option, when set, makes Vim equalize the windows sizes when a window is closed or opened.

08.4 Vertical splits

The ":split" command creates the new window above the current one. To make the window appear at the left side, use:

```
:vsplit
```

or:

```
:vsplit two.c
```

The result looks something like this:

```
+--------------------------------------+
|/* file two.c */   |/* file one.c */  |
|~                  |~                 |
|~                  |~                 |
|~                  |~                 |
 two.c===============one.c=============
|                                      |
+--------------------------------------+
```

Actually, the | lines in the middle will be in reverse video. This is called the vertical separator. It separates the two windows left and right of it.

There is also the ":vnew" command, to open a vertically split window on a new, empty file. Another way to do this:

```
:vertical new
```

The ":vertical" command can be inserted before another command that splits a window. This will cause that command to split the window vertically instead of horizontally. (If the command doesn't split a window, it works unmodified.)

MOVING BETWEEN WINDOWS

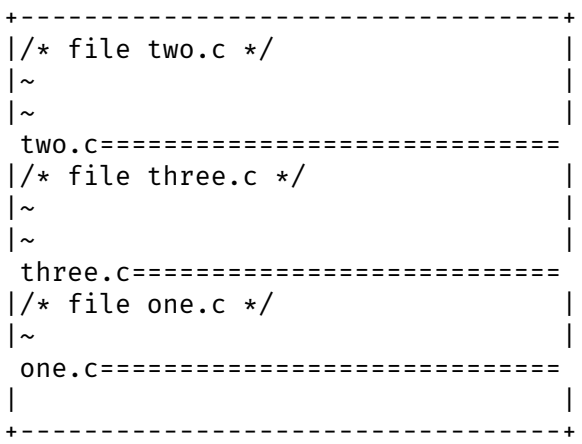
Since you can split windows horizontally and vertically as much as you like, you can create almost any layout of windows. Then you can use these commands to move between them:

```
CTRL-W h        move to the window on the left
CTRL-W j        move to the window below
CTRL-W k        move to the window above
CTRL-W l        move to the window on the right

CTRL-W t        move to the TOP window
CTRL-W b        move to the BOTTOM window
```

You will notice the same letters as used for moving the cursor. And the cursor keys can also be used, if you like.
   More commands to move to other windows: Q_wi .

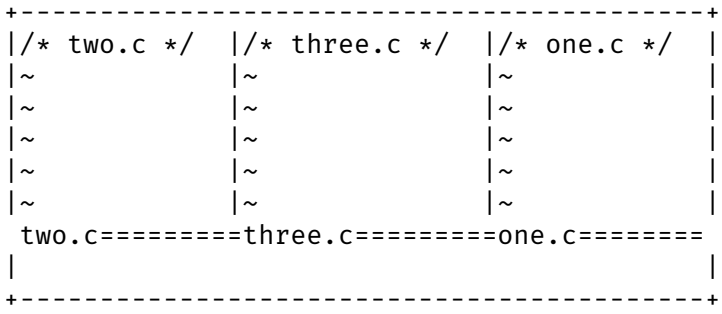
You have split a few windows, but now they are in the wrong place. Then you need a command to move the window somewhere else. For example, you have three windows like this:



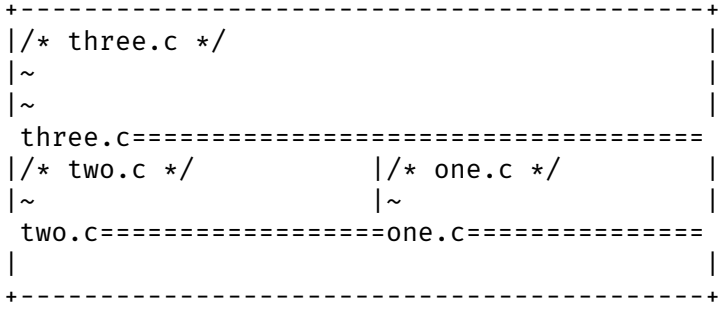
Clearly the last one should be at the top. Go to that window (using CTRL-W w) and the type this command:

	CTRL-W K

This uses the uppercase letter K. What happens is that the window is moved to the very top. You will notice that K is again used for moving upwards.
   When you have vertical splits, CTRL-W K will move the current window to the top and make it occupy the full width of the Vim window. If this is your layout:



Then using CTRL-W K in the middle window (three.c) will result in:



The other three similar commands (you can probably guess these now):

```
        CTRL-W H        move window to the far left
        CTRL-W J        move window to the bottom
        CTRL-W L        move window to the far right
```

==

08.6 Commands for all windows

When you have several windows open and you want to quit Vim, you can close each window separately. A quicker way is using this command:

```
        :qall
```

This stands for "quit all". If any of the windows contain changes, Vim will not exit. The cursor will automatically be positioned in a window with changes. You can then either use ":write" to save the changes, or ":quit!" to throw them away.

If you know there are windows with changes, and you want to save all these changes, use this command:

```
        :wall
```

This stands for "write all". But actually, it only writes files with changes. Vim knows it doesn't make sense to write files that were not changed.
   And then there is the combination of ":qall" and ":wall": the "write and quit all" command:

```
        :wqall
```

This writes all modified files and quits Vim.
   Finally, there is a command that quits Vim and throws away all changes:

```
        :qall!
```

Be careful, there is no way to undo this command!

OPENING A WINDOW FOR ALL ARGUMENTS

To make Vim open a window for each file, start it with the "-o" argument:

```
        vim -o one.txt two.txt three.txt
```

This results in:

```
        +--------------------------------+
        |file one.txt                    |
        |~                               |
         one.txt=======================
        |file two.txt                    |
```

```
        |~                              |
         two.txt=======================
        |file three.txt                 |
        |~                              |
         three.txt======================
        |                               |
        +-------------------------------+
```

The "-O" argument is used to get vertically split windows.
   When Vim is already running, the ":all" command opens a window for each file in the argument list. ":vertical all" does it with vertical splits.

==

08.7 Viewing differences with vimdiff

There is a special way to start Vim, which shows the differences between two files. Let's take a file "main.c" and insert a few characters in one line. Write this file with the 'backup' option set, so that the backup file "main.c~" will contain the previous version of the file.
   Type this command in a shell (not in Vim):

```
        vimdiff main.c~ main.c
```

Vim will start, with two windows side by side. You will only see the line in which you added characters, and a few lines above and below it.

```
         VV                   VV
        +----------------------------------------+
        |+ +--123 lines: /* a|+ +--123 lines: /* a|  <- fold
        |  text              |  text              |
        |  text              |  text              |
        |  text              |  text              |
        |  text              |  changed text      |  <- changed line
        |  text              |  text              |
        |  text              |  ------------------|  <- deleted line
        |  text              |  text              |
        |  text              |  text              |
        |  text              |  text              |
        |+ +--432 lines: text|+ +--432 lines: text|  <- fold
        |  ~                 |  ~                 |
        |  ~                 |  ~                 |
         main.c~==============main.c==============
        |                                        |
        +----------------------------------------+
```

(This picture doesn't show the highlighting, use the vimdiff command for a better look.)

The lines that were not modified have been collapsed into one line. This is called a closed fold. They are indicated in the picture with "<- fold". Thus the single fold line at the top stands for 123 text lines. These lines are equal in both files.
   The line marked with "<- changed line" is highlighted, and the inserted text is displayed with another color. This clearly shows what the difference

is between the two files.
   The line that was deleted is displayed with "---" in the main.c window. See the "<- deleted line" marker in the picture. These characters are not really there. They just fill up main.c, so that it displays the same number of lines as the other window.

THE FOLD COLUMN

Each window has a column on the left with a slightly different background. In the picture above these are indicated with "VV". You notice there is a plus character there, in front of each closed fold. Move the mouse pointer to that plus and click the left button. The fold will open, and you can see the text that it contains.
   The fold column contains a minus sign for an open fold. If you click on this -, the fold will close.
   Obviously, this only works when you have a working mouse. You can also use "zo" to open a fold and "zc" to close it.

DIFFING IN VIM

Another way to start in diff mode can be done from inside Vim. Edit the "main.c" file, then make a split and show the differences:

```
:edit main.c
:vertical diffsplit main.c~
```

The ":vertical" command is used to make the window split vertically. If you omit this, you will get a horizontal split.

If you have a patch or diff file, you can use the third way to start diff mode. First edit the file to which the patch applies. Then tell Vim the name of the patch file:

```
:edit main.c
:vertical diffpatch main.c.diff
```

WARNING: The patch file must contain only one patch, for the file you are editing. Otherwise you will get a lot of error messages, and some files might be patched unexpectedly.
   The patching will only be done to the copy of the file in Vim. The file on your harddisk will remain unmodified (until you decide to write the file).

SCROLL BINDING

When the files have more changes, you can scroll in the usual way. Vim will try to keep both the windows start at the same position, so you can easily see the differences side by side.
   When you don't want this for a moment, use this command:

```
:set noscrollbind
```

JUMPING TO CHANGES

When you have disabled folding in some way, it may be difficult to find the changes. Use this command to jump forward to the next change:

```
]c
```

To go the other way use:

```
[c
```

Prepended a count to jump further away.

REMOVING CHANGES

You can move text from one window to the other. This either removes differences or adds new ones. Vim doesn't keep the highlighting updated in all situations. To update it use this command:

```
:diffupdate
```

To remove a difference, you can move the text in a highlighted block from one window to another. Take the "main.c" and "main.c~" example above. Move the cursor to the left window, on the line that was deleted in the other window. Now type this command:

```
dp
```

The change will be removed by putting the text of the current window in the other window. "dp" stands for "diff put".
   You can also do it the other way around. Move the cursor to the right window, to the line where "changed" was inserted. Now type this command:

```
do
```

The change will now be removed by getting the text from the other window. Since there are no changes left now, Vim puts all text in a closed fold. "do" stands for "diff obtain". "dg" would have been better, but that already has a different meaning ("dgg" deletes from the cursor until the first line).

For details about diff mode, see vimdiff .

==
 08.8   Various

The 'laststatus' option can be used to specify when the last window has a statusline:

```
0       never
1       only when there are split windows (the default)
2       always
```

Many commands that edit another file have a variant that splits the window.
For Command-line commands this is done by prepending an "s". For example:
":tag" jumps to a tag, ":stag" splits the window and jumps to a
tag.
   For Normal mode commands a CTRL-W is prepended. CTRL-^ jumps to the
alternate file, CTRL-W CTRL-^ splits the window and edits the alternate file.

The 'splitbelow' option can be set to make a new window appear below the
current window. The 'splitright' option can be set to make a vertically split
window appear right of the current window.

When splitting a window you can prepend a modifier command to tell where the
window is to appear:

```
:leftabove {cmd}        left or above the current window
:aboveleft {cmd}        idem
:rightbelow {cmd}       right or below the current window
:belowright {cmd}       idem
:topleft {cmd}          at the top or left of the Vim window
:botright {cmd}         at the bottom or right of the Vim window
```

08.9 Tab pages

You will have noticed that windows never overlap. That means you quickly run
out of screen space. The solution for this is called Tab pages.

Assume you are editing "thisfile". To create a new tab page use this command:

```
:tabedit thatfile
```

This will edit the file "thatfile" in a window that occupies the whole Vim
window. And you will notice a bar at the top with the two file names:

```
+-----------------------------------+
| thisfile | /thatfile/ __________X|    (thatfile is bold)
|/* thatfile */                     |
|that                               |
|that                               |
|~                                  |
|~                                  |
|~                                  |
|                                   |
+-----------------------------------+
```

You now have two tab pages. The first one has a window for "thisfile" and the
second one a window for "thatfile". It's like two pages that are on top of
each other, with a tab sticking out of each page showing the file name.

Now use the mouse to click on "thisfile" in the top line. The result is

```
+-----------------------------------+
| /thisfile/ | thatfile __________X|    (thisfile is bold)
```

```
        |/* thisfile */                    |
        |this                              |
        |this                              |
        |~                                 |
        |~                                 |
        |~                                 |
        |                                  |
        +----------------------------------+
```

Thus you can switch between tab pages by clicking on the label in the top line. If you don't have a mouse or don't want to use it, you can use the "gt" command. Mnemonic: Goto Tab.

Now let's create another tab page with the command:

```
        :tab split
```

This makes a new tab page with one window that is editing the same buffer as the window we were in:

```
        +--------------------------------------+
        | thisfile | /thisfile/ | thatfile __X|   (thisfile is bold)
        |/* thisfile */                       |
        |this                                 |
        |this                                 |
        |~                                    |
        |~                                    |
        |~                                    |
        |                                     |
        +-------------------------------------+
```

You can put ":tab" before any Ex command that opens a window. The window will be opened in a new tab page. Another example:

```
        :tab help gt
```

Will show the help text for "gt" in a new tab page.

A few more things you can do with tab pages:

- click with the mouse in the space after the last label
  The next tab page will be selected, like with "gt".

- click with the mouse on the "X" in the top right corner
  The current tab page will be closed. Unless there are unsaved changes in the current tab page.

- double click with the mouse in the top line
  A new tab page will be created.

- the "tabonly" command
  Closes all tab pages except the current one. Unless there are unsaved changes in other tab pages.

For more information about tab pages see tab-page .

==

Next chapter: usr_09.txt   Using the GUI

Copyright: see manual-copyright   vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Using the GUI

Vim works in an ordinary terminal, while gVim has a Graphical User Interface (GUI). It can do the same things and a few more. The GUI offers menus, a toolbar, scrollbars and other items. This chapter is about these extra things that the GUI offers.

Next chapter: usr_10.txt Making big changes
Previous chapter: usr_08.txt Splitting windows
Table of contents: usr_toc.txt

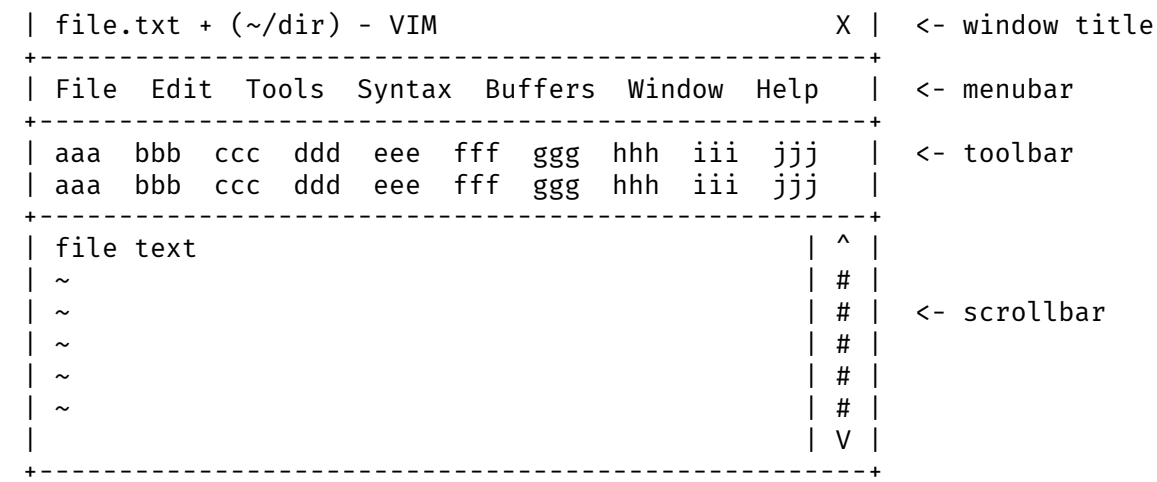
==========

09.1 Parts of the GUI

You might have an icon on your desktop that starts gvim. Otherwise, one of these commands should do it:

```
gvim file.txt
vim -g file.txt
```

If this doesn't work you don't have a version of Vim with GUI support. You will have to install one first.
Vim will open a window and display "file.txt" in it. What the window looks like depends on the version of Vim. It should resemble the following picture (for as far as this can be shown in ASCII!).



The largest space is occupied by the file text. This shows the file in the

same way as in a terminal. With some different colors and another font
perhaps.

THE WINDOW TITLE

At the very top is the window title. This is drawn by your window system.
Vim will set the title to show the name of the current file. First comes the
name of the file. Then some special characters and the directory of the file
in parens. These special characters can be present:

```
-       The file cannot be modified (e.g., a help file)
+       The file contains changes
=       The file is read-only
=+      The file is read-only, contains changes anyway
```

If nothing is shown you have an ordinary, unchanged file.

THE MENUBAR

You know how menus work, right? Vim has the usual items, plus a few more.
Browse them to get an idea of what you can use them for. A relevant submenu
is Edit/Global Settings. You will find these entries:

```
Toggle Toolbar          make the toolbar appear/disappear
Toggle Bottom Scrollbar make a scrollbar appear/disappear at the bottom
Toggle Left Scrollbar   make a scrollbar appear/disappear at the left
Toggle Right Scrollbar  make a scrollbar appear/disappear at the right
```

On most systems you can tear-off the menus. Select the top item of the menu,
the one that looks like a dashed line. You will get a separate window with
the items of the menu. It will hang around until you close the window.

THE TOOLBAR

This contains icons for the most often used actions. Hopefully the icons are
self-explanatory. There are tooltips to get an extra hint (move the mouse
pointer to the icon without clicking and don't move it for a second).

The "Edit/Global Settings/Toggle Toolbar" menu item can be used to make the
toolbar disappear. If you never want a toolbar, use this command in your
vimrc file:

```
:set guioptions-=T
```

This removes the 'T' flag from the 'guioptions' option. Other parts of the
GUI can also be enabled or disabled with this option. See the help for it.

THE SCROLLBARS

By default there is one scrollbar on the right. It does the obvious thing.

When you split the window, each window will get its own scrollbar.
   You can make a horizontal scrollbar appear with the menu item
Edit/Global Settings/Toggle Bottom Scrollbar. This is useful in diff mode, or
when the 'wrap' option has been reset (more about that later).

When there are vertically split windows, only the windows on the right side
will have a scrollbar. However, when you move the cursor to a window on the
left, it will be this one the that scrollbar controls. This takes a bit of
time to get used to.
   When you work with vertically split windows, consider adding a scrollbar on
the left. This can be done with a menu item, or with the 'guioptions' option:

```
:set guioptions+=l
```

This adds the 'l' flag to 'guioptions'.

==
09.2 Using the mouse

Standards are wonderful. In Microsoft Windows, you can use the mouse to
select text in a standard manner. The X Window system also has a standard
system for using the mouse. Unfortunately, these two standards are not the
same.
   Fortunately, you can customize Vim. You can make the behavior of the mouse
work like an X Window system mouse or a Microsoft Windows mouse. The following
command makes the mouse behave like an X Window mouse:

```
:behave xterm
```

The following command makes the mouse work like a Microsoft Windows mouse:

```
:behave mswin
```

The default behavior of the mouse on UNIX systems is xterm. The default
behavior on a Microsoft Windows system is selected during the installation
process. For details about what the two behaviors are, see :behave . Here
follows a summary.

XTERM MOUSE BEHAVIOR

Left mouse click	position the cursor
Left mouse drag	select text in Visual mode
Middle mouse click	paste text from the clipboard
Right mouse click	extend the selected text until the mouse pointer

MSWIN MOUSE BEHAVIOR

Left mouse click	position the cursor
Left mouse drag	select text in Select mode (see 09.4)
Left mouse click, with Shift	extend the selected text until the mouse pointer

Middle mouse click	paste text from the clipboard
Right mouse click	display a pop-up menu

The mouse can be further tuned. Check out these options if you want to change the way how the mouse works:

'mouse'	in which mode the mouse is used by Vim
'mousemodel'	what effect a mouse click has
'mousetime'	time between clicks for a double-click
'mousehide'	hide the mouse while typing
'selectmode'	whether the mouse starts Visual or Select mode

==========

09.3 The clipboard

In section 04.7 the basic use of the clipboard was explained. There is one essential thing to explain about X-windows: There are actually two places to exchange text between programs. MS-Windows doesn't have this.

In X-Windows there is the "current selection". This is the text that is currently highlighted. In Vim this is the Visual area (this assumes you are using the default option settings). You can paste this selection in another application without any further action.
   For example, in this text select a few words with the mouse. Vim will switch to Visual mode and highlight the text. Now start another gvim, without a file name argument, so that it displays an empty window. Click the middle mouse button. The selected text will be inserted.

The "current selection" will only remain valid until some other text is selected. After doing the paste in the other gvim, now select some characters in that window. You will notice that the words that were previously selected in the other gvim window are displayed differently. This means that it no longer is the current selection.

You don't need to select text with the mouse, using the keyboard commands for Visual mode works just as well.

THE REAL CLIPBOARD

Now for the other place with which text can be exchanged. We call this the "real clipboard", to avoid confusion. Often both the "current selection" and the "real clipboard" are called clipboard, you'll have to get used to that.
   To put text on the real clipboard, select a few different words in one of the gvims you have running. Then use the Edit/Copy menu entry. Now the text has been copied to the real clipboard. You can't see this, unless you have some application that shows the clipboard contents (e.g., KDE's Klipper).
   Now select the other gvim, position the cursor somewhere and use the Edit/Paste menu. You will see the text from the real clipboard is inserted.

USING BOTH

This use of both the "current selection" and the "real clipboard" might sound a bit confusing. But it is very useful. Let's show this with an example. Use one gvim with a text file and perform these actions:

- Select two words in Visual mode.
- Use the Edit/Copy menu to get these words onto the clipboard.
- Select one other word in Visual mode.
- Use the Edit/Paste menu item. What will happen is that the single selected word is replaced with the two words from the clipboard.
- Move the mouse pointer somewhere else and click the middle button. You will see that the word you just overwrote with the clipboard is inserted here.

If you use the "current selection" and the "real clipboard" with care, you can do a lot of useful editing with them.

USING THE KEYBOARD

If you don't like using the mouse, you can access the current selection and the real clipboard with two registers. The "* register is for the current selection.
   To make text become the current selection, use Visual mode. For example, to select a whole line just press "V".
   To insert the current selection before the cursor:

```
"*P
```

Notice the uppercase "P". The lowercase "p" puts the text after the cursor.

The "+ register is used for the real clipboard. For example, to copy the text from the cursor position until the end of the line to the clipboard:

```
"+y$
```

Remember, "y" is yank, which is Vim's copy command.
   To insert the contents of the real clipboard before the cursor:

```
"+P
```

It's the same as for the current selection, but uses the plus (+) register instead of the star (*) register.

==
09.4 Select mode

And now something that is used more often on MS-Windows than on X-Windows. But both can do it. You already know about Visual mode. Select mode is like Visual mode, because it is also used to select text. But there is an obvious difference: When typing text, the selected text is deleted and the typed text replaces it.

To start working with Select mode, you must first enable it (for MS-Windows it is probably already enabled, but you can do this anyway):

```
:set selectmode+=mouse
```

Now use the mouse to select some text. It is highlighted like in Visual mode.
Now press a letter. The selected text is deleted, and the single letter
replaces it. You are in Insert mode now, thus you can continue typing.

Since typing normal text causes the selected text to be deleted, you can not
use the normal movement commands "hjkl", "w", etc. Instead, use the shifted
function keys. <S-Left> (shifted cursor left key) moves the cursor left. The
selected text is changed like in Visual mode. The other shifted cursor keys
do what you expect. <S-End> and <S-Home> also work.

You can tune the way Select mode works with the 'selectmode' option.

==

Next chapter: usr_10.txt   Making big changes

Copyright: see manual-copyright   vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Making big changes

In chapter 4 several ways to make small changes were explained. This chapter goes into making changes that are repeated or can affect a large amount of text. The Visual mode allows doing various things with blocks of text. Use an external program to do really complicated things.

Next chapter: usr_11.txt Recovering from a crash
Previous chapter: usr_09.txt Using the GUI
Table of contents: usr_toc.txt

10.1 Record and playback commands

The "." command repeats the preceding change. But what if you want to do something more complex than a single change? That's where command recording comes in. There are three steps:

1. The "q{register}" command starts recording keystrokes into the register named {register}. The register name must be between a and z.
2. Type your commands.
3. To finish recording, press q (without any extra character).

You can now execute the macro by typing the command "@{register}".

Take a look at how to use these commands in practice. You have a list of filenames that look like this:

```
stdio.h
fcntl.h
unistd.h
stdlib.h
```

And what you want is the following:

```
#include "stdio.h"
#include "fcntl.h"
#include "unistd.h"
#include "stdlib.h"
```

You start by moving to the first character of the first line. Next you execute the following commands:

```
qa                      Start recording a macro in register a.
^                       Move to the beginning of the line.
i#include "<Esc>        Insert the string #include " at the beginning
                        of the line.
$                       Move to the end of the line.
a"<Esc>                 Append the character double quotation mark (")
                        to the end of the line.
j                       Go to the next line.
q                       Stop recording the macro.
```

Now that you have done the work once, you can repeat the change by typing the command "@a" three times.

The "@a" command can be preceded by a count, which will cause the macro to be executed that number of times. In this case you would type:

```
3@a
```

MOVE AND EXECUTE

You might have the lines you want to change in various places. Just move the cursor to each location and use the "@a" command. If you have done that once, you can do it again with "@@". That's a bit easier to type. If you now execute register b with "@b", the next "@@" will use register b.

If you compare the playback method with using ".", there are several differences. First of all, "." can only repeat one change. As seen in the example above, "@a" can do several changes, and move around as well. Secondly, "." can only remember the last change. Executing a register allows you to make any changes and then still use "@a" to replay the recorded commands. Finally, you can use 26 different registers. Thus you can remember 26 different command sequences to execute.

USING REGISTERS

The registers used for recording are the same ones you used for yank and delete commands. This allows you to mix recording with other commands to manipulate the registers.

Suppose you have recorded a few commands in register n. When you execute this with "@n" you notice you did something wrong. You could try recording again, but perhaps you will make another mistake. Instead, use this trick:

```
G                       Go to the end of the file.
o<Esc>                  Create an empty line.
"np                     Put the text from the n register.  You now see
                        the commands you typed as text in the file.
{edits}                 Change the commands that were wrong.  This is
                        just like editing text.
0                       Go to the start of the line.
"ny$                    Yank the corrected commands into the n
```

```
                                register.
        dd                      Delete the scratch line.
```

Now you can execute the corrected commands with "@n". (If your recorded commands include line breaks, adjust the last two items in the example to include all the lines.)

APPENDING TO A REGISTER

So far we have used a lowercase letter for the register name. To append to a register, use an uppercase letter.

Suppose you have recorded a command to change a word to register c. It works properly, but you would like to add a search for the next word to change. This can be done with:

```
qC/word<Enter>q
```

You start with "qC", which records to the c register and appends. Thus writing to an uppercase register name means to append to the register with the same letter, but lowercase.

This works both with recording and with yank and delete commands. For example, you want to collect a sequence of lines into the a register. Yank the first line with:

```
"aY
```

Now move to the second line, and type:

```
"AY
```

Repeat this command for all lines. The a register now contains all those lines, in the order you yanked them.

==

10.2 Substitution find-replace

The ":substitute" command enables you to perform string replacements on a whole range of lines. The general form of this command is as follows:

```
:[range]substitute/from/to/[flags]
```

This command changes the "from" string to the "to" string in the lines specified with [range]. For example, you can change "Professor" to "Teacher" in all lines with the following command:

```
:%substitute/Professor/Teacher/
```

Note:
The ":substitute" command is almost never spelled out completely. Most of the time, people use the abbreviated version ":s". From here on the abbreviation will be used.

The "%" before the command specifies the command works on all lines. Without a range, ":s" only works on the current line. More about ranges in the next section 10.3 .

By default, the ":substitute" command changes only the first occurrence on each line. For example, the preceding command changes the line:

```
Professor Smith criticized Professor Johnson today.
```

to:

```
Teacher Smith criticized Professor Johnson today.
```

To change every occurrence on the line, you need to add the g (global) flag. The command:

```
:%s/Professor/Teacher/g
```

results in (starting with the original line):

```
Teacher Smith criticized Teacher Johnson today.
```

Other flags include p (print), which causes the ":substitute" command to print out the last line it changes. The c (confirm) flag tells ":substitute" to ask you for confirmation before it performs each substitution. Enter the following:

```
:%s/Professor/Teacher/c
```

Vim finds the first occurrence of "Professor" and displays the text it is about to change. You get the following prompt:

```
replace with Teacher (y/n/a/q/l/^E/^Y)?
```

At this point, you must enter one of the following answers:

```
y               Yes; make this change.
n               No; skip this match.
a               All; make this change and all remaining ones without
                further confirmation.
q               Quit; don't make any more changes.
l               Last; make this change and then quit.
CTRL-E          Scroll the text one line up.
CTRL-Y          Scroll the text one line down.
```

The "from" part of the substitute command is actually a pattern. The same kind as used for the search command. For example, this command only substitutes "the" when it appears at the start of a line:

```
:s/^the/these/
```

If you are substituting with a "from" or "to" part that includes a slash, you need to put a backslash before it. A simpler way is to use another character

instead of the slash. A plus, for example:

```
:s+one/two+one or two+
```

10.3 Command ranges

The ":substitute" command, and many other : commands, can be applied to a selection of lines. This is called a range.
   The simple form of a range is {number},{number}. For example:

```
:1,5s/this/that/g
```

Executes the substitute command on the lines 1 to 5. Line 5 is included. The range is always placed before the command.

A single number can be used to address one specific line:

```
:54s/President/Fool/
```

Some commands work on the whole file when you do not specify a range. To make them work on the current line the "." address is used. The ":write" command works like that. Without a range, it writes the whole file. To make it write only the current line into a file:

```
:.write otherfile
```

The first line always has number one. How about the last line? The "$" character is used for this. For example, to substitute in the lines from the cursor to the end:

```
:.,$s/yes/no/
```

The "%" range that we used before, is actually a short way to say "1,$", from the first to the last line.

USING A PATTERN IN A RANGE

Suppose you are editing a chapter in a book, and want to replace all occurrences of "grey" with "gray". But only in this chapter, not in the next one. You know that only chapter boundaries have the word "Chapter" in the first column. This command will work then:

```
:?^Chapter?,/^Chapter/s=grey=gray=g
```

You can see a search pattern is used twice. The first "?^Chapter?" finds the line above the current position that matches this pattern. Thus the ?pattern? range is used to search backwards. Similarly, "/^Chapter/" is used to search forward for the start of the next chapter.
   To avoid confusion with the slashes, the "=" character was used in the substitute command here. A slash or another character would have worked as well.

ADD AND SUBTRACT

There is a slight error in the above command: If the title of the next chapter had included "grey" it would be replaced as well. Maybe that's what you wanted, but what if you didn't? Then you can specify an offset.
   To search for a pattern and then use the line above it:

```
/Chapter/-1
```

You can use any number instead of the 1. To address the second line below the match:

```
/Chapter/+2
```

The offsets can also be used with the other items in a range. Look at this one:

```
:.+3,$-5
```

This specifies the range that starts three lines below the cursor and ends five lines before the last line in the file.

USING MARKS

Instead of figuring out the line numbers of certain positions, remembering them and typing them in a range, you can use marks.
   Place the marks as mentioned in chapter 3. For example, use "mt" to mark the top of an area and "mb" to mark the bottom. Then you can use this range to specify the lines between the marks (including the lines with the marks):

```
:'t,'b
```

VISUAL MODE AND RANGES

You can select text with Visual mode. If you then press ":" to start a colon command, you will see this:

```
:'<,'>
```

Now you can type the command and it will be applied to the range of lines that was visually selected.

> Note:
> When using Visual mode to select part of a line, or using CTRL-V to select a block of text, the colon commands will still apply to whole lines. This might change in a future version of Vim.

The '< and '> are actually marks, placed at the start and end of the Visual selection. The marks remain at their position until another Visual selection is made. Thus you can use the "'<" command to jump to position where the Visual area started. And you can mix the marks with other items:

```
:'>,$
```

This addresses the lines from the end of the Visual area to the end of the file.

A NUMBER OF LINES

When you know how many lines you want to change, you can type the number and then ":". For example, when you type "5:", you will get:

```
:.,.+4
```

Now you can type the command you want to use. It will use the range "." (current line) until ".+4" (four lines down). Thus it spans five lines.

==========

10.4 The global command

The ":global" command is one of the more powerful features of Vim. It allows you to find a match for a pattern and execute a command there. The general form is:

```
:[range]global/{pattern}/{command}
```

This is similar to the ":substitute" command. But, instead of replacing the matched text with other text, the command {command} is executed.

> Note:
> The command executed for ":global" must be one that starts with a colon. Normal mode commands can not be used directly. The :normal command can do this for you.

Suppose you want to change "foobar" to "barfoo", but only in C++ style comments. These comments start with "//". Use this command:

```
:g+//+s/foobar/barfoo/g
```

This starts with ":g". That is short for ":global", just like ":s" is short for ":substitute". Then the pattern, enclosed in plus characters. Since the pattern we are looking for contains a slash, this uses the plus character to separate the pattern. Next comes the substitute command that changes "foobar" into "barfoo".

The default range for the global command is the whole file. Thus no range was specified in this example. This is different from ":substitute", which works on one line without a range.

The command isn't perfect, since it also matches lines where "//" appears halfway a line, and the substitution will also take place before the "//".

Just like with ":substitute", any pattern can be used. When you learn more complicated patterns later, you can use them here.

==========

10.5 Visual block mode

With CTRL-V you can start selection of a rectangular area of text. There are a few commands that do something special with the text block.

There is something special about using the "$" command in Visual block mode. When the last motion command used was "$", all lines in the Visual selection will extend until the end of the line, also when the line with the cursor is shorter. This remains effective until you use a motion command that moves the cursor horizontally. Thus using "j" keeps it, "h" stops it.

INSERTING TEXT

The command "I{string}<Esc>" inserts the text {string} in each line, just left of the visual block. You start by pressing CTRL-V to enter visual block mode. Now you move the cursor to define your block. Next you type I to enter Insert mode, followed by the text to insert. As you type, the text appears on the first line only.

After you press <Esc> to end the insert, the text will magically be inserted in the rest of the lines contained in the visual selection. Example:

```
include one
include two
include three
include four
```

Move the cursor to the "o" of "one" and press CTRL-V. Move it down with "3j" to "four". You now have a block selection that spans four lines. Now type:

```
Imain.<Esc>
```

The result:

```
include main.one
include main.two
include main.three
include main.four
```

If the block spans short lines that do not extend into the block, the text is not inserted in that line. For example, make a Visual block selection that includes the word "long" in the first and last line of this text, and thus has no text selected in the second line:

```
This is a long line
short
Any other long line

          ^^^^ selected block
```

Now use the command "Ivery <Esc>". The result is:

```
This is a very long line
short
```

```
        Any other very long line
```

In the short line no text was inserted.

If the string you insert contains a newline, the "I" acts just like a Normal insert command and affects only the first line of the block.

The "A" command works the same way, except that it appends after the right side of the block. And it does insert text in a short line. Thus you can make a choice whether you do or don't want to append text to a short line.
   There is one special case for "A": Select a Visual block and then use "$" to make the block extend to the end of each line. Using "A" now will append the text to the end of each line.
   Using the same example from above, and then typing "$A XXX<Esc>, you get this result:

```
        This is a long line XXX
        short XXX
        Any other long line XXX
```

This really requires using the "$" command. Vim remembers that it was used. Making the same selection by moving the cursor to the end of the longest line with other movement commands will not have the same result.

CHANGING TEXT

The Visual block "c" command deletes the block and then throws you into Insert mode to enable you to type in a string. The string will be inserted in each line in the block.
   Starting with the same selection of the "long" words as above, then typing "c_LONG_<Esc>", you get this:

```
        This is a _LONG_ line
        short
        Any other _LONG_ line
```

Just like with "I" the short line is not changed. Also, you can't enter a newline in the new text.

The "C" command deletes text from the left edge of the block to the end of line. It then puts you in Insert mode so that you can type in a string, which is added to the end of each line.
   Starting with the same text again, and typing "Cnew text<Esc>" you get:

```
        This is a new text
        short
        Any other new text
```

Notice that, even though only the "long" word was selected, the text after it is deleted as well. Thus only the location of the left edge of the visual block really matters.
   Again, short lines that do not reach into the block are excluded.

Other commands that change the characters in the block:

```
        ~       swap case       (a -> A and A -> a)
        U       make uppercase  (a -> A and A -> A)
        u       make lowercase  (a -> a and A -> a)
```

FILLING WITH A CHARACTER

To fill the whole block with one character, use the "r" command. Again, starting with the same example text from above, and then typing "rx":

```
        This is a xxxx line
        short
        Any other xxxx line
```

Note:
If you want to include characters beyond the end of the line in the block, check out the 'virtualedit' feature in chapter 25.

SHIFTING

The command ">" shifts the selected text to the right one shift amount, inserting whitespace. The starting point for this shift is the left edge of the visual block.
With the same example again, ">" gives this result:

```
        This is a         long line
        short
        Any other         long line
```

The shift amount is specified with the 'shiftwidth' option. To change it to use 4 spaces:

```
        :set shiftwidth=4
```

The "<" command removes one shift amount of whitespace at the left edge of the block. This command is limited by the amount of text that is there; so if there is less than a shift amount of whitespace available, it removes what it can.

JOINING LINES

The "J" command joins all selected lines together into one line. Thus it removes the line breaks. Actually, the line break, leading white space and trailing white space is replaced by one space. Two spaces are used after a line ending (that can be changed with the 'joinspaces' option).
Let's use the example that we got so familiar with now. The result of using the "J" command:

```
        This is a long line short Any other long line
```

The "J" command doesn't require a blockwise selection. It works with "v" and "V" selection in exactly the same way.

If you don't want the white space to be changed, use the "gJ" command.

==
10.6 Reading and writing part of a file

When you are writing an e-mail message, you may want to include another file. This can be done with the ":read {filename}" command. The text of the file is put below the cursor line.
   Starting with this text:

```
Hi John,
Here is the diff that fixes the bug:
Bye, Pierre.
```

Move the cursor to the second line and type:

```
:read patch
```

The file named "patch" will be inserted, with this result:

```
Hi John,
Here is the diff that fixes the bug:
2c2
<       for (i = 0; i <= length; ++i)
---
>       for (i = 0; i < length; ++i)
Bye, Pierre.
```

The ":read" command accepts a range. The file will be put below the last line number of this range. Thus ":$r patch" appends the file "patch" at the end of the file.
   What if you want to read the file above the first line? This can be done with the line number zero. This line doesn't really exist, you will get an error message when using it with most commands. But this command is allowed:

```
:0read patch
```

The file "patch" will be put above the first line of the file.

WRITING A RANGE OF LINES

To write a range of lines to a file, the ":write" command can be used. Without a range it writes the whole file. With a range only the specified lines are written:

```
:.,$write tempo
```

This writes the lines from the cursor until the end of the file into the file "tempo". If this file already exists you will get an error message. Vim

protects you from accidentally overwriting an existing file. If you know what you are doing and want to overwrite the file, append !:

```
:.,$write! tempo
```

CAREFUL: The ! must follow the ":write" command immediately, without white space. Otherwise it becomes a filter command, which is explained later in this chapter.

APPENDING TO A FILE

In the first section of this chapter was explained how to collect a number of lines into a register. The same can be done to collect lines in a file. Write the first line with this command:

```
:.write collection
```

Now move the cursor to the second line you want to collect, and type this:

```
:.write >>collection
```

The ">>" tells Vim the "collection" file is not to be written as a new file, but the line must be appended at the end. You can repeat this as many times as you like.

==========

10.7 Formatting text

When you are typing plain text, it's nice if the length of each line is automatically trimmed to fit in the window. To make this happen while inserting text, set the 'textwidth' option:

```
:set textwidth=72
```

You might remember that in the example vimrc file this command was used for every text file. Thus if you are using that vimrc file, you were already using it. To check the current value of 'textwidth':

```
:set textwidth
```

Now lines will be broken to take only up to 72 characters. But when you insert text halfway a line, or when you delete a few words, the lines will get too long or too short. Vim doesn't automatically reformat the text.
   To tell Vim to format the current paragraph:

```
gqap
```

This starts with the "gq" command, which is an operator. Following is "ap", the text object that stands for "a paragraph". A paragraph is separated from the next paragraph by an empty line.

```
Note:
A blank line, which contains white space, does NOT separate
```

paragraphs. This is hard to notice!

Instead of "ap" you could use any motion or text object. If your paragraphs are properly separated, you can use this command to format the whole file:

```
gggqG
```

"gg" takes you to the first line, "gq" is the format operator and "G" the motion that jumps to the last line.

In case your paragraphs aren't clearly defined, you can format just the lines you manually select. Move the cursor to the first line you want to format. Start with the command "gqj". This formats the current line and the one below it. If the first line was short, words from the next line will be appended. If it was too long, words will be moved to the next line. The cursor moves to the second line. Now you can use "." to repeat the command. Keep doing this until you are at the end of the text you want to format.

==
10.8 Changing case

You have text with section headers in lowercase. You want to make the word "section" all uppercase. Do this with the "gU" operator. Start with the cursor in the first column:

```
                          gUw
      section header     ---->     SECTION header
```

The "gu" operator does exactly the opposite:

```
                          guw
      SECTION header     ---->     section header
```

You can also use "g~" to swap case. All these are operators, thus they work with any motion command, with text objects and in Visual mode.
   To make an operator work on lines you double it. The delete operator is "d", thus to delete a line you use "dd". Similarly, "gugu" makes a whole line lowercase. This can be shortened to "guu". "gUgU" is shortened to "gUU" and "g~g~" to "g~~". Example:

```
                            g~~
      Some GIRLS have Fun   ---->   sOME girls HAVE fUN
```

==
10.9 Using an external program

Vim has a very powerful set of commands, it can do anything. But there may still be something that an external command can do better or faster.
   The command "!{motion}{program}" takes a block of text and filters it through an external program. In other words, it runs the system command represented by {program}, giving it the block of text represented by {motion} as input. The output of this command then replaces the selected block.
   Because this summarizes badly if you are unfamiliar with UNIX filters, take a look at an example. The sort command sorts a file. If you execute the

following command, the unsorted file input.txt will be sorted and written to output.txt. (This works on both UNIX and Microsoft Windows.)

```
sort <input.txt >output.txt
```

Now do the same thing in Vim. You want to sort lines 1 through 5 of a file. You start by putting the cursor on line 1. Next you execute the following command:

```
!5G
```

The "!" tells Vim that you are performing a filter operation. The Vim editor expects a motion command to follow, indicating which part of the file to filter. The "5G" command tells Vim to go to line 5, so it now knows that it is to filter lines 1 (the current line) through 5.
In anticipation of the filtering, the cursor drops to the bottom of the screen and a ! prompt displays. You can now type in the name of the filter program, in this case "sort". Therefore, your full command is as follows:

```
!5Gsort<Enter>
```

The result is that the sort program is run on the first 5 lines. The output of the program replaces these lines.

```
line 55                      line 11
line 33                      line 22
line 11          -->         line 33
line 22                      line 44
line 44                      line 55
last line                    last line
```

The "!!" command filters the current line through a filter. In Unix the "date" command prints the current time and date. "!!date<Enter>" replaces the current line with the output of "date". This is useful to add a timestamp to a file.

WHEN IT DOESN'T WORK

Starting a shell, sending it text and capturing the output requires that Vim knows how the shell works exactly. When you have problems with filtering, check the values of these options:

'shell'	specifies the program that Vim uses to execute external programs.
'shellcmdflag'	argument to pass a command to the shell
'shellquote'	quote to be used around the command
'shellxquote'	quote to be used around the command and redirection
'shelltype'	kind of shell (only for the Amiga)
'shellslash'	use forward slashes in the command (only for MS-Windows and alikes)
'shellredir'	string used to write the command output into a file

On Unix this is hardly ever a problem, because there are two kinds of shells: "sh" like and "csh" like. Vim checks the 'shell' option and sets related

options automatically, depending on whether it sees "csh" somewhere in 'shell'.
   On MS-Windows, however, there are many different shells and you might have to tune the options to make filtering work. Check the help for the options for more information.

READING COMMAND OUTPUT

To read the contents of the current directory into the file, use this:

on Unix:
        :read !ls
on MS-Windows:
        :read !dir

The output of the "ls" or "dir" command is captured and inserted in the text, below the cursor. This is similar to reading a file, except that the "!" is used to tell Vim that a command follows.
   The command may have arguments. And a range can be used to tell where Vim should put the lines:

        :0read !date -u

This inserts the current time and date in UTC format at the top of the file. (Well, if you have a date command that accepts the "-u" argument.) Note the difference with using "!!date": that replaced a line, while ":read !date" will insert a line.

WRITING TEXT TO A COMMAND

The Unix command "wc" counts words. To count the words in the current file:

        :write !wc

This is the same write command as before, but instead of a file name the "!" character is used and the name of an external command. The written text will be passed to the specified command as its standard input. The output could look like this:

       4   47   249

The "wc" command isn't verbose. This means you have 4 lines, 47 words and 249 characters.

Watch out for this mistake:

        :write! wc

This will write the file "wc" in the current directory, with force. White space is important here!

REDRAWING THE SCREEN

If the external command produced an error message, the display may have been messed up. Vim is very efficient and only redraws those parts of the screen that it knows need redrawing. But it can't know about what another program has written. To tell Vim to redraw the screen:

CTRL-L

==

Next chapter: usr_11.txt Recovering from a crash

Copyright: see manual-copyright vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Recovering from a crash

Did your computer crash? And you just spent hours editing? Don't panic! Vim stores enough information to be able to restore most of your work. This chapter shows you how to get your work back and explains how the swap file is used.

Next chapter: usr_12.txt Clever tricks
Previous chapter: usr_10.txt Making big changes
Table of contents: usr_toc.txt

11.1 Basic recovery

In most cases recovering a file is quite simple, assuming you know which file you were editing (and the harddisk is still working). Start Vim on the file, with the "-r" argument added:

```
vim -r help.txt
```

Vim will read the swap file (used to store text you were editing) and may read bits and pieces of the original file. If Vim recovered your changes you will see these messages (with different file names, of course):

```
Using swap file ".help.txt.swp"
Original file "~/vim/runtime/doc/help.txt"
Recovery completed. You should check if everything is OK.
(You might want to write out this file under another name
and run diff with the original file to check for changes)
You may want to delete the .swp file now.
```

To be on the safe side, write this file under another name:

```
:write help.txt.recovered
```

Compare the file with the original file to check if you ended up with what you expected. Vimdiff is very useful for this 08.7 . For example:

```
:write help.txt.recovered
:edit #
:diffsp help.txt
```

Watch out for the original file to contain a more recent version (you saved the file just before the computer crashed). And check that no lines are

missing (something went wrong that Vim could not recover).
   If Vim produces warning messages when recovering, read them carefully.
This is rare though.

If the recovery resulted in text that is exactly the same as the file
contents, you will get this message:

```
Using swap file ".help.txt.swp"
Original file "~/vim/runtime/doc/help.txt"
Recovery completed. Buffer contents equals file contents.
You may want to delete the .swp file now.
```

This usually happens if you already recovered your changes, or you wrote the
file after making changes. It is safe to delete the swap file now.

It is normal that the last few changes can not be recovered. Vim flushes the
changes to disk when you don't type for about four seconds, or after typing
about two hundred characters. This is set with the 'updatetime' and
'updatecount' options. Thus when Vim didn't get a chance to save itself when
the system went down, the changes after the last flush will be lost.

If you were editing without a file name, give an empty string as argument:

```
vim -r ""
```

You must be in the right directory, otherwise Vim can't find the swap file.

==
11.2 Where is the swap file?

Vim can store the swap file in several places. Normally it is in the same
directory as the original file. To find it, change to the directory of the
file, and use:

```
vim -r
```

Vim will list the swap files that it can find. It will also look in other
directories where the swap file for files in the current directory may be
located. It will not find swap files in any other directories though, it
doesn't search the directory tree.
   The output could look like this:

```
Swap files found:
   In current directory:
1.    .main.c.swp
          owned by: mool   dated: Tue May 29 21:00:25 2001
        file name: ~mool/vim/vim6/src/main.c
         modified: YES
        user name: mool   host name: masaka.moolenaar.net
      process ID: 12525
   In directory ~/tmp:
      -- none --
   In directory /var/tmp:
      -- none --
```

```
           In directory /tmp:
              -- none --
```

If there are several swap files that look like they may be the one you want to use, a list is given of these swap files and you are requested to enter the number of the one you want to use. Carefully look at the dates to decide which one you want to use.
In case you don't know which one to use, just try them one by one and check the resulting files if they are what you expected.

USING A SPECIFIC SWAP FILE

If you know which swap file needs to be used, you can recover by giving the swap file name. Vim will then finds out the name of the original file from the swap file.

Example:
```
vim -r .help.txt.swo
```

This is also handy when the swap file is in another directory than expected. Vim recognizes files with the pattern *.s[uvw][a-z] as swap files.

If this still does not work, see what file names Vim reports and rename the files accordingly. Check the 'directory' option to see where Vim may have put the swap file.

Note:
Vim tries to find the swap file by searching the directories in the 'dir' option, looking for files that match "filename.sw?". If wildcard expansion doesn't work (e.g., when the 'shell' option is invalid), Vim does a desperate try to find the file "filename.swp". If that fails too, you will have to give the name of the swapfile itself to be able to recover the file.

==
11.3 Crashed or not? ATTENTION E325

Vim tries to protect you from doing stupid things. Suppose you innocently start editing a file, expecting the contents of the file to show up. Instead, Vim produces a very long message:

```
              E325: ATTENTION
       Found a swap file by the name ".main.c.swp"
                 owned by: mool   dated: Tue May 29 21:09:28 2001
                file name: ~mool/vim/vim6/src/main.c
                 modified: no
                user name: mool   host name: masaka.moolenaar.net
               process ID: 12559 (still running)
       While opening file "main.c"
                    dated: Tue May 29 19:46:12 2001

       (1) Another program may be editing the same file.
           If this is the case, be careful not to end up with two
```

```
            different instances of the same file when making changes.
            Quit, or continue with caution.

         (2) An edit session for this file crashed.
             If this is the case, use ":recover" or "vim -r main.c"
             to recover the changes (see ":help recovery").
             If you did this already, delete the swap file ".main.c.swp"
             to avoid this message.
```

You get this message, because, when starting to edit a file, Vim checks if a swap file already exists for that file. If there is one, there must be something wrong. It may be one of these two situations.

1. Another edit session is active on this file. Look in the message for the line with "process ID". It might look like this:

```
                process ID: 12559 (still running)
```

   The text "(still running)" indicates that the process editing this file runs on the same computer. When working on a non-Unix system you will not get this extra hint. When editing a file over a network, you may not see the hint, because the process might be running on another computer. In those two cases you must find out what the situation is yourself.
      If there is another Vim editing the same file, continuing to edit will result in two versions of the same file. The one that is written last will overwrite the other one, resulting in loss of changes. You better quit this Vim.

2. The swap file might be the result from a previous crash of Vim or the computer. Check the dates mentioned in the message. If the date of the swap file is newer than the file you were editing, and this line appears:

```
                modified: YES
```

   Then you very likely have a crashed edit session that is worth recovering.
      If the date of the file is newer than the date of the swap file, then either it was changed after the crash (perhaps you recovered it earlier, but didn't delete the swap file?), or else the file was saved before the crash but after the last write of the swap file (then you're lucky: you don't even need that old swap file). Vim will warn you for this with this extra line:

```
      NEWER than swap file!
```

UNREADABLE SWAP FILE

Sometimes the line

```
        [cannot be read]
```

will appear under the name of the swap file. This can be good or bad, depending on circumstances.

It is good if a previous editing session crashed without having made any changes to the file. Then a directory listing of the swap file will show that it has zero bytes. You may delete it and proceed.

It is slightly bad if you don't have read permission for the swap file. You may want to view the file read-only, or quit. On multi-user systems, if you yourself did the last changes under a different login name, a logout followed by a login under that other name might cure the "read error". Or else you might want to find out who last edited (or is editing) the file and have a talk with them.

It is very bad if it means there is a physical read error on the disk containing the swap file. Fortunately, this almost never happens.
You may want to view the file read-only at first (if you can), to see the extent of the changes that were "forgotten". If you are the one in charge of that file, be prepared to redo your last changes.

WHAT TO DO? swap-exists-choices

If dialogs are supported you will be asked to select one of six choices:

```
Swap file ".main.c.swp" already exists!
[O]pen Read-Only, (E)dit anyway, (R)ecover, (Q)uit, (A)bort, (D)elete it:
```

O Open the file readonly. Use this when you just want to view the file and don't need to recover it. You might want to use this when you know someone else is editing the file, but you just want to look in it and not make changes.

E Edit the file anyway. Use this with caution! If the file is being edited in another Vim, you might end up with two versions of the file. Vim will try to warn you when this happens, but better be safe then sorry.

R Recover the file from the swap file. Use this if you know that the swap file contains changes that you want to recover.

Q Quit. This avoids starting to edit the file. Use this if there is another Vim editing the same file.
   When you just started Vim, this will exit Vim. When starting Vim with files in several windows, Vim quits only if there is a swap file for the first one. When using an edit command, the file will not be loaded and you are taken back to the previously edited file.

A Abort. Like Quit, but also abort further commands. This is useful when loading a script that edits several files, such as a session with multiple windows.

D Delete the swap file. Use this when you are sure you no longer need it. For example, when it doesn't contain changes, or when the file itself is newer than the swap file.
   On Unix this choice is only offered when the process that created the swap file does not appear to be running.

If you do not get the dialog (you are running a version of Vim that does not support it), you will have to do it manually. To recover the file, use this command:

```
:recover
```

Vim cannot always detect that a swap file already exists for a file. This is the case when the other edit session puts the swap files in another directory or when the path name for the file is different when editing it on different machines. Therefore, don't rely on Vim always warning you.

If you really don't want to see this message, you can add the 'A' flag to the 'shortmess' option. But it's very unusual that you need this.

For remarks about encryption and the swap file, see :recover-crypt .

==

11.4 Further reading

swap-file	An explanation about where the swap file will be created and what its name is.
:preserve	Manually flushing the swap file to disk.
:swapname	See the name of the swap file for the current file.
'updatecount'	Number of key strokes after which the swap file is flushed to disk.
'updatetime'	Timeout after which the swap file is flushed to disk.
'swapsync'	Whether the disk is synced when the swap file is flushed.
'directory'	List of directory names where to store the swap file.
'maxmem'	Limit for memory usage before writing text to the swap file.
'maxmemtot'	Same, but for all files in total.

==

Next chapter: usr_12.txt Clever tricks

VIM USER MANUAL - by Bram Moolenaar

Clever tricks

By combining several commands you can make Vim do nearly everything. In this chapter a number of useful combinations will be presented. This uses the commands introduced in the previous chapters and a few more.

Next chapter: usr_20.txt Typing command-line commands quickly
Previous chapter: usr_11.txt Recovering from a crash
Table of contents: usr_toc.txt

==========

12.1 Replace a word

The substitute command can be used to replace all occurrences of a word with another word:

```
:%s/four/4/g
```

The "%" range means to replace in all lines. The "g" flag at the end causes all words in a line to be replaced.
This will not do the right thing if your file also contains "thirtyfour". It would be replaced with "thirty4". To avoid this, use the "\<" item to match the start of a word:

```
:%s/\<four/4/g
```

Obviously, this still goes wrong on "fourteen". Use "\>" to match the end of a word:

```
:%s/\<four\>/4/g
```

If you are programming, you might want to replace "four" in comments, but not in the code. Since this is difficult to specify, add the "c" flag to have the substitute command prompt you for each replacement:

```
:%s/\<four\>/4/gc
```

REPLACING IN SEVERAL FILES

Suppose you want to replace a word in more than one file. You could edit each file and type the command manually. It's a lot faster to use record and playback.
   Let's assume you have a directory with C++ files, all ending in ".cpp". There is a function called "GetResp" that you want to rename to "GetAnswer".

```
        vim *.cpp               Start Vim, defining the argument list to
                                contain all the C++ files.  You are now in the
                                first file.
        qq                      Start recording into the q register
        :%s/\<GetResp\>/GetAnswer/g
                                Do the replacements in the first file.
        :wnext                  Write this file and move to the next one.
        q                       Stop recording.
        @q                      Execute the q register.  This will replay the
                                substitution and ":wnext".  You can verify
                                that this doesn't produce an error message.
        999@q                   Execute the q register on the remaining files.
```

At the last file you will get an error message, because ":wnext" cannot move to the next file. This stops the execution, and everything is done.

        Note:
        When playing back a recorded sequence, an error stops the execution.
        Therefore, make sure you don't get an error message when recording.

There is one catch: If one of the .cpp files does not contain the word "GetResp", you will get an error and replacing will stop. To avoid this, add the "e" flag to the substitute command:

```
        :%s/\<GetResp\>/GetAnswer/ge
```

The "e" flag tells ":substitute" that not finding a match is not an error.

==

12.2 Change "Last, First" to "First Last"

You have a list of names in this form:

```
        Doe, John
        Smith, Peter
```

You want to change that to:

```
        John Doe
        Peter Smith
```

This can be done with just one command:

```
        :%s/\([^,]*\), \(.*\)/\2 \1/
```

Let's break this down in parts. Obviously it starts with a substitute command. The "%" is the line range, which stands for the whole file. Thus

the substitution is done in every line in the file.
   The arguments for the substitute command are "/from/to/". The slashes separate the "from" pattern and the "to" string. This is what the "from" pattern contains:

```
                                                    \([^,]*\), \(.*\)

        The first part between \( \) matches "Last"     \(     \)
            match anything but a comma                    [^,]
            any number of times                               *
        matches ", " literally                                   ,
        The second part between \( \) matches "First"                \(  \)
            any character                                              .
            any number of times                                         *
```

In the "to" part we have "\2" and "\1". These are called backreferences. They refer to the text matched by the "\(\)" parts in the pattern. "\2" refers to the text matched by the second "\(\)", which is the "First" name. "\1" refers to the first "\(\)", which is the "Last" name.
   You can use up to nine backreferences in the "to" part of a substitute command. "\0" stands for the whole matched pattern. There are a few more special items in a substitute command, see sub-replace-special .

==========

12.3 Sort a list

In a Makefile you often have a list of files. For example:

```
        OBJS = \
                version.o \
                pch.o \
                getopt.o \
                util.o \
                getopt1.o \
                inp.o \
                patch.o \
                backup.o
```

To sort this list, filter the text through the external sort command:

```
        /^OBJS
        j
        :.,/^$/-1!sort
```

This goes to the first line, where "OBJS" is the first thing in the line. Then it goes one line down and filters the lines until the next empty line. You could also select the lines in Visual mode and then use "!sort". That's easier to type, but more work when there are many lines.
   The result is this:

```
        OBJS = \
                backup.o
                getopt.o \
                getopt1.o \
                inp.o \
```

```
		patch.o \
		pch.o \
		util.o \
		version.o \
```

Notice that a backslash at the end of each line is used to indicate the line continues. After sorting, this is wrong! The "backup.o" line that was at the end didn't have a backslash. Now that it sorts to another place, it must have a backslash.

The simplest solution is to add the backslash with "A \<Esc>". You can keep the backslash in the last line, if you make sure an empty line comes after it. That way you don't have this problem again.

12.4 Reverse line order

The :global command can be combined with the :move command to move all the lines before the first line, resulting in a reversed file. The command is:

```
:global/^/m 0
```

Abbreviated:

```
:g/^/m 0
```

The "^" regular expression matches the beginning of the line (even if the line is blank). The :move command moves the matching line to after the mythical zeroth line, so the current matching line becomes the first line of the file. As the :global command is not confused by the changing line numbering, :global proceeds to match all remaining lines of the file and puts each as the first.

This also works on a range of lines. First move to above the first line and mark it with "mt". Then move the cursor to the last line in the range and type:

```
:'t+1,.g/^/m 't
```

12.5 Count words

Sometimes you have to write a text with a maximum number of words. Vim can count the words for you.

When the whole file is what you want to count the words in, use this command:

```
g CTRL-G
```

Do not type a space after the g, this is just used here to make the command easy to read.

The output looks like this:

```
Col 1 of 0; Line 141 of 157; Word 748 of 774; Byte 4489 of 4976
```

You can see on which word you are (748), and the total number of words in the file (774).

When the text is only part of a file, you could move to the start of the text, type "g CTRL-G", move to the end of the text, type "g CTRL-G" again, and then use your brain to compute the difference in the word position. That's a good exercise, but there is an easier way. With Visual mode, select the text you want to count words in. Then type g CTRL-G. The result:

```
Selected 5 of 293 Lines; 70 of 1884 Words; 359 of 10928 Bytes
```

For other ways to count words, lines and other items, see count-items .

==

12.6 Find a man page find-manpage

While editing a shell script or C program, you are using a command or function that you want to find the man page for (this is on Unix). Let's first use a simple way: Move the cursor to the word you want to find help on and press

```
K
```

Vim will run the external "man" program on the word. If the man page is found, it is displayed. This uses the normal pager to scroll through the text (mostly the "more" program). When you get to the end pressing <Enter> will get you back into Vim.

A disadvantage is that you can't see the man page and the text you are working on at the same time. There is a trick to make the man page appear in a Vim window. First, load the man filetype plugin:

```
:runtime! ftplugin/man.vim
```

Put this command in your vimrc file if you intend to do this often. Now you can use the ":Man" command to open a window on a man page:

```
:Man csh
```

You can scroll around and the text is highlighted. This allows you to find the help you were looking for. Use CTRL-W w to jump to the window with the text you were working on.

To find a man page in a specific section, put the section number first. For example, to look in section 3 for "echo":

```
:Man 3 echo
```

To jump to another man page, which is in the text with the typical form "word(1)", press CTRL-] on it. Further ":Man" commands will use the same window.

To display a man page for the word under the cursor, use this:

```
\K
```

(If you redefined the <Leader>, use it instead of the backslash).
For example, you want to know the return value of "strstr()" while editing
this line:

```
	if ( strstr (input, "aap") == )
```

Move the cursor to somewhere on "strstr" and type "\K". A window will open
to display the man page for strstr().

==
12.7 Trim blanks

Some people find spaces and tabs at the end of a line useless, wasteful, and
ugly. To remove whitespace at the end of every line, execute the following
command:

```
	:%s/\s\+$//
```

The line range "%" is used, thus this works on the whole file. The pattern
that the ":substitute" command matches with is "\s\+$". This finds white
space characters (\s), 1 or more of them (\+), before the end-of-line ($).
Later will be explained how you write patterns like this, see usr_27.txt .
   The "to" part of the substitute command is empty: "//". Thus it replaces
with nothing, effectively deleting the matched white space.

Another wasteful use of spaces is placing them before a tab. Often these can
be deleted without changing the amount of white space. But not always!
Therefore, you can best do this manually. Use this search command:

```
	/
```

You cannot see it, but there is a space before a tab in this command. Thus
it's "/<Space><Tab>".   Now use "x" to delete the space and check that the
amount of white space doesn't change. You might have to insert a tab if it
does change. Type "n" to find the next match. Repeat this until no more
matches can be found.

==
12.8 Find where a word is used

If you are a UNIX user, you can use a combination of Vim and the grep command
to edit all the files that contain a given word. This is extremely useful if
you are working on a program and want to view or edit all the files that
contain a specific variable.
   For example, suppose you want to edit all the C program files that contain
the word "frame_counter". To do this you use the command:

```
	vim `grep -l frame_counter *.c`
```

Let's look at this command in detail. The grep command searches through a set
of files for a given word. Because the -l argument is specified, the command
will only list the files containing the word and not print the matching lines.
The word it is searching for is "frame_counter". Actually, this can be any

regular expression. (Note: What grep uses for regular expressions is not exactly the same as what Vim uses.)
   The entire command is enclosed in backticks (`). This tells the UNIX shell to run this command and pretend that the results were typed on the command line. So what happens is that the grep command is run and produces a list of files, these files are put on the Vim command line. This results in Vim editing the file list that is the output of grep. You can then use commands like ":next" and ":first" to browse through the files.

FINDING EACH LINE

The above command only finds the files in which the word is found. You still have to find the word within the files.
   Vim has a built-in command that you can use to search a set of files for a given string. If you want to find all occurrences of "error_string" in all C program files, for example, enter the following command:

```
:grep error_string *.c
```

This causes Vim to search for the string "error_string" in all the specified files (*.c). The editor will now open the first file where a match is found and position the cursor on the first matching line. To go to the next matching line (no matter in what file it is), use the ":cnext" command. To go to the previous match, use the ":cprev" command. Use ":clist" to see all the matches and where they are.
   The ":grep" command uses the external commands grep (on Unix) or findstr (on Windows). You can change this by setting the option 'grepprg'.

==

Next chapter: usr_20.txt   Typing command-line commands quickly

   vim:tw=78:ts=8:ft=help:norl:

usr_20.txt For Vim version 8.1. Last change: 2006 Apr 24

VIM USER MANUAL - by Bram Moolenaar

Typing command-line commands quickly

Vim has a few generic features that makes it easier to enter commands. Colon commands can be abbreviated, edited and repeated. Completion is available for nearly everything.

Next chapter: usr_21.txt Go away and come back
Previous chapter: usr_12.txt Clever tricks
Table of contents: usr_toc.txt

==========

20.1 Command line editing

When you use a colon (:) command or search for a string with / or ?, Vim puts the cursor on the bottom of the screen. There you type the command or search pattern. This is called the Command line. Also when it's used for entering a search command.

The most obvious way to edit the command you type is by pressing the <BS> key. This erases the character before the cursor. To erase another character, typed earlier, first move the cursor with the cursor keys.
For example, you have typed this:

```
:s/col/pig/
```

Before you hit <Enter>, you notice that "col" should be "cow". To correct this, you type <Left> five times. The cursor is now just after "col". Type <BS> and "w" to correct:

```
:s/cow/pig/
```

Now you can press <Enter> directly. You don't have to move the cursor to the end of the line before executing the command.

The most often used keys to move around in the command line:

<Left>	one character left
<Right>	one character right
<S-Left> or <C-Left>	one word left
<S-Right> or <C-Right>	one word right
CTRL-B or <Home>	to begin of command line
CTRL-E or <End>	to end of command line

Note:
<S-Left> (cursor left key with Shift key pressed) and <C-Left> (cursor left key with Control pressed) will not work on all keyboards. Same for the other Shift and Control combinations.

You can also use the mouse to move the cursor.

DELETING

As mentioned, <BS> deletes the character before the cursor. To delete a whole word use CTRL-W.

```
/the fine pig
```

CTRL-W

```
/the fine
```

CTRL-U removes all text, thus allows you to start all over again.

OVERSTRIKE

The <Insert> key toggles between inserting characters and replacing the existing ones. Start with this text:

```
/the fine pig
```

Move the cursor to the start of "fine" with <S-Left> twice (or <Left> eight times, if <S-Left> doesn't work). Now press <Insert> to switch to overstrike and type "great":

```
/the greatpig
```

Oops, we lost the space. Now, don't use <BS>, because it would delete the "t" (this is different from Replace mode). Instead, press <Insert> to switch from overstrike to inserting, and type the space:

```
/the great pig
```

CANCELLING

You thought of executing a : or / command, but changed your mind. To get rid of what you already typed, without executing it, press CTRL-C or <Esc>.

Note:
<Esc> is the universal "get out" key. Unfortunately, in the good old Vi pressing <Esc> in a command line executed the command! Since that might be considered to be a bug, Vim uses <Esc> to cancel the command. But with the 'cpoptions' option it can be made Vi compatible. And when using a mapping (which might be written for Vi) <Esc> also works Vi compatible. Therefore, using CTRL-C is a method that always works.

If you are at the start of the command line, pressing <BS> will cancel the command. It's like deleting the ":" or "/" that the line starts with.

==
20.2 Command line abbreviations

Some of the ":" commands are really long. We already mentioned that ":substitute" can be abbreviated to ":s". This is a generic mechanism, all ":" commands can be abbreviated.

How short can a command get? There are 26 letters, and many more commands. For example, ":set" also starts with ":s", but ":s" doesn't start a ":set" command. Instead ":set" can be abbreviated to ":se".
   When the shorter form of a command could be used for two commands, it stands for only one of them. There is no logic behind which one, you have to learn them. In the help files the shortest form that works is mentioned. For example:

```
:s[ubstitute]
```

This means that the shortest form of ":substitute" is ":s". The following characters are optional. Thus ":su" and ":sub" also work.

In the user manual we will either use the full name of command, or a short version that is still readable. For example, ":function" can be abbreviated to ":fu". But since most people don't understand what that stands for, we will use ":fun". (Vim doesn't have a ":funny" command, otherwise ":fun" would be confusing too.)

It is recommended that in Vim scripts you write the full command name. That makes it easier to read back when you make later changes. Except for some often used commands like ":w" (":write") and ":r" (":read").
   A particularly confusing one is ":end", which could stand for ":endif", ":endwhile" or ":endfunction". Therefore, always use the full name.

SHORT OPTION NAMES

In the user manual the long version of the option names is used. Many options also have a short name. Unlike ":" commands, there is only one short name that works. For example, the short name of 'autoindent' is 'ai'. Thus these two commands do the same thing:

```
:set autoindent
:set ai
```

You can find the full list of long and short names here: option-list .

==
20.3 Command line completion

This is one of those Vim features that, by itself, is a reason to switch from Vi to Vim. Once you have used this, you can't do without.

Suppose you have a directory that contains these files:

```
	info.txt
	intro.txt
	bodyofthepaper.txt
```

To edit the last one, you use the command:

```
	:edit bodyofthepaper.txt
```

It's easy to type this wrong. A much quicker way is:

```
	:edit b<Tab>
```

Which will result in the same command. What happened? The <Tab> key does completion of the word before the cursor. In this case "b". Vim looks in the directory and finds only one file that starts with a "b". That must be the one you are looking for, thus Vim completes the file name for you.

Now type:

```
	:edit i<Tab>
```

Vim will beep, and give you:

```
	:edit info.txt
```

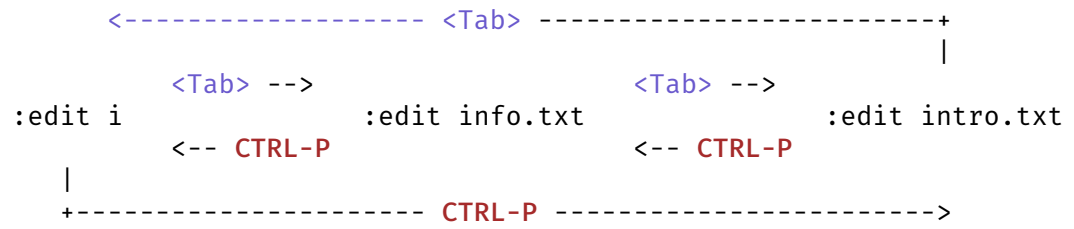
The beep means that Vim has found more than one match. It then uses the first match it found (alphabetically). If you press <Tab> again, you get:

```
	:edit intro.txt
```

Thus, if the first <Tab> doesn't give you the file you were looking for, press it again. If there are more matches, you will see them all, one at a time.
   If you press <Tab> on the last matching entry, you will go back to what you first typed:

```
	:edit i
```

Then it starts all over again. Thus Vim cycles through the list of matches.
Use CTRL-P to go through the list in the other direction:



CONTEXT

When you type ":set i" instead of ":edit i" and press <Tab> you get:

```
:set icon
```

Hey, why didn't you get ":set info.txt"? That's because Vim has context sensitive completion. The kind of words Vim will look for depends on the command before it. Vim knows that you cannot use a file name just after a ":set" command, but you can use an option name.
   Again, if you repeat typing the <Tab>, Vim will cycle through all matches. There are quite a few, it's better to type more characters first:

```
:set isk<Tab>
```

Gives:

```
:set iskeyword
```

Now type "=" and press <Tab>:

```
:set iskeyword=@,48-57,_,192-255
```

What happens here is that Vim inserts the old value of the option. Now you can edit it.
   What is completed with <Tab> is what Vim expects in that place. Just try it out to see how it works. In some situations you will not get what you want. That's either because Vim doesn't know what you want, or because completion was not implemented for that situation. In that case you will get a <Tab> inserted (displayed as ^I).

LIST MATCHES

When there are many matches, you would like to see an overview. Do this by pressing CTRL-D. For example, pressing CTRL-D after:

```
:set is
```

results in:

```
:set is
incsearch  isfname    isident    iskeyword  isprint
:set is
```

Vim lists the matches and then comes back with the text you typed. You can now check the list for the item you wanted. If it isn't there, you can use <BS> to correct the word. If there are many matches, type a few more characters before pressing <Tab> to complete the rest.
   If you have watched carefully, you will have noticed that "incsearch" doesn't start with "is". In this case "is" stands for the short name of "incsearch". (Many options have a short and a long name.) Vim is clever enough to know that you might have wanted to expand the short name of the option into the long name.

THERE IS MORE

The CTRL-L command completes the word to the longest unambiguous string. If you type ":edit i" and there are files "info.txt" and "info_backup.txt" you will get ":edit info".

The 'wildmode' option can be used to change the way completion works.
The 'wildmenu' option can be used to get a menu-like list of matches.
Use the 'suffixes' option to specify files that are less important and appear at the end of the list of files.
The 'wildignore' option specifies files that are not listed at all.

More about all of this here: cmdline-completion

==
20.4 Command line history

In chapter 3 we briefly mentioned the history. The basics are that you can use the <Up> key to recall an older command line. <Down> then takes you back to newer commands.

There are actually four histories. The ones we will mention here are for ":" commands and for "/" and "?" search commands. The "/" and "?" commands share the same history, because they are both search commands. The two other histories are for expressions and input lines for the input() function.
cmdline-history

Suppose you have done a ":set" command, typed ten more colon commands and then want to repeat that ":set" command again. You could press ":" and then ten times <Up>. There is a quicker way:

```
:se<Up>
```

Vim will now go back to the previous command that started with "se". You have a good chance that this is the ":set" command you were looking for. At least you should not have to press <Up> very often (unless ":set" commands is all you have done).

The <Up> key will use the text typed so far and compare it with the lines in the history. Only matching lines will be used.
If you do not find the line you were looking for, use <Down> to go back to what you typed and correct that. Or use CTRL-U to start all over again.

To see all the lines in the history:

```
:history
```

That's the history of ":" commands. The search history is displayed with this command:

```
:history /
```

CTRL-P will work like <Up>, except that it doesn't matter what you already typed. Similarly for CTRL-N and <Down>. CTRL-P stands for previous, CTRL-N

for next.

==
20.5 Command line window

Typing the text in the command line works different from typing text in Insert mode. It doesn't allow many commands to change the text. For most commands that's OK, but sometimes you have to type a complicated command. That's where the command line window is useful.

Open the command line window with this command:

```
q:
```

Vim now opens a (small) window at the bottom. It contains the command line history, and an empty line at the end:

```
+--------------------------------------+
|other window                          |
|~                                     |
 file.txt============================
|:e c                                  |
|:e config.h.in                        |
|:set path=.,/usr/include,,            |
|:set iskeyword=@,48-57,_,192-255      |
|:set is                               |
|:q                                    |
|:                                     |
 command-line========================
|                                      |
+--------------------------------------+
```

You are now in Normal mode. You can use the "hjkl" keys to move around. For example, move up with "5k" to the ":e config.h.in" line. Type "$h" to go to the "i" of "in" and type "cwout". Now you have changed the line to:

```
:e config.h.out
```

Now press <Enter> and this command will be executed. The command line window will close.

The <Enter> command will execute the line under the cursor. It doesn't matter whether Vim is in Insert mode or in Normal mode.

Changes in the command line window are lost. They do not result in the history to be changed. Except that the command you execute will be added to the end of the history, like with all executed commands.

The command line window is very useful when you want to have overview of the history, lookup a similar command, change it a bit and execute it. A search command can be used to find something.

In the previous example the "?config" search command could have been used to find the previous command that contains "config". It's a bit strange, because you are using a command line to search in the command line window. While typing that search command you can't open another command line window, there can be only one.

==

Next chapter: usr_21.txt Go away and come back

Copyright: see manual-copyright vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Go away and come back

This chapter goes into mixing the use of other programs with Vim. Either by executing program from inside Vim or by leaving Vim and coming back later. Furthermore, this is about the ways to remember the state of Vim and restore it later.

Next chapter: usr_22.txt Finding the file to edit
Previous chapter: usr_20.txt Typing command-line commands quickly
Table of contents: usr_toc.txt

21.1 Suspend and resume

Like most Unix programs Vim can be suspended by pressing CTRL-Z. This stops Vim and takes you back to the shell it was started in. You can then do any other commands until you are bored with them. Then bring back Vim with the "fg" command.

```
CTRL-Z
{any sequence of shell commands}
fg
```

You are right back where you left Vim, nothing has changed.
In case pressing CTRL-Z doesn't work, you can also use ":suspend". Don't forget to bring Vim back to the foreground, you would lose any changes that you made!

Only Unix has support for this. On other systems Vim will start a shell for you. This also has the functionality of being able to execute shell commands. But it's a new shell, not the one that you started Vim from.
When you are running the GUI you can't go back to the shell where Vim was started. CTRL-Z will minimize the Vim window instead.

21.2 Executing shell commands

To execute a single shell command from Vim use ":!{command}". For example, to see a directory listing:

```
:!ls
:!dir
```

The first one is for Unix, the second one for MS-Windows.
   Vim will execute the program. When it ends you will get a prompt to hit <Enter>. This allows you to have a look at the output from the command before returning to the text you were editing.
   The "!" is also used in other places where a program is run. Let's take a look at an overview:

```
:!{program}             execute {program}
:r !{program}           execute {program} and read its output
:w !{program}           execute {program} and send text to its input
:[range]!{program}      filter text through {program}
```

Notice that the presence of a range before "!{program}" makes a big difference. Without it executes the program normally, with the range a number of text lines is filtered through the program.

Executing a whole row of programs this way is possible. But a shell is much better at it. You can start a new shell this way:

```
:shell
```

This is similar to using CTRL-Z to suspend Vim. The difference is that a new shell is started.

When using the GUI the shell will be using the Vim window for its input and output. Since Vim is not a terminal emulator, this will not work perfectly. If you have trouble, try toggling the 'guipty' option. If this still doesn't work well enough, start a new terminal to run the shell in. For example with:

```
:!xterm&
```

21.3 Remembering information; viminfo

After editing for a while you will have text in registers, marks in various files, a command line history filled with carefully crafted commands. When you exit Vim all of this is lost. But you can get it back!

The viminfo file is designed to store status information:

```
Command-line and Search pattern history
Text in registers
Marks for various files
The buffer list
Global variables
```

Each time you exit Vim it will store this information in a file, the viminfo file. When Vim starts again, the viminfo file is read and the information restored.

The 'viminfo' option is set by default to restore a limited number of items. You might want to set it to remember more information. This is done through the following command:

```
:set viminfo=string
```

The string specifies what to save. The syntax of this string is an option character followed by an argument. The option/argument pairs are separated by commas.

Take a look at how you can build up your own viminfo string. First, the ' option is used to specify how many files for which you save marks (a-z). Pick a nice even number for this option (1000, for instance). Your command now looks like this:

```
:set viminfo='1000
```

The f option controls whether global marks (A-Z and 0-9) are stored. If this option is 0, none are stored. If it is 1 or you do not specify an f option, the marks are stored. You want this feature, so now you have this:

```
:set viminfo='1000,f1
```

The < option controls how many lines are saved for each of the registers. By default, all the lines are saved. If 0, nothing is saved. To avoid adding thousands of lines to your viminfo file (which might never get used and makes starting Vim slower) you use a maximum of 500 lines:

```
:set viminfo='1000,f1,<500
```

Other options you might want to use:

```
:       number of lines to save from the command line history
@       number of lines to save from the input line history
/       number of lines to save from the search history
r       removable media, for which no marks will be stored (can be
        used several times)
!       global variables that start with an uppercase letter and
        don't contain lowercase letters
h       disable 'hlsearch' highlighting when starting
%       the buffer list (only restored when starting Vim without file
        arguments)
c       convert the text using 'encoding'
n       name used for the viminfo file (must be the last option)
```

See the 'viminfo' option and viminfo-file for more information.

When you run Vim multiple times, the last one exiting will store its information. This may cause information that previously exiting Vims stored to be lost. Each item can be remembered only once.

GETTING BACK TO WHERE YOU STOPPED VIM

You are halfway editing a file and it's time to leave for holidays. You exit Vim and go enjoy yourselves, forgetting all about your work. After a couple of weeks you start Vim, and type:

```
'0
```

And you are right back where you left Vim. So you can get on with your work.
   Vim creates a mark each time you exit Vim. The last one is '0. The position that '0 pointed to is made '1. And '1 is made to '2, and so forth. Mark '9 is lost.
   The :marks command is useful to find out where '0 to '9 will take you.

GETTING BACK TO SOME FILE

If you want to go back to a file that you edited recently, but not when exiting Vim, there is a slightly more complicated way. You can see a list of files by typing the command:

```
:oldfiles
1: ~/.viminfo
2: ~/text/resume.txt
3: /tmp/draft
```

Now you would like to edit the second file, which is in the list preceded by "2:". You type:

```
:e #<2
```

Instead of ":e" you can use any command that has a file name argument, the "#<2" item works in the same place as "%" (current file name) and "#" (alternate file name). So you can also split the window to edit the third file:

```
:split #<3
```

That #<123 thing is a bit complicated when you just want to edit a file. Fortunately there is a simpler way:

```
:browse oldfiles
1: ~/.viminfo
2: ~/text/resume.txt
3: /tmp/draft
-- More --
```

You get the same list of files as with :oldfiles . If you want to edit "resume.txt" first press "q" to stop the listing. You will get a prompt:

```
Type number and <Enter> (empty cancels):
```

Type "2" and press <Enter> to edit the second file.

More info at :oldfiles , v:oldfiles and c_#< .

MOVE INFO FROM ONE VIM TO ANOTHER

You can use the ":wviminfo" and ":rviminfo" commands to save and restore the information while still running Vim. This is useful for exchanging register

contents between two instances of Vim, for example. In the first Vim do:

```
:wviminfo! ~/tmp/viminfo
```

And in the second Vim do:

```
:rviminfo! ~/tmp/viminfo
```

Obviously, the "w" stands for "write" and the "r" for "read".
   The ! character is used by ":wviminfo" to forcefully overwrite an existing file. When it is omitted, and the file exists, the information is merged into the file.
   The ! character used for ":rviminfo" means that all the information is used, this may overwrite existing information. Without the ! only information that wasn't set is used.
   These commands can also be used to store info and use it again later. You could make a directory full of viminfo files, each containing info for a different purpose.

==
21.4 Sessions

Suppose you are editing along, and it is the end of the day. You want to quit work and pick up where you left off the next day. You can do this by saving your editing session and restoring it the next day.
   A Vim session contains all the information about what you are editing. This includes things such as the file list, window layout, global variables, options and other information. (Exactly what is remembered is controlled by the 'sessionoptions' option, described below.)
   The following command creates a session file:

```
:mksession vimbook.vim
```

Later if you want to restore this session, you can use this command:

```
:source vimbook.vim
```

If you want to start Vim and restore a specific session, you can use the following command:

```
vim -S vimbook.vim
```

This tells Vim to read a specific file on startup. The 'S' stands for session (actually, you can source any Vim script with -S, thus it might as well stand for "source").

The windows that were open are restored, with the same position and size as before. Mappings and option values are like before.
   What exactly is restored depends on the 'sessionoptions' option. The default value is "blank,buffers,curdir,folds,help,options,winsize".

```
blank           keep empty windows
buffers         all buffers, not only the ones in a window
curdir          the current directory
```

```
        folds           folds, also manually created ones
        help            the help window
        options         all options and mappings
        winsize         window sizes
```

Change this to your liking. To also restore the size of the Vim window, for example, use:

```
        :set sessionoptions+=resize
```

SESSION HERE, SESSION THERE

The obvious way to use sessions is when working on different projects. Suppose you store your session files in the directory "~/.vim". You are currently working on the "secret" project and have to switch to the "boring" project:

```
        :wall
        :mksession! ~/.vim/secret.vim
        :source ~/.vim/boring.vim
```

This first uses ":wall" to write all modified files. Then the current session is saved, using ":mksession!". This overwrites the previous session. The next time you load the secret session you can continue where you were at this point. And finally you load the new "boring" session.

If you open help windows, split and close various windows, and generally mess up the window layout, you can go back to the last saved session:

```
        :source ~/.vim/boring.vim
```

Thus you have complete control over whether you want to continue next time where you are now, by saving the current setup in a session, or keep the session file as a starting point.

Another way of using sessions is to create a window layout that you like to use, and save this in a session. Then you can go back to this layout whenever you want.

For example, this is a nice layout to use:

```
        +----------------------------------------+
        |                  VIM - main help file  |
        |                                        |
        |Move around:  Use the cursor keys, or "h|
         help.txt================================
        |explorer   |                            |
        |dir        |~                           |
        |dir        |~                           |
        |file       |~                           |
        |file       |~                           |
        |file       |~                           |
        |file       |~                           |
         ~/========= [No File]==================|
        |                                        |
```

```
        +--------------------------------------+
```

This has a help window at the top, so that you can read this text. The narrow vertical window on the left contains a file explorer. This is a Vim plugin that lists the contents of a directory. You can select files to edit there. More about this in the next chapter.
Create this from a just started Vim with:

```
:help
CTRL-W w
:vertical split ~/
```

You can resize the windows a bit to your liking. Then save the session with:

```
:mksession ~/.vim/mine.vim
```

Now you can start Vim with this layout:

```
vim -S ~/.vim/mine.vim
```

Hint: To open a file you see listed in the explorer window in the empty window, move the cursor to the filename and press "O". Double clicking with the mouse will also do this.

UNIX AND MS-WINDOWS

Some people have to do work on MS-Windows systems one day and on Unix another day. If you are one of them, consider adding "slash" and "unix" to 'sessionoptions'. The session files will then be written in a format that can be used on both systems. This is the command to put in your vimrc file:

```
:set sessionoptions+=unix,slash
```

Vim will use the Unix format then, because the MS-Windows Vim can read and write Unix files, but Unix Vim can't read MS-Windows format session files. Similarly, MS-Windows Vim understands file names with / to separate names, but Unix Vim doesn't understand \.

SESSIONS AND VIMINFO

Sessions store many things, but not the position of marks, contents of registers and the command line history. You need to use the viminfo feature for these things.
In most situations you will want to use sessions separately from viminfo. This can be used to switch to another session, but keep the command line history. And yank text into registers in one session, and paste it back in another session.
You might prefer to keep the info with the session. You will have to do this yourself then. Example:

```
:mksession! ~/.vim/secret.vim
:wviminfo! ~/.vim/secret.viminfo
```

And to restore this again:

```
:source ~/.vim/secret.vim
:rviminfo! ~/.vim/secret.viminfo
```

==
21.5 Views

A session stores the looks of the whole of Vim. When you want to store the properties for one window only, use a view.

The use of a view is for when you want to edit a file in a specific way. For example, you have line numbers enabled with the 'number' option and defined a few folds. Just like with sessions, you can remember this view on the file and restore it later. Actually, when you store a session, it stores the view of each window.

There are two basic ways to use views. The first is to let Vim pick a name for the view file. You can restore the view when you later edit the same file. To store the view for the current window:

```
:mkview
```

Vim will decide where to store the view. When you later edit the same file you get the view back with this command:

```
:loadview
```

That's easy, isn't it?

Now you want to view the file without the 'number' option on, or with all folds open, you can set the options to make the window look that way. Then store this view with:

```
:mkview 1
```

Obviously, you can get this back with:

```
:loadview 1
```

Now you can switch between the two views on the file by using ":loadview" with and without the "1" argument.

You can store up to ten views for the same file this way, one unnumbered and nine numbered 1 to 9.

A VIEW WITH A NAME

The second basic way to use views is by storing the view in a file with a name you choose. This view can be loaded while editing another file. Vim will then switch to editing the file specified in the view. Thus you can use this to quickly switch to editing another file, with all its options set as you saved them.

For example, to save the view of the current file:

```
:mkview ~/.vim/main.vim
```

You can restore it with:

```
:source ~/.vim/main.vim
```

==

21.6 Modelines

When editing a specific file, you might set options specifically for that file. Typing these commands each time is boring. Using a session or view for editing a file doesn't work when sharing the file between several people.

The solution for this situation is adding a modeline to the file. This is a line of text that tells Vim the values of options, to be used in this file only.

A typical example is a C program where you make indents by a multiple of 4 spaces. This requires setting the 'shiftwidth' option to 4. This modeline will do that:

```
/* vim:set shiftwidth=4: */
```

Put this line as one of the first or last five lines in the file. When editing the file, you will notice that 'shiftwidth' will have been set to four. When editing another file, it's set back to the default value of eight.

For some files the modeline fits well in the header, thus it can be put at the top of the file. For text files and other files where the modeline gets in the way of the normal contents, put it at the end of the file.

The 'modelines' option specifies how many lines at the start and end of the file are inspected for containing a modeline. To inspect ten lines:

```
:set modelines=10
```

The 'modeline' option can be used to switch this off. Do this when you are working as root on Unix or Administrator on MS-Windows, or when you don't trust the files you are editing:

```
:set nomodeline
```

Use this format for the modeline:

```
any-text vim:set {option}={value} ... : any-text
```

The "any-text" indicates that you can put any text before and after the part that Vim will use. This allows making it look like a comment, like what was done above with /* and */.

The " vim:" part is what makes Vim recognize this line. There must be white space before "vim", or "vim" must be at the start of the line. Thus using something like "gvim:" will not work.

The part between the colons is a ":set" command. It works the same way as typing the ":set" command, except that you need to insert a backslash before a colon (otherwise it would be seen as the end of the modeline).

Another example:

```
        // vim:set textwidth=72 dir=c\:\tmp:  use c:\tmp here
```

There is an extra backslash before the first colon, so that it's included in the ":set" command. The text after the second colon is ignored, thus a remark can be placed there.

For more details see modeline .

==

Next chapter: usr_22.txt Finding the file to edit

Copyright: see manual-copyright vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Finding the file to edit

Files can be found everywhere. So how do you find them? Vim offers various ways to browse the directory tree. There are commands to jump to a file that is mentioned in another. And Vim remembers which files have been edited before.

Next chapter: usr_23.txt Editing other files
Previous chapter: usr_21.txt Go away and come back
Table of contents: usr_toc.txt

22.1 The file browser

Vim has a plugin that makes it possible to edit a directory. Try this:

```
:edit .
```

Through the magic of autocommands and Vim scripts, the window will be filled with the contents of the directory. It looks like this:

```
" ============================================================================
" Netrw Directory Listing                                        (netrw v109)
"   Sorted by      name
"   Sort sequence: [\/]$,\.h$,\.c$,\.cpp$,*,\.info$,\.swp$,\.o$\.obj$,\.bak$
"   Quick Help: <F1>:help  -:go up dir  D:delete  R:rename  s:sort-by  x:exec
" ============================================================================
../
./
check/
Makefile
autocmd.txt
change.txt
eval.txt~
filetype.txt~
help.txt.info
```

You can see these items:

1. The name of the browsing tool and its version number
2. The name of the browsing directory
3. The method of sorting (may be by name, time, or size)
4. How names are to be sorted (directories first, then *.h files, *.c files, etc)

5. How to get help (use the <F1> key), and an abbreviated listing
   of available commands
6. A listing of files, including "../", which allows one to list
   the parent directory.

If you have syntax highlighting enabled, the different parts are highlighted
so as to make it easier to spot them.

You can use Normal mode Vim commands to move around in the text. For example,
move the cursor atop a file and press <Enter>; you will then be editing that
file. To go back to the browser use ":edit ." again, or use ":Explore".
CTRL-O also works.

Try using <Enter> while the cursor is atop a directory name. The result is
that the file browser moves into that directory and displays the items found
there. Pressing <Enter> on the first directory "../" moves you one level
higher. Pressing "-" does the same thing, without the need to move to the
"../" item first.

You can press <F1> to get help on the things you can do in the netrw file
browser. This is what you get:

```
    9. Directory Browsing        netrw-browse   netrw-dir   netrw-list   netrw-help

    MAPS                                                                  netrw-maps
         <F1>.............Help.....................................|netrw-help|
         <cr>.............Browsing.................................|netrw-cr|
         <del>............Deleting Files or Directories............|netrw-delete|
         -................Going Up.................................|netrw--|
         a................Hiding Files or Directories..............|netrw-a|
         mb...............Bookmarking a Directory...................|netrw-mb|
         gb...............Changing to a Bookmarked Directory.........|netrw-gb|
         c................Make Browsing Directory The Current Dir....|netrw-c|
         d................Make A New Directory.....................|netrw-d|
         D................Deleting Files or Directories............|netrw-D|
         <c-h>............Edit File/Directory Hiding List...........|netrw-ctrl-h|
         i................Change Listing Style.....................|netrw-i|
         <c-l>............Refreshing the Listing....................|netrw-ctrl-l|
         o................Browsing with a Horizontal Split..........|netrw-o|
         p................Use Preview Window........................|netrw-p|
         P................Edit in Previous Window...................|netrw-p|
         q................Listing Bookmarks and History.............|netrw-qb|
         r................Reversing Sorting Order...................|netrw-r|
       (etc)
```

The <F1> key thus brings you to a netrw directory browsing contents help page.
It's a regular help page; use the usual CTRL-] to jump to tagged help items
and CTRL-O to jump back.

To select files for display and editing: (with the cursor is atop a filename)

```
        <enter>         Open the file in the current window.        netrw-cr
        o               Horizontally split window and display file  netrw-o
        v               Vertically split window and display file    netrw-v
```

```
        p               Use the  preview-window                    netrw-p
        P               Edit in the previous window                 netrw-P
        t               Open file in a new tab                      netrw-t
```

The following normal-mode commands may be used to control the browser display:

```
        i               Controls listing style (thin, long, wide, and tree).
                        The long listing includes size and date information.
        s               Repeatedly pressing s will change the way the files
                        are sorted; one may sort on name, modification time,
                        or size.
        r               Reverse the sorting order.
```

As a sampling of extra normal-mode commands:

```
        c               Change Vim's notion of the current directory to be
                        the same as the browser directory.  (see
                         g:netrw_keepdir  to control this, too)
        R               Rename the file or directory under the cursor; a
                        prompt will be issued for the new name.
        D               Delete the file or directory under the cursor; a
                        confirmation request will be issued.
        mb gb           Make bookmark/goto bookmark
```

One may also use command mode; again, just a sampling:

```
        :Explore [directory]    Browse specified/current directory
        :NetrwSettings          A comprehensive list of your current netrw
                                settings with help linkage.
```

The netrw browser is not limited to just your local machine; one may use urls such as: (that trailing / is important)

```
        :Explore ftp://somehost/path/to/dir/
        :e scp://somehost/path/to/dir/
```

See netrw-browse for more.

==========

22.2 The current directory

Just like the shell, Vim has the concept of a current directory. Suppose you are in your home directory and want to edit several files in a directory "VeryLongFileName". You could do:

```
        :edit VeryLongFileName/file1.txt
        :edit VeryLongFileName/file2.txt
        :edit VeryLongFileName/file3.txt
```

To avoid much of the typing, do this:

```
        :cd VeryLongFileName
        :edit file1.txt
```

```
:edit file2.txt
:edit file3.txt
```

The ":cd" command changes the current directory. You can see what the current directory is with the ":pwd" command:

```
:pwd
/home/Bram/VeryLongFileName
```

Vim remembers the last directory that you used. Use "cd -" to go back to it. Example:

```
:pwd
/home/Bram/VeryLongFileName
:cd /etc
:pwd
/etc
:cd -
:pwd
/home/Bram/VeryLongFileName
:cd -
:pwd
/etc
```

WINDOW LOCAL DIRECTORY

When you split a window, both windows use the same current directory. When you want to edit a number of files somewhere else in the new window, you can make it use a different directory, without changing the current directory in the other window. This is called a local directory.

```
:pwd
/home/Bram/VeryLongFileName
:split
:lcd /etc
:pwd
/etc
CTRL-W w
:pwd
/home/Bram/VeryLongFileName
```

So long as no ":lcd" command has been used, all windows share the same current directory. Doing a ":cd" command in one window will also change the current directory of the other window.
   For a window where ":lcd" has been used a different current directory is remembered. Using ":cd" or ":lcd" in other windows will not change it.
   When using a ":cd" command in a window that uses a different current directory, it will go back to using the shared directory.

==
22.3 Finding a file

You are editing a C program that contains this line:

```
	#include "inits.h"
```

You want to see what is in that "inits.h" file. Move the cursor on the name of the file and type:

```
	gf
```

Vim will find the file and edit it.
   What if the file is not in the current directory? Vim will use the 'path' option to find the file. This option is a list of directory names where to look for your file.
   Suppose you have your include files located in "c:/prog/include". This command will add it to the 'path' option:

```
	:set path+=c:/prog/include
```

This directory is an absolute path. No matter where you are, it will be the same place. What if you have located files in a subdirectory, below where the file is? Then you can specify a relative path name. This starts with a dot:

```
	:set path+=./proto
```

This tells Vim to look in the directory "proto", below the directory where the file in which you use "gf" is. Thus using "gf" on "inits.h" will make Vim look for "proto/inits.h", starting in the directory of the file.
   Without the "./", thus "proto", Vim would look in the "proto" directory below the current directory. And the current directory might not be where the file that you are editing is located.

The 'path' option allows specifying the directories where to search for files in many more ways. See the help on the 'path' option.
   The 'isfname' option is used to decide which characters are included in the file name, and which ones are not (e.g., the " character in the example above).

When you know the file name, but it's not to be found in the file, you can type it:

```
	:find inits.h
```

Vim will then use the 'path' option to try and locate the file. This is the same as the ":edit" command, except for the use of 'path'.

To open the found file in a new window use CTRL-W f instead of "gf", or use ":sfind" instead of ":find".

A nice way to directly start Vim to edit a file somewhere in the 'path':

```
	vim "+find stdio.h"
```

This finds the file "stdio.h" in your value of 'path'. The quotes are necessary to have one argument -+c .

==
22.4 The buffer list

The Vim editor uses the term buffer to describe a file being edited.
Actually, a buffer is a copy of the file that you edit. When you finish
changing the buffer, you write the contents of the buffer to the file.
Buffers not only contain file contents, but also all the marks, settings, and
other stuff that goes with it.

HIDDEN BUFFERS

Suppose you are editing the file one.txt and need to edit the file two.txt.
You could simply use ":edit two.txt", but since you made changes to one.txt
that won't work. You also don't want to write one.txt yet. Vim has a
solution for you:

```
:hide edit two.txt
```

The buffer "one.txt" disappears from the screen, but Vim still knows that you
are editing this buffer, so it keeps the modified text. This is called a
hidden buffer: The buffer contains text, but you can't see it.

The argument of ":hide" is another command. ":hide" makes that command
behave as if the 'hidden' option was set. You could also set this option
yourself. The effect is that when any buffer is abandoned, it becomes hidden.

Be careful! When you have hidden buffers with changes, don't exit Vim
without making sure you have saved all the buffers.

INACTIVE BUFFERS

When a buffer has been used once, Vim remembers some information about it.
When it is not displayed in a window and it is not hidden, it is still in the
buffer list. This is called an inactive buffer. Overview:

Active	Appears in a window, text loaded.
Hidden	Not in a window, text loaded.
Inactive	Not in a window, no text loaded.

The inactive buffers are remembered, because Vim keeps information about them,
like marks. And remembering the file name is useful too, so that you can see
which files you have edited. And edit them again.

LISTING BUFFERS

View the buffer list with this command:

```
:buffers
```

A command which does the same, is not so obvious to list buffers, but is much
shorter to type:

```
        :ls
```

The output could look like this:

```
  1 #h   "help.txt"                     line 62
  2 %a + "usr_21.txt"                   line 1
  3      "usr_toc.txt"                  line 1
```

The first column contains the buffer number. You can use this to edit the buffer without having to type the name, see below.
   After the buffer number come the flags. Then the name of the file and the line number where the cursor was the last time.
   The flags that can appear are these (from left to right):

```
        u       Buffer is unlisted  unlisted-buffer .
         %      Current buffer.
         #      Alternate buffer.
          a     Buffer is loaded and displayed.
          h     Buffer is loaded but hidden.
           =    Buffer is read-only.
           -    Buffer is not modifiable, the 'modifiable' option is off.
            +   Buffer has been modified.
```

EDITING A BUFFER

You can edit a buffer by its number. That avoids having to type the file name:

```
        :buffer 2
```

But the only way to know the number is by looking in the buffer list. You can use the name, or part of it, instead:

```
        :buffer help
```

Vim will find the best match for the name you type. If there is only one buffer that matches the name, it will be used. In this case "help.txt".
   To open a buffer in a new window:

```
        :sbuffer 3
```

This works with a name as well.

USING THE BUFFER LIST

You can move around in the buffer list with these commands:

```
        :bnext          go to next buffer
        :bprevious      go to previous buffer
        :bfirst         go to the first buffer
        :blast          go to the last buffer
```

To remove a buffer from the list, use this command:

```
:bdelete 3
```

Again, this also works with a name.
   If you delete a buffer that was active (visible in a window), that window will be closed. If you delete the current buffer, the current window will be closed. If it was the last window, Vim will find another buffer to edit. You can't be editing nothing!

> Note:
> Even after removing the buffer with ":bdelete" Vim still remembers it. It's actually made "unlisted", it no longer appears in the list from ":buffers". The ":buffers!" command will list unlisted buffers (yes, Vim can do the impossible). To really make Vim forget about a buffer, use ":bwipe". Also see the 'buflisted' option.

==

Next chapter: usr_23.txt   Editing other files

VIM USER MANUAL - by Bram Moolenaar

Editing other files

This chapter is about editing files that are not ordinary files. With Vim you can edit files that are compressed or encrypted. Some files need to be accessed over the internet. With some restrictions, binary files can be edited as well.

Next chapter: usr_24.txt Inserting quickly
Previous chapter: usr_22.txt Finding the file to edit
Table of contents: usr_toc.txt

==========

23.1 DOS, Mac and Unix files

Back in the early days, the old Teletype machines used two characters to start a new line. One to move the carriage back to the first position (carriage return, <CR>), another to move the paper up (line feed, <LF>).

When computers came out, storage was expensive. Some people decided that they did not need two characters for end-of-line. The UNIX people decided they could use <Line Feed> only for end-of-line. The Apple people standardized on <CR>. The MS-DOS (and Microsoft Windows) folks decided to keep the old <CR><LF>.

This means that if you try to move a file from one system to another, you have line-break problems. The Vim editor automatically recognizes the different file formats and handles things properly behind your back.

The option 'fileformats' contains the various formats that will be tried when a new file is edited. The following command, for example, tells Vim to try UNIX format first and MS-DOS format second:

```
:set fileformats=unix,dos
```

You will notice the format in the message you get when editing a file. You don't see anything if you edit a native file format. Thus editing a Unix file on Unix won't result in a remark. But when you edit a dos file, Vim will notify you of this:

```
"/tmp/test" [dos] 3L, 71C
```

For a Mac file you would see "[mac]".

The detected file format is stored in the 'fileformat' option. To see which format you have, execute the following command:

```
:set fileformat?
```

The three names that Vim uses are:

```
        unix            <LF>
        dos             <CR><LF>
        mac             <CR>
```

USING THE MAC FORMAT

On Unix, <LF> is used to break a line. It's not unusual to have a <CR> character halfway a line. Incidentally, this happens quite often in Vi (and Vim) scripts.
   On the Macintosh, where <CR> is the line break character, it's possible to have a <LF> character halfway a line.
   The result is that it's not possible to be 100% sure whether a file containing both <CR> and <LF> characters is a Mac or a Unix file. Therefore, Vim assumes that on Unix you probably won't edit a Mac file, and doesn't check for this type of file. To check for this format anyway, add "mac" to 'fileformats':

```
        :set fileformats+=mac
```

Then Vim will take a guess at the file format. Watch out for situations where Vim guesses wrong.

OVERRULING THE FORMAT

If you use the good old Vi and try to edit an MS-DOS format file, you will find that each line ends with a ^M character. (^M is <CR>). The automatic detection avoids this. Suppose you do want to edit the file that way? Then you need to overrule the format:

```
        :edit ++ff=unix file.txt
```

The "++" string is an item that tells Vim that an option name follows, which overrules the default for this single command. "++ff" is used for 'fileformat'. You could also use "++ff=mac" or "++ff=dos".
   This doesn't work for any option, only "++ff" and "++enc" are currently implemented. The full names "++fileformat" and "++encoding" also work.

CONVERSION

You can use the 'fileformat' option to convert from one file format to another. Suppose, for example, that you have an MS-DOS file named README.TXT that you want to convert to UNIX format. Start by editing the MS-DOS format file:

```
        vim README.TXT
```

Vim will recognize this as a dos format file. Now change the file format to UNIX:

```
:set fileformat=unix
:write
```

The file is written in Unix format.

23.2 Files on the internet

Someone sends you an e-mail message, which refers to a file by its URL. For example:

```
You can find the information here:
        ftp://ftp.vim.org/pub/vim/README
```

You could start a program to download the file, save it on your local disk and then start Vim to edit it.
   There is a much simpler way. Move the cursor to any character of the URL. Then use this command:

```
gf
```

With a bit of luck, Vim will figure out which program to use for downloading the file, download it and edit the copy. To open the file in a new window use CTRL-W f.
   If something goes wrong you will get an error message. It's possible that the URL is wrong, you don't have permission to read it, the network connection is down, etc. Unfortunately, it's hard to tell the cause of the error. You might want to try the manual way of downloading the file.

Accessing files over the internet works with the netrw plugin. Currently URLs with these formats are recognized:

```
ftp://          uses ftp
rcp://          uses rcp
scp://          uses scp
http://         uses wget (reading only)
```

Vim doesn't do the communication itself, it relies on the mentioned programs to be available on your computer. On most Unix systems "ftp" and "rcp" will be present. "scp" and "wget" might need to be installed.

Vim detects these URLs for each command that starts editing a new file, also with ":edit" and ":split", for example. Write commands also work, except for http://.

For more information, also about passwords, see netrw .

23.3 Encryption

Some information you prefer to keep to yourself. For example, when writing a test on a computer that students also use. You don't want clever students to figure out a way to read the questions before the exam starts. Vim can encrypt the file for you, which gives you some protection.

To start editing a new file with encryption, use the "-x" argument to start Vim. Example:

```
vim -x exam.txt
```

Vim prompts you for a key used for encrypting and decrypting the file:

```
Enter encryption key:
```

Carefully type the secret key now. You cannot see the characters you type, they will be replaced by stars. To avoid the situation that a typing mistake will cause trouble, Vim asks you to enter the key again:

```
Enter same key again:
```

You can now edit this file normally and put in all your secrets. When you finish editing the file and tell Vim to exit, the file is encrypted and written.

When you edit the file with Vim, it will ask you to enter the same key again. You don't need to use the "-x" argument. You can also use the normal ":edit" command. Vim adds a magic string to the file by which it recognizes that the file was encrypted.

If you try to view this file using another program, all you get is garbage. Also, if you edit the file with Vim and enter the wrong key, you get garbage. Vim does not have a mechanism to check if the key is the right one (this makes it much harder to break the key).

SWITCHING ENCRYPTION ON AND OFF

To disable the encryption of a file, set the 'key' option to an empty string:

```
:set key=
```

The next time you write the file this will be done without encryption.

Setting the 'key' option to enable encryption is not a good idea, because the password appears in the clear. Anyone shoulder-surfing can read your password.

To avoid this problem, the ":X" command was created. It asks you for an encryption key, just like the "-x" argument did:

```
:X
Enter encryption key: ******
Enter same key again: ******
```

LIMITS ON ENCRYPTION

The encryption algorithm used by Vim is weak. It is good enough to keep out the casual prowler, but not good enough to keep out a cryptology expert with lots of time on his hands. Also you should be aware that the swap file is not encrypted; so while you are editing, people with superuser privileges can read the unencrypted text from this file.

One way to avoid letting people read your swap file is to avoid using one.

If the -n argument is supplied on the command line, no swap file is used (instead, Vim puts everything in memory). For example, to edit the encrypted file "file.txt" without a swap file use the following command:

```
vim -x -n file.txt
```

When already editing a file, the swapfile can be disabled with:

```
:setlocal noswapfile
```

Since there is no swapfile, recovery will be impossible. Save the file a bit more often to avoid the risk of losing your changes.

While the file is in memory, it is in plain text. Anyone with privilege can look in the editor's memory and discover the contents of the file.
   If you use a viminfo file, be aware that the contents of text registers are written out in the clear as well.
   If you really want to secure the contents of a file, edit it only on a portable computer not connected to a network, use good encryption tools, and keep the computer locked up in a big safe when not in use.

==
23.4 Binary files

You can edit binary files with Vim. Vim wasn't really made for this, thus there are a few restrictions. But you can read a file, change a character and write it back, with the result that only that one character was changed and the file is identical otherwise.
   To make sure that Vim does not use its clever tricks in the wrong way, add the "-b" argument when starting Vim:

```
vim -b datafile
```

This sets the 'binary' option. The effect of this is that unexpected side effects are turned off. For example, 'textwidth' is set to zero, to avoid automatic formatting of lines. And files are always read in Unix file format.

Binary mode can be used to change a message in a program. Be careful not to insert or delete any characters, it would stop the program from working. Use "R" to enter replace mode.

Many characters in the file will be unprintable. To see them in Hex format:

```
:set display=uhex
```

Otherwise, the "ga" command can be used to see the value of the character under the cursor. The output, when the cursor is on an <Esc>, looks like this:

```
<^[>  27,  Hex 1b,  Octal 033
```

There might not be many line breaks in the file. To get some overview switch the 'wrap' option off:

```
:set nowrap
```

BYTE POSITION

To see on which byte you are in the file use this command:

```
g CTRL-G
```

The output is verbose:

```
Col 9-16 of 9-16; Line 277 of 330; Word 1806 of 2058; Byte 10580 of 12206
```

The last two numbers are the byte position in the file and the total number of bytes. This takes into account how 'fileformat' changes the number of bytes that a line break uses.
To move to a specific byte in the file, use the "go" command. For example, to move to byte 2345:

```
2345go
```

USING XXD

A real binary editor shows the text in two ways: as it is and in hex format. You can do this in Vim by first converting the file with the "xxd" program. This comes with Vim.
First edit the file in binary mode:

```
vim -b datafile
```

Now convert the file to a hex dump with xxd:

```
:%!xxd
```

The text will look like this:

```
0000000: 1f8b 0808 39d7 173b 0203 7474 002b 4e49  ....9..;..tt.+NI
0000010: 4b2c 8660 eb9c ecac c462 eb94 345e 2e30  K,.`.....b..4^.0
0000020: 373b 2731 0b22 0ca6 c1a2 d669 1035 39d9  7;'1."......i.59.
```

You can now view and edit the text as you like. Vim treats the information as ordinary text. Changing the hex does not cause the printable character to be changed, or the other way around.
Finally convert it back with:

```
:%!xxd -r
```

Only changes in the hex part are used. Changes in the printable text part on the right are ignored.

See the manual page of xxd for more information.

==

23.5 Compressed files

This is easy: You can edit a compressed file just like any other file. The "gzip" plugin takes care of decompressing the file when you edit it. And compressing it again when you write it.
These compression methods are currently supported:

```
.Z      compress
.gz     gzip
.bz2    bzip2
```

Vim uses the mentioned programs to do the actual compression and decompression. You might need to install the programs first.

==

Next chapter: usr_24.txt Inserting quickly

VIM USER MANUAL - by Bram Moolenaar

Inserting quickly

When entering text, Vim offers various ways to reduce the number of keystrokes and avoid typing mistakes. Use Insert mode completion to repeat previously typed words. Abbreviate long words to short ones. Type characters that aren't on your keyboard.

Next chapter: usr_25.txt Editing formatted text
Previous chapter: usr_23.txt Editing other files
Table of contents: usr_toc.txt

==========

24.1 Making corrections

The <BS> key was already mentioned. It deletes the character just before the cursor. The <Del> key does the same for the character under (after) the cursor.

When you typed a whole word wrong, use CTRL-W:

```
The horse had fallen to the sky
                          CTRL-W
The horse had fallen to the
```

If you really messed up a line and want to start over, use CTRL-U to delete it. This keeps the text after the cursor and the indent. Only the text from the first non-blank to the cursor is deleted. With the cursor on the "f" of "fallen" in the next line pressing CTRL-U does this:

```
The horse had fallen to the
             CTRL-U
fallen to the
```

When you spot a mistake a few words back, you need to move the cursor there to correct it. For example, you typed this:

```
The horse had follen to the ground
```

You need to change "follen" to "fallen". With the cursor at the end, you

would type this to correct it:

```
                                      <Esc>4blraA

       get out of Insert mode          <Esc>
        four words back                      4b
        move on top of the "o"                 l
        replace with "a"                        ra
        restart Insert mode                       A
```

Another way to do this:

```
               <C-Left><C-Left><C-Left><C-Left><Right><Del>a<End>

       four words back             <C-Left><C-Left><C-Left><C-Left>
        move on top of the "o"                    <Right>
        delete the "o"                                  <Del>
        insert an "a"                                        a
        go to end of the line                                 <End>
```

This uses special keys to move around, while remaining in Insert mode. This resembles what you would do in a modeless editor. It's easier to remember, but takes more time (you have to move your hand from the letters to the cursor keys, and the <End> key is hard to press without looking at the keyboard).
   These special keys are most useful when writing a mapping that doesn't leave Insert mode. The extra typing doesn't matter then.
   An overview of the keys you can use in Insert mode:

```
        <C-Home>        to start of the file
        <PageUp>        a whole screenful up
        <Home>          to start of line
        <S-Left>        one word left
        <C-Left>        one word left
        <S-Right>       one word right
        <C-Right>       one word right
        <End>           to end of the line
        <PageDown>      a whole screenful down
        <C-End>         to end of the file
```

There are a few more, see ins-special-special .

==========

24.2 Showing matches

When you type a) it would be nice to see with which (it matches. To make Vim do that use this command:

```
        :set showmatch
```

When you now type a text like "(example)", as soon as you type the) Vim will briefly move the cursor to the matching (, keep it there for half a second, and move back to where you were typing.
   In case there is no matching (, Vim will beep. Then you know that you might have forgotten the (somewhere, or typed a) too many.

The match will also be shown for [] and {} pairs. You don't have to wait with typing the next character, as soon as Vim sees it the cursor will move back and inserting continues as before.

You can change the time Vim waits with the 'matchtime' option. For example, to make Vim wait one and a half second:

```
:set matchtime=15
```

The time is specified in tenths of a second.

24.3 Completion

Vim can automatically complete words on insertion. You type the first part of a word, press CTRL-P, and Vim guesses the rest.

Suppose, for example, that you are creating a C program and want to type in the following:

```
total = ch_array[0] + ch_array[1] + ch_array[2];
```

You start by entering the following:

```
total = ch_array[0] + ch_
```

At this point, you tell Vim to complete the word using the command CTRL-P. Vim searches for a word that starts with what's in front of the cursor. In this case, it is "ch_", which matches with the word ch_array. So typing CTRL-P gives you the following:

```
total = ch_array[0] + ch_array
```

After a little more typing, you get this (ending in a space):

```
total = ch_array[0] + ch_array[1] +
```

If you now type CTRL-P Vim will search again for a word that completes the word before the cursor. Since there is nothing in front of the cursor, it finds the first word backwards, which is "ch_array". Typing CTRL-P again gives you the next word that matches, in this case "total". A third CTRL-P searches further back. If there is nothing else, it causes the editor to run out of words, so it returns to the original text, which is nothing. A fourth CTRL-P causes the editor to start over again with "ch_array".

To search forward, use CTRL-N. Since the search wraps around the end of the file, CTRL-N and CTRL-P will find the same matches, but in a different sequence. Hint: CTRL-N is Next-match and CTRL-P is Previous-match.

The Vim editor goes through a lot of effort to find words to complete. By default, it searches the following places:

1. Current file
2. Files in other windows
3. Other loaded files (hidden buffers)
4. Files which are not loaded (inactive buffers)

5. Tag files
6. All files #included by the current file

OPTIONS

You can customize the search order with the 'complete' option.

The 'ignorecase' option is used. When it is set, case differences are ignored when searching for matches.

A special option for completion is 'infercase'. This is useful to find matches while ignoring case ('ignorecase' must be set) but still using the case of the word typed so far. Thus if you type "For" and Vim finds a match "fortunately", it will result in "Fortunately".

COMPLETING SPECIFIC ITEMS

If you know what you are looking for, you can use these commands to complete with a certain type of item:

CTRL-X CTRL-F	file names
CTRL-X CTRL-L	whole lines
CTRL-X CTRL-D	macro definitions (also in included files)
CTRL-X CTRL-I	current and included files
CTRL-X CTRL-K	words from a dictionary
CTRL-X CTRL-T	words from a thesaurus
CTRL-X CTRL-]	tags
CTRL-X CTRL-V	Vim command line

After each of them CTRL-N can be used to find the next match, CTRL-P to find the previous match.
More information for each of these commands here: ins-completion .

COMPLETING FILE NAMES

Let's take CTRL-X CTRL-F as an example. This will find file names. It scans the current directory for files and displays each one that matches the word in front of the cursor.
Suppose, for example, that you have the following files in the current directory:

```
main.c  sub_count.c  sub_done.c  sub_exit.c
```

Now enter Insert mode and start typing:

```
The exit code is in the file sub
```

At this point, you enter the command CTRL-X CTRL-F. Vim now completes the current word "sub" by looking at the files in the current directory. The first match is sub_count.c. This is not the one you want, so you match the next file by typing CTRL-N. This match is sub_done.c. Typing CTRL-N again

takes you to sub_exit.c. The results:

```
	The exit code is in the file sub_exit.c
```

If the file name starts with / (Unix) or C:\ (MS-Windows) you can find all files in the file system. For example, type "/u" and CTRL-X CTRL-F. This will match "/usr" (this is on Unix):

```
	the file is found in /usr/
```

If you now press CTRL-N you go back to "/u". Instead, to accept the "/usr/" and go one directory level deeper, use CTRL-X CTRL-F again:

```
	the file is found in /usr/X11R6/
```

The results depend on what is found in your file system, of course. The matches are sorted alphabetically.

COMPLETING IN SOURCE CODE

Source code files are well structured. That makes it possible to do completion in an intelligent way. In Vim this is called Omni completion. In some other editors it's called intellisense, but that is a trademark.

The key to Omni completion is CTRL-X CTRL-O. Obviously the O stands for Omni here, so that you can remember it easier. Let's use an example for editing C source:

```
	{
	    struct foo *p;
	    p->
```

The cursor is after "p->". Now type CTRL-X CTRL-O. Vim will offer you a list of alternatives, which are the items that "struct foo" contains. That is quite different from using CTRL-P, which would complete any word, while only members of "struct foo" are valid here.

For Omni completion to work you may need to do some setup. At least make sure filetype plugins are enabled. Your vimrc file should contain a line like this:

```
	filetype plugin on
```

Or:

```
	filetype plugin indent on
```

For C code you need to create a tags file and set the 'tags' option. That is explained ft-c-omni . For other filetypes you may need to do something similar, look below compl-omni-filetypes . It only works for specific filetypes. Check the value of the 'omnifunc' option to find out if it would work.

==

24.4 Repeating an insert

If you press CTRL-A, the editor inserts the text you typed the last time you were in Insert mode.
   Assume, for example, that you have a file that begins with the following:

```
"file.h"
/* Main program begins */
```

You edit this file by inserting "#include " at the beginning of the first line:

```
#include "file.h"
/* Main program begins */
```

You go down to the beginning of the next line using the commands "j^". You now start to insert a new "#include" line. So you type:

```
i CTRL-A
```

The result is as follows:

```
#include "file.h"
#include /* Main program begins */
```

The "#include " was inserted because CTRL-A inserts the text of the previous insert. Now you type "main.h"<Enter> to finish the line:

```
#include "file.h"
#include "main.h"
/* Main program begins */
```

The CTRL-@ command does a CTRL-A and then exits Insert mode. That's a quick way of doing exactly the same insertion again.

==========

24.5 Copying from another line

The CTRL-Y command inserts the character above the cursor. This is useful when you are duplicating a previous line. For example, you have this line of C code:

```
b_array[i]->s_next = a_array[i]->s_next;
```

Now you need to type the same line, but with "s_prev" instead of "s_next". Start the new line, and press CTRL-Y 14 times, until you are at the "n" of "next":

```
b_array[i]->s_next = a_array[i]->s_next;
b_array[i]->s_
```

Now you type "prev":

```
b_array[i]->s_next = a_array[i]->s_next;
b_array[i]->s_prev
```

Continue pressing CTRL-Y until the following "next":

```
        b_array[i]->s_next = a_array[i]->s_next;
        b_array[i]->s_prev = a_array[i]->s_
```

Now type "prev;" to finish it off.

The CTRL-E command acts like CTRL-Y except it inserts the character below the cursor.

==

24.6 Inserting a register

The command CTRL-R {register} inserts the contents of the register. This is useful to avoid having to type a long word. For example, you need to type this:

```
        r = VeryLongFunction(a) + VeryLongFunction(b) + VeryLongFunction(c)
```

The function name is defined in a different file. Edit that file and move the cursor on top of the function name there, and yank it into register v:

```
        "vyiw
```

"v is the register specification, "yiw" is yank-inner-word. Now edit the file where the new line is to be inserted, and type the first letters:

```
        r =
```

Now use CTRL-R v to insert the function name:

```
        r = VeryLongFunction
```

You continue to type the characters in between the function name, and use CTRL-R v two times more.

You could have done the same with completion. Using a register is useful when there are many words that start with the same characters.

If the register contains characters such as <BS> or other special characters, they are interpreted as if they had been typed from the keyboard. If you do not want this to happen (you really want the <BS> to be inserted in the text), use the command CTRL-R CTRL-R {register}.

==

24.7 Abbreviations

An abbreviation is a short word that takes the place of a long one. For example, "ad" stands for "advertisement". Vim enables you to type an abbreviation and then will automatically expand it for you.

To tell Vim to expand "ad" into "advertisement" every time you insert it, use the following command:

```
        :iabbrev ad advertisement
```

Now, when you type "ad", the whole word "advertisement" will be inserted into the text. This is triggered by typing a character that can't be part of a word, for example a space:

What Is Entered	What You See
I saw the a	I saw the a
I saw the ad	I saw the ad
I saw the ad<Space>	I saw the advertisement<Space>

The expansion doesn't happen when typing just "ad". That allows you to type a word like "add", which will not get expanded. Only whole words are checked for abbreviations.

ABBREVIATING SEVERAL WORDS

It is possible to define an abbreviation that results in multiple words. For example, to define "JB" as "Jack Benny", use the following command:

```
:iabbrev JB Jack Benny
```

As a programmer, I use two rather unusual abbreviations:

```
:iabbrev #b /*************************************
:iabbrev #e <Space>*************************************/
```

These are used for creating boxed comments. The comment starts with #b, which draws the top line. I then type the comment text and use #e to draw the bottom line.

Notice that the #e abbreviation begins with a space. In other words, the first two characters are space-star. Usually Vim ignores spaces between the abbreviation and the expansion. To avoid that problem, I spell space as seven characters: <, S, p, a, c, e, >.

```
Note:
":iabbrev" is a long word to type. ":iab" works just as well.
That's abbreviating the abbreviate command!
```

FIXING TYPING MISTAKES

It's very common to make the same typing mistake every time. For example, typing "teh" instead of "the". You can fix this with an abbreviation:

```
:abbreviate teh the
```

You can add a whole list of these. Add one each time you discover a common mistake.

LISTING ABBREVIATIONS

The ":abbreviate" command lists the abbreviations:

```
:abbreviate
i  #e             ************************************/
i  #b            /************************************
i  JB            Jack Benny
i  ad            advertisement
!  teh           the
```

The "i" in the first column indicates Insert mode. These abbreviations are only active in Insert mode. Other possible characters are:

```
c       Command-line mode                       :cabbrev
!       both Insert and Command-line mode       :abbreviate
```

Since abbreviations are not often useful in Command-line mode, you will mostly use the ":iabbrev" command. That avoids, for example, that "ad" gets expanded when typing a command like:

```
:edit ad
```

DELETING ABBREVIATIONS

To get rid of an abbreviation, use the ":unabbreviate" command. Suppose you have the following abbreviation:

```
:abbreviate @f fresh
```

You can remove it with this command:

```
:unabbreviate @f
```

While you type this, you will notice that @f is expanded to "fresh". Don't worry about this, Vim understands it anyway (except when you have an abbreviation for "fresh", but that's very unlikely).
   To remove all the abbreviations:

```
:abclear
```

":unabbreviate" and ":abclear" also come in the variants for Insert mode (":iunabbreviate and ":iabclear") and Command-line mode (":cunabbreviate" and ":cabclear").

REMAPPING ABBREVIATIONS

There is one thing to watch out for when defining an abbreviation: The resulting string should not be mapped. For example:

```
:abbreviate @a adder
:imap dd disk-door
```

When you now type @a, you will get "adisk-doorer". That's not what you want. To avoid this, use the ":noreabbrev" command. It does the same as

":abbreviate", but avoids that the resulting string is used for mappings:

```
:noreabbrev @a adder
```

Fortunately, it's unlikely that the result of an abbreviation is mapped.

==========

24.8 Entering special characters

The CTRL-V command is used to insert the next character literally. In other words, any special meaning the character has, it will be ignored. For example:

```
CTRL-V <Esc>
```

Inserts an escape character. Thus you don't leave Insert mode. (Don't type the space after CTRL-V, it's only to make this easier to read).

> Note:
> On MS-Windows CTRL-V is used to paste text. Use CTRL-Q instead of CTRL-V. On Unix, on the other hand, CTRL-Q does not work on some terminals, because it has a special meaning.

You can also use the command CTRL-V {digits} to insert a character with the decimal number {digits}. For example, the character number 127 is the <Del> character (but not necessarily the <Del> key!). To insert <Del> type:

```
CTRL-V 127
```

You can enter characters up to 255 this way. When you type fewer than two digits, a non-digit will terminate the command. To avoid the need of typing a non-digit, prepend one or two zeros to make three digits.
All the next commands insert a <Tab> and then a dot:

```
CTRL-V 9.
CTRL-V 09.
CTRL-V 009.
```

To enter a character in hexadecimal, use an "x" after the CTRL-V:

```
CTRL-V x7f
```

This also goes up to character 255 (CTRL-V xff). You can use "o" to type a character as an octal number and two more methods allow you to type up to a 16 bit and a 32 bit number (e.g., for a Unicode character):

```
CTRL-V o123
CTRL-V u1234
CTRL-V U12345678
```

==========

24.9 Digraphs

Some characters are not on the keyboard. For example, the copyright character

(©). To type these characters in Vim, you use digraphs, where two characters represent one. To enter a ©, for example, you press three keys:

```
CTRL-K Co
```

To find out what digraphs are available, use the following command:

```
:digraphs
```

Vim will display the digraph table. Here are three lines of it:

```
  AC ~_ 159  NS |  160  !I ¡  161  Ct ¢  162  Pd £  163  Cu ¤  164  Ye ¥  165
  BB ¦  166  SE §  167  ': ¨  168  Co ©  169  -a ª  170  << «  171  NO ¬  172
  --   173  Rg ®  174  'm ¯  175  DG °  176  +- ±  177  2S ²  178  3S ³  179
```

This shows, for example, that the digraph you get by typing CTRL-K Pd is the character (£). This is character number 163 (decimal).
Pd is short for Pound. Most digraphs are selected to give you a hint about the character they will produce. If you look through the list you will understand the logic.
You can exchange the first and second character, if there is no digraph for that combination. Thus CTRL-K dP also works. Since there is no digraph for "dP" Vim will also search for a "Pd" digraph.

> Note:
> The digraphs depend on the character set that Vim assumes you are using. On MS-DOS they are different from MS-Windows. Always use ":digraphs" to find out which digraphs are currently available.

You can define your own digraphs. Example:

```
:digraph a" ä
```

This defines that CTRL-K a" inserts an ä character. You can also specify the character with a decimal number. This defines the same digraph:

```
:digraph a" 228
```

More information about digraphs here: digraphs
Another way to insert special characters is with a keymap. More about that here: 45.5

==
24.10 Normal mode commands

Insert mode offers a limited number of commands. In Normal mode you have many more. When you want to use one, you usually leave Insert mode with <Esc>, execute the Normal mode command, and re-enter Insert mode with "i" or "a".
There is a quicker way. With **CTRL-O** {command} you can execute any Normal mode command from Insert mode. For example, to delete from the cursor to the end of the line:

```
CTRL-O D
```

You can execute only one Normal mode command this way. But you can specify a
register or a count. A more complicated example:

	CTRL-O "g3dw

This deletes up to the third word into register g.

==

Next chapter: usr_25.txt   Editing formatted text

Copyright: see manual-copyright   vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Editing formatted text

Text hardly ever comes in one sentence per line. This chapter is about
breaking sentences to make them fit on a page and other formatting.
Vim also has useful features for editing single-line paragraphs and tables.

Next chapter: usr_26.txt Repeating
Previous chapter: usr_24.txt Inserting quickly
Table of contents: usr_toc.txt

==

25.1 Breaking lines

Vim has a number of functions that make dealing with text easier. By default,
the editor does not perform automatic line breaks. In other words, you have
to press <Enter> yourself. This is useful when you are writing programs where
you want to decide where the line ends. It is not so good when you are
creating documentation and want the text to be at most 70 character wide.
   If you set the 'textwidth' option, Vim automatically inserts line breaks.
Suppose, for example, that you want a very narrow column of only 30
characters. You need to execute the following command:

```
:set textwidth=30
```

Now you start typing (ruler added):

```
          1         2         3
12345678901234567890123456789012345
I taught programming for a whi
```

If you type "l" next, this makes the line longer than the 30-character limit.
When Vim sees this, it inserts a line break and you get the following:

```
          1         2         3
12345678901234567890123456789012345
I taught programming for a
whil
```

Continuing on, you can type in the rest of the paragraph:

```
          1         2         3
12345678901234567890123456789012345
I taught programming for a
```

```
while. One time, I was stopped
by the Fort Worth police,
because my homework was too
hard. True story.
```

You do not have to type newlines; Vim puts them in automatically.

Note:
The 'wrap' option makes Vim display lines with a line break, but this doesn't insert a line break in the file.

REFORMATTING

The Vim editor is not a word processor. In a word processor, if you delete something at the beginning of the paragraph, the line breaks are reworked. In Vim they are not; so if you delete the word "programming" from the first line, all you get is a short line:

```
          1         2         3
12345678901234567890123456789012345
I taught for a
while. One time, I was stopped
by the Fort Worth police,
because my homework was too
hard. True story.
```

This does not look good. To get the paragraph into shape you use the "gq" operator.

Let's first use this with a Visual selection. Starting from the first line, type:

```
v4jgq
```

"v" to start Visual mode, "4j" to move to the end of the paragraph and then the "gq" operator. The result is:

```
          1         2         3
12345678901234567890123456789012345
I taught for a while. One
time, I was stopped by the
Fort Worth police, because my
homework was too hard. True
story.
```

Note: there is a way to do automatic formatting for specific types of text layouts, see auto-format .

Since "gq" is an operator, you can use one of the three ways to select the text it works on: With Visual mode, with a movement and with a text object.

The example above could also be done with "gq4j". That's less typing, but you have to know the line count. A more useful motion command is "}". This moves to the end of a paragraph. Thus "gq}" formats from the cursor to the end of the current paragraph.

A very useful text object to use with "gq" is the paragraph. Try this:

```
gqap
```

"ap" stands for "a-paragraph". This formats the text of one paragraph (separated by empty lines). Also the part before the cursor.
If you have your paragraphs separated by empty lines, you can format the whole file by typing this:

```
gggqG
```

"gg" to move to the first line, "gqG" to format until the last line.
Warning: If your paragraphs are not properly separated, they will be joined together. A common mistake is to have a line with a space or tab. That's a blank line, but not an empty line.

Vim is able to format more than just plain text. See fo-table for how to change this. See the 'joinspaces' option to change the number of spaces used after a full stop.
It is possible to use an external program for formatting. This is useful if your text can't be properly formatted with Vim's builtin command. See the 'formatprg' option.

==
25.2 Aligning text

To center a range of lines, use the following command:

```
:{range}center [width]
```

{range} is the usual command-line range. [width] is an optional line width to use for centering. If [width] is not specified, it defaults to the value of 'textwidth'. (If 'textwidth' is 0, the default is 80.)
For example:

```
:1,5center 40
```

results in the following:

```
       I taught for a while. One
       time, I was stopped by the
     Fort Worth police, because my
      homework was too hard. True
                 story.
```

RIGHT ALIGNMENT

Similarly, the ":right" command right-justifies the text:

```
:1,5right 37
```

gives this result:

```
            I taught for a while. One
           time, I was stopped by the
        Fort Worth police, because my
          homework was too hard. True
                               story.
```

LEFT ALIGNMENT

Finally there is this command:

```
:{range}left [margin]
```

Unlike ":center" and ":right", however, the argument to ":left" is not the length of the line. Instead it is the left margin. If it is omitted, the text will be put against the left side of the screen (using a zero margin would do the same). If it is 5, the text will be indented 5 spaces. For example, use these commands:

```
:1left 5
:2,5left
```

This results in the following:

```
     I taught for a while. One
time, I was stopped by the
Fort Worth police, because my
homework was too hard. True
story.
```

JUSTIFYING TEXT

Vim has no built-in way of justifying text. However, there is a neat macro package that does the job. To use this package, execute the following command:

```
:packadd justify
```

Or put this line in your vimrc :

```
packadd! justify
```

This Vim script file defines a new visual command "_j". To justify a block of text, highlight the text in Visual mode and then execute "_j".
Look in the file for more explanations. To go there, do "gf" on this name: $VIMRUNTIME/pack/dist/opt/justify/plugin/justify.vim.

An alternative is to filter the text through an external program. Example:

```
:%!fmt
```

==
25.3 Indents and tabs

Indents can be used to make text stand out from the rest. The example texts in this manual, for example, are indented by eight spaces or a tab. You would normally enter this by typing a tab at the start of each line. Take this text:

```
	the first line
	the second line
```

This is entered by typing a tab, some text, <Enter>, tab and more text.
   The 'autoindent' option inserts indents automatically:

```
	:set autoindent
```

When a new line is started it gets the same indent as the previous line. In the above example, the tab after the <Enter> is not needed anymore.

INCREASING INDENT

To increase the amount of indent in a line, use the ">" operator. Often this is used as ">>", which adds indent to the current line.
   The amount of indent added is specified with the 'shiftwidth' option. The default value is 8. To make ">>" insert four spaces worth of indent, for example, type this:

```
	:set shiftwidth=4
```

When used on the second line of the example text, this is what you get:

```
	the first line
	    the second line
```

"4>>" will increase the indent of four lines.

TABSTOP

If you want to make indents a multiple of 4, you set 'shiftwidth' to 4. But when pressing a <Tab> you still get 8 spaces worth of indent. To change this, set the 'softtabstop' option:

```
	:set softtabstop=4
```

This will make the <Tab> key insert 4 spaces worth of indent. If there are already four spaces, a <Tab> character is used (saving seven characters in the file). (If you always want spaces and no tab characters, set the 'expandtab' option.)

```
	Note:
	You could set the 'tabstop' option to 4.  However, if you edit the
	file another time, with 'tabstop' set to the default value of 8, it
	will look wrong.  In other programs and when printing the indent will
	also be wrong.  Therefore it is recommended to keep 'tabstop' at eight
	all the time.  That's the standard value everywhere.
```

CHANGING TABS

You edit a file which was written with a tabstop of 3. In Vim it looks ugly, because it uses the normal tabstop value of 8. You can fix this by setting 'tabstop' to 3. But you have to do this every time you edit this file.
   Vim can change the use of tabstops in your file. First, set 'tabstop' to make the indents look good, then use the ":retab" command:

```
:set tabstop=3
:retab 8
```

The ":retab" command will change 'tabstop' to 8, while changing the text such that it looks the same. It changes spans of white space into tabs and spaces for this. You can now write the file. Next time you edit it the indents will be right without setting an option.
   Warning: When using ":retab" on a program, it may change white space inside a string constant. Therefore it's a good habit to use "\t" instead of a real tab.

==========

25.4 Dealing with long lines

Sometimes you will be editing a file that is wider than the number of columns in the window. When that occurs, Vim wraps the lines so that everything fits on the screen.
   If you switch the 'wrap' option off, each line in the file shows up as one line on the screen. Then the ends of the long lines disappear off the screen to the right.
   When you move the cursor to a character that can't be seen, Vim will scroll the text to show it. This is like moving a viewport over the text in the horizontal direction.
   By default, Vim does not display a horizontal scrollbar in the GUI. If you want to enable one, use the following command:

```
:set guioptions+=b
```

One horizontal scrollbar will appear at the bottom of the Vim window.

If you don't have a scrollbar or don't want to use it, use these commands to scroll the text. The cursor will stay in the same place, but it's moved back into the visible text if necessary.

```
zh              scroll right
4zh             scroll four characters right
zH              scroll half a window width right
ze              scroll right to put the cursor at the end
zl              scroll left
4zl             scroll four characters left
zL              scroll half a window width left
zs              scroll left to put the cursor at the start
```

Let's attempt to show this with one line of text. The cursor is on the "w" of "which". The "current window" above the line indicates the text that is

currently visible. The "window"s below the text indicate the text that is visible after the command left of it.

```
                            |<-- current window -->|
                 some long text, part of which is visible in the window
        ze         |<--     window     -->|
        zH          |<--     window     -->|
        4zh               |<--     window     -->|
        zh                   |<--     window     -->|
        zl                     |<--     window     -->|
        4zl                       |<--     window     -->|
        zL                              |<--     window     -->|
        zs                            |<--     window     -->|
```

MOVING WITH WRAP OFF

When 'wrap' is off and the text has scrolled horizontally, you can use the following commands to move the cursor to a character you can see. Thus text left and right of the window is ignored. These never cause the text to scroll:

```
        g0              to first visible character in this line
        g^              to first non-blank visible character in this line
        gm              to middle of this line
        g$              to last visible character in this line

                |<--     window    -->|
        some long    text, part of which is visible
                 g0  g^    gm        g$
```

BREAKING AT WORDS   edit-no-break

When preparing text for use by another program, you might have to make paragraphs without a line break. A disadvantage of using 'nowrap' is that you can't see the whole sentence you are working on. When 'wrap' is on, words are broken halfway, which makes them hard to read.

   A good solution for editing this kind of paragraph is setting the 'linebreak' option. Vim then breaks lines at an appropriate place when displaying the line. The text in the file remains unchanged.

   Without 'linebreak' text might look like this:

```
        +---------------------------------+
        |letter generation program for a b|
        |ank.  They wanted to send out a s|
        |pecial, personalized letter to th|
        |eir richest 1000 customers.  Unfo|
        |rtunately for the programmer, he |
        +---------------------------------+
```

After:

```
        :set linebreak
```

it looks like this:

```
        +---------------------------------+
        |letter generation program for a  |
        |bank.  They wanted to send out a |
        |special, personalized letter to  |
        |their richest 1000 customers.    |
        |Unfortunately for the programmer,|
        +---------------------------------+
```

Related options:
'breakat' specifies the characters where a break can be inserted.
'showbreak' specifies a string to show at the start of broken line.
Set 'textwidth' to zero to avoid a paragraph to be split.

MOVING BY VISIBLE LINES

The "j" and "k" commands move to the next and previous lines. When used on a long line, this means moving a lot of screen lines at once.
   To move only one screen line, use the "gj" and "gk" commands. When a line doesn't wrap they do the same as "j" and "k". When the line does wrap, they move to a character displayed one line below or above.
   You might like to use these mappings, which bind these movement commands to the cursor keys:

```
        :map <Up> gk
        :map <Down> gj
```

TURNING A PARAGRAPH INTO ONE LINE   edit-paragraph-join

If you want to import text into a program like MS-Word, each paragraph should be a single line. If your paragraphs are currently separated with empty lines, this is how you turn each paragraph into a single line:

```
        :g/./,/^$/join
```

That looks complicated. Let's break it up in pieces:

```
        :g/./          A ":global" command that finds all lines that contain
                       at least one character.
             ,/^$/     A range, starting from the current line (the non-empty
                       line) until an empty line.
                  join The ":join" command joins the range of lines together
                       into one line.
```

Starting with this text, containing eight lines broken at column 30:

```
        +---------------------------------+
        |A letter generation program      |
        |for a bank.  They wanted to      |
        |send out a special,              |
        |personalized letter.             |
```

```
        |                                   |
        |To their richest 1000              |
        |customers.  Unfortunately for      |
        |the programmer,                    |
        +-----------------------------------+
```

You end up with two lines:

```
        +-----------------------------------+
        |A letter generation program for a  |
        |bank.  They wanted to send out a s|
        |pecial, personalized letter.       |
        |To their richest 1000 customers.   |
        |Unfortunately for the programmer,  |
        +-----------------------------------+
```

Note that this doesn't work when the separating line is blank but not empty; when it contains spaces and/or tabs. This command does work with blank lines:

```
        :g/\S/,/^\s*$/join
```

This still requires a blank or empty line at the end of the file for the last paragraph to be joined.

==========

25.5 Editing tables

Suppose you are editing a table with four columns:

```
        nice table        test 1        test 2      test 3
        input A           0.534
        input B           0.913
```

You need to enter numbers in the third column. You could move to the second line, use "A", enter a lot of spaces and type the text.

For this kind of editing there is a special option:

```
        set virtualedit=all
```

Now you can move the cursor to positions where there isn't any text. This is called "virtual space". Editing a table is a lot easier this way.

Move the cursor by searching for the header of the last column:

```
        /test 3
```

Now press "j" and you are right where you can enter the value for "input A". Typing "0.693" results in:

```
        nice table        test 1     test 2      test 3
        input A           0.534                  0.693
        input B           0.913
```

Vim has automatically filled the gap in front of the new text for you. Now, to enter the next field in this column use "Bj". "B" moves back to the start

of a white space separated word. Then "j" moves to the place where the next field can be entered.

	Note:
	You can move the cursor anywhere in the display, also beyond the end of a line. But Vim will not insert spaces there, until you insert a character in that position.

COPYING A COLUMN

You want to add a column, which should be a copy of the third column and placed before the "test 1" column. Do this in seven steps:
1. Move the cursor to the left upper corner of this column, e.g., with "/test 3".
2. Press CTRL-V to start blockwise Visual mode.
3. Move the cursor down two lines with "2j". You are now in "virtual space": the "input B" line of the "test 3" column.
4. Move the cursor right, to include the whole column in the selection, plus the space that you want between the columns. "9l" should do it.
5. Yank the selected rectangle with "y".
6. Move the cursor to "test 1", where the new column must be placed.
7. Press "P".

The result should be:

```
	nice table        test 3    test 1     test 2      test 3
	input A           0.693     0.534                  0.693
	input B                     0.913
```

Notice that the whole "test 1" column was shifted right, also the line where the "test 3" column didn't have text.

Go back to non-virtual cursor movements with:

	:set virtualedit=

VIRTUAL REPLACE MODE

The disadvantage of using 'virtualedit' is that it "feels" different. You can't recognize tabs or spaces beyond the end of line when moving the cursor around. Another method can be used: Virtual Replace mode.
   Suppose you have a line in a table that contains both tabs and other characters. Use "rx" on the first tab:

```
	inp     0.693   0.534   0.693

	      |
	   rx |
	      V

	inpx0.693   0.534       0.693
```

The layout is messed up. To avoid that, use the "gr" command:

```
        inp     0.693   0.534   0.693

                |
          grx   |
                V

        inpx    0.693   0.534   0.693
```

What happens is that the "gr" command makes sure the new character takes the right amount of screen space. Extra spaces or tabs are inserted to fill the gap. Thus what actually happens is that a tab is replaced by "x" and then blanks added to make the text after it keep its place. In this case a tab is inserted.

When you need to replace more than one character, you use the "R" command to go to Replace mode (see 04.9). This messes up the layout and replaces the wrong characters:

```
        inp     0       0.534   0.693

                |
         R0.786 |
                V

        inp     0.78634 0.693
```

The "gR" command uses Virtual Replace mode. This preserves the layout:

```
        inp     0       0.534   0.693

                |
        gR0.786 |
                V

        inp     0.786   0.534   0.693
```

==

Next chapter: usr_26.txt   Repeating

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Repeating

An editing task is hardly ever unstructured. A change often needs to be made several times. In this chapter a number of useful ways to repeat a change will be explained.

Next chapter: usr_27.txt Search commands and patterns
Previous chapter: usr_25.txt Editing formatted text
Table of contents: usr_toc.txt

26.1 Repeating with Visual mode

Visual mode is very handy for making a change in any sequence of lines. You can see the highlighted text, thus you can check if the correct lines are changed. But making the selection takes some typing. The "gv" command selects the same area again. This allows you to do another operation on the same text.

Suppose you have some lines where you want to change "2001" to "2002" and "2000" to "2001":

```
The financial results for 2001 are better
than for 2000.  The income increased by 50%,
even though 2001 had more rain than 2000.
                2000           2001
income          45,403         66,234
```

First change "2001" to "2002". Select the lines in Visual mode, and use:

```
:s/2001/2002/g
```

Now use "gv" to reselect the same text. It doesn't matter where the cursor is. Then use ":s/2000/2001/g" to make the second change.

Obviously, you can repeat these changes several times.

26.2 Add and subtract

When repeating the change of one number into another, you often have a fixed offset. In the example above, one was added to each year. Instead of typing a substitute command for each year that appears, the CTRL-A command can be used.

Using the same text as above, search for a year:

```
/19[0-9][0-9]\|20[0-9][0-9]
```

Now press CTRL-A. The year will be increased by one:

```
The financial results for 2002 are better
than for 2000.  The income increased by 50%,
even though 2001 had more rain than 2000.
                2000          2001
income          45,403        66,234
```

Use "n" to find the next year, and press "." to repeat the CTRL-A ("." is a bit quicker to type). Repeat "n" and "." for all years that appear.
   Hint: set the 'hlsearch' option to see the matches you are going to change, then you can look ahead and do it faster.

Adding more than one can be done by prepending the number to CTRL-A. Suppose you have this list:

```
1.  item four
2.  item five
3.  item six
```

Move the cursor to "1." and type:

```
3 CTRL-A
```

The "1." will change to "4.". Again, you can use "." to repeat this on the other numbers.

Another example:

```
006     foo bar
007     foo bar
```

Using CTRL-A on these numbers results in:

```
007     foo bar
010     foo bar
```

7 plus one is 10? What happened here is that Vim recognized "007" as an octal number, because there is a leading zero. This notation is often used in C programs. If you do not want a number with leading zeros to be handled as octal, use this:

```
:set nrformats-=octal
```

The CTRL-X command does subtraction in a similar way.

==
26.3 Making a change in many files

Suppose you have a variable called "x_cnt" and you want to change it to "x_counter". This variable is used in several of your C files. You need to change it in all files. This is how you do it.

Put all the relevant files in the argument list:

```
:args *.c
```

This finds all C files and edits the first one. Now you can perform a substitution command on all these files:

```
:argdo %s/\<x_cnt\>/x_counter/ge | update
```

The ":argdo" command takes an argument that is another command. That command will be executed on all files in the argument list.

The "%s" substitute command that follows works on all lines. It finds the word "x_cnt" with "\<x_cnt\>". The "\<" and "\>" are used to match the whole word only, and not "px_cnt" or "x_cnt2".

The flags for the substitute command include "g" to replace all occurrences of "x_cnt" in the same line. The "e" flag is used to avoid an error message when "x_cnt" does not appear in the file. Otherwise ":argdo" would abort on the first file where "x_cnt" was not found.

The "|" separates two commands. The following "update" command writes the file only if it was changed. If no "x_cnt" was changed to "x_counter" nothing happens.

There is also the ":windo" command, which executes its argument in all windows. And ":bufdo" executes its argument on all buffers. Be careful with this, because you might have more files in the buffer list than you think. Check this with the ":buffers" command (or ":ls").

26.4 Using Vim from a shell script

Suppose you have a lot of files in which you need to change the string "-person-" to "Jones" and then print it. How do you do that? One way is to do a lot of typing. The other is to write a shell script to do the work.

The Vim editor does a superb job as a screen-oriented editor when using Normal mode commands. For batch processing, however, Normal mode commands do not result in clear, commented command files; so here you will use Ex mode instead. This mode gives you a nice command-line interface that makes it easy to put into a batch file. ("Ex command" is just another name for a command-line (:) command.)

The Ex mode commands you need are as follows:

```
%s/-person-/Jones/g
write tempfile
quit
```

You put these commands in the file "change.vim". Now to run the editor in batch mode, use this shell script:

```
for file in *.txt; do
  vim -e -s $file < change.vim
  lpr -r tempfile
done
```

The for-done loop is a shell construct to repeat the two lines in between,

while the $file variable is set to a different file name each time.
   The second line runs the Vim editor in Ex mode (-e argument) on the file $file and reads commands from the file "change.vim". The -s argument tells Vim to operate in silent mode. In other words, do not keep outputting the :prompt, or any other prompt for that matter.
   The "lpr -r tempfile" command prints the resulting "tempfile" and deletes it (that's what the -r argument does).

READING FROM STDIN

Vim can read text on standard input. Since the normal way is to read commands there, you must tell Vim to read text instead. This is done by passing the "-" argument in place of a file. Example:

```
ls | vim -
```

This allows you to edit the output of the "ls" command, without first saving the text in a file.
   If you use the standard input to read text from, you can use the "-S" argument to read a script:

```
producer | vim -S change.vim -
```

NORMAL MODE SCRIPTS

If you really want to use Normal mode commands in a script, you can use it like this:

```
vim -s script file.txt ...
```

Note:
"-s" has a different meaning when it is used without "-e". Here it means to source the "script" as Normal mode commands. When used with "-e" it means to be silent, and doesn't use the next argument as a file name.

The commands in "script" are executed like you typed them. Don't forget that a line break is interpreted as pressing <Enter>. In Normal mode that moves the cursor to the next line.
   To create the script you can edit the script file and type the commands. You need to imagine what the result would be, which can be a bit difficult. Another way is to record the commands while you perform them manually. This is how you do that:

```
vim -w script file.txt ...
```

All typed keys will be written to "script". If you make a small mistake you can just continue and remember to edit the script later.
   The "-w" argument appends to an existing script. That is good when you want to record the script bit by bit. If you want to start from scratch and start all over, use the "-W" argument. It overwrites any existing file.

==

Next chapter: usr_27.txt Search commands and patterns

Copyright: see manual-copyright vim:tw=78:ts=8:ft=help:norl:

usr_27.txt For Vim version 8.1. Last change: 2018 Jan 26

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Search commands and patterns

In chapter 3 a few simple search patterns were mentioned 03.9 . Vim can do much more complex searches. This chapter explains the most often used ones. A detailed specification can be found here: pattern

Next chapter: usr_28.txt Folding
Previous chapter: usr_26.txt Repeating
Table of contents: usr_toc.txt

==========

27.1 Ignoring case

By default, Vim's searches are case sensitive. Therefore, "include", "INCLUDE", and "Include" are three different words and a search will match only one of them.

Now switch on the 'ignorecase' option:

```
:set ignorecase
```

Search for "include" again, and now it will match "Include", "INCLUDE" and "InClUDe". (Set the 'hlsearch' option to quickly see where a pattern matches.)

You can switch this off again with:

```
:set noignorecase
```

But let's keep it set, and search for "INCLUDE". It will match exactly the same text as "include" did. Now set the 'smartcase' option:

```
:set ignorecase smartcase
```

If you have a pattern with at least one uppercase character, the search becomes case sensitive. The idea is that you didn't have to type that uppercase character, so you must have done it because you wanted case to match. That's smart!

With these two options set you find the following matches:

```
pattern                 matches
```

```
        word                    word, Word, WORD, WoRd, etc.
        Word                    Word
        WORD                    WORD
        WoRd                    WoRd
```

CASE IN ONE PATTERN

If you want to ignore case for one specific pattern, you can do this by prepending the "\c" string. Using "\C" will make the pattern to match case. This overrules the 'ignorecase' and 'smartcase' options, when "\c" or "\C" is used their value doesn't matter.

```
        pattern                 matches
        \Cword                  word
        \CWord                  Word
        \cword                  word, Word, WORD, WoRd, etc.
        \cWord                  word, Word, WORD, WoRd, etc.
```

A big advantage of using "\c" and "\C" is that it sticks with the pattern. Thus if you repeat a pattern from the search history, the same will happen, no matter if 'ignorecase' or 'smartcase' was changed.

Note:
The use of "\" items in search patterns depends on the 'magic' option. In this chapter we will assume 'magic' is on, because that is the standard and recommended setting. If you would change 'magic', many search patterns would suddenly become invalid.

Note:
If your search takes much longer than you expected, you can interrupt it with CTRL-C on Unix and CTRL-Break on MS-DOS and MS-Windows.

27.2 Wrapping around the file end

By default, a forward search starts searching for the given string at the current cursor location. It then proceeds to the end of the file. If it has not found the string by that time, it starts from the beginning and searches from the start of the file to the cursor location.

Keep in mind that when repeating the "n" command to search for the next match, you eventually get back to the first match. If you don't notice this you keep searching forever! To give you a hint, Vim displays this message:

```
search hit BOTTOM, continuing at TOP
```

If you use the "?" command, to search in the other direction, you get this message:

```
search hit TOP, continuing at BOTTOM
```

Still, you don't know when you are back at the first match. One way to see this is by switching on the 'ruler' option:

```
:set ruler
```

Vim will display the cursor position in the lower righthand corner of the window (in the status line if there is one). It looks like this:

```
101,29        84%
```

The first number is the line number of the cursor. Remember the line number where you started, so that you can check if you passed this position again.

NOT WRAPPING

To turn off search wrapping, use the following command:

```
:set nowrapscan
```

Now when the search hits the end of the file, an error message displays:

```
E385: search hit BOTTOM without match for: forever
```

Thus you can find all matches by going to the start of the file with "gg" and keep searching until you see this message.
   If you search in the other direction, using "?", you get:

```
E384: search hit TOP without match for: forever
```

==========

27.3 Offsets

By default, the search command leaves the cursor positioned on the beginning of the pattern. You can tell Vim to leave it some other place by specifying an offset. For the forward search command "/", the offset is specified by appending a slash (/) and the offset:

```
/default/2
```

This command searches for the pattern "default" and then moves to the beginning of the second line past the pattern. Using this command on the paragraph above, Vim finds the word "default" in the first line. Then the cursor is moved two lines down and lands on "an offset".

If the offset is a simple number, the cursor will be placed at the beginning of the line that many lines from the match. The offset number can be positive or negative. If it is positive, the cursor moves down that many lines; if negative, it moves up.

CHARACTER OFFSETS

The "e" offset indicates an offset from the end of the match. It moves the cursor onto the last character of the match. The command:

```
/const/e
```

puts the cursor on the "t" of "const".
   From that position, adding a number moves forward that many characters.
This command moves to the character just after the match:

```
/const/e+1
```

A positive number moves the cursor to the right, a negative number moves it to the left. For example:

```
/const/e-1
```

moves the cursor to the "s" of "const".

If the offset begins with "b", the cursor moves to the beginning of the pattern. That's not very useful, since leaving out the "b" does the same thing. It does get useful when a number is added or subtracted. The cursor then goes forward or backward that many characters. For example:

```
/const/b+2
```

Moves the cursor to the beginning of the match and then two characters to the right. Thus it lands on the "n".

REPEATING

To repeat searching for the previously used search pattern, but with a different offset, leave out the pattern:

```
/that
//e
```

Is equal to:

```
/that/e
```

To repeat with the same offset:

```
/
```

"n" does the same thing. To repeat while removing a previously used offset:

```
//
```

SEARCHING BACKWARDS

The "?" command uses offsets in the same way, but you must use "?" to separate the offset from the pattern, instead of "/":

```
?const?e-2
```

The "b" and "e" keep their meaning, they don't change direction with the use

of "?".

START POSITION

When starting a search, it normally starts at the cursor position. When you specify a line offset, this can cause trouble. For example:

```
/const/-2
```

This finds the next word "const" and then moves two lines up. If you use "n" to search again, Vim could start at the current position and find the same "const" match. Then using the offset again, you would be back where you started. You would be stuck!
It could be worse: Suppose there is another match with "const" in the next line. Then repeating the forward search would find this match and move two lines up. Thus you would actually move the cursor back!

When you specify a character offset, Vim will compensate for this. Thus the search starts a few characters forward or backward, so that the same match isn't found again.

==========

27.4 Matching multiple times

The "*" item specifies that the item before it can match any number of times. Thus:

```
/a*
```

matches "a", "aa", "aaa", etc. But also "" (the empty string), because zero times is included.
The "*" only applies to the item directly before it. Thus "ab*" matches "a", "ab", "abb", "abbb", etc. To match a whole string multiple times, it must be grouped into one item. This is done by putting "\(" before it and "\)" after it. Thus this command:

```
/\(ab\)*
```

Matches: "ab", "abab", "ababab", etc. And also "".

To avoid matching the empty string, use "\+". This makes the previous item match one or more times.

```
/ab\+
```

Matches "ab", "abb", "abbb", etc. It does not match "a" when no "b" follows.

To match an optional item, use "\=". Example:

```
/folders\=
```

Matches "folder" and "folders".

SPECIFIC COUNTS

To match a specific number of items use the form "\{n,m}". "n" and "m" are numbers. The item before it will be matched "n" to "m" times inclusive . Example:

```
/ab\{3,5}
```

matches "abbb", "abbbb" and "abbbbb".
When "n" is omitted, it defaults to zero. When "m" is omitted it defaults to infinity. When ",m" is omitted, it matches exactly "n" times.
Examples:

pattern	match count
\{,4}	0, 1, 2, 3 or 4
\{3,}	3, 4, 5, etc.
\{0,1}	0 or 1, same as \=
\{0,}	0 or more, same as *
\{1,}	1 or more, same as \+
\{3}	3

MATCHING AS LITTLE AS POSSIBLE

The items so far match as many characters as they can find. To match as few as possible, use "\{-n,m}". It works the same as "\{n,m}", except that the minimal amount possible is used.
For example, use:

```
/ab\{-1,3}
```

Will match "ab" in "abbb". Actually, it will never match more than one b, because there is no reason to match more. It requires something else to force it to match more than the lower limit.
The same rules apply to removing "n" and "m". It's even possible to remove both of the numbers, resulting in "\{-}". This matches the item before it zero or more times, as few as possible. The item by itself always matches zero times. It is useful when combined with something else. Example:

```
/a.\{-}b
```

This matches "axb" in "axbxb". If this pattern would be used:

```
/a.*b
```

It would try to match as many characters as possible with ".*", thus it matches "axbxb" as a whole.

==========

27.5 Alternatives

The "or" operator in a pattern is "\|". Example:

```
        /foo\|bar
```

This matches "foo" or "bar". More alternatives can be concatenated:

```
        /one\|two\|three
```

Matches "one", "two" and "three".
   To match multiple times, the whole thing must be placed in "\(" and "\)":

```
        /\(foo\|bar\)\+
```

This matches "foo", "foobar", "foofoo", "barfoobar", etc.
   Another example:

```
        /end\(if\|while\|for\)
```

This matches "endif", "endwhile" and "endfor".

A related item is "\&". This requires that both alternatives match in the same place. The resulting match uses the last alternative. Example:

```
        /forever\&...
```

This matches "for" in "forever". It will not match "fortuin", for example.

==========

27.6 Character ranges

To match "a", "b" or "c" you could use "/a\|b\|c". When you want to match all letters from "a" to "z" this gets very long. There is a shorter method:

```
        /[a-z]
```

The [] construct matches a single character. Inside you specify which characters to match. You can include a list of characters, like this:

```
        /[0123456789abcdef]
```

This will match any of the characters included. For consecutive characters you can specify the range. "0-3" stands for "0123". "w-z" stands for "wxyz". Thus the same command as above can be shortened to:

```
        /[0-9a-f]
```

To match the "-" character itself make it the first or last one in the range. These special characters are accepted to make it easier to use them inside a [] range (they can actually be used anywhere in the search pattern):

```
        \e      <Esc>
        \t      <Tab>
        \r      <CR>
        \b      <BS>
```

There are a few more special cases for [] ranges, see /[] for the whole

story.

COMPLEMENTED RANGE

To avoid matching a specific character, use "^" at the start of the range.
The [] item then matches everything but the characters included. Example:

```
/"[^"]*"

 "        a double quote
  [^"]    any character that is not a double quote
      *   as many as possible
       "  a double quote again
```

This matches "foo" and "3!x", including the double quotes.

PREDEFINED RANGES

A number of ranges are used very often. Vim provides a shortcut for these.
For example:

```
/\a
```

Finds alphabetic characters. This is equal to using "/[a-zA-Z]". Here are a
few more of these:

item	matches	equivalent	
\d	digit	[0-9]	
\D	non-digit	[^0-9]	
\x	hex digit	[0-9a-fA-F]	
\X	non-hex digit	[^0-9a-fA-F]	
\s	white space	[ ]	(<Tab> and <Space>)
\S	non-white characters	[^]	(not <Tab> and <Space>)
\l	lowercase alpha	[a-z]	
\L	non-lowercase alpha	[^a-z]	
\u	uppercase alpha	[A-Z]	
\U	non-uppercase alpha	[^A-Z]	

Note:
Using these predefined ranges works a lot faster than the character
range it stands for.
These items can not be used inside []. Thus "[\d\l]" does NOT work to
match a digit or lowercase alpha. Use "\(\d\|\l\)" instead.

See /\s for the whole list of these ranges.

==
27.7 Character classes

The character range matches a fixed set of characters. A character class is
similar, but with an essential difference: The set of characters can be
redefined without changing the search pattern.

For example, search for this pattern:

```
/\f\+
```

The "\f" items stands for file name characters. Thus this matches a sequence of characters that can be a file name.

Which characters can be part of a file name depends on the system you are using. On MS-Windows, the backslash is included, on Unix it is not. This is specified with the 'isfname' option. The default value for Unix is:

```
:set isfname
isfname=@,48-57,/,.,-,_,+,,,#,$,%,~,=
```

For other systems the default value is different. Thus you can make a search pattern with "\f" to match a file name, and it will automatically adjust to the system you are using it on.

```
Note:
Actually, Unix allows using just about any character in a file name,
including white space. Including these characters in 'isfname' would
be theoretically correct. But it would make it impossible to find the
end of a file name in text. Thus the default value of 'isfname' is a
compromise.
```

The character classes are:

item	matches	option
\i	identifier characters	'isident'
\I	like \i, excluding digits	
\k	keyword characters	'iskeyword'
\K	like \k, excluding digits	
\p	printable characters	'isprint'
\P	like \p, excluding digits	
\f	file name characters	'isfname'
\F	like \f, excluding digits	

27.8 Matching a line break

Vim can find a pattern that includes a line break. You need to specify where the line break happens, because all items mentioned so far don't match a line break.

To check for a line break in a specific place, use the "\n" item:

```
/the\nword
```

This will match at a line that ends in "the" and the next line starts with "word". To match "the word" as well, you need to match a space or a line break. The item to use for it is "_s":

```
/the\_sword
```

To allow any amount of white space:

```
	/the\_s\+word
```

This also matches when "the " is at the end of a line and "   word" at the start of the next one.

"\s" matches white space, "_s" matches white space or a line break. Similarly, "\a" matches an alphabetic character, and "_a" matches an alphabetic character or a line break. The other character classes and ranges can be modified in the same way by inserting a "_".

Many other items can be made to match a line break by prepending "_". For example: "_." matches any character or a line break.

	Note:
	"_.*" matches everything until the end of the file. Be careful with this, it can make a search command very slow.

Another example is "_[]", a character range that includes a line break:

```
	/"\_[^"]*"
```

This finds a text in double quotes that may be split up in several lines.

==
27.9 Examples

Here are a few search patterns you might find useful. This shows how the items mentioned above can be combined.

FINDING A CALIFORNIA LICENSE PLATE

A sample license plate number is "1MGU103". It has one digit, three uppercase letters and three digits. Directly putting this into a search pattern:

```
	/\d\u\u\u\d\d\d
```

Another way is to specify that there are three digits and letters with a count:

```
	/\d\u\{3}\d\{3}
```

Using [] ranges instead:

```
	/[0-9][A-Z]\{3}[0-9]\{3}
```

Which one of these you should use? Whichever one you can remember. The simple way you can remember is much faster than the fancy way that you can't. If you can remember them all, then avoid the last one, because it's both more typing and slower to execute.

FINDING AN IDENTIFIER

In C programs (and many other computer languages) an identifier starts with a letter and further consists of letters and digits. Underscores can be used too. This can be found with:

```
/\<\h\w*\>
```

"\<" and "\>" are used to find only whole words. "\h" stands for "[A-Za-z_]" and "\w" for "[0-9A-Za-z_]".

Note:
"\<" and "\>" depend on the 'iskeyword' option. If it includes "-", for example, then "ident-" is not matched. In this situation use:

```
/\w\@<!\h\w*\w\@!
```

This checks if "\w" does not match before or after the identifier.
See /\@<! and /\@! .

==

Next chapter: usr_28.txt   Folding

VIM USER MANUAL - by Bram Moolenaar

Folding

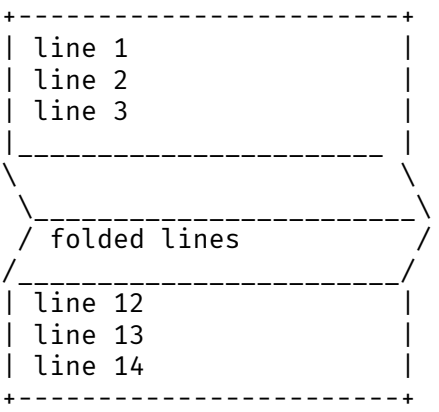
Structured text can be separated in sections. And sections in sub-sections.
Folding allows you to display a section as one line, providing an overview.
This chapter explains the different ways this can be done.

Next chapter: usr_29.txt Moving through programs
Previous chapter: usr_27.txt Search commands and patterns
Table of contents: usr_toc.txt

==

28.1 What is folding?

Folding is used to show a range of lines in the buffer as a single line on the
screen. Like a piece of paper which is folded to make it shorter:



The text is still in the buffer, unchanged. Only the way lines are displayed
is affected by folding.

The advantage of folding is that you can get a better overview of the
structure of text, by folding lines of a section and replacing it with a line
that indicates that there is a section.

==

28.2 Manual folding

Try it out: Position the cursor in a paragraph and type:

```
zfap
```

You will see that the paragraph is replaced by a highlighted line. You have created a fold. `zf` is an operator and `ap` a text object selection. You can use the `zf` operator with any movement command to create a fold for the text that it moved over. `zf` also works in Visual mode.

To view the text again, open the fold by typing:

```
zo
```

And you can close the fold again with:

```
zc
```

All the folding commands start with "z". With some fantasy, this looks like a folded piece of paper, seen from the side. The letter after the "z" has a mnemonic meaning to make it easier to remember the commands:

```
zf      F-old creation
zo      O-pen a fold
zc      C-lose a fold
```

Folds can be nested: A region of text that contains folds can be folded again. For example, you can fold each paragraph in this section, and then fold all the sections in this chapter. Try it out. You will notice that opening the fold for the whole chapter will restore the nested folds as they were, some may be open and some may be closed.

Suppose you have created several folds, and now want to view all the text. You could go to each fold and type "zo". To do this faster, use this command:

```
zr
```

This will R-educe the folding. The opposite is:

```
zm
```

This folds M-ore. You can repeat "zr" and "zm" to open and close nested folds of several levels.

If you have nested several levels deep, you can open all of them with:

```
zR
```

This R-educes folds until there are none left. And you can close all folds with:

```
zM
```

This folds M-ore and M-ore.

You can quickly disable the folding with the zn command. Then zN brings back the folding as it was. zi toggles between the two. This is a useful way of working:
- create folds to get overview on your file
- move around to where you want to do your work
- do zi to look at the text and edit it
- do zi again to go back to moving around

More about manual folding in the reference manual: fold-manual

==
28.3 Working with folds

When some folds are closed, movement commands like "j" and "k" move over a fold like it was a single, empty line. This allows you to quickly move around over folded text.

You can yank, delete and put folds as if it was a single line. This is very useful if you want to reorder functions in a program. First make sure that each fold contains a whole function (or a bit less) by selecting the right 'foldmethod'. Then delete the function with "dd", move the cursor and put it with "p". If some lines of the function are above or below the fold, you can use Visual selection:
- put the cursor on the first line to be moved
- hit "V" to start Visual mode
- put the cursor on the last line to be moved
- hit "d" to delete the selected lines.
- move the cursor to the new position and "p"ut the lines there.

It is sometimes difficult to see or remember where a fold is located, thus where a zo command would actually work. To see the defined folds:

```
:set foldcolumn=4
```

This will show a small column on the left of the window to indicate folds. A "+" is shown for a closed fold. A "-" is shown at the start of each open fold and "|" at following lines of the fold.

You can use the mouse to open a fold by clicking on the "+" in the foldcolumn. Clicking on the "-" or a "|" below it will close an open fold.

To open all folds at the cursor line use zO .
To close all folds at the cursor line use zC .
To delete a fold at the cursor line use zd .
To delete all folds at the cursor line use zD .

When in Insert mode, the fold at the cursor line is never closed. That allows you to see what you type!

Folds are opened automatically when jumping around or moving the cursor left or right. For example, the "0" command opens the fold under the cursor (if 'foldopen' contains "hor", which is the default). The 'foldopen' option

can be changed to open folds for specific commands. If you want the line
under the cursor always to be open, do this:

```
:set foldopen=all
```

Warning: You won't be able to move onto a closed fold then. You might want to
use this only temporarily and then set it back to the default:

```
:set foldopen&
```

You can make folds close automatically when you move out of it:

```
:set foldclose=all
```

This will re-apply 'foldlevel' to all folds that don't contain the cursor.
You have to try it out if you like how this feels. Use zm to fold more and
 zr to fold less (reduce folds).

The folding is local to the window. This allows you to open two windows on
the same buffer, one with folds and one without folds. Or one with all folds
closed and one with all folds open.

==
28.4 Saving and restoring folds

When you abandon a file (starting to edit another one), the state of the folds
is lost. If you come back to the same file later, all manually opened and
closed folds are back to their default. When folds have been created
manually, all folds are gone! To save the folds use the :mkview command:

```
:mkview
```

This will store the settings and other things that influence the view on the
file. You can change what is stored with the 'viewoptions' option.
When you come back to the same file later, you can load the view again:

```
:loadview
```

You can store up to ten views on one file. For example, to save the current
setup as the third view and load the second view:

```
:mkview 3
:loadview 2
```

Note that when you insert or delete lines the views might become invalid.
Also check out the 'viewdir' option, which specifies where the views are
stored. You might want to delete old views now and then.

==
28.5 Folding by indent

Defining folds with zf is a lot of work. If your text is structured by
giving lower level items a larger indent, you can use the indent folding
method. This will create folds for every sequence of lines with the same

indent. Lines with a larger indent will become nested folds. This works well with many programming languages.

Try this by setting the 'foldmethod' option:

```
:set foldmethod=indent
```

Then you can use the zm and zr commands to fold more and reduce folding. It's easy to see on this example text:

```
This line is not indented
        This line is indented once
                This line is indented twice
                This line is indented twice
        This line is indented once
This line is not indented
        This line is indented once
        This line is indented once
```

Note that the relation between the amount of indent and the fold depth depends on the 'shiftwidth' option. Each 'shiftwidth' worth of indent adds one to the depth of the fold. This is called a fold level.

When you use the zr and zm commands you actually increase or decrease the 'foldlevel' option. You could also set it directly:

```
:set foldlevel=3
```

This means that all folds with three times a 'shiftwidth' indent or more will be closed. The lower the foldlevel, the more folds will be closed. When 'foldlevel' is zero, all folds are closed. zM does set 'foldlevel' to zero. The opposite command zR sets 'foldlevel' to the deepest fold level that is present in the file.

Thus there are two ways to open and close the folds:
(A) By setting the fold level.
    This gives a very quick way of "zooming out" to view the structure of the text, move the cursor, and "zoom in" on the text again.

(B) By using zo and zc commands to open or close specific folds.
    This allows opening only those folds that you want to be open, while other folds remain closed.

This can be combined: You can first close most folds by using zm a few times and then open a specific fold with zo . Or open all folds with zR and then close specific folds with zc .

But you cannot manually define folds when 'foldmethod' is "indent", as that would conflict with the relation between the indent and the fold level.

More about folding by indent in the reference manual: fold-indent

==
28.6 Folding with markers

Markers in the text are used to specify the start and end of a fold region.
This gives precise control over which lines are included in a fold. The
disadvantage is that the text needs to be modified.

Try it:

```
:set foldmethod=marker
```

Example text, as it could appear in a C program:

```
/* foobar () {{{ */
int foobar()
{
        /* return a value {{{ */
        return 42;
        /* }}} */
}
/* }}} */
```

Notice that the folded line will display the text before the marker. This is
very useful to tell what the fold contains.

It's quite annoying when the markers don't pair up correctly after moving some
lines around. This can be avoided by using numbered markers. Example:

```
/* global variables {{{1 */
int varA, varB;

/* functions {{{1 */
/* funcA() {{{2 */
void funcA() {}

/* funcB() {{{2 */
void funcB() {}
/* }}}1 */
```

At every numbered marker a fold at the specified level begins. This will make
any fold at a higher level stop here. You can just use numbered start markers
to define all folds. Only when you want to explicitly stop a fold before
another starts you need to add an end marker.

More about folding with markers in the reference manual: fold-marker

==
28.7 Folding by syntax

For each language Vim uses a different syntax file. This defines the colors
for various items in the file. If you are reading this in Vim, in a terminal
that supports colors, the colors you see are made with the "help" syntax file.
   In the syntax files it is possible to add syntax items that have the "fold"
argument. These define a fold region. This requires writing a syntax file
and adding these items in it. That's not so easy to do. But once it's done,
all folding happens automatically.

Here we'll assume you are using an existing syntax file. Then there is nothing more to explain. You can open and close folds as explained above. The folds will be created and deleted automatically when you edit the file.

More about folding by syntax in the reference manual: fold-syntax

28.8 Folding by expression

This is similar to folding by indent, but instead of using the indent of a line a user function is called to compute the fold level of a line. You can use this for text where something in the text indicates which lines belong together. An example is an e-mail message where the quoted text is indicated by a ">" before the line. To fold these quotes use this:

```
:set foldmethod=expr
:set foldexpr=strlen(substitute(substitute(getline(v:lnum),'\\s','',\"g\"),'[^>].*
```

You can try it out on this text:

```
> quoted text he wrote
> quoted text he wrote
> > double quoted text I wrote
> > double quoted text I wrote
```

Explanation for the 'foldexpr' used in the example (inside out):

```
getline(v:lnum)                    gets the current line
substitute(...,'\\s','','g')       removes all white space from the line
substitute(...,'[^>].*','','')     removes everything after leading '>'s
strlen(...)                        counts the length of the string, which
                                   is the number of '>'s found
```

Note that a backslash must be inserted before every space, double quote and backslash for the ":set" command. If this confuses you, do

```
:set foldexpr
```

to check the actual resulting value. To correct a complicated expression, use the command-line completion:

```
:set foldexpr=<Tab>
```

Where <Tab> is a real Tab. Vim will fill in the previous value, which you can then edit.

When the expression gets more complicated you should put it in a function and set 'foldexpr' to call that function.

More about folding by expression in the reference manual: fold-expr

28.9 Folding unchanged lines

This is useful when you set the 'diff' option in the same window. The

vimdiff command does this for you. Example:

```
:setlocal diff foldmethod=diff scrollbind nowrap foldlevel=1
```

Do this in every window that shows a different version of the same file. You will clearly see the differences between the files, while the text that didn't change is folded.

For more details see fold-diff .

==

28.10 Which fold method to use?

All these possibilities make you wonder which method you should choose. Unfortunately, there is no golden rule. Here are some hints.

If there is a syntax file with folding for the language you are editing, that is probably the best choice. If there isn't one, you might try to write it. This requires a good knowledge of search patterns. It's not easy, but when it's working you will not have to define folds manually.

Typing commands to manually fold regions can be used for unstructured text. Then use the :mkview command to save and restore your folds.

The marker method requires you to change the file. If you are sharing the files with other people or you have to meet company standards, you might not be allowed to add them.
   The main advantage of markers is that you can put them exactly where you want them. That avoids that a few lines are missed when you cut and paste folds. And you can add a comment about what is contained in the fold.

Folding by indent is something that works in many files, but not always very well. Use it when you can't use one of the other methods. However, it is very useful for outlining. Then you specifically use one 'shiftwidth' for each nesting level.

Folding with expressions can make folds in almost any structured text. It is quite simple to specify, especially if the start and end of a fold can easily be recognized.
   If you use the "expr" method to define folds, but they are not exactly how you want them, you could switch to the "manual" method. This will not remove the defined folds. Then you can delete or add folds manually.

==

Next chapter: usr_29.txt Moving through programs

VIM USER MANUAL - by Bram Moolenaar

Moving through programs

The creator of Vim is a computer programmer. It's no surprise that Vim contains many features to aid in writing programs. Jump around to find where identifiers are defined and used. Preview declarations in a separate window. There is more in the next chapter.

Next chapter: usr_30.txt Editing programs
Previous chapter: usr_28.txt Folding
Table of contents: usr_toc.txt

==========

29.1 Using tags

What is a tag? It is a location where an identifier is defined. An example is a function definition in a C or C++ program. A list of tags is kept in a tags file. This can be used by Vim to directly jump from any place to the tag, the place where an identifier is defined.

To generate the tags file for all C files in the current directory, use the following command:

```
ctags *.c
```

"ctags" is a separate program. Most Unix systems already have it installed. If you do not have it yet, you can find Exuberant ctags here:

```
http://ctags.sf.net
```

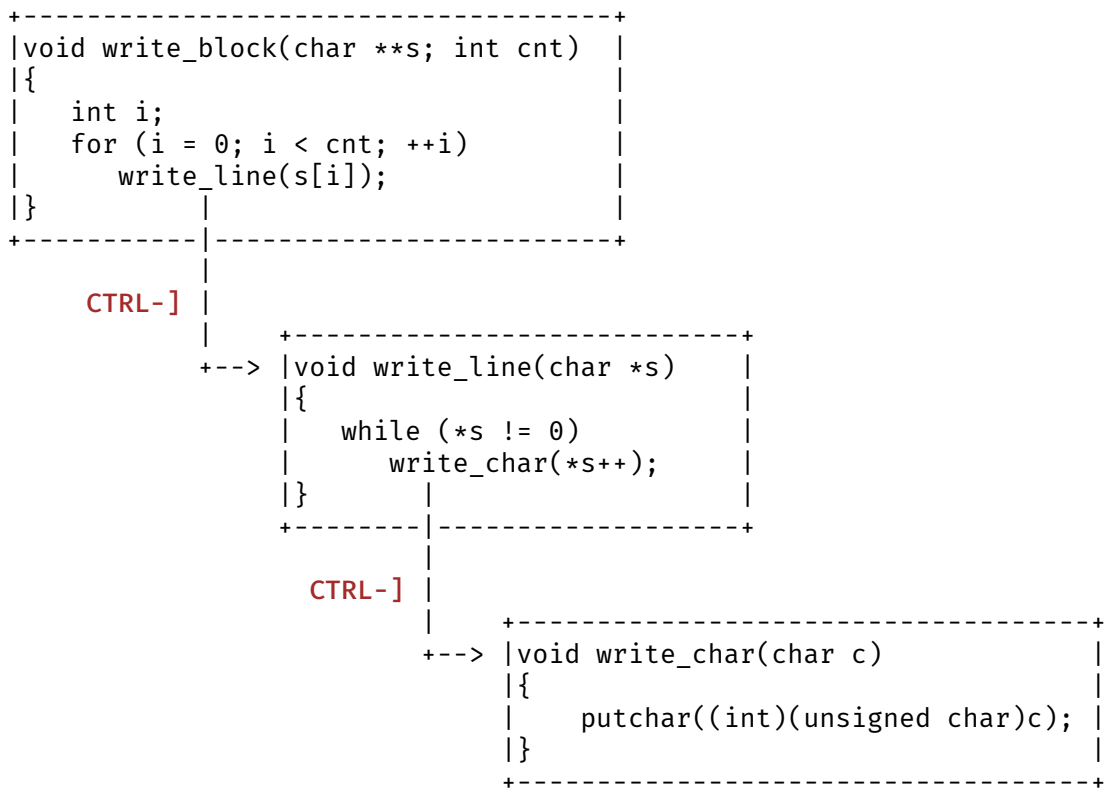
Now when you are in Vim and you want to go to a function definition, you can jump to it by using the following command:

```
:tag startlist
```

This command will find the function "startlist" even if it is in another file.

The CTRL-] command jumps to the tag of the word that is under the cursor. This makes it easy to explore a tangle of C code. Suppose, for example, that you are in the function "write_block". You can see that it calls "write_line". But what does "write_line" do? By placing the cursor on the call to "write_line" and pressing CTRL-], you jump to the definition of this function.

The "write_line" function calls "write_char". You need to figure out what it does. So you position the cursor over the call to "write_char" and press CTRL-]. Now you are at the definition of "write_char".



The ":tags" command shows the list of tags that you traversed through:

```
:tags
  # TO tag         FROM line  in file/text
  1  1 write_line          8  write_block.c
  2  1 write_char          7  write_line.c
>
```

Now to go back. The CTRL-T command goes to the preceding tag. In the example above you get back to the "write_line" function, in the call to "write_char".
   This command takes a count argument that indicates how many tags to jump back. You have gone forward, and now back. Let's go forward again. The following command goes to the tag on top of the list:

```
:tag
```

You can prefix it with a count and jump forward that many tags. For example: ":3tag". CTRL-T also can be preceded with a count.
   These commands thus allow you to go down a call tree with CTRL-] and back up again with CTRL-T. Use ":tags" to find out where you are.

SPLIT WINDOWS

The ":tag" command replaces the file in the current window with the one containing the new function. But suppose you want to see not only the old function but also the new one? You can split the window using the ":split"

command followed by the ":tag" command. Vim has a shorthand command that does both:

```
:stag tagname
```

To split the current window and jump to the tag under the cursor use this command:

```
CTRL-W ]
```

If a count is specified, the new window will be that many lines high.

MORE TAGS FILES

When you have files in many directories, you can create a tags file in each of them. Vim will then only be able to jump to tags within that directory.
   To find more tags files, set the 'tags' option to include all the relevant tags files. Example:

```
:set tags=./tags,./../tags,./*/tags
```

This finds a tags file in the same directory as the current file, one directory level higher and in all subdirectories.
   This is quite a number of tags files, but it may still not be enough. For example, when editing a file in "~/proj/src", you will not find the tags file "~/proj/sub/tags". For this situation Vim offers to search a whole directory tree for tags files. Example:

```
:set tags=~/proj/**/tags
```

ONE TAGS FILE

When Vim has to search many places for tags files, you can hear the disk rattling. It may get a bit slow. In that case it's better to spend this time while generating one big tags file. You might do this overnight.
   This requires the Exuberant ctags program, mentioned above. It offers an argument to search a whole directory tree:

```
cd ~/proj
ctags -R .
```

The nice thing about this is that Exuberant ctags recognizes various file types. Thus this doesn't work just for C and C++ programs, also for Eiffel and even Vim scripts. See the ctags documentation to tune this.
   Now you only need to tell Vim where your big tags file is:

```
:set tags=~/proj/tags
```

MULTIPLE MATCHES

When a function is defined multiple times (or a method in several classes), the ":tag" command will jump to the first one. If there is a match in the

current file, that one is used first.
   You can now jump to other matches for the same tag with:

```
:tnext
```

Repeat this to find further matches. If there are many, you can select which one to jump to:

```
:tselect tagname
```

Vim will present you with a list of choices:

```
  # pri kind tag               file
  1 F   f    mch_init          os_amiga.c
               mch_init()
  2 F   f    mch_init          os_mac.c
               mch_init()
  3 F   f    mch_init          os_msdos.c
               mch_init(void)
  4 F   f    mch_init          os_riscos.c
               mch_init()
Enter nr of choice (<CR> to abort):
```

You can now enter the number (in the first column) of the match that you would like to jump to. The information in the other columns give you a good idea of where the match is defined.

To move between the matching tags, these commands can be used:

```
:tfirst                 go to first match
:[count]tprevious       go to [count] previous match
:[count]tnext           go to [count] next match
:tlast                  go to last match
```

If [count] is omitted then one is used.

GUESSING TAG NAMES

Command line completion is a good way to avoid typing a long tag name. Just type the first bit and press <Tab>:

```
:tag write_<Tab>
```

You will get the first match. If it's not the one you want, press <Tab> until you find the right one.
   Sometimes you only know part of the name of a function. Or you have many tags that start with the same string, but end differently. Then you can tell Vim to use a pattern to find the tag.
   Suppose you want to jump to a tag that contains "block". First type this:

```
:tag /block
```

Now use command line completion: press <Tab>. Vim will find all tags that contain "block" and use the first match.
   The "/" before a tag name tells Vim that what follows is not a literal tag name, but a pattern. You can use all the items for search patterns here. For example, suppose you want to select a tag that starts with "write_":

```
:tselect /^write_
```

The "^" specifies that the tag starts with "write_". Otherwise it would also be found halfway a tag name. Similarly "$" at the end makes sure the pattern matches until the end of a tag.

A TAGS BROWSER

Since CTRL-] takes you to the definition of the identifier under the cursor, you can use a list of identifier names as a table of contents. Here is an example.
   First create a list of identifiers (this requires Exuberant ctags):

```
ctags --c-types=f -f functions *.c
```

Now start Vim without a file, and edit this file in Vim, in a vertically split window:

```
vim
:vsplit functions
```

The window contains a list of all the functions. There is some more stuff, but you can ignore that. Do ":setlocal ts=99" to clean it up a bit.
   In this window, define a mapping:

```
:nnoremap <buffer> <CR> 0ye<C-W>w:tag <C-R>"<CR>
```

Move the cursor to the line that contains the function you want to go to. Now press <Enter>. Vim will go to the other window and jump to the selected function.

RELATED ITEMS

To make case in tag names be ignored, you can set 'ignorecase' while leaving 'tagcase' as "followic", or set 'tagcase' to "ignore".

The 'tagbsearch' option tells if the tags file is sorted or not. The default is to assume a sorted tags file, which makes a tags search a lot faster, but doesn't work if the tags file isn't sorted.

The 'taglength' option can be used to tell Vim the number of significant characters in a tag.

Cscope is a free program. It does not only find places where an identifier is declared, but also where it is used. See cscope .

==
29.2 The preview window

When you edit code that contains a function call, you need to use the correct arguments. To know what values to pass you can look at how the function is defined. The tags mechanism works very well for this. Preferably the definition is displayed in another window. For this the preview window can be used.
   To open a preview window to display the function "write_char":

```
:ptag write_char
```

Vim will open a window, and jumps to the tag "write_char". Then it takes you back to the original position. Thus you can continue typing without the need to use a CTRL-W command.
   If the name of a function appears in the text, you can get its definition in the preview window with:

```
CTRL-W }
```

There is a script that automatically displays the text where the word under the cursor was defined. See CursorHold-example .

To close the preview window use this command:

```
:pclose
```

To edit a specific file in the preview window, use ":pedit". This can be useful to edit a header file, for example:

```
:pedit defs.h
```

Finally, ":psearch" can be used to find a word in the current file and any included files and display the match in the preview window. This is especially useful when using library functions, for which you do not have a tags file. Example:

```
:psearch popen
```

This will show the "stdio.h" file in the preview window, with the function prototype for popen():

```
FILE    *popen __P((const char *, const char *));
```

You can specify the height of the preview window, when it is opened, with the 'previewheight' option.

==
29.3 Moving through a program

Since a program is structured, Vim can recognize items in it. Specific commands can be used to move around.
   C programs often contain constructs like this:

```
#ifdef USE_POPEN
    fd = popen("ls", "r")
#else
    fd = fopen("tmp", "w")
#endif
```

But then much longer, and possibly nested. Position the cursor on the "#ifdef" and press %. Vim will jump to the "#else". Pressing % again takes you to the "#endif". Another % takes you to the "#ifdef" again.
   When the construct is nested, Vim will find the matching items. This is a good way to check if you didn't forget an "#endif".
   When you are somewhere inside a "#if" - "#endif", you can jump to the start of it with:

```
[#
```

If you are not after a "#if" or "#ifdef" Vim will beep. To jump forward to the next "#else" or "#endif" use:

```
]#
```

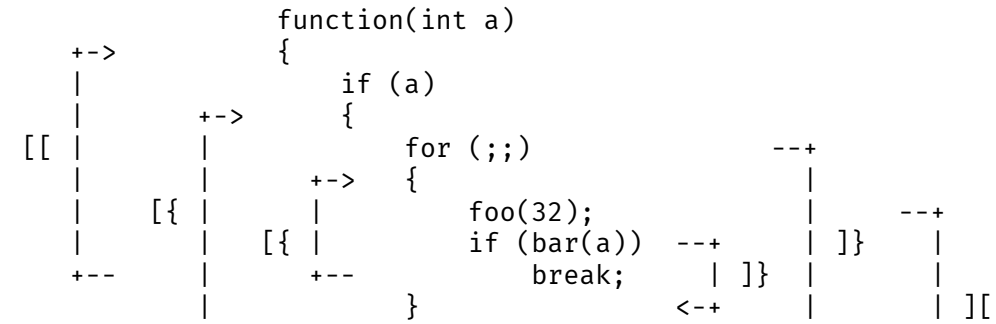
These two commands skip any "#if" - "#endif" blocks that they encounter. Example:

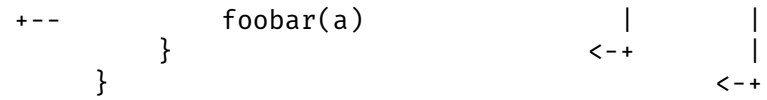
```
#if defined(HAS_INC_H)
    a = a + inc();
# ifdef USE_THEME
    a += 3;
# endif
    set_width(a);
```

With the cursor in the last line, "[#" moves to the first line. The "#ifdef" - "#endif" block in the middle is skipped.

MOVING IN CODE BLOCKS

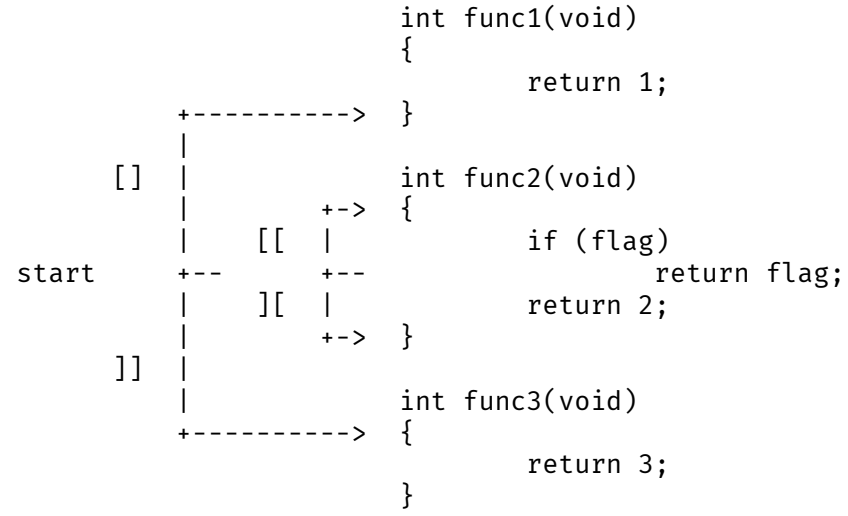
In C code blocks are enclosed in {}. These can get pretty long. To move to the start of the outer block use the "[[" command. Use "][" to find the end. This assumes that the "{" and "}" are in the first column.
   The "[{" command moves to the start of the current block. It skips over pairs of {} at the same level. "]}" jumps to the end.
   An overview:





When writing C++ or Java, the outer {} block is for the class. The next level of {} is for a method. When somewhere inside a class use "[m" to find the previous start of a method. "]m" finds the next start of a method.

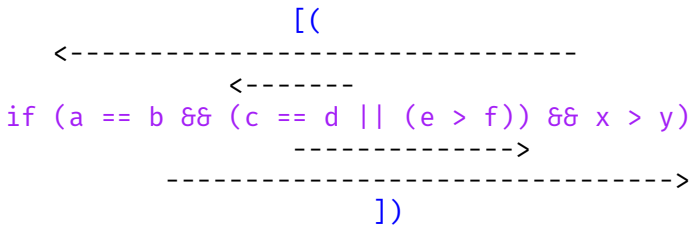
Additionally, "[]" moves backward to the end of a function and "]]" moves forward to the start of the next function. The end of a function is defined by a "}" in the first column.



Don't forget you can also use "%" to move between matching (), {} and []. That also works when they are many lines apart.

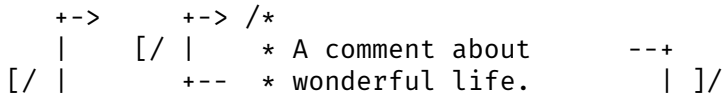
MOVING IN BRACES

The "[(" and "])" commands work similar to "[{" and "]}", except that they work on () pairs instead of {} pairs.



MOVING IN COMMENTS

To move back to the start of a comment use "[/". Move forward to the end of a comment with "]/". This only works for /* - */ comments.



```
          |            */                    <-+
          |
          +--          foo = bar * 3;         --+
                                                | ]/
                       /* a short comment */   <-+
```

==========

29.4 Finding global identifiers

You are editing a C program and wonder if a variable is declared as "int" or "unsigned". A quick way to find this is with the "[I" command.

Suppose the cursor is on the word "column". Type:

```
[I
```

Vim will list the matching lines it can find. Not only in the current file, but also in all included files (and files included in them, etc.). The result looks like this:

```
structs.h
 1:   29     unsigned     column;    /* column number */
```

The advantage over using tags or the preview window is that included files are searched. In most cases this results in the right declaration to be found. Also when the tags file is out of date. Also when you don't have tags for the included files.

However, a few things must be right for "[I" to do its work. First of all, the 'include' option must specify how a file is included. The default value works for C and C++. For other languages you will have to change it.

LOCATING INCLUDED FILES

Vim will find included files in the places specified with the 'path' option. If a directory is missing, some include files will not be found. You can discover this with this command:

```
:checkpath
```

It will list the include files that could not be found. Also files included by the files that could be found. An example of the output:

```
--- Included files not found in path ---
<io.h>
vim.h -->
  <functions.h>
  <clib/exec_protos.h>
```

The "io.h" file is included by the current file and can't be found. "vim.h" can be found, thus ":checkpath" goes into this file and checks what it includes. The "functions.h" and "clib/exec_protos.h" files, included by "vim.h" are not found.

```
Note:
```

Vim is not a compiler. It does not recognize "#ifdef" statements.
This means every "#include" statement is used, also when it comes
after "#if NEVER".

To fix the files that could not be found, add a directory to the 'path'
option. A good place to find out about this is the Makefile. Look out for
lines that contain "-I" items, like "-I/usr/local/X11". To add this directory
use:

```
:set path+=/usr/local/X11
```

When there are many subdirectories, you can use the "*" wildcard. Example:

```
:set path+=/usr/*/include
```

This would find files in "/usr/local/include" as well as "/usr/X11/include".

When working on a project with a whole nested tree of included files, the "**"
items is useful. This will search down in all subdirectories. Example:

```
:set path+=/projects/invent/**/include
```

This will find files in the directories:

```
/projects/invent/include
/projects/invent/main/include
/projects/invent/main/os/include
etc.
```

There are even more possibilities. Check out the 'path' option for info.
   If you want to see which included files are actually found, use this
command:

```
:checkpath!
```

You will get a (very long) list of included files, the files they include, and
so on. To shorten the list a bit, Vim shows "(Already listed)" for files that
were found before and doesn't list the included files in there again.

JUMPING TO A MATCH

"[I" produces a list with only one line of text. When you want to have a
closer look at the first item, you can jump to that line with the command:

```
[<Tab>
```

You can also use "[CTRL-I", since CTRL-I is the same as pressing <Tab>.

The list that "[I" produces has a number at the start of each line. When you
want to jump to another item than the first one, type the number first:

```
3[<Tab>
```

Will jump to the third item in the list. Remember that you can use CTRL-O to jump back to where you started from.

RELATED COMMANDS

```
        [i              only lists the first match
        ]I              only lists items below the cursor
        ]i              only lists the first item below the cursor
```

FINDING DEFINED IDENTIFIERS

The "[I" command finds any identifier. To find only macros, defined with "#define" use:

```
        [D
```

Again, this searches in included files. The 'define' option specifies what a line looks like that defines the items for "[D". You could change it to make it work with other languages than C or C++.
   The commands related to "[D" are:

```
        [d              only lists the first match
        ]D              only lists items below the cursor
        ]d              only lists the first item below the cursor
```

==========

29.5 Finding local identifiers

The "[I" command searches included files. To search in the current file only, and jump to the first place where the word under the cursor is used:

```
        gD
```

Hint: Goto Definition. This command is very useful to find a variable or function that was declared locally ("static", in C terms). Example (cursor on "counter"):

```
           +->   static int counter = 0;
           |
           |     int get_counter(void)
        gD |     {
           |         ++counter;
           +--       return counter;
                 }
```

To restrict the search even further, and look only in the current function, use this command:

```
        gd
```

This will go back to the start of the current function and find the first occurrence of the word under the cursor. Actually, it searches backwards to

an empty line above a "{" in the first column. From there it searches forward
for the identifier. Example (cursor on "idx"):

```
                int find_entry(char *name)
                {
           +->      int idx;
           |
        gd |        for (idx = 0; idx < table_len; ++idx)
           |            if (strcmp(table[idx].name, name) == 0)
           +--              return idx;
                }
```

==

Next chapter: usr_30.txt   Editing programs

Copyright: see manual-copyright   vim:tw=78:ts=8:ft=help:norl:

usr_30.txt For Vim version 8.1. Last change: 2007 Nov 10

VIM USER MANUAL - by Bram Moolenaar

Editing programs

Vim has various commands that aid in writing computer programs. Compile a program and directly jump to reported errors. Automatically set the indent for many languages and format comments.

Next chapter: usr_31.txt Exploiting the GUI
Previous chapter: usr_29.txt Moving through programs
Table of contents: usr_toc.txt

==

30.1 Compiling

Vim has a set of so called "quickfix" commands. They enable you to compile a program from within Vim and then go through the errors generated and fix them (hopefully). You can then recompile and fix any new errors that are found until finally your program compiles without any error.

The following command runs the program "make" (supplying it with any argument you give) and captures the results:

```
:make {arguments}
```

If errors were generated, they are captured and the editor positions you where the first error occurred.
Take a look at an example ":make" session. (Typical :make sessions generate far more errors and fewer stupid ones.) After typing ":make" the screen looks like this:

```
:!make | &tee /tmp/vim215953.err
gcc -g -Wall -o prog main.c sub.c
main.c: In function 'main':
main.c:6: too many arguments to function 'do_sub'
main.c: At top level:
main.c:10: parse error before '}'
make: *** [prog] Error 1

2 returned
"main.c" 11L, 111C
(3 of 6): too many arguments to function 'do_sub'
Press ENTER or type command to continue
```

From this you can see that you have errors in the file "main.c". When you press <Enter>, Vim displays the file "main.c", with the cursor positioned on line 6, the first line with an error. You did not need to specify the file or the line number, Vim knew where to go by looking in the error messages.

```
                +-------------------------------------------------+
                |int main()                                       |
                |{                                                |
                |       int i=3;                                  |
      cursor -> |       do_sub("foo");                            |
                |       ++i;                                      |
                |       return (0);                               |
                |}                                                |
                |}                                                |
                | ~                                               |
                |(3 of 12): too many arguments to function 'do_sub' |
                +-------------------------------------------------+
```

The following command goes to where the next error occurs:

```
        :cnext
```

Vim jumps to line 10, the last line in the file, where there is an extra '}'.
   When there is not enough room, Vim will shorten the error message. To see the whole message use:

```
        :cc
```

You can get an overview of all the error messages with the ":clist" command. The output looks like this:

```
        :clist
       3 main.c: 6:too many arguments to function 'do_sub'
        5 main.c: 10:parse error before '}'
```

Only the lines where Vim recognized a file name and line number are listed here. It assumes those are the interesting lines and the rest is just boring messages. However, sometimes unrecognized lines do contain something you want to see. Output from the linker, for example, about an undefined function. To see all the messages add a "!" to the command:

```
        :clist!
       1 gcc -g -Wall -o prog main.c sub.c
        2 main.c: In function 'main':
        3 main.c:6: too many arguments to function 'do_sub'
        4 main.c: At top level:
        5 main.c:10: parse error before '}'
        6 make: *** [prog] Error 1
```

Vim will highlight the current error. To go back to the previous error, use:

```
        :cprevious
```

Other commands to move around in the error list:

```
        :cfirst         to first error
        :clast          to last error
        :cc 3           to error nr 3
```

USING ANOTHER COMPILER

The name of the program to run when the ":make" command is executed is defined by the 'makeprg' option. Usually this is set to "make", but Visual C++ users should set this to "nmake" by executing the following command:

```
        :set makeprg=nmake
```

You can also include arguments in this option. Special characters need to be escaped with a backslash. Example:

```
        :set makeprg=nmake\ -f\ project.mak
```

You can include special Vim keywords in the command specification. The % character expands to the name of the current file. So if you execute the command:

```
        :set makeprg=make\ %:S
```

When you are editing main.c, then ":make" executes the following command:

```
        make main.c
```

This is not too useful, so you will refine the command a little and use the :r (root) modifier:

```
        :set makeprg=make\ %:r:S.o
```

Now the command executed is as follows:

```
        make main.o
```

More about these modifiers here: filename-modifiers .

OLD ERROR LISTS

Suppose you ":make" a program. There is a warning message in one file and an error message in another. You fix the error and use ":make" again to check if it was really fixed. Now you want to look at the warning message. It doesn't show up in the last error list, since the file with the warning wasn't compiled again. You can go back to the previous error list with:

```
        :colder
```

Then use ":clist" and ":cc {nr}" to jump to the place with the warning.
   To go forward to the next error list:

```
        :cnewer
```

Vim remembers ten error lists.

SWITCHING COMPILERS

You have to tell Vim what format the error messages are that your compiler produces. This is done with the 'errorformat' option. The syntax of this option is quite complicated and it can be made to fit almost any compiler. You can find the explanation here: errorformat .

You might be using various different compilers. Setting the 'makeprg' option, and especially the 'errorformat' each time is not easy. Vim offers a simple method for this. For example, to switch to using the Microsoft Visual C++ compiler:

```
:compiler msvc
```

This will find the Vim script for the "msvc" compiler and set the appropriate options.
You can write your own compiler files. See write-compiler-plugin .

OUTPUT REDIRECTION

The ":make" command redirects the output of the executed program to an error file. How this works depends on various things, such as the 'shell'. If your ":make" command doesn't capture the output, check the 'makeef' and 'shellpipe' options. The 'shellquote' and 'shellxquote' options might also matter.

In case you can't get ":make" to redirect the file for you, an alternative is to compile the program in another window and redirect the output into a file. Then have Vim read this file with:

```
:cfile {filename}
```

Jumping to errors will work like with the ":make" command.

==
30.2 Indenting C style text

A program is much easier to understand when the lines have been properly indented. Vim offers various ways to make this less work. For C or C style programs like Java or C++, set the 'cindent' option. Vim knows a lot about C programs and will try very hard to automatically set the indent for you. Set the 'shiftwidth' option to the amount of spaces you want for a deeper level. Four spaces will work fine. One ":set" command will do it:

```
:set cindent shiftwidth=4
```

With this option enabled, when you type something such as "if (x)", the next line will automatically be indented an additional level.

```
                                if (flag)
Automatic indent   --->             do_the_work();
Automatic unindent <--          if (other_flag) {
Automatic indent   --->             do_file();
keep indent                         do_some_more();
Automatic unindent <--          }
```

When you type something in curly braces ({}), the text will be indented at the start and unindented at the end. The unindenting will happen after typing the '}', since Vim can't guess what you are going to type.

One side effect of automatic indentation is that it helps you catch errors in your code early. When you type a } to finish a function, only to find that the automatic indentation gives it more indent than what you expected, there is probably a } missing. Use the "%" command to find out which { matches the } you typed.
A missing) and ; also cause extra indent. Thus if you get more white space than you would expect, check the preceding lines.

When you have code that is badly formatted, or you inserted and deleted lines, you need to re-indent the lines. The "=" operator does this. The simplest form is:

```
==
```

This indents the current line. Like with all operators, there are three ways to use it. In Visual mode "=" indents the selected lines. A useful text object is "a{". This selects the current {} block. Thus, to re-indent the code block the cursor is in:

```
=a{
```

I you have really badly indented code, you can re-indent the whole file with:

```
gg=G
```

However, don't do this in files that have been carefully indented manually. The automatic indenting does a good job, but in some situations you might want to overrule it.

SETTING INDENT STYLE

Different people have different styles of indentation. By default Vim does a pretty good job of indenting in a way that 90% of programmers do. There are different styles, however; so if you want to, you can customize the indentation style with the 'cinoptions' option.
By default 'cinoptions' is empty and Vim uses the default style. You can add various items where you want something different. For example, to make curly braces be placed like this:

```
if (flag)
  {
    i = 8;
```

```
            j = 0;
          }
```

Use this command:

```
:set cinoptions+={2
```

There are many of these items. See cinoptions-values .

==========

30.3 Automatic indenting

You don't want to switch on the 'cindent' option manually every time you edit a C file. This is how you make it work automatically:

```
:filetype indent on
```

Actually, this does a lot more than switching on 'cindent' for C files. First of all, it enables detecting the type of a file. That's the same as what is used for syntax highlighting.
   When the filetype is known, Vim will search for an indent file for this type of file. The Vim distribution includes a number of these for various programming languages. This indent file will then prepare for automatic indenting specifically for this file.

If you don't like the automatic indenting, you can switch it off again:

```
:filetype indent off
```

If you don't like the indenting for one specific type of file, this is how you avoid it. Create a file with just this one line:

```
:let b:did_indent = 1
```

Now you need to write this in a file with a specific name:

```
{directory}/indent/{filetype}.vim
```

The {filetype} is the name of the file type, such as "cpp" or "java". You can see the exact name that Vim detected with this command:

```
:set filetype
```

In this file the output is:

```
filetype=help
```

Thus you would use "help" for {filetype}.
   For the {directory} part you need to use your runtime directory. Look at the output of this command:

```
set runtimepath
```

Now use the first item, the name before the first comma. Thus if the output

looks like this:

```
	runtimepath=~/.vim,/usr/local/share/vim/vim60/runtime,~/.vim/after
```

You use "~/.vim" for {directory}. Then the resulting file name is:

```
	~/.vim/indent/help.vim
```

Instead of switching the indenting off, you could write your own indent file.
How to do that is explained here: indent-expression .

==
30.4 Other indenting

The most simple form of automatic indenting is with the 'autoindent' option.
It uses the indent from the previous line. A bit smarter is the 'smartindent'
option. This is useful for languages where no indent file is available.
'smartindent' is not as smart as 'cindent', but smarter than 'autoindent'.
   With 'smartindent' set, an extra level of indentation is added for each {
and removed for each }. An extra level of indentation will also be added for
any of the words in the 'cinwords' option. Lines that begin with # are
treated specially: all indentation is removed. This is done so that
preprocessor directives will all start in column 1. The indentation is
restored for the next line.

CORRECTING INDENTS

When you are using 'autoindent' or 'smartindent' to get the indent of the
previous line, there will be many times when you need to add or remove one
'shiftwidth' worth of indent. A quick way to do this is using the CTRL-D and
CTRL-T commands in Insert mode.
   For example, you are typing a shell script that is supposed to look like
this:

```
	if test -n a; then
	   echo a
	   echo "-------"
	fi
```

Start off by setting these options:

```
	:set autoindent shiftwidth=3
```

You start by typing the first line, <Enter> and the start of the second line:

```
	if test -n a; then
	echo
```

Now you see that you need an extra indent. Type CTRL-T. The result:

```
	if test -n a; then
	   echo
```

The CTRL-T command, in Insert mode, adds one 'shiftwidth' to the indent, no matter where in the line you are.
   You continue typing the second line, <Enter> and the third line. This time the indent is OK. Then <Enter> and the last line. Now you have this:

```
if test -n a; then
   echo a
   echo "-------"
   fi
```

To remove the superfluous indent in the last line press CTRL-D. This deletes one 'shiftwidth' worth of indent, no matter where you are in the line.
   When you are in Normal mode, you can use the ">>" and "<<" commands to shift lines. ">" and "<" are operators, thus you have the usual three ways to specify the lines you want to indent. A useful combination is:

```
>i{
```

This adds one indent to the current block of lines, inside {}. The { and } lines themselves are left unmodified. ">a{" includes them. In this example the cursor is on "printf":

```
original text           after ">i{"             after ">a{"

if (flag)               if (flag)               if (flag)
{                       {                           {
printf("yes");              printf("yes");          printf("yes");
flag = 0;                   flag = 0;               flag = 0;
}                       }                           }
```

==========

30.5 Tabs and spaces

'tabstop' is set to eight by default. Although you can change it, you quickly run into trouble later. Other programs won't know what tabstop value you used. They probably use the default value of eight, and your text suddenly looks very different. Also, most printers use a fixed tabstop value of eight. Thus it's best to keep 'tabstop' alone. (If you edit a file which was written with a different tabstop setting, see 25.3 for how to fix that.)
   For indenting lines in a program, using a multiple of eight spaces makes you quickly run into the right border of the window. Using a single space doesn't provide enough visual difference. Many people prefer to use four spaces, a good compromise.
   Since a <Tab> is eight spaces and you want to use an indent of four spaces, you can't use a <Tab> character to make your indent. There are two ways to handle this:

1. Use a mix of <Tab> and space characters. Since a <Tab> takes the place of eight spaces, you have fewer characters in your file. Inserting a <Tab> is quicker than eight spaces. Backspacing works faster as well.

2. Use spaces only. This avoids the trouble with programs that use a different tabstop value.

Fortunately, Vim supports both methods quite well.

SPACES AND TABS

If you are using a combination of tabs and spaces, you just edit normally. The Vim defaults do a fine job of handling things.

You can make life a little easier by setting the 'softtabstop' option. This option tells Vim to make the <Tab> key look and feel as if tabs were set at the value of 'softtabstop', but actually use a combination of tabs and spaces.

After you execute the following command, every time you press the <Tab> key the cursor moves to the next 4-column boundary:

```
:set softtabstop=4
```

When you start in the first column and press <Tab>, you get 4 spaces inserted in your text. The second time, Vim takes out the 4 spaces and puts in a <Tab> (thus taking you to column 8). Thus Vim uses as many <Tab>s as possible, and then fills up with spaces.

When backspacing it works the other way around. A <BS> will always delete the amount specified with 'softtabstop'. Then <Tab>s are used as many as possible and spaces to fill the gap.

The following shows what happens pressing <Tab> a few times, and then using <BS>. A "." stands for a space and "------->" for a <Tab>.

```
type                    result
<Tab>                   ....
<Tab><Tab>              ------->
<Tab><Tab><Tab>         ------->....
<Tab><Tab><Tab><BS>     ------->
<Tab><Tab><Tab><BS><BS> ....
```

An alternative is to use the 'smarttab' option. When it's set, Vim uses 'shiftwidth' for a <Tab> typed in the indent of a line, and a real <Tab> when typed after the first non-blank character. However, <BS> doesn't work like with 'softtabstop'.

JUST SPACES

If you want absolutely no tabs in your file, you can set the 'expandtab' option:

```
:set expandtab
```

When this option is set, the <Tab> key inserts a series of spaces. Thus you get the same amount of white space as if a <Tab> character was inserted, but there isn't a real <Tab> character in your file.

The backspace key will delete each space by itself. Thus after typing one <Tab> you have to press the <BS> key up to eight times to undo it. If you are in the indent, pressing CTRL-D will be a lot quicker.

CHANGING TABS IN SPACES (AND BACK)

Setting 'expandtab' does not affect any existing tabs. In other words, any tabs in the document remain tabs. If you want to convert tabs to spaces, use the ":retab" command. Use these commands:

```
:set expandtab
:%retab
```

Now Vim will have changed all indents to use spaces instead of tabs. However, all tabs that come after a non-blank character are kept. If you want these to be converted as well, add a !:

```
:%retab!
```

This is a little bit dangerous, because it can also change tabs inside a string. To check if these exist, you could use this:

```
/"[^"\t]*\t[^"]*"
```

It's recommended not to use hard tabs inside a string. Replace them with "\t" to avoid trouble.

The other way around works just as well:

```
:set noexpandtab
:%retab!
```

==========

30.6 Formatting comments

One of the great things about Vim is that it understands comments. You can ask Vim to format a comment and it will do the right thing.

Suppose, for example, that you have the following comment:

```
/*
 * This is a test
 * of the text formatting.
 */
```

You then ask Vim to format it by positioning the cursor at the start of the comment and type:

```
gq]/
```

"gq" is the operator to format text. "]/" is the motion that takes you to the end of a comment. The result is:

```
/*
 * This is a test of the text formatting.
 */
```

Notice that Vim properly handled the beginning of each line.

An alternative is to select the text that is to be formatted in Visual mode

and type "gq".

To add a new line to the comment, position the cursor on the middle line and press "o". The result looks like this:

```
/*
 * This is a test of the text formatting.
 *
 */
```

Vim has automatically inserted a star and a space for you. Now you can type the comment text. When it gets longer than 'textwidth', Vim will break the line. Again, the star is inserted automatically:

```
/*
 * This is a test of the text formatting.
 * Typing a lot of text here will make Vim
 * break
 */
```

For this to work some flags must be present in 'formatoptions':

```
r       insert the star when typing <Enter> in Insert mode
o       insert the star when using "o" or "O" in Normal mode
c       break comment text according to 'textwidth'
```

See fo-table for more flags.

DEFINING A COMMENT

The 'comments' option defines what a comment looks like. Vim distinguishes between a single-line comment and a comment that has a different start, end and middle part.
   Many single-line comments start with a specific character. In C++ // is used, in Makefiles #, in Vim scripts ". For example, to make Vim understand C++ comments:

```
:set comments=://
```

The colon separates the flags of an item from the text by which the comment is recognized. The general form of an item in 'comments' is:

```
{flags}:{text}
```

The {flags} part can be empty, as in this case.
   Several of these items can be concatenated, separated by commas. This allows recognizing different types of comments at the same time. For example, let's edit an e-mail message. When replying, the text that others wrote is preceded with ">" and "!" characters. This command would work:

```
:set comments=n:>,n:!
```

There are two items, one for comments starting with ">" and one for comments

that start with "!". Both use the flag "n". This means that these comments nest. Thus a line starting with ">" may have another comment after the ">". This allows formatting a message like this:

```
> ! Did you see that site?
> ! It looks really great.
> I don't like it.  The
> colors are terrible.
What is the URL of that
site?
```

Try setting 'textwidth' to a different value, e.g., 80, and format the text by Visually selecting it and typing "gq". The result is:

```
> ! Did you see that site?  It looks really great.
> I don't like it.  The colors are terrible.
What is the URL of that site?
```

You will notice that Vim did not move text from one type of comment to another. The "I" in the second line would have fit at the end of the first line, but since that line starts with "> !" and the second line with ">", Vim knows that this is a different kind of comment.

A THREE PART COMMENT

A C comment starts with "/*", has "*" in the middle and "*/" at the end. The entry in 'comments' for this looks like this:

```
:set comments=s1:/*,mb:*,ex:*/
```

The start is defined with "s1:/*". The "s" indicates the start of a three-piece comment. The colon separates the flags from the text by which the comment is recognized: "/*". There is one flag: "1". This tells Vim that the middle part has an offset of one space.

The middle part "mb:*" starts with "m", which indicates it is a middle part. The "b" flag means that a blank must follow the text. Otherwise Vim would consider text like "*pointer" also to be the middle of a comment.

The end part "ex:*/" has the "e" for identification. The "x" flag has a special meaning. It means that after Vim automatically inserted a star, typing / will remove the extra space.

For more details see format-comments .

==

Next chapter: usr_31.txt Exploiting the GUI

VIM USER MANUAL - by Bram Moolenaar

Exploiting the GUI

Vim works well in a terminal, but the GUI has a few extra items. A file browser can be used for commands that use a file. A dialog to make a choice between alternatives. Use keyboard shortcuts to access menu items quickly.

Next chapter: usr_32.txt The undo tree
Previous chapter: usr_30.txt Editing programs
Table of contents: usr_toc.txt

==========

31.1 The file browser

When using the File/Open... menu you get a file browser. This makes it easier to find the file you want to edit. But what if you want to split a window to edit another file? There is no menu entry for this. You could first use Window/Split and then File/Open..., but that's more work.

Since you are typing most commands in Vim, opening the file browser with a typed command is possible as well. To make the split command use the file browser, prepend "browse":

```
:browse split
```

Select a file and then the ":split" command will be executed with it. If you cancel the file dialog nothing happens, the window isn't split.

You can also specify a file name argument. This is used to tell the file browser where to start. Example:

```
:browse split /etc
```

The file browser will pop up, starting in the directory "/etc".

The ":browse" command can be prepended to just about any command that opens a file.

If no directory is specified, Vim will decide where to start the file browser. By default it uses the same directory as the last time. Thus when you used ":browse split" and selected a file in "/usr/local/share", the next time you use a ":browse" it will start in "/usr/local/share" again.

This can be changed with the 'browsedir' option. It can have one of three values:

```
last            Use the last directory browsed (default)
buffer          Use the same directory as the current buffer
```

```
        current         use the current directory
```

For example, when you are in the directory "/usr", editing the file "/usr/local/share/readme", then the command:

```
        :set browsedir=buffer
        :browse edit
```

Will start the browser in "/usr/local/share". Alternatively:

```
        :set browsedir=current
        :browse edit
```

Will start the browser in "/usr".

        Note:
        To avoid using the mouse, most file browsers offer using key presses to navigate. Since this is different for every system, it is not explained here. Vim uses a standard browser when possible, your system documentation should contain an explanation on the keyboard shortcuts somewhere.

When you are not using the GUI version, you could use the file explorer window to select files like in a file browser. However, this doesn't work for the ":browse" command. See netrw-browse .

==

31.2 Confirmation

Vim protects you from accidentally overwriting a file and other ways to lose changes. If you do something that might be a bad thing to do, Vim produces an error message and suggests appending ! if you really want to do it.

To avoid retyping the command with the !, you can make Vim give you a dialog. You can then press "OK" or "Cancel" to tell Vim what you want.

For example, you are editing a file and made changes to it. You start editing another file with:

```
        :confirm edit foo.txt
```

Vim will pop up a dialog that looks something like this:

```
        +-------------------------------------+
        |                                     |
        |   ?   Save changes to "bar.txt"?    |
        |                                     |
        |   YES   NO             CANCEL       |
        +-------------------------------------+
```

Now make your choice. If you do want to save the changes, select "YES". If you want to lose the changes for ever: "NO". If you forgot what you were doing and want to check what really changed use "CANCEL". You will be back in the same file, with the changes still there.

Just like ":browse", the ":confirm" command can be prepended to most commands

that edit another file. They can also be combined:

```
:confirm browse edit
```

This will produce a dialog when the current buffer was changed. Then it will pop up a file browser to select the file to edit.

```
Note:
In the dialog you can use the keyboard to select the choice.
Typically the <Tab> key and the cursor keys change the choice.
Pressing <Enter> selects the choice.  This depends on the system
though.
```

When you are not using the GUI, the ":confirm" command works as well. Instead of popping up a dialog, Vim will print the message at the bottom of the Vim window and ask you to press a key to make a choice.

```
:confirm edit main.c
Save changes to "Untitled"?
[Y]es, (N)o, (C)ancel:
```

You can now press the single key for the choice. You don't have to press <Enter>, unlike other typing on the command line.

31.3 Menu shortcuts

The keyboard is used for all Vim commands. The menus provide a simple way to select commands, without knowing what they are called. But you have to move your hand from the keyboard and grab the mouse.

Menus can often be selected with keys as well. This depends on your system, but most often it works this way. Use the <Alt> key in combination with the underlined letter of a menu. For example, <A-w> (<Alt> and w) pops up the Window menu.

In the Window menu, the "split" item has the p underlined. To select it, let go of the <Alt> key and press p.

After the first selection of a menu with the <Alt> key, you can use the cursor keys to move through the menus. <Right> selects a submenu and <left> closes it. <Esc> also closes a menu. <Enter> selects a menu item.

There is a conflict between using the <Alt> key to select menu items, and using <Alt> key combinations for mappings. The 'winaltkeys' option tells Vim what it should do with the <Alt> key.

The default value "menu" is the smart choice: If the key combination is a menu shortcut it can't be mapped. All other keys are available for mapping.

The value "no" doesn't use any <Alt> keys for the menus. Thus you must use the mouse for the menus, and all <Alt> keys can be mapped.

The value "yes" means that Vim will use any <Alt> keys for the menus. Some <Alt> key combinations may also do other things than selecting a menu.

31.4 Vim window position and size

To see the current Vim window position on the screen use:

```
:winpos
```

This will only work in the GUI. The output may look like this:

```
Window position: X 272, Y 103
```

The position is given in screen pixels. Now you can use the numbers to move Vim somewhere else. For example, to move it to the left a hundred pixels:

```
:winpos 172 103
```

```
Note:
There may be a small offset between the reported position and where
the window moves.  This is because of the border around the window.
This is added by the window manager.
```

You can use this command in your startup script to position the window at a specific position.

The size of the Vim window is computed in characters. Thus this depends on the size of the font being used. You can see the current size with this command:

```
:set lines columns
```

To change the size set the 'lines' and/or 'columns' options to a new value:

```
:set lines=50
:set columns=80
```

Obtaining the size works in a terminal just like in the GUI. Setting the size is not possible in most terminals.

You can start the X-Windows version of gvim with an argument to specify the size and position of the window:

```
gvim -geometry {width}x{height}+{x_offset}+{y_offset}
```

{width} and {height} are in characters, {x_offset} and {y_offset} are in pixels. Example:

```
gvim -geometry 80x25+100+300
```

31.5 Various

You can use gvim to edit an e-mail message. In your e-mail program you must select gvim to be the editor for messages. When you try that, you will see that it doesn't work: The mail program thinks that editing is finished, while gvim is still running!

What happens is that gvim disconnects from the shell it was started in. That is fine when you start gvim in a terminal, so that you can do other work

in that terminal. But when you really want to wait for gvim to finish, you must prevent it from disconnecting. The "-f" argument does this:

```
gvim -f file.txt
```

The "-f" stands for foreground. Now Vim will block the shell it was started in until you finish editing and exit.

DELAYED START OF THE GUI

On Unix it's possible to first start Vim in a terminal. That's useful if you do various tasks in the same shell. If you are editing a file and decide you want to use the GUI after all, you can start it with:

```
:gui
```

Vim will open the GUI window and no longer use the terminal. You can continue using the terminal for something else. The "-f" argument is used here to run the GUI in the foreground. You can also use ":gui -f".

THE GVIM STARTUP FILE

When gvim starts, it reads the gvimrc file. That's similar to the vimrc file used when starting Vim. The gvimrc file can be used for settings and commands that are only to be used when the GUI is going to be started. For example, you can set the 'lines' option to set a different window size:

```
:set lines=55
```

You don't want to do this in a terminal, since its size is fixed (except for an xterm that supports resizing).

The gvimrc file is searched for in the same locations as the vimrc file. Normally its name is "~/.gvimrc" for Unix and "$VIM/_gvimrc" for MS-Windows. The $MYGVIMRC environment variable is set to it, thus you can use this command to edit the file, if you have one:

```
:edit $MYGVIMRC
```

If for some reason you don't want to use the normal gvimrc file, you can specify another one with the "-U" argument:

```
gvim -U thisrc ...
```

That allows starting gvim for different kinds of editing. You could set another font size, for example.

To completely skip reading a gvimrc file:

```
gvim -U NONE ...
```

==========

Next chapter: usr_32.txt   The undo tree

VIM USER MANUAL - by Bram Moolenaar

The undo tree

Vim provides multi-level undo. If you undo a few changes and then make a new change you create a branch in the undo tree. This text is about moving through the branches.

Next chapter: usr_40.txt Make new commands
Previous chapter: usr_31.txt Exploiting the GUI
Table of contents: usr_toc.txt

32.1 Undo up to a file write

Sometimes you make several changes, and then discover you want to go back to when you have last written the file. You can do that with this command:

```
:earlier 1f
```

The "f" stands for "file" here.

You can repeat this command to go further back in the past. Or use a count different from 1 to go back faster.

If you go back too far, go forward again with:

```
:later 1f
```

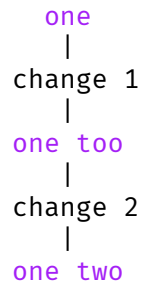
Note that these commands really work in time sequence. This matters if you made changes after undoing some changes. It's explained in the next section.

Also note that we are talking about text writes here. For writing the undo information in a file see undo-persistence .

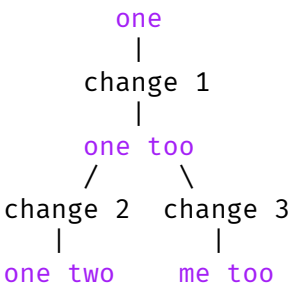
32.2 Numbering changes

In section 02.5 we only discussed one line of undo/redo. But it is also possible to branch off. This happens when you undo a few changes and then make a new change. The new changes become a branch in the undo tree.

Let's start with the text "one". The first change to make is to append " too". And then move to the first 'o' and change it into 'w'. We then have two changes, numbered 1 and 2, and three states of the text:



If we now undo one change, back to "one too", and change "one" to "me" we create a branch in the undo tree:



You can now use the `u` command to undo. If you do this twice you get to "one". Use `CTRL-R` to redo, and you will go to "one too". One more `CTRL-R` takes you to "me too". Thus undo and redo go up and down in the tree, using the branch that was last used.

What matters here is the order in which the changes are made. Undo and redo are not considered changes in this context. After each change you have a new state of the text.

Note that only the changes are numbered, the text shown in the tree above has no identifier. They are mostly referred to by the number of the change above it. But sometimes by the number of one of the changes below it, especially when moving up in the tree, so that you know which change was just undone.

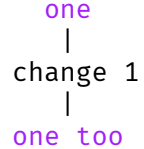
32.3 Jumping around the tree

So how do you get to "one two" now? You can use this command:

```
:undo 2
```

The text is now "one two", you are below change 2. You can use the `:undo` command to jump to below any change in the tree.

Now make another change: change "one" to "not":



```
          /     \
       change 2  change 3
          |         |
       one two    me too
          |
       change 4
          |
       not two
```

Now you change your mind and want to go back to "me too". Use the g- command. This moves back in time. Thus it doesn't walk the tree upwards or downwards, but goes to the change made before.

You can repeat g- and you will see the text change:

```
me too
one two
one too
one
```

Use g+ to move forward in time:

```
one
one too
one two
me too
not two
```

Using :undo is useful if you know what change you want to jump to. g- and g+ are useful if you don't know exactly what the change number is.

You can type a count before g- and g+ to repeat them.

32.4 Time travelling

When you have been working on text for a while the tree grows to become big. Then you may want to go to the text of some minutes ago.

To see what branches there are in the undo tree use this command:

```
:undolist
number changes  time
     3       2  16 seconds ago
     4       3  5 seconds ago
```

Here you can see the number of the leaves in each branch and when the change was made. Assuming we are below change 4, at "not two", you can go back ten seconds with this command:

```
:earlier 10s
```

Depending on how much time you took for the changes you end up at a certain position in the tree. The :earlier command argument can be "m" for minutes, "h" for hours and "d" for days. To go all the way back use a big number:

```
        :earlier 100d

To travel forward in time again use the  :later  command:

        :later 1m

The arguments are "s", "m" and "h", just like with  :earlier .

If you want even more details, or want to manipulate the information, you can
use the  undotree()  function.  To see what it returns:

        :echo undotree()

==============================================================================

Next chapter:  usr_40.txt   Make new commands

Copyright: see  manual-copyright   vim:tw=78:ts=8:ft=help:norl:
```

VIM USER MANUAL - by Bram Moolenaar

Make new commands

Vim is an extensible editor. You can take a sequence of commands you use
often and turn it into a new command. Or redefine an existing command.
Autocommands make it possible to execute commands automatically.

Next chapter: usr_41.txt Write a Vim script
Previous chapter: usr_32.txt The undo tree
Table of contents: usr_toc.txt

==========

40.1 Key mapping

A simple mapping was explained in section 05.3 . The principle is that one
sequence of key strokes is translated into another sequence of key strokes.
This is a simple, yet powerful mechanism.
   The simplest form is that one key is mapped to a sequence of keys. Since
the function keys, except <F1>, have no predefined meaning in Vim, these are
good choices to map. Example:

```
:map <F2> GoDate: <Esc>:read !date<CR>kJ
```

This shows how three modes are used. After going to the last line with "G",
the "o" command opens a new line and starts Insert mode. The text "Date: " is
inserted and <Esc> takes you out of insert mode.
   Notice the use of special keys inside <>. This is called angle bracket
notation. You type these as separate characters, not by pressing the key
itself. This makes the mappings better readable and you can copy and paste
the text without problems.
   The ":" character takes Vim to the command line. The ":read !date" command
reads the output from the "date" command and appends it below the current
line. The <CR> is required to execute the ":read" command.
   At this point of execution the text looks like this:

```
Date:
Fri Jun 15 12:54:34 CEST 2001
```

Now "kJ" moves the cursor up and joins the lines together.
   To decide which key or keys you use for mapping, see map-which-keys .

MAPPING AND MODES

The ":map" command defines remapping for keys in Normal mode. You can also
define mappings for other modes. For example, ":imap" applies to Insert mode.

You can use it to insert a date below the cursor:

```
:imap <F2> <CR>Date: <Esc>:read !date<CR>kJ
```

It looks a lot like the mapping for <F2> in Normal mode, only the start is different. The <F2> mapping for Normal mode is still there. Thus you can map the same key differently for each mode.
Notice that, although this mapping starts in Insert mode, it ends in Normal mode. If you want it to continue in Insert mode, append an "a" to the mapping.

Here is an overview of map commands and in which mode they work:

```
:map            Normal, Visual and Operator-pending
:vmap           Visual
:nmap           Normal
:omap           Operator-pending
:map!           Insert and Command-line
:imap           Insert
:cmap           Command-line
```

Operator-pending mode is when you typed an operator character, such as "d" or "y", and you are expected to type the motion command or a text object. Thus when you type "dw", the "w" is entered in operator-pending mode.

Suppose that you want to define <F7> so that the command d<F7> deletes a C program block (text enclosed in curly braces, {}). Similarly y<F7> would yank the program block into the unnamed register. Therefore, what you need to do is to define <F7> to select the current program block. You can do this with the following command:

```
:omap <F7> a{
```

This causes <F7> to perform a select block "a{" in operator-pending mode, just like you typed it. This mapping is useful if typing a { on your keyboard is a bit difficult.

LISTING MAPPINGS

To see the currently defined mappings, use ":map" without arguments. Or one of the variants that include the mode in which they work. The output could look like this:

```
   _g            :call MyGrep(1)<CR>
v  <F2>          :s/^/> /<CR>:noh<CR>``
n  <F2>          :.,$s/^/> /<CR>:noh<CR>``
   <xHome>       <Home>
   <xEnd>        <End>
```

The first column of the list shows in which mode the mapping is effective. This is "n" for Normal mode, "i" for Insert mode, etc. A blank is used for a mapping defined with ":map", thus effective in both Normal and Visual mode.

One useful purpose of listing the mapping is to check if special keys in <> form have been recognized (this only works when color is supported). For example, when <Esc> is displayed in color, it stands for the escape character. When it has the same color as the other text, it is five characters.

REMAPPING

The result of a mapping is inspected for other mappings in it. For example, the mappings for <F2> above could be shortened to:

```
:map <F2> G<F3>
:imap <F2> <Esc><F3>
:map <F3>  oDate: <Esc>:read !date<CR>kJ
```

For Normal mode <F2> is mapped to go to the last line, and then behave like <F3> was pressed. In Insert mode <F2> stops Insert mode with <Esc> and then also uses <F3>. Then <F3> is mapped to do the actual work.

Suppose you hardly ever use Ex mode, and want to use the "Q" command to format text (this was so in old versions of Vim). This mapping will do it:

```
:map Q gq
```

But, in rare cases you need to use Ex mode anyway. Let's map "gQ" to Q, so that you can still go to Ex mode:

```
:map gQ Q
```

What happens now is that when you type "gQ" it is mapped to "Q". So far so good. But then "Q" is mapped to "gq", thus typing "gQ" results in "gq", and you don't get to Ex mode at all.

To avoid keys to be mapped again, use the ":noremap" command:

```
:noremap gQ Q
```

Now Vim knows that the "Q" is not to be inspected for mappings that apply to it. There is a similar command for every mode:

```
:noremap        Normal, Visual and Operator-pending
:vnoremap       Visual
:nnoremap       Normal
:onoremap       Operator-pending
:noremap!       Insert and Command-line
:inoremap       Insert
:cnoremap       Command-line
```

RECURSIVE MAPPING

When a mapping triggers itself, it will run forever. This can be used to repeat an action an unlimited number of times.

For example, you have a list of files that contain a version number in the first line. You edit these files with "vim *.txt". You are now editing the

first file. Define this mapping:

```
:map ,, :s/5.1/5.2/<CR>:wnext<CR>,,
```

Now you type ",,". This triggers the mapping. It replaces "5.1" with "5.2" in the first line. Then it does a ":wnext" to write the file and edit the next one. The mapping ends in ",,". This triggers the same mapping again, thus doing the substitution, etc.
   This continues until there is an error. In this case it could be a file where the substitute command doesn't find a match for "5.1". You can then make a change to insert "5.1" and continue by typing ",," again. Or the ":wnext" fails, because you are in the last file in the list.
   When a mapping runs into an error halfway, the rest of the mapping is discarded. CTRL-C interrupts the mapping (CTRL-Break on MS-Windows).

DELETE A MAPPING

To remove a mapping use the ":unmap" command. Again, the mode the unmapping applies to depends on the command used:

```
:unmap          Normal, Visual and Operator-pending
:vunmap         Visual
:nunmap         Normal
:ounmap         Operator-pending
:unmap!         Insert and Command-line
:iunmap         Insert
:cunmap         Command-line
```

There is a trick to define a mapping that works in Normal and Operator-pending mode, but not in Visual mode. First define it for all three modes, then delete it for Visual mode:

```
:map <C-A> /---><CR>
:vunmap <C-A>
```

Notice that the five characters "<C-A>" stand for the single key CTRL-A.

To remove all mappings use the :mapclear command. You can guess the variations for different modes by now. Be careful with this command, it can't be undone.

SPECIAL CHARACTERS

The ":map" command can be followed by another command. A | character separates the two commands. This also means that a | character can't be used inside a map command. To include one, use <Bar> (five characters). Example:

```
:map <F8> :write <Bar> !checkin %:S<CR>
```

The same problem applies to the ":unmap" command, with the addition that you have to watch out for trailing white space. These two commands are different:

```
:unmap a | unmap b
:unmap a| unmap b
```

The first command tries to unmap "a ", with a trailing space.

When using a space inside a mapping, use <Space> (seven characters):

```
:map <Space> W
```

This makes the spacebar move a blank-separated word forward.

It is not possible to put a comment directly after a mapping, because the " character is considered to be part of the mapping. You can use |", this starts a new, empty command with a comment. Example:

```
:map <Space> W|     " Use spacebar to move forward a word
```

MAPPINGS AND ABBREVIATIONS

Abbreviations are a lot like Insert mode mappings. The arguments are handled in the same way. The main difference is the way they are triggered. An abbreviation is triggered by typing a non-word character after the word. A mapping is triggered when typing the last character.

Another difference is that the characters you type for an abbreviation are inserted in the text while you type them. When the abbreviation is triggered these characters are deleted and replaced by what the abbreviation produces. When typing the characters for a mapping, nothing is inserted until you type the last character that triggers it. If the 'showcmd' option is set, the typed characters are displayed in the last line of the Vim window.

An exception is when a mapping is ambiguous. Suppose you have done two mappings:

```
:imap aa foo
:imap aaa bar
```

Now, when you type "aa", Vim doesn't know if it should apply the first or the second mapping. It waits for another character to be typed. If it is an "a", the second mapping is applied and results in "bar". If it is a space, for example, the first mapping is applied, resulting in "foo", and then the space is inserted.

ADDITIONALLY...

The <script> keyword can be used to make a mapping local to a script. See :map-<script> .

The <buffer> keyword can be used to make a mapping local to a specific buffer. See :map-<buffer>

The <unique> keyword can be used to make defining a new mapping fail when it already exists. Otherwise a new mapping simply overwrites the old one. See :map-<unique> .

To make a key do nothing, map it to <Nop> (five characters). This will make the <F7> key do nothing at all:

```
:map <F7> <Nop>| map! <F7> <Nop>
```

There must be no space after <Nop>.

==========

40.2 Defining command-line commands

The Vim editor enables you to define your own commands. You execute these commands just like any other Command-line mode command.
To define a command, use the ":command" command, as follows:

```
:command DeleteFirst 1delete
```

Now when you execute the command ":DeleteFirst" Vim executes ":1delete", which deletes the first line.

> Note:
> User-defined commands must start with a capital letter. You cannot use ":X", ":Next" and ":Print". The underscore cannot be used! You can use digits, but this is discouraged.

To list the user-defined commands, execute the following command:

```
:command
```

Just like with the builtin commands, the user defined commands can be abbreviated. You need to type just enough to distinguish the command from another. Command line completion can be used to get the full name.

NUMBER OF ARGUMENTS

User-defined commands can take a series of arguments. The number of arguments must be specified by the -nargs option. For instance, the example :DeleteFirst command takes no arguments, so you could have defined it as follows:

```
:command -nargs=0 DeleteFirst 1delete
```

However, because zero arguments is the default, you do not need to add "-nargs=0". The other values of -nargs are as follows:

```
-nargs=0        No arguments
-nargs=1        One argument
-nargs=*        Any number of arguments
-nargs=?        Zero or one argument
-nargs=+        One or more arguments
```

USING THE ARGUMENTS

Inside the command definition, the arguments are represented by the
<args> keyword. For example:

```
:command -nargs=+ Say :echo "<args>"
```

Now when you type

```
:Say Hello World
```

Vim echoes "Hello World". However, if you add a double quote, it won't work.
For example:

```
:Say he said "hello"
```

To get special characters turned into a string, properly escaped to use as an
expression, use "<q-args>":

```
:command -nargs=+ Say :echo <q-args>
```

Now the above ":Say" command will result in this to be executed:

```
:echo "he said \"hello\""
```

The <f-args> keyword contains the same information as the <args> keyword,
except in a format suitable for use as function call arguments. For example:

```
:command -nargs=* DoIt :call AFunction(<f-args>)
:DoIt a b c
```

Executes the following command:

```
:call AFunction("a", "b", "c")
```

LINE RANGE

Some commands take a range as their argument. To tell Vim that you are
defining such a command, you need to specify a -range option. The values for
this option are as follows:

```
-range          Range is allowed; default is the current line.
-range=%        Range is allowed; default is the whole file.
-range={count}  Range is allowed; the last number in it is used as a
                single number whose default is {count}.
```

When a range is specified, the keywords <line1> and <line2> get the values of
the first and last line in the range. For example, the following command
defines the SaveIt command, which writes out the specified range to the file
"save_file":

```
:command -range=% SaveIt :<line1>,<line2>write! save_file
```

OTHER OPTIONS

Some of the other options and keywords are as follows:

-count={number}	The command can take a count whose default is {number}. The resulting count can be used through the <count> keyword.
-bang	You can use a !. If present, using <bang> will result in a !.
-register	You can specify a register. (The default is the unnamed register.) The register specification is available as <reg> (a.k.a. <register>).
-complete={type}	Type of command-line completion used. See :command-completion for the list of possible values.
-bar	The command can be followed by | and another command, or " and a comment.
-buffer	The command is only available for the current buffer.

Finally, you have the <lt> keyword. It stands for the character <. Use this to escape the special meaning of the <> items mentioned.

REDEFINING AND DELETING

To redefine the same command use the ! argument:

```
:command -nargs=+ Say :echo "<args>"
:command! -nargs=+ Say :echo <q-args>
```

To delete a user command use ":delcommand". It takes a single argument, which is the name of the command. Example:

```
:delcommand SaveIt
```

To delete all the user commands:

```
:comclear
```

Careful, this can't be undone!

More details about all this in the reference manual: user-commands .

==========

40.3 Autocommands

An autocommand is a command that is executed automatically in response to some event, such as a file being read or written or a buffer change. Through the use of autocommands you can train Vim to edit compressed files, for example. That is used in the gzip plugin.

Autocommands are very powerful. Use them with care and they will help you avoid typing many commands. Use them carelessly and they will cause a lot of

trouble.

Suppose you want to replace a datestamp on the end of a file every time it is written. First you define a function:

```
:function DateInsert()
:  $delete
:  read !date
:endfunction
```

You want this function to be called each time, just before a buffer is written to a file. This will make that happen:

```
:autocmd BufWritePre *  call DateInsert()
```

"BufWritePre" is the event for which this autocommand is triggered: Just before (pre) writing a buffer to a file. The "*" is a pattern to match with the file name. In this case it matches all files.
With this command enabled, when you do a ":write", Vim checks for any matching BufWritePre autocommands and executes them, and then it performs the ":write".
The general form of the :autocmd command is as follows:

```
:autocmd [group] {events} {file_pattern} [nested] {command}
```

The [group] name is optional. It is used in managing and calling the commands (more on this later). The {events} parameter is a list of events (comma separated) that trigger the command.
{file_pattern} is a filename, usually with wildcards. For example, using "*.txt" makes the autocommand be used for all files whose name end in ".txt". The optional [nested] flag allows for nesting of autocommands (see below), and finally, {command} is the command to be executed.

EVENTS

One of the most useful events is BufReadPost. It is triggered after a new file is being edited. It is commonly used to set option values. For example, you know that "*.gsm" files are GNU assembly language. To get the syntax file right, define this autocommand:

```
:autocmd BufReadPost *.gsm  set filetype=asm
```

If Vim is able to detect the type of file, it will set the 'filetype' option for you. This triggers the Filetype event. Use this to do something when a certain type of file is edited. For example, to load a list of abbreviations for text files:

```
:autocmd Filetype text  source ~/.vim/abbrevs.vim
```

When starting to edit a new file, you could make Vim insert a skeleton:

```
:autocmd BufNewFile *.[ch]  0read ~/skeletons/skel.c
```

See autocmd-events for a complete list of events.

PATTERNS

The {file_pattern} argument can actually be a comma-separated list of file patterns. For example: "*.c,*.h" matches files ending in ".c" and ".h".
   The usual file wildcards can be used. Here is a summary of the most often used ones:

```
*               Match any character any number of times
?               Match any character once
[abc]           Match the character a, b or c
.               Matches a dot
a{b,c}          Matches "ab" and "ac"
```

When the pattern includes a slash (/) Vim will compare directory names. Without the slash only the last part of a file name is used. For example, "*.txt" matches "/home/biep/readme.txt". The pattern "/home/biep/*" would also match it. But "home/foo/*.txt" wouldn't.
   When including a slash, Vim matches the pattern against both the full path of the file ("/home/biep/readme.txt") and the relative path (e.g., "biep/readme.txt").

> Note:
> When working on a system that uses a backslash as file separator, such as MS-Windows, you still use forward slashes in autocommands. This makes it easier to write the pattern, since a backslash has a special meaning. It also makes the autocommands portable.

DELETING

To delete an autocommand, use the same command as what it was defined with, but leave out the {command} at the end and use a !. Example:

```
:autocmd! FileWritePre *
```

This will delete all autocommands for the "FileWritePre" event that use the "*" pattern.

LISTING

To list all the currently defined autocommands, use this:

```
:autocmd
```

The list can be very long, especially when filetype detection is used. To list only part of the commands, specify the group, event and/or pattern. For example, to list all BufNewFile autocommands:

```
:autocmd BufNewFile
```

To list all autocommands for the pattern "*.c":

```
:autocmd * *.c
```

Using "*" for the event will list all the events. To list all autocommands for the cprograms group:

```
:autocmd cprograms
```

GROUPS

The {group} item, used when defining an autocommand, groups related autocommands together. This can be used to delete all the autocommands in a certain group, for example.
   When defining several autocommands for a certain group, use the ":augroup" command. For example, let's define autocommands for C programs:

```
:augroup cprograms
:  autocmd BufReadPost *.c,*.h :set sw=4 sts=4
:  autocmd BufReadPost *.cpp   :set sw=3 sts=3
:augroup END
```

This will do the same as:

```
:autocmd cprograms BufReadPost *.c,*.h :set sw=4 sts=4
:autocmd cprograms BufReadPost *.cpp   :set sw=3 sts=3
```

To delete all autocommands in the "cprograms" group:

```
:autocmd! cprograms
```

NESTING

Generally, commands executed as the result of an autocommand event will not trigger any new events. If you read a file in response to a FileChangedShell event, it will not trigger the autocommands that would set the syntax, for example. To make the events triggered, add the "nested" argument:

```
:autocmd FileChangedShell * nested  edit
```

EXECUTING AUTOCOMMANDS

It is possible to trigger an autocommand by pretending an event has occurred. This is useful to have one autocommand trigger another one. Example:

```
:autocmd BufReadPost *.new  execute "doautocmd BufReadPost " . expand("<afile>:r")
```

This defines an autocommand that is triggered when a new file has been edited. The file name must end in ".new". The ":execute" command uses expression evaluation to form a new command and execute it. When editing the file "tryout.c.new" the executed command will be:

```
:doautocmd BufReadPost tryout.c
```

The expand() function takes the "<afile>" argument, which stands for the file name the autocommand was executed for, and takes the root of the file name with ":r".

":doautocmd" executes on the current buffer. The ":doautoall" command works like "doautocmd" except it executes on all the buffers.

USING NORMAL MODE COMMANDS

The commands executed by an autocommand are Command-line commands. If you want to use a Normal mode command, the ":normal" command can be used. Example:

```
:autocmd BufReadPost *.log normal G
```

This will make the cursor jump to the last line of *.log files when you start to edit it.

Using the ":normal" command is a bit tricky. First of all, make sure its argument is a complete command, including all the arguments. When you use "i" to go to Insert mode, there must also be a <Esc> to leave Insert mode again. If you use a "/" to start a search pattern, there must be a <CR> to execute it.

The ":normal" command uses all the text after it as commands. Thus there can be no | and another command following. To work around this, put the ":normal" command inside an ":execute" command. This also makes it possible to pass unprintable characters in a convenient way. Example:

```
:autocmd BufReadPost *.chg execute "normal ONew entry:\<Esc>" |
        \ 1read !date
```

This also shows the use of a backslash to break a long command into more lines. This can be used in Vim scripts (not at the command line).

When you want the autocommand do something complicated, which involves jumping around in the file and then returning to the original position, you may want to restore the view on the file. See restore-position for an example.

IGNORING EVENTS

At times, you will not want to trigger an autocommand. The 'eventignore' option contains a list of events that will be totally ignored. For example, the following causes events for entering and leaving a window to be ignored:

```
:set eventignore=WinEnter,WinLeave
```

To ignore all events, use the following command:

```
:set eventignore=all
```

To set it back to the normal behavior, make 'eventignore' empty:

```
:set eventignore=
```

==

Next chapter: usr_41.txt Write a Vim script

Copyright: see manual-copyright vim:tw=78:ts=8:ft=help:norl:

usr_41.txt For Vim version 8.1. Last change: 2018 Apr 11

VIM USER MANUAL - by Bram Moolenaar

Write a Vim script

The Vim script language is used for the startup vimrc file, syntax files, and many other things. This chapter explains the items that can be used in a Vim script. There are a lot of them, thus this is a long chapter.

Next chapter: usr_42.txt Add new menus
Previous chapter: usr_40.txt Make new commands
Table of contents: usr_toc.txt

==

41.1 Introduction vim-script-intro script

Your first experience with Vim scripts is the vimrc file. Vim reads it when it starts up and executes the commands. You can set options to values you prefer. And you can use any colon command in it (commands that start with a ":"; these are sometimes referred to as Ex commands or command-line commands).
   Syntax files are also Vim scripts. As are files that set options for a specific file type. A complicated macro can be defined by a separate Vim script file. You can think of other uses yourself.

Let's start with a simple example:

```
:let i = 1
:while i < 5
:  echo "count is" i
:  let i += 1
:endwhile
```

Note:
The ":" characters are not really needed here. You only need to use them when you type a command. In a Vim script file they can be left

out. We will use them here anyway to make clear these are colon commands and make them stand out from Normal mode commands.
Note:
You can try out the examples by yanking the lines from the text here and executing them with :@"

The output of the example code is:

```
count is 1
count is 2
count is 3
count is 4
```

In the first line the ":let" command assigns a value to a variable. The generic form is:

```
:let {variable} = {expression}
```

In this case the variable name is "i" and the expression is a simple value, the number one.
The ":while" command starts a loop. The generic form is:

```
:while {condition}
:  {statements}
:endwhile
```

The statements until the matching ":endwhile" are executed for as long as the condition is true. The condition used here is the expression "i < 5". This is true when the variable i is smaller than five.
Note:
If you happen to write a while loop that keeps on running, you can interrupt it by pressing CTRL-C (CTRL-Break on MS-Windows).

The ":echo" command prints its arguments. In this case the string "count is" and the value of the variable i. Since i is one, this will print:

```
count is 1
```

Then there is the ":let i += 1" command. This does the same thing as ":let i = i + 1". This adds one to the variable i and assigns the new value to the same variable.

The example was given to explain the commands, but would you really want to make such a loop, it can be written much more compact:

```
:for i in range(1, 4)
:  echo "count is" i
:endfor
```

We won't explain how :for and range() work until later. Follow the links if you are impatient.

THREE KINDS OF NUMBERS

Numbers can be decimal, hexadecimal or octal. A hexadecimal number starts with "0x" or "0X". For example "0x1f" is decimal 31. An octal number starts with a zero. "017" is decimal 15. Careful: don't put a zero before a decimal number, it will be interpreted as an octal number!
   The ":echo" command always prints decimal numbers. Example:

```
:echo 0x7f 036
127 30
```

A number is made negative with a minus sign. This also works for hexadecimal and octal numbers. A minus sign is also used for subtraction. Compare this with the previous example:

```
:echo 0x7f -036
97
```

White space in an expression is ignored. However, it's recommended to use it for separating items, to make the expression easier to read. For example, to avoid the confusion with a negative number above, put a space between the minus sign and the following number:

```
:echo 0x7f - 036
```

==
41.2 Variables

A variable name consists of ASCII letters, digits and the underscore. It cannot start with a digit. Valid variable names are:

```
counter
_aap3
very_long_variable_name_with_underscores
FuncLength
LENGTH
```

Invalid names are "foo+bar" and "6var".
   These variables are global. To see a list of currently defined variables use this command:

```
:let
```

You can use global variables everywhere. This also means that when the variable "count" is used in one script file, it might also be used in another file. This leads to confusion at least, and real problems at worst. To avoid this, you can use a variable local to a script file by prepending "s:". For example, one script contains this code:

```
:let s:count = 1
:while s:count < 5
:  source other.vim
:  let s:count += 1
:endwhile
```

Since "s:count" is local to this script, you can be sure that sourcing the "other.vim" script will not change this variable. If "other.vim" also uses an "s:count" variable, it will be a different copy, local to that script. More about script-local variables here: script-variable .

There are more kinds of variables, see internal-variables . The most often used ones are:

b:name	variable local to a buffer
w:name	variable local to a window
g:name	global variable (also in a function)
v:name	variable predefined by Vim

DELETING VARIABLES

Variables take up memory and show up in the output of the ":let" command. To delete a variable use the ":unlet" command. Example:

```
:unlet s:count
```

This deletes the script-local variable "s:count" to free up the memory it uses. If you are not sure if the variable exists, and don't want an error message when it doesn't, append !:

```
:unlet! s:count
```

When a script finishes, the local variables used there will not be automatically freed. The next time the script executes, it can still use the old value. Example:

```
:if !exists("s:call_count")
:  let s:call_count = 0
:endif
:let s:call_count = s:call_count + 1
:echo "called" s:call_count "times"
```

The "exists()" function checks if a variable has already been defined. Its argument is the name of the variable you want to check. Not the variable itself! If you would do this:

```
:if !exists(s:call_count)
```

Then the value of s:call_count will be used as the name of the variable that exists() checks. That's not what you want.

The exclamation mark ! negates a value. When the value was true, it becomes false. When it was false, it becomes true. You can read it as "not". Thus "if !exists()" can be read as "if not exists()".

What Vim calls true is anything that is not zero. Zero is false.

Note:
Vim automatically converts a string to a number when it is looking for a number. When using a string that doesn't start with a digit the resulting number is zero. Thus look out for this:

```
:if "true"
```

The "true" will be interpreted as a zero, thus as false!

STRING VARIABLES AND CONSTANTS

So far only numbers were used for the variable value. Strings can be used as well. Numbers and strings are the basic types of variables that Vim supports. The type is dynamic, it is set each time when assigning a value to the variable with ":let". More about types in 41.8 .

To assign a string value to a variable, you need to use a string constant. There are two types of these. First the string in double quotes:

```
:let name = "peter"
:echo name
peter
```

If you want to include a double quote inside the string, put a backslash in front of it:

```
:let name = "\"peter\""
:echo name
"peter"
```

To avoid the need for a backslash, you can use a string in single quotes:

```
:let name = '"peter"'
:echo name
"peter"
```

Inside a single-quote string all the characters are as they are. Only the single quote itself is special: you need to use two to get one. A backslash is taken literally, thus you can't use it to change the meaning of the character after it.

In double-quote strings it is possible to use special characters. Here are a few useful ones:

```
\t              <Tab>
\n              <NL>, line break
\r              <CR>, <Enter>
\e              <Esc>
\b              <BS>, backspace
\"              "
\\              \, backslash
\<Esc>          <Esc>
\<C-W>          CTRL-W
```

The last two are just examples. The "\<name>" form can be used to include the special key "name".

See expr-quote for the full list of special items in a string.

==========

41.3 Expressions

Vim has a rich, yet simple way to handle expressions. You can read the

definition here: expression-syntax . Here we will show the most common items.
   The numbers, strings and variables mentioned above are expressions by themselves. Thus everywhere an expression is expected, you can use a number, string or variable. Other basic items in an expression are:

```
        $NAME           environment variable
        &name           option
        @r              register
```

Examples:

```
        :echo "The value of 'tabstop' is" &ts
        :echo "Your home directory is" $HOME
        :if @a > 5
```

The &name form can be used to save an option value, set it to a new value, do something and restore the old value. Example:

```
        :let save_ic = &ic
        :set noic
        :/The Start/,$delete
        :let &ic = save_ic
```

This makes sure the "The Start" pattern is used with the 'ignorecase' option off. Still, it keeps the value that the user had set. (Another way to do this would be to add "\C" to the pattern, see /\C .)

MATHEMATICS

It becomes more interesting if we combine these basic items. Let's start with mathematics on numbers:

```
        a + b           add
        a - b           subtract
        a * b           multiply
        a / b           divide
        a % b           modulo
```

The usual precedence is used. Example:

```
        :echo 10 + 5 * 2
       20
```

Grouping is done with parentheses. No surprises here. Example:

```
        :echo (10 + 5) * 2
       30
```

Strings can be concatenated with ".". Example:

```
        :echo "foo" . "bar"
       foobar
```

When the ":echo" command gets multiple arguments, it separates them with a space. In the example the argument is a single expression, thus no space is inserted.

Borrowed from the C language is the conditional expression:

```
a ? b : c
```

If "a" evaluates to true "b" is used, otherwise "c" is used. Example:

```
:let i = 4
:echo i > 5 ? "i is big" : "i is small"
i is small
```

The three parts of the constructs are always evaluated first, thus you could see it work as:

```
(a) ? (b) : (c)
```

41.4 Conditionals

The ":if" commands executes the following statements, until the matching ":endif", only when a condition is met. The generic form is:

```
:if {condition}
   {statements}
:endif
```

Only when the expression {condition} evaluates to true (non-zero) will the {statements} be executed. These must still be valid commands. If they contain garbage, Vim won't be able to find the ":endif".

You can also use ":else". The generic form for this is:

```
:if {condition}
   {statements}
:else
   {statements}
:endif
```

The second {statements} is only executed if the first one isn't.

Finally, there is ":elseif":

```
:if {condition}
   {statements}
:elseif {condition}
   {statements}
:endif
```

This works just like using ":else" and then "if", but without the need for an extra ":endif".

A useful example for your vimrc file is checking the 'term' option and doing something depending upon its value:

```
:if &term == "xterm"
:  " Do stuff for xterm
:elseif &term == "vt100"
:  " Do stuff for a vt100 terminal
:else
:  " Do something for other terminals
:endif
```

LOGIC OPERATIONS

We already used some of them in the examples. These are the most often used ones:

```
a == b          equal to
a != b          not equal to
a >  b          greater than
a >= b          greater than or equal to
a <  b          less than
a <= b          less than or equal to
```

The result is one if the condition is met and zero otherwise. An example:

```
:if v:version >= 700
:  echo "congratulations"
:else
:  echo "you are using an old version, upgrade!"
:endif
```

Here "v:version" is a variable defined by Vim, which has the value of the Vim version. 600 is for version 6.0. Version 6.1 has the value 601. This is very useful to write a script that works with multiple versions of Vim.
 v:version

The logic operators work both for numbers and strings. When comparing two strings, the mathematical difference is used. This compares byte values, which may not be right for some languages.
   When comparing a string with a number, the string is first converted to a number. This is a bit tricky, because when a string doesn't look like a number, the number zero is used. Example:

```
:if 0 == "one"
:  echo "yes"
:endif
```

This will echo "yes", because "one" doesn't look like a number, thus it is converted to the number zero.

For strings there are two more items:

```
a =~ b          matches with
a !~ b          does not match with
```

The left item "a" is used as a string. The right item "b" is used as a pattern, like what's used for searching. Example:

```
:if str =~ " "
:  echo "str contains a space"
:endif
:if str !~ '\.$'
:  echo "str does not end in a full stop"
:endif
```

Notice the use of a single-quote string for the pattern. This is useful, because backslashes would need to be doubled in a double-quote string and patterns tend to contain many backslashes.

The 'ignorecase' option is used when comparing strings. When you don't want that, append "#" to match case and "?" to ignore case. Thus "==?" compares two strings to be equal while ignoring case. And "!~#" checks if a pattern doesn't match, also checking the case of letters. For the full table see expr-== .

MORE LOOPING

The ":while" command was already mentioned. Two more statements can be used in between the ":while" and the ":endwhile":

:continue	Jump back to the start of the while loop; the loop continues.
:break	Jump forward to the ":endwhile"; the loop is discontinued.

Example:

```
:while counter < 40
:  call do_something()
:  if skip_flag
:    continue
:  endif
:  if finished_flag
:    break
:  endif
:  sleep 50m
:endwhile
```

The ":sleep" command makes Vim take a nap. The "50m" specifies fifty milliseconds. Another example is ":sleep 4", which sleeps for four seconds.

Even more looping can be done with the ":for" command, see below in 41.8 .

==========

41.5 Executing an expression

So far the commands in the script were executed by Vim directly. The ":execute" command allows executing the result of an expression. This is a

very powerful way to build commands and execute them.
   An example is to jump to a tag, which is contained in a variable:

```
:execute "tag " . tag_name
```

The "." is used to concatenate the string "tag " with the value of variable "tag_name". Suppose "tag_name" has the value "get_cmd", then the command that will be executed is:

```
:tag get_cmd
```

The ":execute" command can only execute colon commands. The ":normal" command executes Normal mode commands. However, its argument is not an expression but the literal command characters. Example:

```
:normal gg=G
```

This jumps to the first line and formats all lines with the "=" operator.
   To make ":normal" work with an expression, combine ":execute" with it. Example:

```
:execute "normal " . normal_commands
```

The variable "normal_commands" must contain the Normal mode commands.
   Make sure that the argument for ":normal" is a complete command. Otherwise Vim will run into the end of the argument and abort the command. For example, if you start Insert mode, you must leave Insert mode as well. This works:

```
:execute "normal Inew text \<Esc>"
```

This inserts "new text " in the current line. Notice the use of the special key "\<Esc>". This avoids having to enter a real <Esc> character in your script.

If you don't want to execute a string but evaluate it to get its expression value, you can use the eval() function:

```
:let optname = "path"
:let optval = eval('&' . optname)
```

A "&" character is prepended to "path", thus the argument to eval() is "&path". The result will then be the value of the 'path' option.
   The same thing can be done with:

```
:exe 'let optval = &' . optname
```

41.6 Using functions

Vim defines many functions and provides a large amount of functionality that way. A few examples will be given in this section. You can find the whole list here: functions .

A function is called with the ":call" command. The parameters are passed in between parentheses separated by commas. Example:

```
:call search("Date: ", "W")
```

This calls the search() function, with arguments "Date: " and "W". The search() function uses its first argument as a search pattern and the second one as flags. The "W" flag means the search doesn't wrap around the end of the file.

A function can be called in an expression. Example:

```
:let line = getline(".")
:let repl = substitute(line, '\a', "*", "g")
:call setline(".", repl)
```

The getline() function obtains a line from the current buffer. Its argument is a specification of the line number. In this case "." is used, which means the line where the cursor is.

The substitute() function does something similar to the ":substitute" command. The first argument is the string on which to perform the substitution. The second argument is the pattern, the third the replacement string. Finally, the last arguments are the flags.

The setline() function sets the line, specified by the first argument, to a new string, the second argument. In this example the line under the cursor is replaced with the result of the substitute(). Thus the effect of the three statements is equal to:

```
:substitute/\a/*/g
```

Using the functions becomes more interesting when you do more work before and after the substitute() call.

FUNCTIONS function-list

There are many functions. We will mention them here, grouped by what they are used for. You can find an alphabetical list here: functions . Use CTRL-] on the function name to jump to detailed help on it.

String manipulation: string-functions

nr2char()	get a character by its ASCII value
char2nr()	get ASCII value of a character
str2nr()	convert a string to a Number
str2float()	convert a string to a Float
printf()	format a string according to % items
escape()	escape characters in a string with a '\'
shellescape()	escape a string for use with a shell command
fnameescape()	escape a file name for use with a Vim command
tr()	translate characters from one set to another
strtrans()	translate a string to make it printable
tolower()	turn a string to lowercase
toupper()	turn a string to uppercase
match()	position where a pattern matches in a string
matchend()	position where a pattern match ends in a string
matchstr()	match of a pattern in a string

```
        matchstrpos()           match and positions of a pattern in a string
        matchlist()             like matchstr() and also return submatches
        stridx()                first index of a short string in a long string
        strridx()               last index of a short string in a long string
        strlen()                length of a string in bytes
        strchars()              length of a string in characters
        strwidth()              size of string when displayed
        strdisplaywidth()       size of string when displayed, deals with tabs
        substitute()            substitute a pattern match with a string
        submatch()              get a specific match in ":s" and substitute()
        strpart()               get part of a string using byte index
        strcharpart()           get part of a string using char index
        strgetchar()            get character from a string using char index
        expand()                expand special keywords
        iconv()                 convert text from one encoding to another
        byteidx()               byte index of a character in a string
        byteidxcomp()           like byteidx() but count composing characters
        repeat()                repeat a string multiple times
        eval()                  evaluate a string expression
        execute()               execute an Ex command and get the output

List manipulation:                                      list-functions
        get()                   get an item without error for wrong index
        len()                   number of items in a List
        empty()                 check if List is empty
        insert()                insert an item somewhere in a List
        add()                   append an item to a List
        extend()                append a List to a List
        remove()                remove one or more items from a List
        copy()                  make a shallow copy of a List
        deepcopy()              make a full copy of a List
        filter()                remove selected items from a List
        map()                   change each List item
        sort()                  sort a List
        reverse()               reverse the order of a List
        uniq()                  remove copies of repeated adjacent items
        split()                 split a String into a List
        join()                  join List items into a String
        range()                 return a List with a sequence of numbers
        string()                String representation of a List
        call()                  call a function with List as arguments
        index()                 index of a value in a List
        max()                   maximum value in a List
        min()                   minimum value in a List
        count()                 count number of times a value appears in a List
        repeat()                repeat a List multiple times

Dictionary manipulation:                                dict-functions
        get()                   get an entry without an error for a wrong key
        len()                   number of entries in a Dictionary
        has_key()               check whether a key appears in a Dictionary
        empty()                 check if Dictionary is empty
        remove()                remove an entry from a Dictionary
        extend()                add entries from one Dictionary to another
```

```
        filter()                remove selected entries from a Dictionary
        map()                   change each Dictionary entry
        keys()                  get List of Dictionary keys
        values()                get List of Dictionary values
        items()                 get List of Dictionary key-value pairs
        copy()                  make a shallow copy of a Dictionary
        deepcopy()              make a full copy of a Dictionary
        string()                String representation of a Dictionary
        max()                   maximum value in a Dictionary
        min()                   minimum value in a Dictionary
        count()                 count number of times a value appears

Floating point computation:                                 float-functions
        float2nr()              convert Float to Number
        abs()                   absolute value (also works for Number)
        round()                 round off
        ceil()                  round up
        floor()                 round down
        trunc()                 remove value after decimal point
        fmod()                  remainder of division
        exp()                   exponential
        log()                   natural logarithm (logarithm to base e)
        log10()                 logarithm to base 10
        pow()                   value of x to the exponent y
        sqrt()                  square root
        sin()                   sine
        cos()                   cosine
        tan()                   tangent
        asin()                  arc sine
        acos()                  arc cosine
        atan()                  arc tangent
        atan2()                 arc tangent
        sinh()                  hyperbolic sine
        cosh()                  hyperbolic cosine
        tanh()                  hyperbolic tangent
        isnan()                 check for not a number

Other computation:                                      bitwise-function
        and()                   bitwise AND
        invert()                bitwise invert
        or()                    bitwise OR
        xor()                   bitwise XOR
        sha256()                SHA-256 hash

Variables:                                                  var-functions
        type()                  type of a variable
        islocked()              check if a variable is locked
        funcref()               get a Funcref for a function reference
        function()              get a Funcref for a function name
        getbufvar()             get a variable value from a specific buffer
        setbufvar()             set a variable in a specific buffer
        getwinvar()             get a variable from specific window
        gettabvar()             get a variable from specific tab page
        gettabwinvar()          get a variable from specific window & tab page
```

```
        setwinvar()             set a variable in a specific window
        settabvar()             set a variable in a specific tab page
        settabwinvar()          set a variable in a specific window & tab page
        garbagecollect()        possibly free memory

Cursor and mark position:                   cursor-functions   mark-functions
        col()                   column number of the cursor or a mark
        virtcol()               screen column of the cursor or a mark
        line()                  line number of the cursor or mark
        wincol()                window column number of the cursor
        winline()               window line number of the cursor
        cursor()                position the cursor at a line/column
        screencol()             get screen column of the cursor
        screenrow()             get screen row of the cursor
        getcurpos()             get position of the cursor
        getpos()                get position of cursor, mark, etc.
        setpos()                set position of cursor, mark, etc.
        byte2line()             get line number at a specific byte count
        line2byte()             byte count at a specific line
        diff_filler()           get the number of filler lines above a line
        screenattr()            get attribute at a screen line/row
        screenchar()            get character code at a screen line/row

Working with text in the current buffer:                text-functions
        getline()               get a line or list of lines from the buffer
        setline()               replace a line in the buffer
        append()                append line or list of lines in the buffer
        indent()                indent of a specific line
        cindent()               indent according to C indenting
        lispindent()            indent according to Lisp indenting
        nextnonblank()          find next non-blank line
        prevnonblank()          find previous non-blank line
        search()                find a match for a pattern
        searchpos()             find a match for a pattern
        searchpair()            find the other end of a start/skip/end
        searchpairpos()         find the other end of a start/skip/end
        searchdecl()            search for the declaration of a name
        getcharsearch()         return character search information
        setcharsearch()         set character search information

                                    system-functions   file-functions
System functions and manipulation of files:
        glob()                  expand wildcards
        globpath()              expand wildcards in a number of directories
        glob2regpat()           convert a glob pattern into a search pattern
        findfile()              find a file in a list of directories
        finddir()               find a directory in a list of directories
        resolve()               find out where a shortcut points to
        fnamemodify()           modify a file name
        pathshorten()           shorten directory names in a path
        simplify()              simplify a path without changing its meaning
        executable()            check if an executable program exists
        exepath()               full path of an executable program
        filereadable()          check if a file can be read
```

```
        filewritable()          check if a file can be written to
        getfperm()              get the permissions of a file
        setfperm()              set the permissions of a file
        getftype()              get the kind of a file
        isdirectory()           check if a directory exists
        getfsize()              get the size of a file
        getcwd()                get the current working directory
        haslocaldir()           check if current window used  :lcd
        tempname()              get the name of a temporary file
        mkdir()                 create a new directory
        delete()                delete a file
        rename()                rename a file
        system()                get the result of a shell command as a string
        systemlist()            get the result of a shell command as a list
        hostname()              name of the system
        readfile()              read a file into a List of lines
        writefile()             write a List of lines into a file

Date and Time:                          date-functions   time-functions
        getftime()              get last modification time of a file
        localtime()             get current time in seconds
        strftime()              convert time to a string
        reltime()               get the current or elapsed time accurately
        reltimestr()            convert reltime() result to a string
        reltimefloat()          convert reltime() result to a Float

                        buffer-functions   window-functions   arg-functions
Buffers, windows and the argument list:
        argc()                  number of entries in the argument list
        argidx()                current position in the argument list
        arglistid()             get id of the argument list
        argv()                  get one entry from the argument list
        bufexists()             check if a buffer exists
        buflisted()             check if a buffer exists and is listed
        bufloaded()             check if a buffer exists and is loaded
        bufname()               get the name of a specific buffer
        bufnr()                 get the buffer number of a specific buffer
        tabpagebuflist()        return List of buffers in a tab page
        tabpagenr()             get the number of a tab page
        tabpagewinnr()          like winnr() for a specified tab page
        winnr()                 get the window number for the current window
        bufwinid()              get the window ID of a specific buffer
        bufwinnr()              get the window number of a specific buffer
        winbufnr()              get the buffer number of a specific window
        getbufline()            get a list of lines from the specified buffer
        win_findbuf()           find windows containing a buffer
        win_getid()             get window ID of a window
        win_gotoid()            go to window with ID
        win_id2tabwin()         get tab and window nr from window ID
        win_id2win()            get window nr from window ID
        getbufinfo()            get a list with buffer information
        gettabinfo()            get a list with tab page information
        getwininfo()            get a list with window information
        getchangelist()         get a list of change list entries
```

```
        getjumplist()           get a list of jump list entries

Command line:                                   command-line-functions
        getcmdline()            get the current command line
        getcmdpos()             get position of the cursor in the command line
        setcmdpos()             set position of the cursor in the command line
        getcmdtype()            return the current command-line type
        getcmdwintype()         return the current command-line window type
        getcompletion()         list of command-line completion matches

Quickfix and location lists:                    quickfix-functions
        getqflist()             list of quickfix errors
        setqflist()             modify a quickfix list
        getloclist()            list of location list items
        setloclist()            modify a location list

Insert mode completion:                         completion-functions
        complete()              set found matches
        complete_add()          add to found matches
        complete_check()        check if completion should be aborted
        pumvisible()            check if the popup menu is displayed

Folding:                                        folding-functions
        foldclosed()            check for a closed fold at a specific line
        foldclosedend()         like foldclosed() but return the last line
        foldlevel()             check for the fold level at a specific line
        foldtext()              generate the line displayed for a closed fold
        foldtextresult()        get the text displayed for a closed fold

Syntax and highlighting:          syntax-functions   highlighting-functions
        clearmatches()          clear all matches defined by  matchadd()  and
                                the  :match  commands
        getmatches()            get all matches defined by  matchadd()  and
                                the  :match  commands
        hlexists()              check if a highlight group exists
        hlID()                  get ID of a highlight group
        synID()                 get syntax ID at a specific position
        synIDattr()             get a specific attribute of a syntax ID
        synIDtrans()            get translated syntax ID
        synstack()              get list of syntax IDs at a specific position
        synconcealed()          get info about concealing
        diff_hlID()             get highlight ID for diff mode at a position
        matchadd()              define a pattern to highlight (a "match")
        matchaddpos()           define a list of positions to highlight
        matcharg()              get info about  :match  arguments
        matchdelete()           delete a match defined by  matchadd()  or a
                                 :match  command
        setmatches()            restore a list of matches saved by
                                 getmatches()

Spelling:                                       spell-functions
        spellbadword()          locate badly spelled word at or after cursor
        spellsuggest()          return suggested spelling corrections
        soundfold()             return the sound-a-like equivalent of a word
```

History: history-functions

histadd()	add an item to a history
histdel()	delete an item from a history
histget()	get an item from a history
histnr()	get highest index of a history list

Interactive: interactive-functions

browse()	put up a file requester
browsedir()	put up a directory requester
confirm()	let the user make a choice
getchar()	get a character from the user
getcharmod()	get modifiers for the last typed character
feedkeys()	put characters in the typeahead queue
input()	get a line from the user
inputlist()	let the user pick an entry from a list
inputsecret()	get a line from the user without showing it
inputdialog()	get a line from the user in a dialog
inputsave()	save and clear typeahead
inputrestore()	restore typeahead

GUI: gui-functions

getfontname()	get name of current font being used
getwinpos()	position of the Vim window
getwinposx()	X position of the Vim window
getwinposy()	Y position of the Vim window
balloon_show()	set the balloon content
balloon_split()	split a message for a balloon

Vim server: server-functions

serverlist()	return the list of server names
remote_startserver()	run a server
remote_send()	send command characters to a Vim server
remote_expr()	evaluate an expression in a Vim server
server2client()	send a reply to a client of a Vim server
remote_peek()	check if there is a reply from a Vim server
remote_read()	read a reply from a Vim server
foreground()	move the Vim window to the foreground
remote_foreground()	move the Vim server window to the foreground

Window size and position: window-size-functions

winheight()	get height of a specific window
winwidth()	get width of a specific window
win_screenpos()	get screen position of a window
winrestcmd()	return command to restore window sizes
winsaveview()	get view of current window
winrestview()	restore saved view of current window

Mappings: mapping-functions

hasmapto()	check if a mapping exists
mapcheck()	check if a matching mapping exists
maparg()	get rhs of a mapping
wildmenumode()	check if the wildmode is active

```
Testing:                                        test-functions
        assert_equal()          assert that two expressions values are equal
        assert_notequal()       assert that two expressions values are not equal
        assert_inrange()        assert that an expression is inside a range
        assert_match()          assert that a pattern matches the value
        assert_notmatch()       assert that a pattern does not match the value
        assert_false()          assert that an expression is false
        assert_true()           assert that an expression is true
        assert_exception()      assert that a command throws an exception
        assert_beeps()          assert that a command beeps
        assert_fails()          assert that a command fails
        assert_report()         report a test failure
        test_alloc_fail()       make memory allocation fail
        test_autochdir()        enable 'autochdir' during startup
        test_override()         test with Vim internal overrides
        test_garbagecollect_now()   free memory right now
        test_ignore_error()     ignore a specific error message
        test_null_channel()     return a null Channel
        test_null_dict()        return a null Dict
        test_null_job()         return a null Job
        test_null_list()        return a null List
        test_null_partial()     return a null Partial function
        test_null_string()      return a null String
        test_settime()          set the time Vim uses internally

Inter-process communication:                    channel-functions
        ch_canread()            check if there is something to read
        ch_open()               open a channel
        ch_close()              close a channel
        ch_close_in()           close the in part of a channel
        ch_read()               read a message from a channel
        ch_readraw()            read a raw message from a channel
        ch_sendexpr()           send a JSON message over a channel
        ch_sendraw()            send a raw message over a channel
        ch_evalexpr()           evaluates an expression over channel
        ch_evalraw()            evaluates a raw string over channel
        ch_status()             get status of a channel
        ch_getbufnr()           get the buffer number of a channel
        ch_getjob()             get the job associated with a channel
        ch_info()               get channel information
        ch_log()                write a message in the channel log file
        ch_logfile()            set the channel log file
        ch_setoptions()         set the options for a channel
        json_encode()           encode an expression to a JSON string
        json_decode()           decode a JSON string to Vim types
        js_encode()             encode an expression to a JSON string
        js_decode()             decode a JSON string to Vim types

Jobs:                                               job-functions
        job_start()             start a job
        job_stop()              stop a job
        job_status()            get the status of a job
        job_getchannel()        get the channel used by a job
        job_info()              get information about a job
```

```
        job_setoptions()        set options for a job

Terminal window:                                    terminal-functions
        term_start()            open a terminal window and run a job
        term_list()             get the list of terminal buffers
        term_sendkeys()         send keystrokes to a terminal
        term_wait()             wait for screen to be updated
        term_getjob()           get the job associated with a terminal
        term_scrape()           get row of a terminal screen
        term_getline()          get a line of text from a terminal
        term_getattr()          get the value of attribute {what}
        term_getcursor()        get the cursor position of a terminal
        term_getscrolled()      get the scroll count of a terminal
        term_getaltscreen()     get the alternate screen flag
        term_getsize()          get the size of a terminal
        term_getstatus()        get the status of a terminal
        term_gettitle()         get the title of a terminal
        term_gettty()           get the tty name of a terminal
        term_setansicolors()    set 16 ANSI colors, used for GUI
        term_getansicolors()    get 16 ANSI colors, used for GUI

Timers:                                             timer-functions
        timer_start()           create a timer
        timer_pause()           pause or unpause a timer
        timer_stop()            stop a timer
        timer_stopall()         stop all timers
        timer_info()            get information about timers

Various:                                            various-functions
        mode()                  get current editing mode
        visualmode()            last visual mode used
        exists()                check if a variable, function, etc. exists
        has()                   check if a feature is supported in Vim
        changenr()              return number of most recent change
        cscope_connection()     check if a cscope connection exists
        did_filetype()          check if a FileType autocommand was used
        eventhandler()          check if invoked by an event handler
        getpid()                get process ID of Vim

        libcall()               call a function in an external library
        libcallnr()             idem, returning a number

        undofile()              get the name of the undo file
        undotree()              return the state of the undo tree

        getreg()                get contents of a register
        getregtype()            get type of a register
        setreg()                set contents and type of a register
        reg_executing()         return the name of the register being executed
        reg_recording()         return the name of the register being recorded

        shiftwidth()            effective value of 'shiftwidth'

        wordcount()             get byte/word/char count of buffer
```

```
        taglist()               get list of matching tags
        tagfiles()              get a list of tags files

        luaeval()               evaluate Lua expression
        mzeval()                evaluate  MzScheme  expression
        perleval()              evaluate Perl expression ( +perl )
        py3eval()               evaluate Python expression ( +python3 )
        pyeval()                evaluate Python expression ( +python )
        pyxeval()               evaluate  python_x  expression
```

41.7 Defining a function

Vim enables you to define your own functions. The basic function declaration begins as follows:

```
        :function {name}({var1}, {var2}, ...)
        :  {body}
        :endfunction
```

Note:
Function names must begin with a capital letter.

Let's define a short function to return the smaller of two numbers. It starts with this line:

```
        :function Min(num1, num2)
```

This tells Vim that the function is named "Min" and it takes two arguments: "num1" and "num2".
The first thing you need to do is to check to see which number is smaller:

```
        :  if a:num1 < a:num2
```

The special prefix "a:" tells Vim that the variable is a function argument. Let's assign the variable "smaller" the value of the smallest number:

```
        :  if a:num1 < a:num2
        :    let smaller = a:num1
        :  else
        :    let smaller = a:num2
        :  endif
```

The variable "smaller" is a local variable. Variables used inside a function are local unless prefixed by something like "g:", "a:", or "s:".

Note:
To access a global variable from inside a function you must prepend "g:" to it. Thus "g:today" inside a function is used for the global variable "today", and "today" is another variable, local to the function.

You now use the ":return" statement to return the smallest number to the user.

Finally, you end the function:

```
:  return smaller
:endfunction
```

The complete function definition is as follows:

```
:function Min(num1, num2)
:  if a:num1 < a:num2
:    let smaller = a:num1
:  else
:    let smaller = a:num2
:  endif
:  return smaller
:endfunction
```

For people who like short functions, this does the same thing:

```
:function Min(num1, num2)
:  if a:num1 < a:num2
:    return a:num1
:  endif
:  return a:num2
:endfunction
```

A user defined function is called in exactly the same way as a built-in function. Only the name is different. The Min function can be used like this:

```
:echo Min(5, 8)
```

Only now will the function be executed and the lines be interpreted by Vim. If there are mistakes, like using an undefined variable or function, you will now get an error message. When defining the function these errors are not detected.

When a function reaches ":endfunction" or ":return" is used without an argument, the function returns zero.

To redefine a function that already exists, use the ! for the ":function" command:

```
:function!  Min(num1, num2, num3)
```

USING A RANGE

The ":call" command can be given a line range. This can have one of two meanings. When a function has been defined with the "range" keyword, it will take care of the line range itself.
  The function will be passed the variables "a:firstline" and "a:lastline". These will have the line numbers from the range the function was called with. Example:

```
:function Count_words() range
:  let lnum = a:firstline
:  let n = 0
:  while lnum <= a:lastline
:    let n = n + len(split(getline(lnum)))
:    let lnum = lnum + 1
:  endwhile
:  echo "found " . n . " words"
:endfunction
```

You can call this function with:

```
:10,30call Count_words()
```

It will be executed once and echo the number of words.
   The other way to use a line range is by defining a function without the "range" keyword. The function will be called once for every line in the range, with the cursor in that line. Example:

```
:function  Number()
:  echo "line " . line(".") . " contains: " . getline(".")
:endfunction
```

If you call this function with:

```
:10,15call Number()
```

The function will be called six times.

VARIABLE NUMBER OF ARGUMENTS

Vim enables you to define functions that have a variable number of arguments. The following command, for instance, defines a function that must have 1 argument (start) and can have up to 20 additional arguments:

```
:function Show(start, ...)
```

The variable "a:1" contains the first optional argument, "a:2" the second, and so on. The variable "a:0" contains the number of extra arguments.
   For example:

```
:function Show(start, ...)
:  echohl Title
:  echo "start is " . a:start
:  echohl None
:  let index = 1
:  while index <= a:0
:    echo "  Arg " . index . " is " . a:{index}
:    let index = index + 1
:  endwhile
:  echo ""
:endfunction
```

This uses the ":echohl" command to specify the highlighting used for the following ":echo" command. ":echohl None" stops it again. The ":echon" command works like ":echo", but doesn't output a line break.

You can also use the a:000 variable, it is a List of all the "..." arguments. See a:000 .

LISTING FUNCTIONS

The ":function" command lists the names and arguments of all user-defined functions:

```
:function
function Show(start, ...)
function GetVimIndent()
function SetSyn(name)
```

To see what a function does, use its name as an argument for ":function":

```
:function SetSyn
1     if &syntax == ''
2       let &syntax = a:name
3     endif
   endfunction
```

DEBUGGING

The line number is useful for when you get an error message or when debugging. See debug-scripts about debugging mode.
You can also set the 'verbose' option to 12 or higher to see all function calls. Set it to 15 or higher to see every executed line.

DELETING A FUNCTION

To delete the Show() function:

```
:delfunction Show
```

You get an error when the function doesn't exist.

FUNCTION REFERENCES

Sometimes it can be useful to have a variable point to one function or another. You can do it with the function() function. It turns the name of a function into a reference:

```
:let result = 0         " or 1
:function! Right()
:  return 'Right!'
:endfunc
```

```
:function! Wrong()
:  return 'Wrong!'
:endfunc
:
:if result == 1
:  let Afunc = function('Right')
:else
:  let Afunc = function('Wrong')
:endif
:echo call(Afunc, [])
Wrong!
```

Note that the name of a variable that holds a function reference must start with a capital. Otherwise it could be confused with the name of a builtin function.

The way to invoke a function that a variable refers to is with the call() function. Its first argument is the function reference, the second argument is a List with arguments.

Function references are most useful in combination with a Dictionary, as is explained in the next section.

==========

41.8 Lists and Dictionaries

So far we have used the basic types String and Number. Vim also supports two composite types: List and Dictionary.

A List is an ordered sequence of things. The things can be any kind of value, thus you can make a List of numbers, a List of Lists and even a List of mixed items. To create a List with three strings:

```
:let alist = ['aap', 'mies', 'noot']
```

The List items are enclosed in square brackets and separated by commas. To create an empty List:

```
:let alist = []
```

You can add items to a List with the add() function:

```
:let alist = []
:call add(alist, 'foo')
:call add(alist, 'bar')
:echo alist
['foo', 'bar']
```

List concatenation is done with +:

```
:echo alist + ['foo', 'bar']
['foo', 'bar', 'foo', 'bar']
```

Or, if you want to extend a List directly:

```
:let alist = ['one']
:call extend(alist, ['two', 'three'])
:echo alist
['one', 'two', 'three']
```

Notice that using add() will have a different effect:

```
:let alist = ['one']
:call add(alist, ['two', 'three'])
:echo alist
['one', ['two', 'three']]
```

The second argument of add() is added as a single item.

FOR LOOP

One of the nice things you can do with a List is iterate over it:

```
:let alist = ['one', 'two', 'three']
:for n in alist
:  echo n
:endfor
one
two
three
```

This will loop over each element in List "alist", assigning the value to variable "n". The generic form of a for loop is:

```
:for {varname} in {listexpression}
:  {commands}
:endfor
```

To loop a certain number of times you need a List of a specific length. The range() function creates one for you:

```
:for a in range(3)
:  echo a
:endfor
0
1
2
```

Notice that the first item of the List that range() produces is zero, thus the last item is one less than the length of the list.

You can also specify the maximum value, the stride and even go backwards:

```
:for a in range(8, 4, -2)
:  echo a
:endfor
8
6
4
```

A more useful example, looping over lines in the buffer:

```
:for line in getline(1, 20)
:  if line =~ "Date: "
:    echo matchstr(line, 'Date: \zs.*')
:  endif
:endfor
```

This looks into lines 1 to 20 (inclusive) and echoes any date found in there.

DICTIONARIES

A Dictionary stores key-value pairs. You can quickly lookup a value if you know the key. A Dictionary is created with curly braces:

```
:let uk2nl = {'one': 'een', 'two': 'twee', 'three': 'drie'}
```

Now you can lookup words by putting the key in square brackets:

```
:echo uk2nl['two']
twee
```

The generic form for defining a Dictionary is:

```
{<key> : <value>, ...}
```

An empty Dictionary is one without any keys:

```
{}
```

The possibilities with Dictionaries are numerous. There are various functions for them as well. For example, you can obtain a list of the keys and loop over them:

```
:for key in keys(uk2nl)
:  echo key
:endfor
three
one
two
```

You will notice the keys are not ordered. You can sort the list to get a specific order:

```
:for key in sort(keys(uk2nl))
:  echo key
:endfor
one
three
two
```

But you can never get back the order in which items are defined. For that you

need to use a List, it stores items in an ordered sequence.

DICTIONARY FUNCTIONS

The items in a Dictionary can normally be obtained with an index in square brackets:

```
:echo uk2nl['one']
een
```

A method that does the same, but without so many punctuation characters:

```
:echo uk2nl.one
een
```

This only works for a key that is made of ASCII letters, digits and the underscore. You can also assign a new value this way:

```
:let uk2nl.four = 'vier'
:echo uk2nl
{'three': 'drie', 'four': 'vier', 'one': 'een', 'two': 'twee'}
```

And now for something special: you can directly define a function and store a reference to it in the dictionary:

```
:function uk2nl.translate(line) dict
:  return join(map(split(a:line), 'get(self, v:val, "???")'))
:endfunction
```

Let's first try it out:

```
:echo uk2nl.translate('three two five one')
drie twee ??? een
```

The first special thing you notice is the "dict" at the end of the ":function" line. This marks the function as being used from a Dictionary. The "self" local variable will then refer to that Dictionary.

Now let's break up the complicated return command:

```
split(a:line)
```

The split() function takes a string, chops it into whitespace separated words and returns a list with these words. Thus in the example it returns:

```
:echo split('three two five one')
['three', 'two', 'five', 'one']
```

This list is the first argument to the map() function. This will go through the list, evaluating its second argument with "v:val" set to the value of each item. This is a shortcut to using a for loop. This command:

```
:let alist = map(split(a:line), 'get(self, v:val, "???")')
```

Is equivalent to:

```
:let alist = split(a:line)
:for idx in range(len(alist))
:  let alist[idx] = get(self, alist[idx], "???")
:endfor
```

The get() function checks if a key is present in a Dictionary. If it is, then the value is retrieved. If it isn't, then the default value is returned, in the example it's '???'. This is a convenient way to handle situations where a key may not be present and you don't want an error message.

The join() function does the opposite of split(): it joins together a list of words, putting a space in between.
This combination of split(), map() and join() is a nice way to filter a line of words in a very compact way.

OBJECT ORIENTED PROGRAMMING

Now that you can put both values and functions in a Dictionary, you can actually use a Dictionary like an object.
Above we used a Dictionary for translating Dutch to English. We might want to do the same for other languages. Let's first make an object (aka Dictionary) that has the translate function, but no words to translate:

```
:let transdict = {}
:function transdict.translate(line) dict
:  return join(map(split(a:line), 'get(self.words, v:val, "???")'))
:endfunction
```

It's slightly different from the function above, using 'self.words' to lookup word translations. But we don't have a self.words. Thus you could call this an abstract class.

Now we can instantiate a Dutch translation object:

```
:let uk2nl = copy(transdict)
:let uk2nl.words = {'one': 'een', 'two': 'twee', 'three': 'drie'}
:echo uk2nl.translate('three one')
drie een
```

And a German translator:

```
:let uk2de = copy(transdict)
:let uk2de.words = {'one': 'eins', 'two': 'zwei', 'three': 'drei'}
:echo uk2de.translate('three one')
drei eins
```

You see that the copy() function is used to make a copy of the "transdict" Dictionary and then the copy is changed to add the words. The original remains the same, of course.

Now you can go one step further, and use your preferred translator:

```
:if $LANG =~ "de"
:  let trans = uk2de
:else
:  let trans = uk2nl
:endif
:echo trans.translate('one two three')
een twee drie
```

Here "trans" refers to one of the two objects (Dictionaries). No copy is made. More about List and Dictionary identity can be found at list-identity and dict-identity .

Now you might use a language that isn't supported. You can overrule the translate() function to do nothing:

```
:let uk2uk = copy(transdict)
:function! uk2uk.translate(line)
:  return a:line
:endfunction
:echo uk2uk.translate('three one wladiwostok')
three one wladiwostok
```

Notice that a ! was used to overwrite the existing function reference. Now use "uk2uk" when no recognized language is found:

```
:if $LANG =~ "de"
:  let trans = uk2de
:elseif $LANG =~ "nl"
:  let trans = uk2nl
:else
:  let trans = uk2uk
:endif
:echo trans.translate('one two three')
one two three
```

For further reading see Lists and Dictionaries .

==========

41.9 Exceptions

Let's start with an example:

```
:try
:   read ~/templates/pascal.tmpl
:catch /E484:/
:   echo "Sorry, the Pascal template file cannot be found."
:endtry
```

The ":read" command will fail if the file does not exist. Instead of generating an error message, this code catches the error and gives the user a nice message.

For the commands in between ":try" and ":endtry" errors are turned into

exceptions. An exception is a string. In the case of an error the string contains the error message. And every error message has a number. In this case, the error we catch contains "E484:". This number is guaranteed to stay the same (the text may change, e.g., it may be translated).

When the ":read" command causes another error, the pattern "E484:" will not match in it. Thus this exception will not be caught and result in the usual error message.

You might be tempted to do this:

```
:try
:   read ~/templates/pascal.tmpl
:catch
:   echo "Sorry, the Pascal template file cannot be found."
:endtry
```

This means all errors are caught. But then you will not see errors that are useful, such as "E21: Cannot make changes, 'modifiable' is off".

Another useful mechanism is the ":finally" command:

```
:let tmp = tempname()
:try
:   exe ".,$write " . tmp
:   exe "!filter " . tmp
:   .,$delete
:   exe "$read " . tmp
:finally
:   call delete(tmp)
:endtry
```

This filters the lines from the cursor until the end of the file through the "filter" command, which takes a file name argument. No matter if the filtering works, something goes wrong in between ":try" and ":finally" or the user cancels the filtering by pressing CTRL-C, the "call delete(tmp)" is always executed. This makes sure you don't leave the temporary file behind.

More information about exception handling can be found in the reference manual: exception-handling .

==
41.10 Various remarks

Here is a summary of items that apply to Vim scripts. They are also mentioned elsewhere, but form a nice checklist.

The end-of-line character depends on the system. For Unix a single <NL> character is used. For MS-DOS, Windows, OS/2 and the like, <CR><LF> is used. This is important when using mappings that end in a <CR>. See :source_crnl .

WHITE SPACE

Blank lines are allowed and ignored.

Leading whitespace characters (blanks and TABs) are always ignored. The whitespaces between parameters (e.g. between the "set" and the "cpoptions" in the example below) are reduced to one blank character and plays the role of a separator, the whitespaces after the last (visible) character may or may not be ignored depending on the situation, see below.

For a ":set" command involving the "=" (equal) sign, such as in:

```
:set cpoptions    =aABceFst
```

the whitespace immediately before the "=" sign is ignored. But there can be no whitespace after the "=" sign!

To include a whitespace character in the value of an option, it must be escaped by a "\" (backslash) as in the following example:

```
:set tags=my\ nice\ file
```

The same example written as:

```
:set tags=my nice file
```

will issue an error, because it is interpreted as:

```
:set tags=my
:set nice
:set file
```

COMMENTS

The character " (the double quote mark) starts a comment. Everything after and including this character until the end-of-line is considered a comment and is ignored, except for commands that don't consider comments, as shown in examples below. A comment can start on any character position on the line.

There is a little "catch" with comments for some commands. Examples:

```
:abbrev dev development         " shorthand
:map <F3> o#include             " insert include
:execute cmd                    " do it
:!ls *.c                        " list C files
```

The abbreviation 'dev' will be expanded to 'development   " shorthand'. The mapping of <F3> will actually be the whole line after the 'o# ....' including the '" insert include'. The "execute" command will give an error. The "!" command will send everything after it to the shell, causing an error for an unmatched '"' character.

There can be no comment after ":map", ":abbreviate", ":execute" and "!" commands (there are a few more commands with this restriction). For the ":map", ":abbreviate" and ":execute" commands there is a trick:

```
:abbrev dev development|" shorthand
:map <F3> o#include|" insert include
:execute cmd                    |" do it
```

With the '|' character the command is separated from the next one. And that next command is only a comment. For the last command you need to do two things: :execute and use '|':

```
:exe '!ls *.c'                  |" list C files
```

Notice that there is no white space before the '|' in the abbreviation and mapping. For these commands, any character until the end-of-line or '|' is included. As a consequence of this behavior, you don't always see that trailing whitespace is included:

```
:map <F4> o#include
```

To spot these problems, you can set the 'list' option when editing vimrc files.

For Unix there is one special way to comment a line, that allows making a Vim script executable:

```
#!/usr/bin/env vim -S
echo "this is a Vim script"
quit
```

The "#" command by itself lists a line with the line number. Adding an exclamation mark changes it into doing nothing, so that you can add the shell command to execute the rest of the file. :#!   -S

PITFALLS

Even bigger problem arises in the following example:

```
:map ,ab o#include
:unmap ,ab
```

Here the unmap command will not work, because it tries to unmap ",ab ". This does not exist as a mapped sequence. An error will be issued, which is very hard to identify, because the ending whitespace character in ":unmap ,ab " is not visible.

And this is the same as what happens when one uses a comment after an 'unmap' command:

```
:unmap ,ab     " comment
```

Here the comment part will be ignored. However, Vim will try to unmap ',ab   ', which does not exist. Rewrite it as:

```
:unmap ,ab|    " comment
```

RESTORING THE VIEW

Sometimes you want to make a change and go back to where the cursor was.
Restoring the relative position would also be nice, so that the same line
appears at the top of the window.
   This example yanks the current line, puts it above the first line in the
file and then restores the view:

```
map ,p ma"aYHmbgg"aP`bzt`a
```

What this does:

```
ma"aYHmbgg"aP`bzt`a
ma                      set mark a at cursor position
   "aY                   yank current line into register a
      Hmb                go to top line in window and set mark b there
         gg              go to first line in file
           "aP           put the yanked line above it
              `b         go back to top line in display
                zt       position the text in the window as before
                   `a    go back to saved cursor position
```

PACKAGING

To avoid your function names to interfere with functions that you get from
others, use this scheme:
- Prepend a unique string before each function name. I often use an
  abbreviation. For example, "OW_" is used for the option window functions.
- Put the definition of your functions together in a file. Set a global
  variable to indicate that the functions have been loaded. When sourcing the
  file again, first unload the functions.
Example:

```
" This is the XXX package

if exists("XXX_loaded")
  delfun XXX_one
  delfun XXX_two
endif

function XXX_one(a)
        ... body of function ...
endfun

function XXX_two(b)
        ... body of function ...
endfun

let XXX_loaded = 1
```

==
41.11 Writing a plugin   write-plugin

You can write a Vim script in such a way that many people can use it. This is
called a plugin. Vim users can drop your script in their plugin directory and

use its features right away add-plugin .

There are actually two types of plugins:

  global plugins: For all types of files.
filetype plugins: Only for files of a specific type.

In this section the first type is explained. Most items are also relevant for writing filetype plugins. The specifics for filetype plugins are in the next section write-filetype-plugin .

NAME

First of all you must choose a name for your plugin. The features provided by the plugin should be clear from its name. And it should be unlikely that someone else writes a plugin with the same name but which does something different. And please limit the name to 8 characters, to avoid problems on old Windows systems.

A script that corrects typing mistakes could be called "typecorr.vim". We will use it here as an example.

For the plugin to work for everybody, it should follow a few guidelines. This will be explained step-by-step. The complete example plugin is at the end.

BODY

Let's start with the body of the plugin, the lines that do the actual work:

```
14     iabbrev teh the
15     iabbrev otehr other
16     iabbrev wnat want
17     iabbrev synchronisation
18             \ synchronization
19     let s:count = 4
```

The actual list should be much longer, of course.

The line numbers have only been added to explain a few things, don't put them in your plugin file!

HEADER

You will probably add new corrections to the plugin and soon have several versions lying around. And when distributing this file, people will want to know who wrote this wonderful plugin and where they can send remarks. Therefore, put a header at the top of your plugin:

```
1     " Vim global plugin for correcting typing mistakes
2     " Last Change:  2000 Oct 15
3     " Maintainer:   Bram Moolenaar <Bram@vim.org>
```

About copyright and licensing: Since plugins are very useful and it's hardly worth restricting their distribution, please consider making your plugin either public domain or use the Vim license. A short note about this near the top of the plugin should be sufficient. Example:

```
4     " License:      This file is placed in the public domain.
```

LINE CONTINUATION, AVOIDING SIDE EFFECTS use-cpo-save

In line 18 above, the line-continuation mechanism is used line-continuation. Users with 'compatible' set will run into trouble here, they will get an error message. We can't just reset 'compatible', because that has a lot of side effects. To avoid this, we will set the 'cpoptions' option to its Vim default value and restore it later. That will allow the use of line-continuation and make the script work for most people. It is done like this:

```
11     let s:save_cpo = &cpo
12     set cpo&vim
..
42     let &cpo = s:save_cpo
43     unlet s:save_cpo
```

We first store the old value of 'cpoptions' in the s:save_cpo variable. At the end of the plugin this value is restored.

Notice that a script-local variable is used s:var. A global variable could already be in use for something else. Always use script-local variables for things that are only used in the script.

NOT LOADING

It's possible that a user doesn't always want to load this plugin. Or the system administrator has dropped it in the system-wide plugin directory, but a user has his own plugin he wants to use. Then the user must have a chance to disable loading this specific plugin. This will make it possible:

```
6     if exists("g:loaded_typecorr")
7       finish
8     endif
9     let g:loaded_typecorr = 1
```

This also avoids that when the script is loaded twice it would cause error messages for redefining functions and cause trouble for autocommands that are added twice.

The name is recommended to start with "loaded_" and then the file name of the plugin, literally. The "g:" is prepended just to avoid mistakes when using the variable in a function (without "g:" it would be a variable local to the function).

Using "finish" stops Vim from reading the rest of the file, it's much quicker

than using if-endif around the whole file.

MAPPING

Now let's make the plugin more interesting: We will add a mapping that adds a correction for the word under the cursor. We could just pick a key sequence for this mapping, but the user might already use it for something else. To allow the user to define which keys a mapping in a plugin uses, the <Leader> item can be used:

```
 22       map <unique> <Leader>a  <Plug>TypecorrAdd
```

The "<Plug>TypecorrAdd" thing will do the work, more about that further on.

The user can set the "mapleader" variable to the key sequence that he wants this mapping to start with. Thus if the user has done:

```
        let mapleader = "_"
```

the mapping will define "_a". If the user didn't do this, the default value will be used, which is a backslash. Then a map for "\a" will be defined.

Note that <unique> is used, this will cause an error message if the mapping already happened to exist. :map-<unique>

But what if the user wants to define his own key sequence? We can allow that with this mechanism:

```
 21     if !hasmapto('<Plug>TypecorrAdd')
 22       map <unique> <Leader>a  <Plug>TypecorrAdd
 23     endif
```

This checks if a mapping to "<Plug>TypecorrAdd" already exists, and only defines the mapping from "<Leader>a" if it doesn't. The user then has a chance of putting this in his vimrc file:

```
        map ,c  <Plug>TypecorrAdd
```

Then the mapped key sequence will be ",c" instead of "_a" or "\a".

PIECES

If a script gets longer, you often want to break up the work in pieces. You can use functions or mappings for this. But you don't want these functions and mappings to interfere with the ones from other scripts. For example, you could define a function Add(), but another script could try to define the same function. To avoid this, we define the function local to the script by prepending it with "s:".

We will define a function that adds a new typing correction:

```
 30     function s:Add(from, correct)
```

```
 31       let to = input("type the correction for " . a:from . ": ")
 32       exe ":iabbrev " . a:from . " " . to
 ..
 36     endfunction
```

Now we can call the function s:Add() from within this script. If another script also defines s:Add(), it will be local to that script and can only be called from the script it was defined in. There can also be a global Add() function (without the "s:"), which is again another function.

<SID> can be used with mappings. It generates a script ID, which identifies the current script. In our typing correction plugin we use it like this:

```
 24     noremap <unique> <script> <Plug>TypecorrAdd  <SID>Add
 ..
 28     noremap <SID>Add  :call <SID>Add(expand("<cword>"), 1)<CR>
```

Thus when a user types "\a", this sequence is invoked:

```
        \a  ->  <Plug>TypecorrAdd  ->  <SID>Add  ->  :call <SID>Add()
```

If another script would also map <SID>Add, it would get another script ID and thus define another mapping.

Note that instead of s:Add() we use <SID>Add() here. That is because the mapping is typed by the user, thus outside of the script. The <SID> is translated to the script ID, so that Vim knows in which script to look for the Add() function.

This is a bit complicated, but it's required for the plugin to work together with other plugins. The basic rule is that you use <SID>Add() in mappings and s:Add() in other places (the script itself, autocommands, user commands).

We can also add a menu entry to do the same as the mapping:

```
 26     noremenu <script> Plugin.Add\ Correction      <SID>Add
```

The "Plugin" menu is recommended for adding menu items for plugins. In this case only one item is used. When adding more items, creating a submenu is recommended. For example, "Plugin.CVS" could be used for a plugin that offers CVS operations "Plugin.CVS.checkin", "Plugin.CVS.checkout", etc.

Note that in line 28 ":noremap" is used to avoid that any other mappings cause trouble. Someone may have remapped ":call", for example. In line 24 we also use ":noremap", but we do want "<SID>Add" to be remapped. This is why "<script>" is used here. This only allows mappings which are local to the script. :map-<script> The same is done in line 26 for ":noremenu". :menu-<script>

<SID> AND <Plug> using-<Plug>

Both <SID> and <Plug> are used to avoid that mappings of typed keys interfere with mappings that are only to be used from other mappings. Note the

difference between using <SID> and <Plug>:

<Plug> is visible outside of the script. It is used for mappings which the
        user might want to map a key sequence to. <Plug> is a special code
        that a typed key will never produce.
        To make it very unlikely that other plugins use the same sequence of
        characters, use this structure: <Plug> scriptname mapname
        In our example the scriptname is "Typecorr" and the mapname is "Add".
        This results in "<Plug>TypecorrAdd". Only the first character of
        scriptname and mapname is uppercase, so that we can see where mapname
        starts.

<SID>   is the script ID, a unique identifier for a script.
        Internally Vim translates <SID> to "<SNR>123_", where "123" can be any
        number. Thus a function "<SID>Add()" will have a name "<SNR>11_Add()"
        in one script, and "<SNR>22_Add()" in another. You can see this if
        you use the ":function" command to get a list of functions. The
        translation of <SID> in mappings is exactly the same, that's how you
        can call a script-local function from a mapping.

USER COMMAND

Now let's add a user command to add a correction:

```
 38     if !exists(":Correct")
 39       command -nargs=1  Correct  :call s:Add(<q-args>, 0)
 40     endif
```

The user command is defined only if no command with the same name already
exists. Otherwise we would get an error here. Overriding the existing user
command with ":command!" is not a good idea, this would probably make the user
wonder why the command he defined himself doesn't work. :command

SCRIPT VARIABLES

When a variable starts with "s:" it is a script variable. It can only be used
inside a script. Outside the script it's not visible. This avoids trouble
with using the same variable name in different scripts. The variables will be
kept as long as Vim is running. And the same variables are used when sourcing
the same script again. s:var

The fun is that these variables can also be used in functions, autocommands
and user commands that are defined in the script. In our example we can add
a few lines to count the number of corrections:

```
 19     let s:count = 4
 ..
 30     function s:Add(from, correct)
 ..
 34       let s:count = s:count + 1
 35       echo s:count . " corrections now"
 36     endfunction
```

First s:count is initialized to 4 in the script itself. When later the s:Add() function is called, it increments s:count. It doesn't matter from where the function was called, since it has been defined in the script, it will use the local variables from this script.

THE RESULT

Here is the resulting complete example:

```
 1     " Vim global plugin for correcting typing mistakes
 2     " Last Change:  2000 Oct 15
 3     " Maintainer:   Bram Moolenaar <Bram@vim.org>
 4     " License:      This file is placed in the public domain.
 5
 6     if exists("g:loaded_typecorr")
 7       finish
 8     endif
 9     let g:loaded_typecorr = 1
10
11     let s:save_cpo = &cpo
12     set cpo&vim
13
14     iabbrev teh the
15     iabbrev otehr other
16     iabbrev wnat want
17     iabbrev synchronisation
18             \ synchronization
19     let s:count = 4
20
21     if !hasmapto('<Plug>TypecorrAdd')
22       map <unique> <Leader>a  <Plug>TypecorrAdd
23     endif
24     noremap <unique> <script> <Plug>TypecorrAdd  <SID>Add
25
26     noremenu <script> Plugin.Add\ Correction      <SID>Add
27
28     noremap <SID>Add  :call <SID>Add(expand("<cword>"), 1)<CR>
29
30     function s:Add(from, correct)
31       let to = input("type the correction for " . a:from . ": ")
32       exe ":iabbrev " . a:from . " " . to
33       if a:correct | exe "normal viws\<C-R>\" \b\e" | endif
34       let s:count = s:count + 1
35       echo s:count . " corrections now"
36     endfunction
37
38     if !exists(":Correct")
39       command -nargs=1  Correct  :call s:Add(<q-args>, 0)
40     endif
41
42     let &cpo = s:save_cpo
43     unlet s:save_cpo
```

Line 33 wasn't explained yet. It applies the new correction to the word under the cursor. The :normal command is used to use the new abbreviation. Note that mappings and abbreviations are expanded here, even though the function was called from a mapping defined with ":noremap".

Using "unix" for the 'fileformat' option is recommended. The Vim scripts will then work everywhere. Scripts with 'fileformat' set to "dos" do not work on Unix. Also see :source_crnl . To be sure it is set right, do this before writing the file:

```
:set fileformat=unix
```

DOCUMENTATION write-local-help

It's a good idea to also write some documentation for your plugin. Especially when its behavior can be changed by the user. See add-local-help for how they are installed.

Here is a simple example for a plugin help file, called "typecorr.txt":

```
 1  *typecorr.txt*  Plugin for correcting typing mistakes
 2
 3  If you make typing mistakes, this plugin will have them corrected
 4  automatically.
 5
 6  There are currently only a few corrections.  Add your own if you like.
 7
 8  Mappings:
 9  <Leader>a   or   <Plug>TypecorrAdd
10          Add a correction for the word under the cursor.
11
12  Commands:
13  :Correct {word}
14          Add a correction for {word}.
15
16                                                  *typecorr-settings*
17  This plugin doesn't have any settings.
```

The first line is actually the only one for which the format matters. It will be extracted from the help file to be put in the "LOCAL ADDITIONS:" section of help.txt local-additions . The first "*" must be in the first column of the first line. After adding your help file do ":help" and check that the entries line up nicely.

You can add more tags inside ** in your help file. But be careful not to use existing help tags. You would probably use the name of your plugin in most of them, like "typecorr-settings" in the example.

Using references to other parts of the help in || is recommended. This makes it easy for the user to find associated help.

FILETYPE DETECTION plugin-filetype

If your filetype is not already detected by Vim, you should create a filetype detection snippet in a separate file. It is usually in the form of an autocommand that sets the filetype when the file name matches a pattern. Example:

```
au BufNewFile,BufRead *.foo set filetype=foofoo
```

Write this single-line file as "ftdetect/foofoo.vim" in the first directory that appears in 'runtimepath'. For Unix that would be "~/.vim/ftdetect/foofoo.vim". The convention is to use the name of the filetype for the script name.

You can make more complicated checks if you like, for example to inspect the contents of the file to recognize the language. Also see new-filetype .

SUMMARY plugin-special

Summary of special things to use in a plugin:

s:name	Variables local to the script.
<SID>	Script-ID, used for mappings and functions local to the script.
hasmapto()	Function to test if the user already defined a mapping for functionality the script offers.
<Leader>	Value of "mapleader", which the user defines as the keys that plugin mappings start with.
:map <unique>	Give a warning if a mapping already exists.
:noremap <script>	Use only mappings local to the script, not global mappings.
exists(":Cmd")	Check if a user command already exists.

==========

41.12 Writing a filetype plugin write-filetype-plugin ftplugin

A filetype plugin is like a global plugin, except that it sets options and defines mappings for the current buffer only. See add-filetype-plugin for how this type of plugin is used.

First read the section on global plugins above 41.11 . All that is said there also applies to filetype plugins. There are a few extras, which are explained here. The essential thing is that a filetype plugin should only have an effect on the current buffer.

DISABLING

If you are writing a filetype plugin to be used by many people, they need a chance to disable loading it. Put this at the top of the plugin:

```
" Only do this when not done yet for this buffer
if exists("b:did_ftplugin")
  finish
endif
let b:did_ftplugin = 1
```

This also needs to be used to avoid that the same plugin is executed twice for the same buffer (happens when using an ":edit" command without arguments).

Now users can disable loading the default plugin completely by making a filetype plugin with only this line:

```
let b:did_ftplugin = 1
```

This does require that the filetype plugin directory comes before $VIMRUNTIME in 'runtimepath'!

If you do want to use the default plugin, but overrule one of the settings, you can write the different setting in a script:

```
setlocal textwidth=70
```

Now write this in the "after" directory, so that it gets sourced after the distributed "vim.vim" ftplugin after-directory . For Unix this would be "~/.vim/after/ftplugin/vim.vim". Note that the default plugin will have set "b:did_ftplugin", but it is ignored here.

OPTIONS

To make sure the filetype plugin only affects the current buffer use the

```
:setlocal
```

command to set options. And only set options which are local to a buffer (see the help for the option to check that). When using :setlocal for global options or options local to a window, the value will change for many buffers, and that is not what a filetype plugin should do.

When an option has a value that is a list of flags or items, consider using "+=" and "-=" to keep the existing value. Be aware that the user may have changed an option value already. First resetting to the default value and then changing it is often a good idea. Example:

```
:setlocal formatoptions& formatoptions+=ro
```

MAPPINGS

To make sure mappings will only work in the current buffer use the

```
:map <buffer>
```

command. This needs to be combined with the two-step mapping explained above.
An example of how to define functionality in a filetype plugin:

```
if !hasmapto('<Plug>JavaImport')
  map <buffer> <unique> <LocalLeader>i <Plug>JavaImport
endif
noremap <buffer> <unique> <Plug>JavaImport oimport ""<Left><Esc>
```

 hasmapto() is used to check if the user has already defined a map to
<Plug>JavaImport. If not, then the filetype plugin defines the default
mapping. This starts with <LocalLeader> , which allows the user to select
the key(s) he wants filetype plugin mappings to start with. The default is a
backslash.
"<unique>" is used to give an error message if the mapping already exists or
overlaps with an existing mapping.
 :noremap is used to avoid that any other mappings that the user has defined
interferes. You might want to use ":noremap <script>" to allow remapping
mappings defined in this script that start with <SID>.

The user must have a chance to disable the mappings in a filetype plugin,
without disabling everything. Here is an example of how this is done for a
plugin for the mail filetype:

```
" Add mappings, unless the user didn't want this.
if !exists("no_plugin_maps") && !exists("no_mail_maps")
  " Quote text by inserting "> "
  if !hasmapto('<Plug>MailQuote')
    vmap <buffer> <LocalLeader>q <Plug>MailQuote
    nmap <buffer> <LocalLeader>q <Plug>MailQuote
  endif
  vnoremap <buffer> <Plug>MailQuote :s/^/> /<CR>
  nnoremap <buffer> <Plug>MailQuote :.,$s/^/> /<CR>
endif
```

Two global variables are used:
```
 no_plugin_maps         disables mappings for all filetype plugins
 no_mail_maps           disables mappings for the "mail" filetype
```

USER COMMANDS

To add a user command for a specific file type, so that it can only be used in
one buffer, use the "-buffer" argument to :command . Example:

```
:command -buffer  Make  make %:r.s
```

VARIABLES

A filetype plugin will be sourced for each buffer of the type it's for. Local
script variables s:var will be shared between all invocations. Use local

buffer variables b:var if you want a variable specifically for one buffer.

FUNCTIONS

When defining a function, this only needs to be done once. But the filetype plugin will be sourced every time a file with this filetype will be opened. This construct makes sure the function is only defined once:

```
:if !exists("*s:Func")
:  function s:Func(arg)
:    ...
:  endfunction
:endif
```

UNDO undo_indent undo_ftplugin

When the user does ":setfiletype xyz" the effect of the previous filetype should be undone. Set the b:undo_ftplugin variable to the commands that will undo the settings in your filetype plugin. Example:

```
let b:undo_ftplugin = "setlocal fo< com< tw< commentstring<"
        \ . "| unlet b:match_ignorecase b:match_words b:match_skip"
```

Using ":setlocal" with "<" after the option name resets the option to its global value. That is mostly the best way to reset the option value.

This does require removing the "C" flag from 'cpoptions' to allow line continuation, as mentioned above use-cpo-save .

For undoing the effect of an indent script, the b:undo_indent variable should be set accordingly.

FILE NAME

The filetype must be included in the file name ftplugin-name . Use one of these three forms:

```
.../ftplugin/stuff.vim
.../ftplugin/stuff_foo.vim
.../ftplugin/stuff/bar.vim
```

"stuff" is the filetype, "foo" and "bar" are arbitrary names.

SUMMARY ftplugin-special

Summary of special things to use in a filetype plugin:

<LocalLeader> Value of "maplocalleader", which the user defines as the keys that filetype plugin mappings start with.

:map <buffer>		Define a mapping local to the buffer.

:noremap <script>	Only remap mappings defined in this script that start
			with <SID>.

:setlocal		Set an option for the current buffer only.

:command -buffer	Define a user command local to the buffer.

exists("*s:Func")	Check if a function was already defined.

Also see plugin-special, the special things used for all plugins.

==
41.13 Writing a compiler plugin write-compiler-plugin

A compiler plugin sets options for use with a specific compiler. The user can load it with the :compiler command. The main use is to set the 'errorformat' and 'makeprg' options.

Easiest is to have a look at examples. This command will edit all the default compiler plugins:

```
:next $VIMRUNTIME/compiler/*.vim
```

Use :next to go to the next plugin file.

There are two special items about these files. First is a mechanism to allow a user to overrule or add to the default file. The default files start with:

```
:if exists("current_compiler")
:  finish
:endif
:let current_compiler = "mine"
```

When you write a compiler file and put it in your personal runtime directory (e.g., ~/.vim/compiler for Unix), you set the "current_compiler" variable to make the default file skip the settings.

:CompilerSet

The second mechanism is to use ":set" for ":compiler!" and ":setlocal" for ":compiler". Vim defines the ":CompilerSet" user command for this. However, older Vim versions don't, thus your plugin should define it then. This is an example:

```
if exists(":CompilerSet") != 2
  command -nargs=* CompilerSet setlocal <args>
endif
CompilerSet errorformat&		" use the default 'errorformat'
CompilerSet makeprg=nmake
```

When you write a compiler plugin for the Vim distribution or for a system-wide runtime directory, use the mechanism mentioned above. When "current_compiler" was already set by a user plugin nothing will be done.

When you write a compiler plugin to overrule settings from a default plugin, don't check "current_compiler". This plugin is supposed to be loaded last, thus it should be in a directory at the end of 'runtimepath'. For Unix that could be ~/.vim/after/compiler.

==

41.14 Writing a plugin that loads quickly write-plugin-quickload

A plugin may grow and become quite long. The startup delay may become noticeable, while you hardly ever use the plugin. Then it's time for a quickload plugin.

The basic idea is that the plugin is loaded twice. The first time user commands and mappings are defined that offer the functionality. The second time the functions that implement the functionality are defined.

It may sound surprising that quickload means loading a script twice. What we mean is that it loads quickly the first time, postponing the bulk of the script to the second time, which only happens when you actually use it. When you always use the functionality it actually gets slower!

Note that since Vim 7 there is an alternative: use the autoload functionality 41.15 .

The following example shows how it's done:

```
" Vim global plugin for demonstrating quick loading
" Last Change:  2005 Feb 25
" Maintainer:   Bram Moolenaar <Bram@vim.org>
" License:      This file is placed in the public domain.

if !exists("s:did_load")
        command -nargs=* BNRead  call BufNetRead(<f-args>)
        map <F19> :call BufNetWrite('something')<CR>

        let s:did_load = 1
        exe 'au FuncUndefined BufNet* source ' . expand('<sfile>')
        finish
endif

function BufNetRead(...)
        echo 'BufNetRead(' . string(a:000) . ')'
        " read functionality here
endfunction

function BufNetWrite(...)
        echo 'BufNetWrite(' . string(a:000) . ')'
        " write functionality here
endfunction
```

When the script is first loaded "s:did_load" is not set. The commands between the "if" and "endif" will be executed. This ends in a :finish command, thus the rest of the script is not executed.

The second time the script is loaded "s:did_load" exists and the commands after the "endif" are executed. This defines the (possible long) BufNetRead() and BufNetWrite() functions.

If you drop this script in your plugin directory Vim will execute it on startup. This is the sequence of events that happens:

1. The "BNRead" command is defined and the <F19> key is mapped when the script is sourced at startup. A FuncUndefined autocommand is defined. The ":finish" command causes the script to terminate early.

2. The user types the BNRead command or presses the <F19> key. The BufNetRead() or BufNetWrite() function will be called.

3. Vim can't find the function and triggers the FuncUndefined autocommand event. Since the pattern "BufNet*" matches the invoked function, the command "source fname" will be executed. "fname" will be equal to the name of the script, no matter where it is located, because it comes from expanding "<sfile>" (see expand()).

4. The script is sourced again, the "s:did_load" variable exists and the functions are defined.

Notice that the functions that are loaded afterwards match the pattern in the FuncUndefined autocommand. You must make sure that no other plugin defines functions that match this pattern.

==
41.15 Writing library scripts write-library-script

Some functionality will be required in several places. When this becomes more than a few lines you will want to put it in one script and use it from many scripts. We will call that one script a library script.

Manually loading a library script is possible, so long as you avoid loading it when it's already done. You can do this with the exists() function. Example:

```
if !exists('*MyLibFunction')
   runtime library/mylibscript.vim
endif
call MyLibFunction(arg)
```

Here you need to know that MyLibFunction() is defined in a script "library/mylibscript.vim" in one of the directories in 'runtimepath'.

To make this a bit simpler Vim offers the autoload mechanism. Then the example looks like this:

```
call mylib#myfunction(arg)
```

That's a lot simpler, isn't it? Vim will recognize the function name and when it's not defined search for the script "autoload/mylib.vim" in 'runtimepath'. That script must define the "mylib#myfunction()" function.

You can put many other functions in the mylib.vim script, you are free to
organize your functions in library scripts. But you must use function names
where the part before the '#' matches the script name. Otherwise Vim would
not know what script to load.

If you get really enthusiastic and write lots of library scripts, you may
want to use subdirectories. Example:

```
call netlib#ftp#read('somefile')
```

For Unix the library script used for this could be:

```
~/.vim/autoload/netlib/ftp.vim
```

Where the function is defined like this:

```
function netlib#ftp#read(fname)
        "  Read the file fname through ftp
endfunction
```

Notice that the name the function is defined with is exactly the same as the
name used for calling the function. And the part before the last '#'
exactly matches the subdirectory and script name.

You can use the same mechanism for variables:

```
let weekdays = dutch#weekdays
```

This will load the script "autoload/dutch.vim", which should contain something
like:

```
let dutch#weekdays = ['zondag', 'maandag', 'dinsdag', 'woensdag',
        \ 'donderdag', 'vrijdag', 'zaterdag']
```

Further reading: autoload .

==
41.16 Distributing Vim scripts distribute-script

Vim users will look for scripts on the Vim website: http://www.vim.org.
If you made something that is useful for others, share it!

Vim scripts can be used on any system. There might not be a tar or gzip
command. If you want to pack files together and/or compress them the "zip"
utility is recommended.

For utmost portability use Vim itself to pack scripts together. This can be
done with the Vimball utility. See vimball .

It's good if you add a line to allow automatic updating. See glvs-plugins .

==

Next chapter: usr_42.txt Add new menus

VIM USER MANUAL - by Bram Moolenaar

Add new menus

By now you know that Vim is very flexible. This includes the menus used in the GUI. You can define your own menu entries to make certain commands easily accessible. This is for mouse-happy users only.

Next chapter: usr_43.txt Using filetypes
Previous chapter: usr_41.txt Write a Vim script
Table of contents: usr_toc.txt

==========

42.1 Introduction

The menus that Vim uses are defined in the file "$VIMRUNTIME/menu.vim". If you want to write your own menus, you might first want to look through that file.

To define a menu item, use the ":menu" command. The basic form of this command is as follows:

```
:menu {menu-item} {keys}
```

The {menu-item} describes where on the menu to put the item. A typical {menu-item} is "File.Save", which represents the item "Save" under the "File" menu. A dot is used to separate the names. Example:

```
:menu File.Save  :update<CR>
```

The ":update" command writes the file when it was modified.

You can add another level: "Edit.Settings.Shiftwidth" defines a submenu "Settings" under the "Edit" menu, with an item "Shiftwidth". You could use even deeper levels. Don't use this too much, you need to move the mouse quite a bit to use such an item.

The ":menu" command is very similar to the ":map" command: the left side specifies how the item is triggered and the right hand side defines the characters that are executed. {keys} are characters, they are used just like you would have typed them. Thus in Insert mode, when {keys} is plain text, that text is inserted.

ACCELERATORS

The ampersand character (&) is used to indicate an accelerator. For instance, you can use Alt-F to select "File" and S to select "Save". (The 'winaltkeys' option may disable this though!). Therefore, the {menu-item} looks like

"&File.&Save". The accelerator characters will be underlined in the menu.
   You must take care that each key is used only once in each menu. Otherwise you will not know which of the two will actually be used. Vim doesn't warn you for this.

PRIORITIES

The actual definition of the File.Save menu item is as follows:

```
:menu 10.340 &File.&Save<Tab>:w  :confirm w<CR>
```

The number 10.340 is called the priority number. It is used by the editor to decide where it places the menu item. The first number (10) indicates the position on the menu bar. Lower numbered menus are positioned to the left, higher numbers to the right.
   These are the priorities used for the standard menus:

```
  10    20     40     50      60       70               9999

+-------------------------------------------------------------+
| File  Edit  Tools  Syntax  Buffers  Window            Help |
+-------------------------------------------------------------+
```

Notice that the Help menu is given a very high number, to make it appear on the far right.
   The second number (340) determines the location of the item within the pull-down menu. Lower numbers go on top, higher number on the bottom. These are the priorities in the File menu:

```
                +-----------------+
    10.310      |Open...          |
    10.320      |Split-Open...    |
    10.325      |New              |
    10.330      |Close            |
    10.335      |---------------- |
    10.340      |Save             |
    10.350      |Save As...       |
    10.400      |---------------- |
    10.410      |Split Diff with  |
    10.420      |Split Patched By |
    10.500      |---------------- |
    10.510      |Print            |
    10.600      |---------------- |
    10.610      |Save-Exit        |
    10.620      |Exit             |
                +-----------------+
```

Notice that there is room in between the numbers. This is where you can insert your own items, if you really want to (it's often better to leave the standard menus alone and add a new menu for your own items).
   When you create a submenu, you can add another ".number" to the priority. Thus each name in {menu-item} has its priority number.

SPECIAL CHARACTERS

The {menu-item} in this example is "&File.&Save<Tab>:w". This brings up an important point: {menu-item} must be one word. If you want to put a dot, space or tabs in the name, you either use the <> notation (<Space> and <Tab>, for instance) or use the backslash (\) escape.

```
:menu 10.305 &File.&Do\ It\.\.\. :exit<CR>
```

In this example, the name of the menu item "Do It..." contains a space and the command is ":exit<CR>".

The <Tab> character in a menu name is used to separate the part that defines the menu name from the part that gives a hint to the user. The part after the <Tab> is displayed right aligned in the menu. In the File.Save menu the name used is "&File.&Save<Tab>:w". Thus the menu name is "File.Save" and the hint is ":w".

SEPARATORS

The separator lines, used to group related menu items together, can be defined by using a name that starts and ends in a '-'. For example "-sep-". When using several separators the names must be different. Otherwise the names don't matter.

The command from a separator will never be executed, but you have to define one anyway. A single colon will do. Example:

```
:amenu 20.510 Edit.-sep3- :
```

==========

42.2 Menu commands

You can define menu items that exist for only certain modes. This works just like the variations on the ":map" command:

```
:menu           Normal, Visual and Operator-pending mode
:nmenu          Normal mode
:vmenu          Visual mode
:omenu          Operator-pending mode
:menu!          Insert and Command-line mode
:imenu          Insert mode
:cmenu          Command-line mode
:amenu          All modes
```

To avoid that the commands of a menu item are being mapped, use the command ":noremenu", ":nnoremenu", ":anoremenu", etc.

USING :AMENU

The ":amenu" command is a bit different. It assumes that the {keys} you give are to be executed in Normal mode. When Vim is in Visual or Insert mode

when the menu is used, Vim first has to go back to Normal mode. ":amenu" inserts a CTRL-C or CTRL-O for you. For example, if you use this command:

```
:amenu  90.100 Mine.Find\ Word  *
```

Then the resulting menu commands will be:

```
Normal mode:            *
Visual mode:            CTRL-C *
Operator-pending mode:  CTRL-C *
Insert mode:            CTRL-O *
Command-line mode:      CTRL-C *
```

When in Command-line mode the CTRL-C will abandon the command typed so far. In Visual and Operator-pending mode CTRL-C will stop the mode. The CTRL-O in Insert mode will execute the command and then return to Insert mode.

CTRL-O only works for one command. If you need to use two or more commands, put them in a function and call that function. Example:

```
:amenu  Mine.Next\ File  :call <SID>NextFile()<CR>
:function <SID>NextFile()
:  next
:  1/^Code
:endfunction
```

This menu entry goes to the next file in the argument list with ":next". Then it searches for the line that starts with "Code".

The <SID> before the function name is the script ID. This makes the function local to the current Vim script file. This avoids problems when a function with the same name is defined in another script file. See <SID> .

SILENT MENUS

The menu executes the {keys} as if you typed them. For a ":" command this means you will see the command being echoed on the command line. If it's a long command, the hit-Enter prompt will appear. That can be very annoying!

To avoid this, make the menu silent. This is done with the <silent> argument. For example, take the call to NextFile() in the previous example. When you use this menu, you will see this on the command line:

```
:call <SNR>34_NextFile()
```

To avoid this text on the command line, insert "<silent>" as the first argument:

```
:amenu <silent> Mine.Next\ File :call <SID>NextFile()<CR>
```

Don't use "<silent>" too often. It is not needed for short commands. If you make a menu for someone else, being able the see the executed command will give him a hint about what he could have typed, instead of using the mouse.

LISTING MENUS

When a menu command is used without a {keys} part, it lists the already defined menus. You can specify a {menu-item}, or part of it, to list specific menus. Example:

```
:amenu
```

This lists all menus. That's a long list! Better specify the name of a menu to get a shorter list:

```
:amenu Edit
```

This lists only the "Edit" menu items for all modes. To list only one specific menu item for Insert mode:

```
:imenu Edit.Undo
```

Take care that you type exactly the right name. Case matters here. But the '&' for accelerators can be omitted. The <Tab> and what comes after it can be left out as well.

DELETING MENUS

To delete a menu, the same command is used as for listing, but with "menu" changed to "unmenu". Thus ":menu" becomes, ":unmenu", ":nmenu" becomes ":nunmenu", etc. To delete the "Tools.Make" item for Insert mode:

```
:iunmenu Tools.Make
```

You can delete a whole menu, with all its items, by using the menu name. Example:

```
:aunmenu Syntax
```

This deletes the Syntax menu and all the items in it.

==========

42.3 Various

You can change the appearance of the menus with flags in 'guioptions'. In the default value they are all included, except "M". You can remove a flag with a command like:

```
:set guioptions-=m
```

m	When removed the menubar is not displayed.
M	When added the default menus are not loaded.
g	When removed the inactive menu items are not made grey but are completely removed. (Does not work on all systems.)

	t		When removed the tearoff feature is not enabled.

The dotted line at the top of a menu is not a separator line. When you select this item, the menu is "teared-off": It is displayed in a separate window. This is called a tearoff menu. This is useful when you use the same menu often.

For translating menu items, see :menutrans .

Since the mouse has to be used to select a menu item, it is a good idea to use the ":browse" command for selecting a file. And ":confirm" to get a dialog instead of an error message, e.g., when the current buffer contains changes. These two can be combined:

```
:amenu File.Open  :browse confirm edit<CR>
```

The ":browse" makes a file browser appear to select the file to edit. The ":confirm" will pop up a dialog when the current buffer has changes. You can then select to save the changes, throw them away or cancel the command.
For more complicated items, the confirm() and inputdialog() functions can be used. The default menus contain a few examples.

==========

42.4 Toolbar and popup menus

There are two special menus: ToolBar and PopUp. Items that start with these names do not appear in the normal menu bar.

TOOLBAR

The toolbar appears only when the "T" flag is included in the 'guioptions' option.
The toolbar uses icons rather than text to represent the command. For example, the {menu-item} named "ToolBar.New" causes the "New" icon to appear on the toolbar.
The Vim editor has 28 built-in icons. You can find a table here: builtin-tools . Most of them are used in the default toolbar. You can redefine what these items do (after the default menus are setup).
You can add another bitmap for a toolbar item. Or define a new toolbar item with a bitmap. For example, define a new toolbar item with:

```
:tmenu ToolBar.Compile  Compile the current file
:amenu ToolBar.Compile  :!cc %:S -o %:r:S<CR>
```

Now you need to create the icon. For MS-Windows it must be in bitmap format, with the name "Compile.bmp". For Unix XPM format is used, the file name is "Compile.xpm". The size must be 18 by 18 pixels. On MS-Windows other sizes can be used as well, but it will look ugly.
Put the bitmap in the directory "bitmaps" in one of the directories from 'runtimepath'. E.g., for Unix "~/.vim/bitmaps/Compile.xpm".

You can define tooltips for the items in the toolbar. A tooltip is a short text that explains what a toolbar item will do. For example "Open file". It

appears when the mouse pointer is on the item, without moving for a moment.
This is very useful if the meaning of the picture isn't that obvious.
Example:

```
:tmenu ToolBar.Make  Run make in the current directory

Note:
Pay attention to the case used.  "Toolbar" and "toolbar" are different
from "ToolBar"!
```

To remove a tooltip, use the :tunmenu command.

The 'toolbar' option can be used to display text instead of a bitmap, or both text and a bitmap. Most people use just the bitmap, since the text takes quite a bit of space.

POPUP MENU

The popup menu pops up where the mouse pointer is. On MS-Windows you activate it by clicking the right mouse button. Then you can select an item with the left mouse button. On Unix the popup menu is used by pressing and holding the right mouse button.

The popup menu only appears when the 'mousemodel' has been set to "popup" or "popup_setpos". The difference between the two is that "popup_setpos" moves the cursor to the mouse pointer position. When clicking inside a selection, the selection will be used unmodified. When there is a selection but you click outside of it, the selection is removed.

There is a separate popup menu for each mode. Thus there are never grey items like in the normal menus.

What is the meaning of life, the universe and everything? 42
Douglas Adams, the only person who knew what this question really was about is now dead, unfortunately. So now you might wonder what the meaning of death is...

==========

Next chapter: usr_43.txt Using filetypes

VIM USER MANUAL - by Bram Moolenaar

Using filetypes

When you are editing a file of a certain type, for example a C program or a shell script, you often use the same option settings and mappings. You quickly get tired of manually setting these each time. This chapter explains how to do it automatically.

Next chapter: usr_44.txt Your own syntax highlighted
Previous chapter: usr_42.txt Add new menus
Table of contents: usr_toc.txt

==========

43.1 Plugins for a filetype filetype-plugin

How to start using filetype plugins has already been discussed here: add-filetype-plugin . But you probably are not satisfied with the default settings, because they have been kept minimal. Suppose that for C files you want to set the 'softtabstop' option to 4 and define a mapping to insert a three-line comment. You do this with only two steps:

your-runtime-dir

1. Create your own runtime directory. On Unix this usually is "~/.vim". In this directory create the "ftplugin" directory:

```
mkdir ~/.vim
mkdir ~/.vim/ftplugin
```

   When you are not on Unix, check the value of the 'runtimepath' option to see where Vim will look for the "ftplugin" directory:

```
set runtimepath
```

   You would normally use the first directory name (before the first comma). You might want to prepend a directory name to the 'runtimepath' option in your vimrc file if you don't like the default value.

2. Create the file "~/.vim/ftplugin/c.vim", with the contents:

```
setlocal softtabstop=4
noremap <buffer> <LocalLeader>c o/**************<CR><CR>/<Esc>
let b:undo_ftplugin = "setl softtabstop< | unmap <buffer> <LocalLeader>c"
```

Try editing a C file. You should notice that the 'softtabstop' option is set to 4. But when you edit another file it's reset to the default zero. That is because the ":setlocal" command was used. This sets the 'softtabstop' option only locally to the buffer. As soon as you edit another buffer, it will be

set to the value set for that buffer. For a new buffer it will get the
default value or the value from the last ":set" command.

Likewise, the mapping for "\c" will disappear when editing another buffer.
The ":map <buffer>" command creates a mapping that is local to the current
buffer. This works with any mapping command: ":map!", ":vmap", etc. The
 <LocalLeader> in the mapping is replaced with the value of the
"maplocalleader" variable.

The line to set b:undo_ftplugin is for when the filetype is set to another
value. In that case you will want to undo your preferences. The
b:undo_ftplugin variable is executed as a command. Watch out for characters
with a special meaning inside a string, such as a backslash.

You can find examples for filetype plugins in this directory:

```
$VIMRUNTIME/ftplugin/
```

More details about writing a filetype plugin can be found here:
 write-plugin .

==
 43.2   Adding a filetype

If you are using a type of file that is not recognized by Vim, this is how to
get it recognized. You need a runtime directory of your own. See
 your-runtime-dir above.

Create a file "filetype.vim" which contains an autocommand for your filetype.
(Autocommands were explained in section 40.3 .) Example:

```
augroup filetypedetect
au BufNewFile,BufRead *.xyz     setf xyz
augroup END
```

This will recognize all files that end in ".xyz" as the "xyz" filetype. The
":augroup" commands put this autocommand in the "filetypedetect" group. This
allows removing all autocommands for filetype detection when doing ":filetype
off". The "setf" command will set the 'filetype' option to its argument,
unless it was set already. This will make sure that 'filetype' isn't set
twice.

You can use many different patterns to match the name of your file. Directory
names can also be included. See autocmd-patterns . For example, the files
under "/usr/share/scripts/" are all "ruby" files, but don't have the expected
file name extension. Adding this to the example above:

```
augroup filetypedetect
au BufNewFile,BufRead *.xyz                     setf xyz
au BufNewFile,BufRead /usr/share/scripts/*      setf ruby
augroup END
```

However, if you now edit a file /usr/share/scripts/README.txt, this is not a
ruby file. The danger of a pattern ending in "*" is that it quickly matches

too many files. To avoid trouble with this, put the filetype.vim file in another directory, one that is at the end of 'runtimepath'. For Unix for example, you could use "~/.vim/after/filetype.vim".
   You now put the detection of text files in ~/.vim/filetype.vim:

```
augroup filetypedetect
au BufNewFile,BufRead *.txt                     setf text
augroup END
```

That file is found in 'runtimepath' first. Then use this in ~/.vim/after/filetype.vim, which is found last:

```
augroup filetypedetect
au BufNewFile,BufRead /usr/share/scripts/*      setf ruby
augroup END
```

What will happen now is that Vim searches for "filetype.vim" files in each directory in 'runtimepath'. First ~/.vim/filetype.vim is found. The autocommand to catch *.txt files is defined there. Then Vim finds the filetype.vim file in $VIMRUNTIME, which is halfway 'runtimepath'. Finally ~/.vim/after/filetype.vim is found and the autocommand for detecting ruby files in /usr/share/scripts is added.
   When you now edit /usr/share/scripts/README.txt, the autocommands are checked in the order in which they were defined. The *.txt pattern matches, thus "setf text" is executed to set the filetype to "text". The pattern for ruby matches too, and the "setf ruby" is executed. But since 'filetype' was already set to "text", nothing happens here.
   When you edit the file /usr/share/scripts/foobar the same autocommands are checked. Only the one for ruby matches and "setf ruby" sets 'filetype' to ruby.

RECOGNIZING BY CONTENTS

If your file cannot be recognized by its file name, you might be able to recognize it by its contents. For example, many script files start with a line like:

```
#!/bin/xyz
```

To recognize this script create a file "scripts.vim" in your runtime directory (same place where filetype.vim goes). It might look like this:

```
if did_filetype()
  finish
endif
if getline(1) =~ '^#!.*[/\\]xyz\>'
  setf xyz
endif
```

The first check with did_filetype() is to avoid that you will check the contents of files for which the filetype was already detected by the file name. That avoids wasting time on checking the file when the "setf" command won't do anything.

The scripts.vim file is sourced by an autocommand in the default filetype.vim file. Therefore, the order of checks is:

1. filetype.vim files before $VIMRUNTIME in 'runtimepath'
2. first part of $VIMRUNTIME/filetype.vim
3. all scripts.vim files in 'runtimepath'
4. remainder of $VIMRUNTIME/filetype.vim
5. filetype.vim files after $VIMRUNTIME in 'runtimepath'

If this is not sufficient for you, add an autocommand that matches all files and sources a script or executes a function to check the contents of the file.

==

Next chapter: usr_44.txt Your own syntax highlighted

usr_44.txt For Vim version 8.1. Last change: 2017 May 06

VIM USER MANUAL - by Bram Moolenaar

Your own syntax highlighted

Vim comes with highlighting for a couple of hundred different file types. If the file you are editing isn't included, read this chapter to find out how to get this type of file highlighted. Also see :syn-define in the reference manual.

Next chapter: usr_45.txt Select your language
Previous chapter: usr_43.txt Using filetypes
Table of contents: usr_toc.txt

==

44.1 Basic syntax commands

Using an existing syntax file to start with will save you a lot of time. Try finding a syntax file in $VIMRUNTIME/syntax for a language that is similar. These files will also show you the normal layout of a syntax file. To understand it, you need to read the following.

Let's start with the basic arguments. Before we start defining any new syntax, we need to clear out any old definitions:

```
:syntax clear
```

This isn't required in the final syntax file, but very useful when experimenting.

There are more simplifications in this chapter. If you are writing a syntax file to be used by others, read all the way through the end to find out the details.

LISTING DEFINED ITEMS

To check which syntax items are currently defined, use this command:

```
:syntax
```

You can use this to check which items have actually been defined. Quite useful when you are experimenting with a new syntax file. It also shows the colors used for each item, which helps to find out what is what.
To list the items in a specific syntax group use:

```
:syntax list {group-name}
```

This also can be used to list clusters (explained in 44.8). Just include the @ in the name.

MATCHING CASE

Some languages are not case sensitive, such as Pascal. Others, such as C, are case sensitive. You need to tell which type you have with the following commands:

```
:syntax case match
:syntax case ignore
```

The "match" argument means that Vim will match the case of syntax elements. Therefore, "int" differs from "Int" and "INT". If the "ignore" argument is used, the following are equivalent: "Procedure", "PROCEDURE" and "procedure".
The ":syntax case" commands can appear anywhere in a syntax file and affect the syntax definitions that follow. In most cases, you have only one ":syntax case" command in your syntax file; if you work with an unusual language that contains both case-sensitive and non-case-sensitive elements, however, you can scatter the ":syntax case" command throughout the file.

==========

44.2 Keywords

The most basic syntax elements are keywords. To define a keyword, use the following form:

```
:syntax keyword {group} {keyword} ...
```

The {group} is the name of a syntax group. With the ":highlight" command you can assign colors to a {group}. The {keyword} argument is an actual keyword. Here are a few examples:

```
:syntax keyword xType int long char
:syntax keyword xStatement if then else endif
```

This example uses the group names "xType" and "xStatement". By convention, each group name is prefixed by the filetype for the language being defined. This example defines syntax for the x language (eXample language without an interesting name). In a syntax file for "csh" scripts the name "cshType" would be used. Thus the prefix is equal to the value of 'filetype'.
These commands cause the words "int", "long" and "char" to be highlighted one way and the words "if", "then", "else" and "endif" to be highlighted another way. Now you need to connect the x group names to standard Vim names. You do this with the following commands:

```
        :highlight link xType Type
        :highlight link xStatement Statement
```

This tells Vim to highlight "xType" like "Type" and "xStatement" like "Statement". See group-name for the standard names.

UNUSUAL KEYWORDS

The characters used in a keyword must be in the 'iskeyword' option. If you use another character, the word will never match. Vim doesn't give a warning message for this.
The x language uses the '-' character in keywords. This is how it's done:

```
        :setlocal iskeyword+=-
        :syntax keyword xStatement when-not
```

The ":setlocal" command is used to change 'iskeyword' only for the current buffer. Still it does change the behavior of commands like "w" and "*". If that is not wanted, don't define a keyword but use a match (explained in the next section).

The x language allows for abbreviations. For example, "next" can be abbreviated to "n", "ne" or "nex". You can define them by using this command:

```
        :syntax keyword xStatement n[ext]
```

This doesn't match "nextone", keywords always match whole words only.

==========

44.3 Matches

Consider defining something a bit more complex. You want to match ordinary identifiers. To do this, you define a match syntax item. This one matches any word consisting of only lowercase letters:

```
        :syntax match xIdentifier /\<\l\+\>/
```

Note:
Keywords overrule any other syntax item. Thus the keywords "if", "then", etc., will be keywords, as defined with the ":syntax keyword" commands above, even though they also match the pattern for xIdentifier.

The part at the end is a pattern, like it's used for searching. The // is used to surround the pattern (like how it's done in a ":substitute" command). You can use any other character, like a plus or a quote.

Now define a match for a comment. In the x language it is anything from # to the end of a line:

```
        :syntax match xComment /#.*/
```

Since you can use any search pattern, you can highlight very complex things
with a match item. See pattern for help on search patterns.

==
44.4 Regions

In the example x language, strings are enclosed in double quotation marks (").
To highlight strings you define a region. You need a region start (double
quote) and a region end (double quote). The definition is as follows:

```
:syntax region xString start=/"/ end=/"/
```

The "start" and "end" directives define the patterns used to find the start
and end of the region. But what about strings that look like this?

```
"A string with a double quote (\") in it"
```

This creates a problem: The double quotation marks in the middle of the string
will end the region. You need to tell Vim to skip over any escaped double
quotes in the string. Do this with the skip keyword:

```
:syntax region xString start=/"/ skip=/\\"/ end=/"/
```

The double backslash matches a single backslash, since the backslash is a
special character in search patterns.

When to use a region instead of a match? The main difference is that a match
item is a single pattern, which must match as a whole. A region starts as
soon as the "start" pattern matches. Whether the "end" pattern is found or
not doesn't matter. Thus when the item depends on the "end" pattern to match,
you cannot use a region. Otherwise, regions are often simpler to define. And
it is easier to use nested items, as is explained in the next section.

==
44.5 Nested items

Take a look at this comment:

```
%Get input  TODO: Skip white space
```

You want to highlight TODO in big yellow letters, even though it is in a
comment that is highlighted blue. To let Vim know about this, you define the
following syntax groups:

```
:syntax keyword xTodo TODO contained
:syntax match xComment /%.*/ contains=xTodo
```

In the first line, the "contained" argument tells Vim that this keyword can
exist only inside another syntax item. The next line has "contains=xTodo".
This indicates that the xTodo syntax element is inside it. The result is that
the comment line as a whole is matched with "xComment" and made blue. The
word TODO inside it is matched by xTodo and highlighted yellow (highlighting
for xTodo was setup for this).

RECURSIVE NESTING

The x language defines code blocks in curly braces. And a code block may contain other code blocks. This can be defined this way:

```
:syntax region xBlock start=/{/ end=/}/ contains=xBlock
```

Suppose you have this text:

```
while i < b {
        if a {
                b = c;
        }
}
```

First a xBlock starts at the { in the first line. In the second line another { is found. Since we are inside a xBlock item, and it contains itself, a nested xBlock item will start here. Thus the "b = c" line is inside the second level xBlock region. Then a } is found in the next line, which matches with the end pattern of the region. This ends the nested xBlock. Because the } is included in the nested region, it is hidden from the first xBlock region. Then at the last } the first xBlock region ends.

KEEPING THE END

Consider the following two syntax items:

```
:syntax region xComment start=/%/ end=/$/ contained
:syntax region xPreProc start=/#/ end=/$/ contains=xComment
```

You define a comment as anything from % to the end of the line. A preprocessor directive is anything from # to the end of the line. Because you can have a comment on a preprocessor line, the preprocessor definition includes a "contains=xComment" argument. Now look what happens with this text:

```
#define X = Y  % Comment text
int foo = 1;
```

What you see is that the second line is also highlighted as xPreProc. The preprocessor directive should end at the end of the line. That is why you have used "end=/$/". So what is going wrong?

The problem is the contained comment. The comment starts with % and ends at the end of the line. After the comment ends, the preprocessor syntax continues. This is after the end of the line has been seen, so the next line is included as well.

To avoid this problem and to avoid a contained syntax item eating a needed end of line, use the "keepend" argument. This takes care of the double end-of-line matching:

```
:syntax region xComment start=/%/ end=/$/ contained
:syntax region xPreProc start=/#/ end=/$/ contains=xComment keepend
```

CONTAINING MANY ITEMS

You can use the contains argument to specify that everything can be contained.
For example:

```
:syntax region xList start=/\[/ end=/\]/ contains=ALL
```

All syntax items will be contained in this one. It also contains itself, but
not at the same position (that would cause an endless loop).
   You can specify that some groups are not contained. Thus contain all
groups but the ones that are listed:

```
:syntax region xList start=/\[/ end=/\]/ contains=ALLBUT,xString
```

With the "TOP" item you can include all items that don't have a "contained"
argument. "CONTAINED" is used to only include items with a "contained"
argument. See :syn-contains for the details.

==
44.6 Following groups

The x language has statements in this form:

```
if (condition) then
```

You want to highlight the three items differently. But "(condition)" and
"then" might also appear in other places, where they get different
highlighting. This is how you can do this:

```
:syntax match xIf /if/ nextgroup=xIfCondition skipwhite
:syntax match xIfCondition /([^)]*)/ contained nextgroup=xThen skipwhite
:syntax match xThen /then/ contained
```

The "nextgroup" argument specifies which item can come next. This is not
required. If none of the items that are specified are found, nothing happens.
For example, in this text:

```
if not (condition) then
```

The "if" is matched by xIf. "not" doesn't match the specified nextgroup
xIfCondition, thus only the "if" is highlighted.

The "skipwhite" argument tells Vim that white space (spaces and tabs) may
appear in between the items. Similar arguments are "skipnl", which allows a
line break in between the items, and "skipempty", which allows empty lines.
Notice that "skipnl" doesn't skip an empty line, something must match after
the line break.

==
44.7 Other arguments

MATCHGROUP

When you define a region, the entire region is highlighted according to the group name specified. To highlight the text enclosed in parentheses () with the group xInside, for example, use the following command:

```
:syntax region xInside start=/(/ end=/)/
```

Suppose, that you want to highlight the parentheses differently. You can do this with a lot of convoluted region statements, or you can use the "matchgroup" argument. This tells Vim to highlight the start and end of a region with a different highlight group (in this case, the xParen group):

```
:syntax region xInside matchgroup=xParen start=/(/ end=/)/
```

The "matchgroup" argument applies to the start or end match that comes after it. In the previous example both start and end are highlighted with xParen. To highlight the end with xParenEnd:

```
:syntax region xInside matchgroup=xParen start=/(/
        \ matchgroup=xParenEnd end=/)/
```

A side effect of using "matchgroup" is that contained items will not match in the start or end of the region. The example for "transparent" uses this.

TRANSPARENT

In a C language file you would like to highlight the () text after a "while" differently from the () text after a "for". In both of these there can be nested () items, which should be highlighted in the same way. You must make sure the () highlighting stops at the matching). This is one way to do this:

```
:syntax region cWhile matchgroup=cWhile start=/while\s*(/ end=/)/
        \ contains=cCondNest
:syntax region cFor matchgroup=cFor start=/for\s*(/ end=/)/
        \ contains=cCondNest
:syntax region cCondNest start=/(/ end=/)/ contained transparent
```

Now you can give cWhile and cFor different highlighting. The cCondNest item can appear in either of them, but take over the highlighting of the item it is contained in. The "transparent" argument causes this.
   Notice that the "matchgroup" argument has the same group as the item itself. Why define it then? Well, the side effect of using a matchgroup is that contained items are not found in the match with the start item then. This avoids that the cCondNest group matches the (just after the "while" or "for". If this would happen, it would span the whole text until the matching) and the region would continue after it. Now cCondNest only matches after the match with the start pattern, thus after the first (.

OFFSETS

Suppose you want to define a region for the text between (and) after an "if". But you don't want to include the "if" or the (and). You can do this

by specifying offsets for the patterns. Example:

```
:syntax region xCond start=/if\s*(/ms=e+1 end=/)/me=s-1
```

The offset for the start pattern is "ms=e+1". "ms" stands for Match Start.
This defines an offset for the start of the match. Normally the match starts
where the pattern matches. "e+1" means that the match now starts at the end
of the pattern match, and then one character further.
   The offset for the end pattern is "me=s-1". "me" stands for Match End.
"s-1" means the start of the pattern match and then one character back. The
result is that in this text:

```
if (foo == bar)
```

Only the text "foo == bar" will be highlighted as xCond.

More about offsets here: :syn-pattern-offset .

ONELINE

The "oneline" argument indicates that the region does not cross a line
boundary. For example:

```
:syntax region xIfThen start=/if/ end=/then/ oneline
```

This defines a region that starts at "if" and ends at "then". But if there is
no "then" after the "if", the region doesn't match.

```
Note:
When using "oneline" the region doesn't start if the end pattern
doesn't match in the same line.  Without "oneline" Vim does _not_
check if there is a match for the end pattern.  The region starts even
when the end pattern doesn't match in the rest of the file.
```

CONTINUATION LINES AND AVOIDING THEM

Things now become a little more complex. Let's define a preprocessor line.
This starts with a # in the first column and continues until the end of the
line. A line that ends with \ makes the next line a continuation line. The
way you handle this is to allow the syntax item to contain a continuation
pattern:

```
:syntax region xPreProc start=/^#/ end=/$/ contains=xLineContinue
:syntax match xLineContinue "\\$" contained
```

In this case, although xPreProc normally matches a single line, the group
contained in it (namely xLineContinue) lets it go on for more than one line.
For example, it would match both of these lines:

```
#define SPAM  spam spam spam \
                bacon and spam
```

In this case, this is what you want. If it is not what you want, you can call for the region to be on a single line by adding "excludenl" to the contained pattern. For example, you want to highlight "end" in xPreProc, but only at the end of the line. To avoid making the xPreProc continue on the next line, like xLineContinue does, use "excludenl" like this:

```
:syntax region xPreProc start=/^#/ end=/$/
        \ contains=xLineContinue,xPreProcEnd
:syntax match xPreProcEnd excludenl /end$/ contained
:syntax match xLineContinue "\\$" contained
```

"excludenl" must be placed before the pattern. Since "xLineContinue" doesn't have "excludenl", a match with it will extend xPreProc to the next line as before.

==

44.8 Clusters

One of the things you will notice as you start to write a syntax file is that you wind up generating a lot of syntax groups. Vim enables you to define a collection of syntax groups called a cluster.

Suppose you have a language that contains for loops, if statements, while loops, and functions. Each of them contains the same syntax elements: numbers and identifiers. You define them like this:

```
:syntax match xFor /^for.*/ contains=xNumber,xIdent
:syntax match xIf /^if.*/ contains=xNumber,xIdent
:syntax match xWhile /^while.*/ contains=xNumber,xIdent
```

You have to repeat the same "contains=" every time. If you want to add another contained item, you have to add it three times. Syntax clusters simplify these definitions by enabling you to have one cluster stand for several syntax groups.

To define a cluster for the two items that the three groups contain, use the following command:

```
:syntax cluster xState contains=xNumber,xIdent
```

Clusters are used inside other syntax items just like any syntax group. Their names start with @. Thus, you can define the three groups like this:

```
:syntax match xFor /^for.*/ contains=@xState
:syntax match xIf /^if.*/ contains=@xState
:syntax match xWhile /^while.*/ contains=@xState
```

You can add new group names to this cluster with the "add" argument:

```
:syntax cluster xState add=xString
```

You can remove syntax groups from this list as well:

```
:syntax cluster xState remove=xNumber
```

==

44.9 Including another syntax file

The C++ language syntax is a superset of the C language. Because you do not want to write two syntax files, you can have the C++ syntax file read in the one for C by using the following command:

```
:runtime! syntax/c.vim
```

The ":runtime!" command searches 'runtimepath' for all "syntax/c.vim" files. This makes the C parts of the C++ syntax be defined like for C files. If you have replaced the c.vim syntax file, or added items with an extra file, these will be loaded as well.

After loading the C syntax items the specific C++ items can be defined. For example, add keywords that are not used in C:

```
:syntax keyword cppStatement    new delete this friend using
```

This works just like in any other syntax file.

Now consider the Perl language. A Perl script consists of two distinct parts: a documentation section in POD format, and a program written in Perl itself. The POD section starts with "=head" and ends with "=cut".

You want to define the POD syntax in one file, and use it from the Perl syntax file. The ":syntax include" command reads in a syntax file and stores the elements it defined in a syntax cluster. For Perl, the statements are as follows:

```
:syntax include @Pod <sfile>:p:h/pod.vim
:syntax region perlPOD start=/^=head/ end=/^=cut/ contains=@Pod
```

When "=head" is found in a Perl file, the perlPOD region starts. In this region the @Pod cluster is contained. All the items defined as top-level items in the pod.vim syntax files will match here. When "=cut" is found, the region ends and we go back to the items defined in the Perl file.

The ":syntax include" command is clever enough to ignore a ":syntax clear" command in the included file. And an argument such as "contains=ALL" will only contain items defined in the included file, not in the file that includes it.

The "<sfile>:p:h/" part uses the name of the current file (<sfile>), expands it to a full path (:p) and then takes the head (:h). This results in the directory name of the file. This causes the pod.vim file in the same directory to be included.

==========

44.10 Synchronizing

Compilers have it easy. They start at the beginning of a file and parse it straight through. Vim does not have it so easy. It must start in the middle, where the editing is being done. So how does it tell where it is?

The secret is the ":syntax sync" command. This tells Vim how to figure out where it is. For example, the following command tells Vim to scan backward for the beginning or end of a C-style comment and begin syntax coloring from there:

```
:syntax sync ccomment
```

You can tune this processing with some arguments. The "minlines" argument tells Vim the minimum number of lines to look backward, and "maxlines" tells the editor the maximum number of lines to scan.

For example, the following command tells Vim to look at least 10 lines before the top of the screen:

```
:syntax sync ccomment minlines=10 maxlines=500
```

If it cannot figure out where it is in that space, it starts looking farther and farther back until it figures out what to do. But it looks no farther back than 500 lines. (A large "maxlines" slows down processing. A small one might cause synchronization to fail.)

To make synchronizing go a bit faster, tell Vim which syntax items can be skipped. Every match and region that only needs to be used when actually displaying text can be given the "display" argument.

By default, the comment to be found will be colored as part of the Comment syntax group. If you want to color things another way, you can specify a different syntax group:

```
:syntax sync ccomment xAltComment
```

If your programming language does not have C-style comments in it, you can try another method of synchronization. The simplest way is to tell Vim to space back a number of lines and try to figure out things from there. The following command tells Vim to go back 150 lines and start parsing from there:

```
:syntax sync minlines=150
```

A large "minlines" value can make Vim slower, especially when scrolling backwards in the file.

Finally, you can specify a syntax group to look for by using this command:

```
:syntax sync match {sync-group-name}
        \ grouphere {group-name} {pattern}
```

This tells Vim that when it sees {pattern} the syntax group named {group-name} begins just after the pattern given. The {sync-group-name} is used to give a name to this synchronization specification. For example, the sh scripting language begins an if statement with "if" and ends it with "fi":

```
if [ --f file.txt ] ; then
        echo "File exists"
fi
```

To define a "grouphere" directive for this syntax, you use the following command:

```
:syntax sync match shIfSync grouphere shIf "\<if\>"
```

The "groupthere" argument tells Vim that the pattern ends a group. For example, the end of the if/fi group is as follows:

```
:syntax sync match shIfSync groupthere NONE "\<fi\>"
```

In this example, the NONE tells Vim that you are not in any special syntax region. In particular, you are not inside an if block.

You also can define matches and regions that are with no "grouphere" or "groupthere" arguments. These groups are for syntax groups skipped during synchronization. For example, the following skips over anything inside {}, even if it would normally match another synchronization method:

```
:syntax sync match xSpecial /{.*}/
```

More about synchronizing in the reference manual: :syn-sync .

44.11 Installing a syntax file

When your new syntax file is ready to be used, drop it in a "syntax" directory in 'runtimepath'. For Unix that would be "~/.vim/syntax".
The name of the syntax file must be equal to the file type, with ".vim" added. Thus for the x language, the full path of the file would be:

```
~/.vim/syntax/x.vim
```

You must also make the file type be recognized. See 43.2 .

If your file works well, you might want to make it available to other Vim users. First read the next section to make sure your file works well for others. Then e-mail it to the Vim maintainer: <maintainer@vim.org>. Also explain how the filetype can be detected. With a bit of luck your file will be included in the next Vim version!

ADDING TO AN EXISTING SYNTAX FILE

We were assuming you were adding a completely new syntax file. When an existing syntax file works, but is missing some items, you can add items in a separate file. That avoids changing the distributed syntax file, which will be lost when installing a new version of Vim.
Write syntax commands in your file, possibly using group names from the existing syntax. For example, to add new variable types to the C syntax file:

```
:syntax keyword cType off_t uint
```

Write the file with the same name as the original syntax file. In this case "c.vim". Place it in a directory near the end of 'runtimepath'. This makes it loaded after the original syntax file. For Unix this would be:

```
~/.vim/after/syntax/c.vim
```

44.12 Portable syntax file layout

Wouldn't it be nice if all Vim users exchange syntax files? To make this

possible, the syntax file must follow a few guidelines.

Start with a header that explains what the syntax file is for, who maintains it and when it was last updated. Don't include too much information about changes history, not many people will read it. Example:

```
" Vim syntax file
" Language:     C
" Maintainer:   Bram Moolenaar <Bram@vim.org>
" Last Change:  2001 Jun 18
" Remark:       Included by the C++ syntax.
```

Use the same layout as the other syntax files. Using an existing syntax file as an example will save you a lot of time.

Choose a good, descriptive name for your syntax file. Use lowercase letters and digits. Don't make it too long, it is used in many places: The name of the syntax file "name.vim", 'filetype', b:current_syntax and the start of each syntax group (nameType, nameStatement, nameString, etc).

Start with a check for "b:current_syntax". If it is defined, some other syntax file, earlier in 'runtimepath' was already loaded:

```
if exists("b:current_syntax")
  finish
endif
```

To be compatible with Vim 5.8 use:

```
if version < 600
  syntax clear
elseif exists("b:current_syntax")
  finish
endif
```

Set "b:current_syntax" to the name of the syntax at the end. Don't forget that included files do this too, you might have to reset "b:current_syntax" if you include two files.

If you want your syntax file to work with Vim 5.x, add a check for v:version. Find an syntax file in the Vim 7.2 distribution for an example.

Do not include anything that is a user preference. Don't set 'tabstop', 'expandtab', etc. These belong in a filetype plugin.

Do not include mappings or abbreviations. Only include setting 'iskeyword' if it is really necessary for recognizing keywords.

To allow users select their own preferred colors, make a different group name for every kind of highlighted item. Then link each of them to one of the standard highlight groups. That will make it work with every color scheme. If you select specific colors it will look bad with some color schemes. And don't forget that some people use a different background color, or have only eight colors available.

For the linking use "hi def link", so that the user can select different
highlighting before your syntax file is loaded. Example:

```
hi def link nameString        String
hi def link nameNumber        Number
hi def link nameCommand       Statement
... etc ...
```

Add the "display" argument to items that are not used when syncing, to speed
up scrolling backwards and CTRL-L.

==

Next chapter: usr_45.txt   Select your language

   vim:tw=78:ts=8:ft=help:norl:

usr_45.txt For Vim version 8.1. Last change: 2008 Nov 15

VIM USER MANUAL - by Bram Moolenaar

Select your language

The messages in Vim can be given in several languages. This chapter explains how to change which one is used. Also, the different ways to work with files in various languages is explained.

Next chapter: usr_90.txt Installing Vim
Previous chapter: usr_44.txt Your own syntax highlighted
Table of contents: usr_toc.txt

==

45.1 Language for Messages

When you start Vim, it checks the environment to find out what language you are using. Mostly this should work fine, and you get the messages in your language (if they are available). To see what the current language is, use this command:

```
:language
```

If it replies with "C", this means the default is being used, which is English.

> Note:
> Using different languages only works when Vim was compiled to handle it. To find out if it works, use the ":version" command and check the output for "+gettext" and "+multi_lang". If they are there, you are OK. If you see "-gettext" or "-multi_lang" you will have to find another Vim.

What if you would like your messages in a different language? There are several ways. Which one you should use depends on the capabilities of your system.

The first way is to set the environment to the desired language before starting Vim. Example for Unix:

```
env LANG=de_DE.ISO_8859-1  vim
```

This only works if the language is available on your system. The advantage is that all the GUI messages and things in libraries will use the right language as well. A disadvantage is that you must do this before starting Vim. If you want to change language while Vim is running, you can use the second method:

```
	:language fr_FR.ISO_8859-1
```

This way you can try out several names for your language. You will get an error message when it's not supported on your system. You don't get an error when translated messages are not available. Vim will silently fall back to using English.
   To find out which languages are supported on your system, find the directory where they are listed. On my system it is "/usr/share/locale". On some systems it's in "/usr/lib/locale". The manual page for "setlocale" should give you a hint where it is found on your system.
   Be careful to type the name exactly as it should be. Upper and lowercase matter, and the '-' and '_' characters are easily confused.

You can also set the language separately for messages, edited text and the time format. See :language .

DO-IT-YOURSELF MESSAGE TRANSLATION

If translated messages are not available for your language, you could write them yourself. To do this, get the source code for Vim and the GNU gettext package. After unpacking the sources, instructions can be found in the directory src/po/README.txt.
   It's not too difficult to do the translation. You don't need to be a programmer. You must know both English and the language you are translating to, of course.
   When you are satisfied with the translation, consider making it available to others. Upload it at vim-online (http://vim.sf.net) or e-mail it to the Vim maintainer <maintainer@vim.org>. Or both.

==
45.2 Language for Menus

The default menus are in English. To be able to use your local language, they must be translated. Normally this is automatically done for you if the environment is set for your language, just like with messages. You don't need to do anything extra for this. But it only works if translations for the language are available.
   Suppose you are in Germany, with the language set to German, but prefer to use "File" instead of "Datei". You can switch back to using the English menus this way:

```
	:set langmenu=none
```

It is also possible to specify a language:

```
	:set langmenu=nl_NL.ISO_8859-1
```

Like above, differences between "-" and "_" matter. However, upper/lowercase differences are ignored here.
   The 'langmenu' option must be set before the menus are loaded. Once the menus have been defined changing 'langmenu' has no direct effect. Therefore, put the command to set 'langmenu' in your vimrc file.
   If you really want to switch menu language while running Vim, you can do it

this way:

```
:source $VIMRUNTIME/delmenu.vim
:set langmenu=de_DE.ISO_8859-1
:source $VIMRUNTIME/menu.vim
```

There is one drawback: All menus that you defined yourself will be gone. You will need to redefine them as well.

DO-IT-YOURSELF MENU TRANSLATION

To see which menu translations are available, look in this directory:

```
$VIMRUNTIME/lang
```

The files are called menu_{language}.vim. If you don't see the language you want to use, you can do your own translations. The simplest way to do this is by copying one of the existing language files, and change it.
First find out the name of your language with the ":language" command. Use this name, but with all letters made lowercase. Then copy the file to your own runtime directory, as found early in 'runtimepath'. For example, for Unix you would do:

```
:!cp $VIMRUNTIME/lang/menu_ko_kr.euckr.vim ~/.vim/lang/menu_nl_be.iso_8859-1.vim
```

You will find hints for the translation in "$VIMRUNTIME/lang/README.txt".

45.3 Using another encoding

Vim guesses that the files you are going to edit are encoded for your language. For many European languages this is "latin1". Then each byte is one character. That means there are 256 different characters possible. For Asian languages this is not sufficient. These mostly use a double-byte encoding, providing for over ten thousand possible characters. This still isn't enough when a text is to contain several different languages. This is where Unicode comes in. It was designed to include all characters used in commonly used languages. This is the "Super encoding that replaces all others". But it isn't used that much yet.
Fortunately, Vim supports these three kinds of encodings. And, with some restrictions, you can use them even when your environment uses another language than the text.
Nevertheless, when you only edit files that are in the encoding of your language, the default should work fine and you don't need to do anything. The following is only relevant when you want to edit different languages.

```
Note:
Using different encodings only works when Vim was compiled to handle
it. To find out if it works, use the ":version" command and check the
output for "+multi_byte". If it's there, you are OK. If you see
"-multi_byte" you will have to find another Vim.
```

USING UNICODE IN THE GUI

The nice thing about Unicode is that other encodings can be converted to it and back without losing information. When you make Vim use Unicode internally, you will be able to edit files in any encoding.

Unfortunately, the number of systems supporting Unicode is still limited. Thus it's unlikely that your language uses it. You need to tell Vim you want to use Unicode, and how to handle interfacing with the rest of the system.

Let's start with the GUI version of Vim, which is able to display Unicode characters. This should work:

```
:set encoding=utf-8
:set guifont=-misc-fixed-medium-r-normal--18-120-100-100-c-90-iso10646-1
```

The 'encoding' option tells Vim the encoding of the characters that you use. This applies to the text in buffers (files you are editing), registers, Vim script files, etc. You can regard 'encoding' as the setting for the internals of Vim.

This example assumes you have this font on your system. The name in the example is for the X Window System. This font is in a package that is used to enhance xterm with Unicode support. If you don't have this font, you might find it here:

```
http://www.cl.cam.ac.uk/~mgk25/download/ucs-fonts.tar.gz
```

For MS-Windows, some fonts have a limited number of Unicode characters. Try using the "Courier New" font. You can use the Edit/Select Font... menu to select and try out the fonts available. Only fixed-width fonts can be used though. Example:

```
:set guifont=courier_new:h12
```

If it doesn't work well, try getting a fontpack. If Microsoft didn't move it, you can find it here:

```
http://www.microsoft.com/typography/fonts/default.aspx
```

Now you have told Vim to use Unicode internally and display text with a Unicode font. Typed characters still arrive in the encoding of your original language. This requires converting them to Unicode. Tell Vim the language from which to convert with the 'termencoding' option. You can do it like this:

```
:let &termencoding = &encoding
:set encoding=utf-8
```

This assigns the old value of 'encoding' to 'termencoding' before setting 'encoding' to utf-8. You will have to try out if this really works for your setup. It should work especially well when using an input method for an Asian language, and you want to edit Unicode text.

USING UNICODE IN A UNICODE TERMINAL

There are terminals that support Unicode directly. The standard xterm that comes with XFree86 is one of them. Let's use that as an example.
   First of all, the xterm must have been compiled with Unicode support. See UTF8-xterm how to check that and how to compile it when needed.
   Start the xterm with the "-u8" argument. You might also need so specify a font. Example:

```
xterm -u8 -fn -misc-fixed-medium-r-normal--18-120-100-100-c-90-iso10646-1
```

Now you can run Vim inside this terminal. Set 'encoding' to "utf-8" as before. That's all.

USING UNICODE IN AN ORDINARY TERMINAL

Suppose you want to work with Unicode files, but don't have a terminal with Unicode support. You can do this with Vim, although characters that are not supported by the terminal will not be displayed. The layout of the text will be preserved.

```
:let &termencoding = &encoding
:set encoding=utf-8
```

This is the same as what was used for the GUI. But it works differently: Vim will convert the displayed text before sending it to the terminal. That avoids that the display is messed up with strange characters.
   For this to work the conversion between 'termencoding' and 'encoding' must be possible. Vim will convert from latin1 to Unicode, thus that always works. For other conversions the +iconv feature is required.
   Try editing a file with Unicode characters in it. You will notice that Vim will put a question mark (or underscore or some other character) in places where a character should be that the terminal can't display. Move the cursor to a question mark and use this command:

```
ga
```

Vim will display a line with the code of the character. This gives you a hint about what character it is. You can look it up in a Unicode table. You could actually view a file that way, if you have lots of time at hand.

```
Note:
Since 'encoding' is used for all text inside Vim, changing it makes
all non-ASCII text invalid.  You will notice this when using registers
and the 'viminfo' file (e.g., a remembered search pattern).  It's
recommended to set 'encoding' in your vimrc file, and leave it alone.
```

==

45.4 Editing files with a different encoding

Suppose you have setup Vim to use Unicode, and you want to edit a file that is in 16-bit Unicode. Sounds simple, right? Well, Vim actually uses utf-8 encoding internally, thus the 16-bit encoding must be converted, since there is a difference between the character set (Unicode) and the encoding (utf-8 or 16-bit).

Vim will try to detect what kind of file you are editing. It uses the encoding names in the 'fileencodings' option. When using Unicode, the default value is: "ucs-bom,utf-8,latin1". This means that Vim checks the file to see if it's one of these encodings:

ucs-bom	File must start with a Byte Order Mark (BOM). This allows detection of 16-bit, 32-bit and utf-8 Unicode encodings.
utf-8	utf-8 Unicode. This is rejected when a sequence of bytes is illegal in utf-8.
latin1	The good old 8-bit encoding. Always works.

When you start editing that 16-bit Unicode file, and it has a BOM, Vim will detect this and convert the file to utf-8 when reading it. The 'fileencoding' option (without s at the end) is set to the detected value. In this case it is "utf-16le". That means it's Unicode, 16-bit and little-endian. This file format is common on MS-Windows (e.g., for registry files).

When writing the file, Vim will compare 'fileencoding' with 'encoding'. If they are different, the text will be converted.

An empty value for 'fileencoding' means that no conversion is to be done. Thus the text is assumed to be encoded with 'encoding'.

If the default 'fileencodings' value is not good for you, set it to the encodings you want Vim to try. Only when a value is found to be invalid will the next one be used. Putting "latin1" first doesn't work, because it is never illegal. An example, to fall back to Japanese when the file doesn't have a BOM and isn't utf-8:

```
:set fileencodings=ucs-bom,utf-8,sjis
```

See encoding-values for suggested values. Other values may work as well. This depends on the conversion available.

FORCING AN ENCODING

If the automatic detection doesn't work you must tell Vim what encoding the file is. Example:

```
:edit ++enc=koi8-r russian.txt
```

The "++enc" part specifies the name of the encoding to be used for this file only. Vim will convert the file from the specified encoding, Russian in this example, to 'encoding'. 'fileencoding' will also be set to the specified encoding, so that the reverse conversion can be done when writing the file.

The same argument can be used when writing the file. This way you can actually use Vim to convert a file. Example:

```
:write ++enc=utf-8 russian.txt
```

Note:
Conversion may result in lost characters. Conversion from an encoding to Unicode and back is mostly free of this problem, unless there are illegal characters. Conversion from Unicode to other encodings often

loses information when there was more than one language in the file.

==
45.5 Entering language text

Computer keyboards don't have much more than a hundred keys. Some languages have thousands of characters, Unicode has over hundred thousand. So how do you type these characters?

First of all, when you don't use too many of the special characters, you can use digraphs. This was already explained in 24.9 .

When you use a language that uses many more characters than keys on your keyboard, you will want to use an Input Method (IM). This requires learning the translation from typed keys to resulting character. When you need an IM you probably already have one on your system. It should work with Vim like with other programs. For details see mbyte-XIM for the X Window system and mbyte-IME for MS-Windows.

KEYMAPS

For some languages the character set is different from latin, but uses a similar number of characters. It's possible to map keys to characters. Vim uses keymaps for this.

Suppose you want to type Hebrew. You can load the keymap like this:

```
:set keymap=hebrew
```

Vim will try to find a keymap file for you. This depends on the value of 'encoding'. If no matching file was found, you will get an error message.

Now you can type Hebrew in Insert mode. In Normal mode, and when typing a ":" command, Vim automatically switches to English. You can use this command to switch between Hebrew and English:

```
CTRL-^
```

This only works in Insert mode and Command-line mode. In Normal mode it does something completely different (jumps to alternate file).

The usage of the keymap is indicated in the mode message, if you have the 'showmode' option set. In the GUI Vim will indicate the usage of keymaps with a different cursor color.

You can also change the usage of the keymap with the 'iminsert' and 'imsearch' options.

To see the list of mappings, use this command:

```
:lmap
```

To find out which keymap files are available, in the GUI you can use the Edit/Keymap menu. Otherwise you can use this command:

```
:echo globpath(&rtp, "keymap/*.vim")
```

DO-IT-YOURSELF KEYMAPS

You can create your own keymap file. It's not very difficult. Start with
a keymap file that is similar to the language you want to use. Copy it to the
"keymap" directory in your runtime directory. For example, for Unix, you
would use the directory "~/.vim/keymap".
   The name of the keymap file must look like this:

        keymap/{name}.vim
or
        keymap/{name}_{encoding}.vim

{name} is the name of the keymap. Chose a name that is obvious, but different
from existing keymaps (unless you want to replace an existing keymap file).
{name} cannot contain an underscore. Optionally, add the encoding used after
an underscore. Examples:

        keymap/hebrew.vim
        keymap/hebrew_utf-8.vim

The contents of the file should be self-explanatory. Look at a few of the
keymaps that are distributed with Vim. For the details, see mbyte-keymap .

LAST RESORT

If all other methods fail, you can enter any character with CTRL-V:

        encoding   type   range
        8-bit   CTRL-V 123   decimal 0-255
        8-bit   CTRL-V x a1   hexadecimal 00-ff
        16-bit   CTRL-V u 013b   hexadecimal 0000-ffff
        31-bit   CTRL-V U 001303a4   hexadecimal 00000000-7fffffff

Don't type the spaces. See i_CTRL-V_digit for the details.

==

Next chapter: usr_90.txt   Installing Vim

Copyright: see manual-copyright   vim:tw=78:ts=8:ft=help:norl:

VIM USER MANUAL - by Bram Moolenaar

Installing Vim

install

Before you can use Vim you have to install it. Depending on your system it's simple or easy. This chapter gives a few hints and also explains how upgrading to a new version is done.

Previous chapter: usr_45.txt Select your language
Table of contents: usr_toc.txt

==========

90.1 Unix

First you have to decide if you are going to install Vim system-wide or for a single user. The installation is almost the same, but the directory where Vim is installed in differs.

For a system-wide installation the base directory "/usr/local" is often used. But this may be different for your system. Try finding out where other packages are installed.

When installing for a single user, you can use your home directory as the base. The files will be placed in subdirectories like "bin" and "shared/vim".

FROM A PACKAGE

You can get precompiled binaries for many different UNIX systems. There is a long list with links on this page:

http://www.vim.org/binaries.html

Volunteers maintain the binaries, so they are often out of date. It is a good idea to compile your own UNIX version from the source. Also, creating the editor from the source allows you to control which features are compiled. This does require a compiler though.

If you have a Linux distribution, the "vi" program is probably a minimal version of Vim. It doesn't do syntax highlighting, for example. Try finding another Vim package in your distribution, or search on the web site.

FROM SOURCES

To compile and install Vim, you will need the following:

- A C compiler (GCC preferred)
- The GZIP program (you can get it from www.gnu.org)
- The Vim source and runtime archives

To get the Vim archives, look in this file for a mirror near you, this should provide the fastest download:

```
ftp://ftp.vim.org/pub/vim/MIRRORS
```

Or use the home site ftp.vim.org, if you think it's fast enough. Go to the "unix" directory and you'll find a list of files there. The version number is embedded in the file name. You will want to get the most recent version.
You can get the files for Unix in two ways: One big archive that contains everything, or four smaller ones that each fit on a floppy disk. For version 6.1 the single big one is called:

```
vim-6.1.tar.bz2
```

You need the bzip2 program to uncompress it. If you don't have it, get the four smaller files, which can be uncompressed with gzip. For Vim 6.1 they are called:

```
vim-6.1-src1.tar.gz
vim-6.1-src2.tar.gz
vim-6.1-rt1.tar.gz
vim-6.1-rt2.tar.gz
```

COMPILING

First create a top directory to work in, for example:

```
mkdir ~/vim
cd ~/vim
```

Then unpack the archives there. If you have the one big archive, you unpack it like this:

```
bzip2 -d -c path/vim-6.1.tar.bz2 | tar xf -
```

Change "path" to where you have downloaded the file.

```
gzip -d -c path/vim-6.1-src1.tar.gz | tar xf -
gzip -d -c path/vim-6.1-src2.tar.gz | tar xf -
gzip -d -c path/vim-6.1-rt1.tar.gz | tar xf -
gzip -d -c path/vim-6.1-rt2.tar.gz | tar xf -
```

If you are satisfied with getting the default features, and your environment is setup properly, you should be able to compile Vim with just this:

```
cd vim61/src
make
```

The make program will run configure and compile everything. Further on we

will explain how to compile with different features.
   If there are errors while compiling, carefully look at the error messages. There should be a hint about what went wrong. Hopefully you will be able to correct it. You might have to disable some features to make Vim compile. Look in the Makefile for specific hints for your system.

TESTING

Now you can check if compiling worked OK:

```
make test
```

This will run a sequence of test scripts to verify that Vim works as expected. Vim will be started many times and all kinds of text and messages flash by. If it is alright you will finally see:

```
test results:
ALL DONE
```

If you get "TEST FAILURE" some test failed. If there are one or two messages about failed tests, Vim might still work, but not perfectly. If you see a lot of error messages or Vim doesn't finish until the end, there must be something wrong. Either try to find out yourself, or find someone who can solve it. You could look in the maillist-archive for a solution. If everything else fails, you could ask in the vim maillist if someone can help you.

INSTALLING

install-home

If you want to install in your home directory, edit the Makefile and search for a line:

```
#prefix = $(HOME)
```

Remove the # at the start of the line.
   When installing for the whole system, Vim has most likely already selected a good installation directory for you. You can also specify one, see below. You need to become root for the following.

To install Vim do:

```
make install
```

That should move all the relevant files to the right place. Now you can try running vim to verify that it works. Use two simple tests to check if Vim can find its runtime files:

```
:help
:syntax enable
```

If this doesn't work, use this command to check where Vim is looking for the runtime files:

```
:echo $VIMRUNTIME
```

You can also start Vim with the "-V" argument to see what happens during startup:

```
vim -V
```

Don't forget that the user manual assumes you Vim in a certain way. After installing Vim, follow the instructions at not-compatible to make Vim work as assumed in this manual.

SELECTING FEATURES

Vim has many ways to select features. One of the simple ways is to edit the Makefile. There are many directions and examples. Often you can enable or disable a feature by uncommenting a line.

An alternative is to run "configure" separately. This allows you to specify configuration options manually. The disadvantage is that you have to figure out what exactly to type.

Some of the most interesting configure arguments follow. These can also be enabled from the Makefile.

--prefix={directory}	Top directory where to install Vim.
--with-features=tiny	Compile with many features disabled.
--with-features=small	Compile with some features disabled.
--with-features=big	Compile with more features enabled.
--with-features=huge	Compile with most features enabled. See +feature-list for which feature is enabled in which case.
--enable-perlinterp	Enable the Perl interface. There are similar arguments for ruby, python and tcl.
--disable-gui	Do not compile the GUI interface.
--without-x	Do not compile X-windows features. When both of these are used, Vim will not connect to the X server, which makes startup faster.

To see the whole list use:

```
./configure --help
```

You can find a bit of explanation for each feature, and links for more information here: feature-list .

For the adventurous, edit the file "feature.h". You can also change the source code yourself!

==

90.2 MS-Windows

There are two ways to install the Vim program for Microsoft Windows. You can uncompress several archives, or use a self-installing big archive. Most users with fairly recent computers will prefer the second method. For the first one, you will need:

	- An archive with binaries for Vim.
	- The Vim runtime archive.
	- A program to unpack the zip files.

To get the Vim archives, look in this file for a mirror near you, this should provide the fastest download:

	ftp://ftp.vim.org/pub/vim/MIRRORS

Or use the home site ftp.vim.org, if you think it's fast enough. Go to the "pc" directory and you'll find a list of files there. The version number is embedded in the file name. You will want to get the most recent version. We will use "61" here, which is version 6.1.

	gvim61.exe		The self-installing archive.

This is all you need for the second method. Just launch the executable, and follow the prompts.

For the first method you must chose one of the binary archives. These are available:

	gvim61.zip		The normal MS-Windows GUI version.
	gvim61ole.zip		The MS-Windows GUI version with OLE support.
				Uses more memory, supports interfacing with
				other OLE applications.
	vim61w32.zip		32 bit MS-Windows console version. For use in
				a Win NT/2000/XP console. Does not work well
				on Win 95/98.
	vim61d32.zip		32 bit MS-DOS version. For use in the
				Win 95/98 console window.
	vim61d16.zip		16 bit MS-DOS version. Only for old systems.
				Does not support long filenames.

You only need one of them. Although you could install both a GUI and a console version. You always need to get the archive with runtime files.

	vim61rt.zip		The runtime files.

Use your un-zip program to unpack the files. For example, using the "unzip" program:

```
cd c:\
unzip path\gvim61.zip
unzip path\vim61rt.zip
```

This will unpack the files in the directory "c:\vim\vim61". If you already have a "vim" directory somewhere, you will want to move to the directory just above it.

Now change to the "vim\vim61" directory and run the install program:

```
install
```

Carefully look through the messages and select the options you want to use.
If you finally select "do it" the install program will carry out the actions
you selected.
The install program doesn't move the runtime files. They remain where you
unpacked them.

In case you are not satisfied with the features included in the supplied
binaries, you could try compiling Vim yourself. Get the source archive from
the same location as where the binaries are. You need a compiler for which a
makefile exists. Microsoft Visual C works, but is expensive. The Free
Borland command-line compiler 5.5 can be used, as well as the free MingW and
Cygwin compilers. Check the file src/INSTALLpc.txt for hints.

==
90.3 Upgrading

If you are running one version of Vim and want to install another, here is
what to do.

UNIX

When you type "make install" the runtime files will be copied to a directory
which is specific for this version. Thus they will not overwrite a previous
version. This makes it possible to use two or more versions next to
each other.
The executable "vim" will overwrite an older version. If you don't care
about keeping the old version, running "make install" will work fine. You can
delete the old runtime files manually. Just delete the directory with the
version number in it and all files below it. Example:

```
rm -rf /usr/local/share/vim/vim58
```

There are normally no changed files below this directory. If you did change
the "filetype.vim" file, for example, you better merge the changes into the
new version before deleting it.

If you are careful and want to try out the new version for a while before
switching to it, install the new version under another name. You need to
specify a configure argument. For example:

```
./configure --with-vim-name=vim6
```

Before running "make install", you could use "make -n install" to check that
no valuable existing files are overwritten.
When you finally decide to switch to the new version, all you need to do is
to rename the binary to "vim". For example:

```
mv /usr/local/bin/vim6 /usr/local/bin/vim
```

MS-WINDOWS

Upgrading is mostly equal to installing a new version. Just unpack the files in the same place as the previous version. A new directory will be created, e.g., "vim61", for the files of the new version. Your runtime files, vimrc file, viminfo, etc. will be left alone.
   If you want to run the new version next to the old one, you will have to do some handwork. Don't run the install program, it will overwrite a few files of the old version. Execute the new binaries by specifying the full path. The program should be able to automatically find the runtime files for the right version. However, this won't work if you set the $VIMRUNTIME variable somewhere.
   If you are satisfied with the upgrade, you can delete the files of the previous version. See 90.5 .

==
90.4 Common installation issues

This section describes some of the common problems that occur when installing Vim and suggests some solutions. It also contains answers to many installation questions.

Q: I Do Not Have Root Privileges. How Do I Install Vim? (Unix)

Use the following configuration command to install Vim in a directory called $HOME/vim:

```
./configure --prefix=$HOME
```

This gives you a personal copy of Vim. You need to put $HOME/bin in your path to execute the editor. Also see install-home .

Q: The Colors Are Not Right on My Screen. (Unix)

Check your terminal settings by using the following command in a shell:

```
echo $TERM
```

If the terminal type listed is not correct, fix it. For more hints, see 06.2 . Another solution is to always use the GUI version of Vim, called gvim. This avoids the need for a correct terminal setup.

Q: My Backspace And Delete Keys Don't Work Right

The definition of what key sends what code is very unclear for backspace <BS> and Delete <Del> keys. First of all, check your $TERM setting. If there is nothing wrong with it, try this:

```
:set t_kb=^V<BS>
:set t_kD=^V<Del>
```

In the first line you need to press CTRL-V and then hit the backspace key.
In the second line you need to press CTRL-V and then hit the Delete key.
You can put these lines in your vimrc file, see 05.1 . A disadvantage is
that it won't work when you use another terminal some day. Look here for
alternate solutions: :fixdel .

Q: I Am Using RedHat Linux. Can I Use the Vim That Comes with the System?

By default RedHat installs a minimal version of Vim. Check your RPM packages
for something named "Vim-enhanced-version.rpm" and install that.

Q: How Do I Turn Syntax Coloring On? How do I make plugins work?

Use the example vimrc script. You can find an explanation on how to use it
here: not-compatible .

See chapter 6 for information about syntax highlighting: usr_06.txt .

Q: What Is a Good vimrc File to Use?

See the www.vim.org Web site for several good examples.

Q: Where Do I Find a Good Vim Plugin?

See the Vim-online site: http://vim.sf.net. Many users have uploaded useful
Vim scripts and plugins there.

Q: Where Do I Find More Tips?

See the Vim-online site: http://vim.sf.net. There is an archive with hints
from Vim users. You might also want to search in the maillist-archive .

==
90.5 Uninstalling Vim

In the unlikely event you want to uninstall Vim completely, this is how you do
it.

UNIX

When you installed Vim as a package, check your package manager to find out
how to remove the package again.
If you installed Vim from sources you can use this command:

```
make uninstall
```

However, if you have deleted the original files or you used an archive that

someone supplied, you can't do this. Do delete the files manually, here is an example for when "/usr/local" was used as the root:

```
rm -rf /usr/local/share/vim/vim61
rm /usr/local/bin/eview
rm /usr/local/bin/evim
rm /usr/local/bin/ex
rm /usr/local/bin/gview
rm /usr/local/bin/gvim
rm /usr/local/bin/gvim
rm /usr/local/bin/gvimdiff
rm /usr/local/bin/rgview
rm /usr/local/bin/rgvim
rm /usr/local/bin/rview
rm /usr/local/bin/rvim
rm /usr/local/bin/rvim
rm /usr/local/bin/view
rm /usr/local/bin/vim
rm /usr/local/bin/vimdiff
rm /usr/local/bin/vimtutor
rm /usr/local/bin/xxd
rm /usr/local/man/man1/eview.1
rm /usr/local/man/man1/evim.1
rm /usr/local/man/man1/ex.1
rm /usr/local/man/man1/gview.1
rm /usr/local/man/man1/gvim.1
rm /usr/local/man/man1/gvimdiff.1
rm /usr/local/man/man1/rgview.1
rm /usr/local/man/man1/rgvim.1
rm /usr/local/man/man1/rview.1
rm /usr/local/man/man1/rvim.1
rm /usr/local/man/man1/view.1
rm /usr/local/man/man1/vim.1
rm /usr/local/man/man1/vimdiff.1
rm /usr/local/man/man1/vimtutor.1
rm /usr/local/man/man1/xxd.1
```

MS-WINDOWS

If you installed Vim with the self-installing archive you can run the "uninstall-gui" program located in the same directory as the other Vim programs, e.g. "c:\vim\vim61". You can also launch it from the Start menu if installed the Vim entries there. This will remove most of the files, menu entries and desktop shortcuts. Some files may remain however, as they need a Windows restart before being deleted.
   You will be given the option to remove the whole "vim" directory. It probably contains your vimrc file and other runtime files that you created, so be careful.

Else, if you installed Vim with the zip archives, the preferred way is to use the "uninstal" program (note the missing l at the end). You can find it in the same directory as the "install" program, e.g., "c:\vim\vim61". This should also work from the usual "install/remove software" page.

However, this only removes the registry entries for Vim. You have to delete the files yourself. Simply select the directory "vim\vim61" and delete it recursively. There should be no files there that you changed, but you might want to check that first.
The "vim" directory probably contains your vimrc file and other runtime files that you created. You might want to keep that.

==

Table of contents: usr_toc.txt

Copyright: see manual-copyright vim:tw=78:ts=8:ft=help:norl:

intro.txt For Vim version 8.1. Last change: 2018 Jan 24

VIM REFERENCE MANUAL by Bram Moolenaar

Introduction to Vim ref reference

==========

1. Introduction intro

Vim stands for Vi IMproved. It used to be Vi IMitation, but there are so many improvements that a name change was appropriate. Vim is a text editor which includes almost all the commands from the Unix program "Vi" and a lot of new ones. It is very useful for editing programs and other plain text.

All commands are given with the keyboard. This has the advantage that you can keep your fingers on the keyboard and your eyes on the screen. For those who want it, there is mouse support and a GUI version with scrollbars and menus (see gui.txt).

An overview of this manual can be found in the file "help.txt", help.txt . It can be accessed from within Vim with the <Help> or <F1> key and with the :help command (just type ":help", without the bars or quotes).

The 'helpfile' option can be set to the name of the help file, in case it is not located in the default place. You can jump to subjects like with tags: Use CTRL-] to jump to a subject under the cursor, use CTRL-T to jump back.

Throughout this manual the differences between Vi and Vim are mentioned in curly braces, like this: {Vi does not have on-line help}. See vi_diff.txt for a summary of the differences between Vim and Vi.

This manual refers to Vim on various machines. There may be small differences between different computers and terminals. Besides the remarks given in this document, there is a separate document for each supported system, see sys-file-list .

pronounce

Vim is pronounced as one word, like Jim, not vi-ai-em. It's written with a capital, since it's a name, again like Jim.

This manual is a reference for all the Vim commands and options. This is not an introduction to the use of Vi or Vim, it gets a bit complicated here and there. For beginners, there is a hands-on tutor . To learn using Vim, read the user manual usr_toc.txt .

book
There are many books on Vi that contain a section for beginners. There are two books I can recommend:

	"Vim - Vi Improved" by Steve Oualline

This is the very first book completely dedicated to Vim. It is very good for beginners. The most often used commands are explained with pictures and examples. The less often used commands are also explained, the more advanced features are summarized. There is a comprehensive index and a quick reference. Parts of this book have been included in the user manual frombook .
Published by New Riders Publishing. ISBN: 0735710015
For more information try one of these:
	http://iccf-holland.org/click5.html
	http://www.vim.org/iccf/click5.html

	"Learning the Vi editor" by Linda Lamb and Arnold Robbins

This is a book about Vi that includes a chapter on Vim (in the sixth edition). The first steps in Vi are explained very well. The commands that Vim adds are only briefly mentioned. There is also a German translation.
Published by O'Reilly. ISBN: 1-56592-426-6.

==
2. Vim on the internet   internet

www   WWW   faq   FAQ   distribution   download
The Vim pages contain the most recent information about Vim. They also contain links to the most recent version of Vim. The FAQ is a list of Frequently Asked Questions. Read this if you have problems.

	Vim home page:	http://www.vim.org/
	Vim FAQ:	http://vimdoc.sf.net/
	Downloading:	ftp://ftp.vim.org/pub/vim/MIRRORS

Usenet News group where Vim is discussed: news   usenet
	comp.editors
This group is also for other editors. If you write about Vim, don't forget to mention that.

mail-list   maillist
There are several mailing lists for Vim:
<vim@vim.org> vim-use   vim_use
	For discussions about using existing versions of Vim: Useful mappings, questions, answers, where to get a specific version, etc. There are quite a few people watching this list and answering questions, also for beginners. Don't hesitate to ask your question here.
<vim-dev@vim.org> vim-dev   vim_dev   vimdev
	For discussions about changing Vim: New features, porting, patches, beta-test versions, etc.
<vim-announce@vim.org> vim-announce   vim_announce
	Announcements about new versions of Vim; also for beta-test versions

and ports to different systems. This is a read-only list.
<vim-mac@vim.org>   vim-mac   vim_mac
For discussions about using and improving the Macintosh version of
Vim.

See http://www.vim.org/maillist.php for the latest information.

NOTE:
- You can only send messages to these lists if you have subscribed!
- You need to send the messages from the same location as where you subscribed
  from (to avoid spam mail).
- Maximum message size is 40000 characters.

                                                     subscribe-maillist
If you want to join, send a message to
        <vim-subscribe@vim.org>
Make sure that your "From:" address is correct. Then the list server will
give you help on how to subscribe.

                                                     maillist-archive
For more information and archives look on the Vim maillist page:
http://www.vim.org/maillist.php

Bug reports: bugs   bug-reports   bugreport.vim

There are two ways to report bugs, both work:
1. Send bug reports to: Vim Developers <vim-dev@vim.org>
   This is a maillist, you need to become a member first and many people will
   see the message. If you don't want that, e.g. because it is a security
   issue, send it to <bugs@vim.org>, this only goes to the Vim maintainer
   (that's Bram).
2. Open an issue on GitHub: https://github.com/vim/vim/issues
   The text will be forwarded to the vim-dev maillist.

Please be brief; all the time that is spent on answering mail is subtracted
from the time that is spent on improving Vim! Always give a reproducible
example and try to find out which settings or other things trigger the bug.

Preferably start Vim with:
        vim --clean -u reproduce.vim
Where reproduce.vim is a script that reproduces the problem. Try different
machines, if relevant (is this an MS-Windows specific bug perhaps?).

Send me patches if you can!

It will help to include information about the version of Vim you are using and
your setup. You can get the information with this command:
   :so $VIMRUNTIME/bugreport.vim
This will create a file "bugreport.txt" in the current directory, with a lot
of information of your environment. Before sending this out, check if it
doesn't contain any confidential information!

If Vim crashes, please try to find out where. You can find help on this here:

debug.txt .

In case of doubt or when you wonder if the problem has already been fixed but you can't find a fix for it, become a member of the vim-dev maillist and ask your question there. maillist

year-2000 Y2K

Since Vim internally doesn't use dates for editing, there is no year 2000 problem to worry about. Vim does use the time in the form of seconds since January 1st 1970. It is used for a time-stamp check of the edited file and the swap file, which is not critical and should only cause warning messages.

There might be a year 2038 problem, when the seconds don't fit in a 32 bit int anymore. This depends on the compiler, libraries and operating system. Specifically, time_t and the ctime() function are used. And the time_t is stored in four bytes in the swap file. But that's only used for printing a file date/time for recovery, it will never affect normal editing.

The Vim strftime() function directly uses the strftime() system function. localtime() uses the time() system function. getftime() uses the time returned by the stat() system function. If your system libraries are year 2000 compliant, Vim is too.

The user may create scripts for Vim that use external commands. These might introduce Y2K problems, but those are not really part of Vim itself.

==
3. Credits credits author Bram Moolenaar

Most of Vim was written by Bram Moolenaar <Bram@vim.org>.

Parts of the documentation come from several Vi manuals, written by:
        W.N. Joy
        Alan P.W. Hewett
        Mark Horton

The Vim editor is based on Stevie and includes (ideas from) other software, worked on by the people mentioned here. Other people helped by sending me patches, suggestions and giving feedback about what is good and bad in Vim.

Vim would never have become what it is now, without the help of these people!

Ron Aaron	Win32 GUI changes
Mohsin Ahmed	encryption
Zoltan Arpadffy	work on VMS port
Tony Andrews	Stevie
Gert van Antwerpen	changes for DJGPP on MS-DOS
Berkeley DB(3)	ideas for swap file implementation
Keith Bostic	Nvi
Walter Briscoe	Makefile updates, various patches
Ralf Brown	SPAWNO library for MS-DOS
Robert Colon	many useful remarks
Marcin Dalecki	GTK+ GUI port, toolbar icons, gettext()
Kayhan Demirel	sent me news in Uganda

Chris & John Downey	xvi (ideas for multi-windows version)
Henk Elbers	first VMS port
Daniel Elstner	GTK+ 2 port
Eric Fischer	Mac port, 'cindent', and other improvements
Benji Fisher	Answering lots of user questions
Bill Foster	Athena GUI port
Google	Lets me work on Vim one day a week
Loic Grenie	xvim (ideas for multi windows version)
Sven Guckes	Vim promoter and previous WWW page maintainer
Darren Hiebert	Exuberant ctags
Jason Hildebrand	GTK+ 2 port
Bruce Hunsaker	improvements for VMS port
Andy Kahn	Cscope support, GTK+ GUI port
Oezguer Kesim	Maintainer of Vim Mailing Lists
Axel Kielhorn	work on the Macintosh port
Steve Kirkendall	Elvis
Roger Knobbe	original port to Windows NT
Sergey Laskavy	Vim's help from Moscow
Felix von Leitner	Previous maintainer of Vim Mailing Lists
David Leonard	Port of Python extensions to Unix
Avner Lottem	Edit in right-to-left windows
Flemming Madsen	X11 client-server, various features and patches
Tony Mechelynck	answers many user questions
Paul Moore	Python interface extensions, many patches
Katsuhito Nagano	Work on multi-byte versions
Sung-Hyun Nam	Work on multi-byte versions
Vince Negri	Win32 GUI and generic console enhancements
Steve Oualline	Author of the first Vim book frombook
Dominique Pelle	valgrind reports and many fixes
A.Politz	Many bug reports and some fixes
George V. Reilly	Win32 port, Win32 GUI start-off
Stephen Riehm	bug collector
Stefan Roemer	various patches and help to users
Ralf Schandl	IBM OS/390 port
Olaf Seibert	DICE and BeBox version, regexp improvements
Mortaza Shiran	Farsi patches
Peter da Silva	termlib
Paul Slootman	OS/2 port
Henry Spencer	regular expressions
Dany St-Amant	Macintosh port
Tim Thompson	Stevie
G. R. (Fred) Walter	Stevie
Sven Verdoolaege	Perl interface
Robert Webb	Command-line completion, GUI versions, and lots of patches
Ingo Wilken	Tcl interface
Mike Williams	PostScript printing
Juergen Weigert	Lattice version, AUX improvements, UNIX and MS-DOS ports, autoconf
Stefan 'Sec' Zehl	Maintainer of vim.org
Yasuhiro Matsumoto	many MS-Windows improvements
Ken Takata	fixes and features
Kazunobu Kuriyama	GTK 3
Christian Brabandt	many fixes, features, user support, etc.

I wish to thank all the people that sent me bug reports and suggestions. The list is too long to mention them all here. Vim would not be the same without the ideas from all these people: They keep Vim alive!
love peace friendship gross-national-happiness

In this documentation there are several references to other versions of Vi:
Vi vi

Vi "the original". Without further remarks this is the version of Vi that appeared in Sun OS 4.x. ":version" returns "Version 3.7, 6/7/85". Sometimes other versions are referred to. Only runs under Unix. Source code only available with a license. More information on Vi can be found through:
http://vi-editor.org [doesn't currently work...]
Posix

Posix From the IEEE standard 1003.2, Part 2: Shell and utilities. Generally known as "Posix". This is a textual description of how Vi is supposed to work.
See posix-compliance .
Nvi

Nvi The "New" Vi. The version of Vi that comes with BSD 4.4 and FreeBSD. Very good compatibility with the original Vi, with a few extensions. The version used is 1.79. ":version" returns "Version 1.79 (10/23/96)". There has been no release the last few years, although there is a development version 1.81.
Source code is freely available.
Elvis

Elvis Another Vi clone, made by Steve Kirkendall. Very compact but isn't as flexible as Vim.
The version used is 2.1. It is still being developed. Source code is freely available.

==
4. Notation notation

When syntax highlighting is used to read this, text that is not typed literally is often highlighted with the Special group. These are items in [], {} and <>, and CTRL-X.

Note that Vim uses all possible characters in commands. Sometimes the [], {} and <> are part of what you type, the context should make this clear.

[] Characters in square brackets are optional.

count [count]

[count] An optional number that may precede the command to multiply or iterate the command. If no number is given, a count of one is used, unless otherwise noted. Note that in this manual the [count] is not mentioned in the description of the command, but only in the explanation. This was done to make the commands easier to look up. If the 'showcmd' option is on, the (partially) entered count is shown at the bottom of the

window. You can use <Del> to erase the last digit (N<Del>).

["x]		[quotex]
An optional register designation where text can be stored.
See registers . The x is a single character between 'a' and
'z' or 'A' and 'Z' or '"', and in some cases (with the put
command) between '0' and '9', '%', '#', or others. The
uppercase and lowercase letter designate the same register,
but the lowercase letter is used to overwrite the previous
register contents, while the uppercase letter is used to
append to the previous register contents. Without the ""x" or
with """" the stored text is put into the unnamed register.

{}		{}
Curly braces denote parts of the command which must appear,
but which can take a number of different values. The
differences between Vim and Vi are also given in curly braces
(this will be clear from the context).

{char1-char2}		{char1-char2}
A single character from the range char1 to char2. For
example: {a-z} is a lowercase letter. Multiple ranges may be
concatenated. For example, {a-zA-Z0-9} is any alphanumeric
character.

{motion}		{motion} movement
A command that moves the cursor. These are explained in
motion.txt . Examples:
	w		to start of next word
	b		to begin of current word
	4j		four lines down
	/The<CR>	to next occurrence of "The"
This is used after an operator command to move over the text
that is to be operated upon.
- If the motion includes a count and the operator also has a
  count, the two counts are multiplied. For example: "2d3w"
  deletes six words.
- The motion can be backwards, e.g. "db" to delete to the
  start of the word.
- The motion can also be a mouse click. The mouse is not
  supported in every terminal though.
- The ":omap" command can be used to map characters while an
  operator is pending.
- Ex commands can be used to move the cursor. This can be
  used to call a function that does some complicated motion.
  The motion is always characterwise exclusive, no matter
  what ":" command is used. This means it's impossible to
  include the last character of a line without the line break
  (unless 'virtualedit' is set).
  If the Ex command changes the text before where the operator
  starts or jumps to another buffer the result is
  unpredictable. It is possible to change the text further
  down. Jumping to another buffer is possible if the current
  buffer is not unloaded.

{Visual}

{Visual} A selected text area. It is started with the "v", "V", or CTRL-V command, then any cursor movement command can be used to change the end of the selected text.
This is used before an operator command to highlight the text that is to be operated upon.
See Visual-mode .

<character>

<character> A special character from the table below, optionally with modifiers, or a single ASCII character with modifiers.

'character'

'c' A single ASCII character.

CTRL-{char}

CTRL-{char} {char} typed as a control character; that is, typing {char} while holding the CTRL key down. The case of {char} does not matter; thus CTRL-A and CTRL-a are equivalent. But on some terminals, using the SHIFT key will produce another code, don't use it then.

'option'

'option' An option, or parameter, that can be set to a value, is enclosed in single quotes. See options .

quotecommandquote

"command" A reference to a command that you can type is enclosed in double quotes.
`command` New style command, this distinguishes it from other quoted text and strings.

key-notation key-codes keycodes

These names for keys are used in the documentation. They can also be used with the ":map" command (insert the key name by pressing CTRL-K and then the key you want the name for).

notation	meaning	equivalent	decimal value(s)	
<Nul>	zero	CTRL-@	0 (stored as 10)	<Nul>
<BS>	backspace	CTRL-H	8	backspace
<Tab>	tab	CTRL-I	9	tab Tab
				linefeed
<NL>	linefeed	CTRL-J	10 (used for <Nul>)	
<FF>	formfeed	CTRL-L	12	formfeed
<CR>	carriage return	CTRL-M	13	carriage-return
<Return>	same as <CR>			<Return>
<Enter>	same as <CR>			<Enter>
<Esc>	escape	CTRL-[	27	escape <Esc>
<Space>	space		32	space
<lt>	less-than	<	60	*<lt>*
<Bslash>	backslash	\	92	backslash <Bslash>
<Bar>	vertical bar	|	124	<Bar>

```
<Del>           delete                          127
<CSI>           command sequence intro  ALT-Esc 155     <CSI>
<xCSI>          CSI when typed in the GUI               <xCSI>

<EOL>           end-of-line (can be <CR>, <LF> or <CR><LF>,
                depends on system and 'fileformat')     <EOL>

<Up>            cursor-up                       cursor-up   cursor_up
<Down>          cursor-down                     cursor-down   cursor_down
<Left>          cursor-left                     cursor-left   cursor_left
<Right>         cursor-right                    cursor-right   cursor_right
<S-Up>          shift-cursor-up
<S-Down>        shift-cursor-down
<S-Left>        shift-cursor-left
<S-Right>       shift-cursor-right
<C-Left>        control-cursor-left
<C-Right>       control-cursor-right
<F1> - <F12>    function keys 1 to 12           function_key   function-key
<S-F1> - <S-F12> shift-function keys 1 to 12    <S-F1>
<Help>          help key
<Undo>          undo key
<Insert>        insert key
<Home>          home                            home
<End>           end                             end
<PageUp>        page-up                         page_up   page-up
<PageDown>      page-down                       page_down   page-down
<kHome>         keypad home (upper left)        keypad-home
<kEnd>          keypad end (lower left)         keypad-end
<kPageUp>       keypad page-up (upper right)    keypad-page-up
<kPageDown>     keypad page-down (lower right)  keypad-page-down
<kPlus>         keypad +                        keypad-plus
<kMinus>        keypad -                        keypad-minus
<kMultiply>     keypad *                        keypad-multiply
<kDivide>       keypad /                        keypad-divide
<kEnter>        keypad Enter                    keypad-enter
<kPoint>        keypad Decimal point            keypad-point
<k0> - <k9>     keypad 0 to 9                   keypad-0   keypad-9
<S-...>         shift-key                       shift   <S-
<C-...>         control-key                     control   ctrl   <C-
<M-...>         alt-key or meta-key             meta   alt   <M-
<A-...>         same as <M-...>                 <A-
<D-...>         command-key (Macintosh only)    <D-
<t_xx>          key with "xx" entry in termcap
-------------------------------------------------------------------------
```

Note: The shifted cursor keys, the help key, and the undo key are only available on a few terminals. On the Amiga, shifted function key 10 produces a code (CSI) that is also used by key sequences. It will be recognized only after typing another key.

Note: There are two codes for the delete key. 127 is the decimal ASCII value for the delete key, which is always recognized. Some delete keys send another value, in which case this value is obtained from the termcap entry "kD". Both values have the same effect. Also see :fixdel .

Note: The keypad keys are used in the same way as the corresponding "normal" keys. For example, <kHome> has the same effect as <Home>. If a keypad key sends the same raw key code as its non-keypad equivalent, it will be recognized as the non-keypad code. For example, when <kHome> sends the same code as <Home>, when pressing <kHome> Vim will think <Home> was pressed. Mapping <kHome> will not work then.

<>

Examples are often given in the <> notation. Sometimes this is just to make clear what you need to type, but often it can be typed literally, e.g., with the ":map" command. The rules are:

1. Any printable characters are typed directly, except backslash and '<'
2. A backslash is represented with "\\", double backslash, or "<Bslash>".
3. A real '<' is represented with "\<" or "<lt>". When there is no confusion possible, a '<' can be used directly.
4. "<key>" means the special key typed. This is the notation explained in the table above. A few examples:

<Esc>	Escape key
<C-G>	CTRL-G
<Up>	cursor up key
<C-LeftMouse>	Control- left mouse click
<S-F11>	Shifted function key 11
<M-a>	Meta- a ('a' with bit 8 set)
<M-A>	Meta- A ('A' with bit 8 set)
<t_kd>	"kd" termcap entry (cursor down key)

If you want to use the full <> notation in Vim, you have to make sure the '<' flag is excluded from 'cpoptions' (when 'compatible' is not set, it already is by default).

```
:set cpo-=<
```

The <> notation uses <lt> to escape the special meaning of key names. Using a backslash also works, but only when 'cpoptions' does not include the 'B' flag.

Examples for mapping CTRL-H to the six characters "<Home>":

```
:imap <C-H> \<Home>
:imap <C-H> <lt>Home>
```

The first one only works when the 'B' flag is not in 'cpoptions'. The second one always works.
To get a literal "<lt>" in a mapping:

```
:map <C-L> <lt>lt>
```

For mapping, abbreviation and menu commands you can then copy-paste the examples and use them directly. Or type them literally, including the '<' and '>' characters. This does NOT work for other commands, like ":set" and ":autocmd"!

==========

5. Modes, introduction vim-modes-intro vim-modes

Vim has seven BASIC modes:

Normal Normal-mode command-mode

Normal mode In Normal mode you can enter all the normal editor

commands. If you start the editor you are in this mode (unless you have set the 'insertmode' option, see below). This is also known as command mode.

Visual mode — This is like Normal mode, but the movement commands extend a highlighted area. When a non-movement command is used, it is executed for the highlighted area. See Visual-mode .
If the 'showmode' option is on "-- VISUAL --" is shown at the bottom of the window.

Select mode — This looks most like the MS-Windows selection mode. Typing a printable character deletes the selection and starts Insert mode. See Select-mode .
If the 'showmode' option is on "-- SELECT --" is shown at the bottom of the window.

Insert mode — In Insert mode the text you type is inserted into the buffer. See Insert-mode .
If the 'showmode' option is on "-- INSERT --" is shown at the bottom of the window.

Command-line mode
Cmdline mode — In Command-line mode (also called Cmdline mode) you can enter one line of text at the bottom of the window. This is for the Ex commands, ":", the pattern search commands, "?" and "/", and the filter command, "!". Cmdline-mode

Ex mode — Like Command-line mode, but after entering a command you remain in Ex mode. Very limited editing of the command line. Ex-mode

Terminal-Job mode — Interacting with a job in a terminal window. Typed keys go to the job and the job output is displayed in the terminal window. See terminal about how to switch to other modes.

There are seven ADDITIONAL modes. These are variants of the BASIC modes:

Operator-pending Operator-pending-mode

Operator-pending mode — This is like Normal mode, but after an operator command has started, and Vim is waiting for a {motion} to specify the text that the operator will work on.

Replace mode — Replace mode is a special case of Insert mode. You can do the same things as in Insert mode, but for each character you enter, one character of the existing text is deleted. See Replace-mode .
If the 'showmode' option is on "-- REPLACE --" is shown at the bottom of the window.

Virtual Replace mode — Virtual Replace mode is similar to Replace mode, but instead of file characters you are replacing screen real estate. See Virtual-Replace-mode .

If the 'showmode' option is on "-- VREPLACE --" is
shown at the bottom of the window.

Insert Normal mode	Entered when CTRL-O given in Insert mode. This is like Normal mode, but after executing one command Vim returns to Insert mode.
If the 'showmode' option is on "-- (insert) --" is shown at the bottom of the window.

Terminal-Normal mode	Using Normal mode in a terminal window. Making changes is impossible. Use an insert command, such as "a" or "i", to return to Terminal-Job mode.

Insert Visual mode	Entered when starting a Visual selection from Insert mode, e.g., by using CTRL-O and then "v", "V" or CTRL-V. When the Visual selection ends, Vim returns to Insert mode.
If the 'showmode' option is on "-- (insert) VISUAL --" is shown at the bottom of the window.

Insert Select mode	Entered when starting Select mode from Insert mode. E.g., by dragging the mouse or <S-Right>.
When the Select mode ends, Vim returns to Insert mode.
If the 'showmode' option is on "-- (insert) SELECT --" is shown at the bottom of the window.

==========

6. Switching from mode to mode mode-switching

If for any reason you do not know which mode you are in, you can always get back to Normal mode by typing <Esc> twice. This doesn't work for Ex mode though, use ":visual".
You will know you are back in Normal mode when you see the screen flash or hear the bell after you type <Esc>. However, when pressing <Esc> after using CTRL-O in Insert mode you get a beep but you are still in Insert mode, type <Esc> again.

i_esc

FROM mode \ TO mode	Normal	Visual	Select	Insert	Replace	Cmd-line	Ex
Normal		v V ^V	*4	*1	R gR	: / ? !	Q
Visual	*2		^G	c C	--	:	--
Select	*5	^O ^G		*6	--	--	--
Insert	<Esc>	--	--		<Insert>	--	--
Replace	<Esc>	--	--	<Insert>		--	--
Command-line	*3	--	--	:start	--		--
Ex	:vi	--	--	--	--	--	

-- not possible

*1 Go from Normal mode to Insert mode by giving the command "i", "I", "a", "A", "o", "O", "c", "C", "s" or S".
*2 Go from Visual mode to Normal mode by giving a non-movement command, which

causes the command to be executed, or by hitting <Esc> "v", "V" or "CTRL-V" (see v_v), which just stops Visual mode without side effects.
*3 Go from Command-line mode to Normal mode by:
- Hitting <CR> or <NL>, which causes the entered command to be executed.
- Deleting the complete line (e.g., with CTRL-U) and giving a final <BS>.
- Hitting CTRL-C or <Esc>, which quits the command-line without executing the command.
In the last case <Esc> may be the character defined with the 'wildchar' option, in which case it will start command-line completion. You can ignore that and type <Esc> again. {Vi: when hitting <Esc> the command-line is executed. This is unexpected for most people; therefore it was changed in Vim. But when the <Esc> is part of a mapping, the command-line is executed. If you want the Vi behaviour also when typing <Esc>, use ":cmap ^V<Esc> ^V^M"}
*4 Go from Normal to Select mode by:
- use the mouse to select text while 'selectmode' contains "mouse"
- use a non-printable command to move the cursor while keeping the Shift key pressed, and the 'selectmode' option contains "key"
- use "v", "V" or "CTRL-V" while 'selectmode' contains "cmd"
- use "gh", "gH" or "g CTRL-H" g_CTRL-H
*5 Go from Select mode to Normal mode by using a non-printable command to move the cursor, without keeping the Shift key pressed.
*6 Go from Select mode to Insert mode by typing a printable character. The selection is deleted and the character is inserted.

If the 'insertmode' option is on, editing a file will start in Insert mode.

CTRL-_CTRL-N i_CTRL-_CTRL-N c_CTRL-_CTRL-N v_CTRL-_CTRL-N
Additionally the command CTRL-\ CTRL-N or <C-\><C-N> can be used to go to Normal mode from any other mode. This can be used to make sure Vim is in Normal mode, without causing a beep like <Esc> would. However, this does not work in Ex mode. When used after a command that takes an argument, such as f or m , the timeout set with 'ttimeoutlen' applies.
When focus is in a terminal window, CTRL-\ CTRL-N goes to Normal mode for only one command, see t_CTRL-_CTRL-N .

CTRL-_CTRL-G i_CTRL-_CTRL-G c_CTRL-_CTRL-G v_CTRL-_CTRL-G
The command CTRL-\ CTRL-G or <C-\><C-G> can be used to go to Insert mode when 'insertmode' is set. Otherwise it goes to Normal mode. This can be used to make sure Vim is in the mode indicated by 'insertmode', without knowing in what mode Vim currently is.

Q mode-Ex Ex-mode Ex EX E501
Q Switch to "Ex" mode. This is a bit like typing ":" commands one after another, except:
- You don't have to keep pressing ":".
- The screen doesn't get updated after each command.
- There is no normal command-line editing.
- Mappings and abbreviations are not used.
In fact, you are editing the lines with the "standard" line-input editing commands (<Del> or <BS> to erase, CTRL-U to kill the whole line).
Vim will enter this mode by default if it's invoked as "ex" on the command-line.

Use the ":vi" command :visual to exit "Ex" mode.
Note: In older versions of Vim "Q" formatted text,
that is now done with gq . But if you use the
 vimrc_example.vim script "Q" works like "gq".

gQ

gQ Switch to "Ex" mode like with "Q", but really behave
like typing ":" commands after another. All command
line editing, completion etc. is available.
Use the ":vi" command :visual to exit "Ex" mode.
{not in Vi}

==
7. The window contents window-contents

In Normal mode and Insert/Replace mode the screen window will show the current
contents of the buffer: What You See Is What You Get. There are two
exceptions:
- When the 'cpoptions' option contains '$', and the change is within one line,
  the text is not directly deleted, but a '$' is put at the last deleted
  character.
- When inserting text in one window, other windows on the same text are not
  updated until the insert is finished.
{Vi: The screen is not always updated on slow terminals}

Lines longer than the window width will wrap, unless the 'wrap' option is off
(see below). The 'linebreak' option can be set to wrap at a blank character.

If the window has room after the last line of the buffer, Vim will show '~' in
the first column of the last lines in the window, like this:

```
+-----------------------+
|some line              |
|last line              |
|~                      |
|~                      |
+-----------------------+
```

Thus the '~' lines indicate that the end of the buffer was reached.

If the last line in a window doesn't fit, Vim will indicate this with a '@' in
the first column of the last lines in the window, like this:

```
+-----------------------+
|first line             |
|second line            |
|@                      |
|@                      |
+-----------------------+
```

Thus the '@' lines indicate that there is a line that doesn't fit in the
window.

When the "lastline" flag is present in the 'display' option, you will not see

'@' characters at the left side of window. If the last line doesn't fit completely, only the part that fits is shown, and the last three characters of the last line are replaced with "@@@", like this:

```
        +----------------------+
        |first line            |
        |second line           |
        |a very long line that d|
        |oesn't fit in the wi@@@|
        +----------------------+
```

If there is a single line that is too long to fit in the window, this is a special situation. Vim will show only part of the line, around where the cursor is. There are no special characters shown, so that you can edit all parts of this line.
{Vi: gives an "internal error" on lines that do not fit in the window}

The '@' occasion in the 'highlight' option can be used to set special highlighting for the '@' and '~' characters. This makes it possible to distinguish them from real characters in the buffer.

The 'showbreak' option contains the string to put in front of wrapped lines.

wrap-off
If the 'wrap' option is off, long lines will not wrap. Only the part that fits on the screen is shown. If the cursor is moved to a part of the line that is not shown, the screen is scrolled horizontally. The advantage of this method is that columns are shown as they are and lines that cannot fit on the screen can be edited. The disadvantage is that you cannot see all the characters of a line at once. The 'sidescroll' option can be set to the minimal number of columns to scroll. {Vi: has no 'wrap' option}

All normal ASCII characters are displayed directly on the screen. The <Tab> is replaced with the number of spaces that it represents. Other non-printing characters are replaced with "^{char}", where {char} is the non-printing character with 64 added. Thus character 7 (bell) will be shown as "^G". Characters between 127 and 160 are replaced with "~{char}", where {char} is the character with 64 subtracted. These characters occupy more than one position on the screen. The cursor can only be positioned on the first one.

If you set the 'number' option, all lines will be preceded with their number. Tip: If you don't like wrapping lines to mix with the line numbers, set the 'showbreak' option to eight spaces:
        ":set showbreak=\ \ \ \ \ \ \ \ "

If you set the 'list' option, <Tab> characters will not be shown as several spaces, but as "^I". A '$' will be placed at the end of the line, so you can find trailing blanks.

In Command-line mode only the command-line itself is shown correctly. The display of the buffer contents is updated as soon as you go back to Command mode.

The last line of the window is used for status and other messages. The

status messages will only be used if an option is on:

status message	option	default	Unix default
current mode	'showmode'	on	on
command characters	'showcmd'	on	off
cursor position	'ruler'	off	off

The current mode is "-- INSERT --" or "-- REPLACE --", see 'showmode' . The command characters are those that you typed but were not used yet. {Vi: does not show the characters you typed or the cursor position}

If you have a slow terminal you can switch off the status messages to speed up editing:

```
:set nosc noru nosm
```

If there is an error, an error message will be shown for at least one second (in reverse video). {Vi: error messages may be overwritten with other messages before you have a chance to read them}

Some commands show how many lines were affected. Above which threshold this happens can be controlled with the 'report' option (default 2).

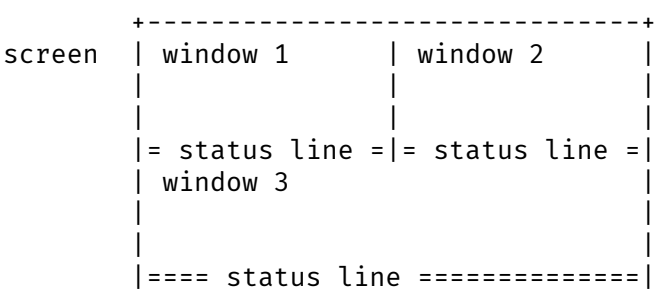
On the Amiga Vim will run in a CLI window. The name Vim and the full name of the current file name will be shown in the title bar. When the window is resized, Vim will automatically redraw the window. You may make the window as small as you like, but if it gets too small not a single line will fit in it. Make it at least 40 characters wide to be able to read most messages on the last line.

On most Unix systems, resizing the window is recognized and handled correctly by Vim. {Vi: not ok}

==
8. Definitions definitions

buffer	Contains lines of text, usually read from a file.
screen	The whole area that Vim uses to work in. This can be a terminal emulator window. Also called "the Vim window".
window	A view on a buffer. There can be multiple windows for one buffer.

A screen contains one or more windows, separated by status lines and with the command line at the bottom.



```
        |command line                   |
        +-------------------------------+
```

The command line is also used for messages. It scrolls up the screen when there is not enough room in the command line.

A difference is made between four types of lines:

buffer lines	The lines in the buffer. This is the same as the lines as they are read from/written to a file. They can be thousands of characters long.
logical lines	The buffer lines with folding applied. Buffer lines in a closed fold are changed to a single logical line: "+-- 99 lines folded". They can be thousands of characters long.
window lines	The lines displayed in a window: A range of logical lines with wrapping, line breaks, etc. applied. They can only be as long as the width of the window allows, longer lines are wrapped or truncated.
screen lines	The lines of the screen that Vim uses. Consists of the window lines of all windows, with status lines and the command line added. They can only be as long as the width of the screen allows. When the command line gets longer it wraps and lines are scrolled to make room.

```
buffer lines    logical lines   window lines    screen lines

1. one          1. one          1. +-- folded   1.  +-- folded
2. two          2. +-- folded   2. five         2.  five
3. three        3. five         3. six          3.  six
4. four         4. six          4. seven        4.  seven
5. five         5. seven                        5.  === status line ===
6. six                                          6.  aaa
7. seven                                        7.  bbb
                                                8.  ccc ccc c
1. aaa          1. aaa          1. aaa          9.  cc
2. bbb          2. bbb          2. bbb          10. ddd
3. ccc ccc ccc  3. ccc ccc ccc  3. ccc ccc c    11. ~
4. ddd          4. ddd          4. cc           12. === status line ===
                                5. ddd          13. (command line)
                                6. ~
```

==========

vim:tw=78:ts=8:noet:ft=help:norl:

helphelp.txt For Vim version 8.1. Last change: 2017 Mar 19

VIM REFERENCE MANUAL by Bram Moolenaar

Help on help files helphelp

==
1. Help commands online-help

help <Help> :h :help <F1> i_<F1> i_<Help>
<Help> or
:h[elp] Open a window and display the help file in read-only mode. If there is a help window open already, use that one. Otherwise, if the current window uses the full width of the screen or is at least 80 characters wide, the help window will appear just above the current window. Otherwise the new window is put at the very top.
The 'helplang' option is used to select a language, if the main help file is available in several languages.
{not in Vi}

{subject} E149 E661
:h[elp] {subject} Like ":help", additionally jump to the tag {subject}.
For example:
```
:help options
```

{subject} can include wildcards such as "*", "?" and "[a-z]":
```
:help z?     jump to help for any "z" command
:help z.     jump to the help for "z."
```
But when a tag exists it is taken literally:
```
:help :?     jump to help for ":?"
```

If there is no full match for the pattern, or there are several matches, the "best" match will be used. A sophisticated algorithm is used to decide which match is better than another one. These items are considered in the computation:
- A match with same case is much better than a match with different case.
- A match that starts after a non-alphanumeric character is better than a match in the middle of a word.
- A match at or near the beginning of the tag is better than a match further on.
- The more alphanumeric characters match, the better.
- The shorter the length of the match, the better.

The 'helplang' option is used to select a language, if
the {subject} is available in several languages.
To find a tag in a specific language, append "@ab",
where "ab" is the two-letter language code. See
help-translated .

Note that the longer the {subject} you give, the less
matches will be found. You can get an idea how this
all works by using commandline completion (type CTRL-D
after ":help subject" c_CTRL-D).
If there are several matches, you can have them listed
by hitting CTRL-D. Example:
	:help cont<Ctrl-D>

Instead of typing ":help CTRL-V" to search for help
for CTRL-V you can type:
	:help ^V
This also works together with other characters, for
example to find help for CTRL-V in Insert mode:
	:help i^V

It is also possible to first do ":help" and then
use ":tag {pattern}" in the help window. The
":tnext" command can then be used to jump to other
matches, "tselect" to list matches and choose one.
	:help index
	:tselect /.*mode

When there is no argument you will see matches for
"help", to avoid listing all possible matches (that
would be very slow).
The number of matches displayed is limited to 300.

The `:help` command can be followed by '|' and another
command, but you don't need to escape the '|' inside a
help command. So these both work:
	:help |
	:help k| only
Note that a space before the '|' is seen as part of
the ":help" argument.
You can also use <LF> or <CR> to separate the help
command from a following command. You need to type
CTRL-V first to insert the <LF> or <CR>. Example:
	:help so<C-V><CR>only
{not in Vi}

:h[elp]! [subject]	Like ":help", but in non-English help files prefer to
find a tag in a file with the same language as the
current file. See help-translated .

:helpc :helpclose

:helpc[lose]	Close one help window, if there is one.

:helpg :helpgrep

:helpg[rep] {pattern}[@xx]
Search all help text files and make a list of lines in which {pattern} matches. Jumps to the first match. The optional [@xx] specifies that only matches in the "xx" language are to be found.
You can navigate through the matches with the quickfix commands, e.g., :cnext to jump to the next one. Or use :cwindow to get the list of matches in the quickfix window.
{pattern} is used as a Vim regexp pattern. 'ignorecase' is not used, add "\c" to ignore case.
Example for case sensitive search:
:helpgrep Uganda
Example for case ignoring search:
:helpgrep uganda\c
Example for searching in French help:
:helpgrep backspace@fr
The pattern does not support line breaks, it must match within one line. You can use :grep instead, but then you need to get the list of help files in a complicated way.
Cannot be followed by another command, everything is used as part of the pattern. But you can use :execute when needed.
Compressed help files will not be searched (Fedora compresses the help files).
{not in Vi}

:lh :lhelpgrep

:lh[elpgrep] {pattern}[@xx]
Same as ":helpgrep", except the location list is used instead of the quickfix list. If the help window is already opened, then the location list for that window is used. Otherwise, a new help window is opened and the location list for that window is set. The location list for the current window is not changed then.

:exu :exusage

:exu[sage]
Show help on Ex commands. Added to simulate the Nvi command. {not in Vi}

:viu :viusage

:viu[sage]
Show help on Normal mode commands. Added to simulate the Nvi command. {not in Vi}

When no argument is given to :help the file given with the 'helpfile' option will be opened. Otherwise the specified tag is searched for in all "doc/tags" files in the directories specified in the 'runtimepath' option.

The initial height of the help window can be set with the 'helpheight' option (default 20).

Jump to specific subjects by using tags. This can be done in two ways:
- Use the "CTRL-]" command while standing on the name of a command or option.
  This only works when the tag is a keyword. "<C-Leftmouse>" and
  "g<LeftMouse>" work just like "CTRL-]".
- use the ":ta {subject}" command. This also works with non-keyword
  characters.

Use CTRL-T or CTRL-O to jump back.
Use ":q" to close the help window.

If there are several matches for an item you are looking for, this is how you
can jump to each one of them:
1. Open a help window
2. Use the ":tag" command with a slash prepended to the tag. E.g.:
        :tag /min
3. Use ":tnext" to jump to the next matching tag.

It is possible to add help files for plugins and other items. You don't need
to change the distributed help files for that. See add-local-help .

To write a local help file, see write-local-help .

Note that the title lines from the local help files are automagically added to
the "LOCAL ADDITIONS" section in the "help.txt" help file local-additions .
This is done when viewing the file in Vim, the file itself is not changed. It
is done by going through all help files and obtaining the first line of each
file. The files in $VIMRUNTIME/doc are skipped.

                                                        help-xterm-window
If you want to have the help in another xterm window, you could use this
command:
        :!xterm -e vim +help &

                        :helpfind   :helpf
:helpf[ind]   Like :help , but use a dialog to enter the argument.
                        Only for backwards compatibility. It now executes the
                        ToolBar.FindHelp menu entry instead of using a builtin
                        dialog. {only when compiled with |+GUI_GTK|}
                        {not in Vi}

                                    :helpt   :helptags
                              E154   E150   E151   E152   E153   E670
:helpt[ags] [++t] {dir}
                        Generate the help tags file(s) for directory {dir}.
                        When {dir} is ALL then all "doc" directories in
                        'runtimepath' will be used.

                        All "*.txt" and "*.??x" files in the directory and
                        sub-directories are scanned for a help tag definition
                        in between stars. The "*.??x" files are for
                        translated docs, they generate the "tags-??" file, see
                         help-translated . The generated tags files are
                        sorted.

When there are duplicates an error message is given.
An existing tags file is silently overwritten.

The optional "++t" argument forces adding the
"help-tags" tag. This is also done when the {dir} is
equal to $VIMRUNTIME/doc.

To rebuild the help tags in the runtime directory
(requires write permission there):
	:helptags $VIMRUNTIME/doc
{not in Vi}

==
2. Translated help files   help-translated

It is possible to add translated help files, next to the original English help
files. Vim will search for all help in "doc" directories in 'runtimepath'.
This is only available when compiled with the +multi_lang feature.

At this moment translations are available for:
	Chinese - multiple authors
	French - translated by David Blanchet
	Italian - translated by Antonio Colombo
	Japanese - multiple authors
	Polish - translated by Mikolaj Machowski
	Russian - translated by Vassily Ragosin
See the Vim website to find them: http://www.vim.org/translations.php

A set of translated help files consists of these files:

	help.abx
	howto.abx
	...
	tags-ab

"ab" is the two-letter language code. Thus for Italian the names are:

	help.itx
	howto.itx
	...
	tags-it

The 'helplang' option can be set to the preferred language(s). The default is
set according to the environment. Vim will first try to find a matching tag
in the preferred language(s). English is used when it cannot be found.

To find a tag in a specific language, append "@ab" to a tag, where "ab" is the
two-letter language code. Example:
	:he user-manual@it
	:he user-manual@en
The first one finds the Italian user manual, even when 'helplang' is empty.
The second one finds the English user manual, even when 'helplang' is set to
"it".

When using command-line completion for the ":help" command, the "@en"
extension is only shown when a tag exists for multiple languages. When the
tag only exists for English "@en" is omitted. When the first candidate has an
"@ab" extension and it matches the first language in 'helplang' "@ab" is also
omitted.

When using CTRL-] or ":help!" in a non-English help file Vim will try to
find the tag in the same language. If not found then 'helplang' will be used
to select a language.

Help files must use latin1 or utf-8 encoding. Vim assumes the encoding is
utf-8 when finding non-ASCII characters in the first line. Thus you must
translate the header with "For Vim version".

The same encoding must be used for the help files of one language in one
directory. You can use a different encoding for different languages and use
a different encoding for help files of the same language but in a different
directory.

Hints for translators:
- Do not translate the tags. This makes it possible to use 'helplang' to
  specify the preferred language. You may add new tags in your language.
- When you do not translate a part of a file, add tags to the English version,
  using the "tag@en" notation.
- Make a package with all the files and the tags file available for download.
  Users can drop it in one of the "doc" directories and start use it.
  Report this to Bram, so that he can add a link on www.vim.org.
- Use the :helptags command to generate the tags files. It will find all
  languages in the specified directory.

==
3. Writing help files   help-writing

For ease of use, a Vim help file for a plugin should follow the format of the
standard Vim help files. If you are writing a new help file it's best to copy
one of the existing files and use it as a template.

The first line in a help file should have the following format:

 helpfile_name.txt   For Vim version 7.3   Last change: 2010 June 4

The first field is a link to the help file name. The second field describes
the applicable Vim version. The last field specifies the last modification
date of the file. Each field is separated by a tab.

At the bottom of the help file, place a Vim modeline to set the 'textwidth'
and 'tabstop' options and the 'filetype' to "help". Never set a global option
in such a modeline, that can have consequences undesired by whoever reads that
help.

TAGS

To define a help tag, place the name between asterisks (*tag-name*). The
tag-name should be different from all the Vim help tag names and ideally
should begin with the name of the Vim plugin. The tag name is usually right
aligned on a line.

When referring to an existing help tag and to create a hot-link, place the
name between two bars (|) eg. help-writing .

When referring to a Vim command and to create a hot-link, place the
name between two backticks, eg. inside `:filetype`. You will see this is
highlighted as a command, like a code block (see below).

When referring to a Vim option in the help file, place the option name between
two single quotes, eg. 'statusline'

HIGHLIGHTING

To define a column heading, use a tilde character at the end of the line.
This will highlight the column heading in a different color. E.g.

Column heading

To separate sections in a help file, place a series of '=' characters in a
line starting from the first column. The section separator line is highlighted
differently.

To quote a block of ex-commands verbatim, place a greater than (>) character
at the end of the line before the block and a less than (<) character as the
first non-blank on a line following the block. Any line starting in column 1
also implicitly stops the block of ex-commands before it. E.g.

```
    function Example_Func()
        echo "Example"
    endfunction
```

The following are highlighted differently in a Vim help file:
  - a special key name expressed either in <> notation as in <PageDown>, or
    as a Ctrl character as in CTRL-X
  - anything between {braces}, e.g. {lhs} and {rhs}

The word "Note", "Notes" and similar automagically receive distinctive
highlighting. So do these:

```
        *Todo   something to do
        *Error  something wrong
```

You can find the details in $VIMRUNTIME/syntax/help.vim

 vim:tw=78:ts=8:noet:ft=help:norl:

index.txt For Vim version 8.1. Last change: 2018 Apr 19

VIM REFERENCE MANUAL by Bram Moolenaar

index

This file contains a list of all commands for each mode, with a tag and a short description. The lists are sorted on ASCII value.

Tip: When looking for certain functionality, use a search command. E.g., to look for deleting something, use: "/delete".

For an overview of options see help.txt option-list .
For an overview of built-in functions see functions .
For a list of Vim variables see vim-variable .
For a complete listing of all help items see help-tags .

==========

1. Insert mode insert-index

tag	char	action in Insert mode
i_CTRL-@	CTRL-@	insert previously inserted text and stop insert
i_CTRL-A	CTRL-A	insert previously inserted text
	CTRL-B	not used i_CTRL-B-gone
i_CTRL-C	CTRL-C	quit insert mode, without checking for abbreviation, unless 'insertmode' set.
i_CTRL-D	CTRL-D	delete one shiftwidth of indent in the current line
i_CTRL-E	CTRL-E	insert the character which is below the cursor
	CTRL-F	not used (but by default it's in 'cinkeys' to re-indent the current line)
i_CTRL-G_j	CTRL-G CTRL-J	line down, to column where inserting started
i_CTRL-G_j	CTRL-G j	line down, to column where inserting started
i_CTRL-G_j	CTRL-G <Down>	line down, to column where inserting started
i_CTRL-G_k	CTRL-G CTRL-K	line up, to column where inserting started
i_CTRL-G_k	CTRL-G k	line up, to column where inserting started
i_CTRL-G_k	CTRL-G <Up>	line up, to column where inserting started
i_CTRL-G_u	CTRL-G u	start new undoable edit
i_CTRL-G_U	CTRL-G U	don't break undo with next cursor movement
i_<BS>	<BS>	delete character before the cursor
i_digraph	{char1}<BS>{char2}	

```
                                enter digraph (only when 'digraph' option set)
i_CTRL-H        CTRL-H          same as <BS>
i_<Tab>         <Tab>           insert a <Tab> character
i_CTRL-I        CTRL-I          same as <Tab>
i_<NL>          <NL>            same as <CR>
i_CTRL-J        CTRL-J          same as <CR>
i_CTRL-K        CTRL-K {char1} {char2}
                                enter digraph
i_CTRL-L        CTRL-L          when 'insertmode' set: Leave Insert mode
i_<CR>          <CR>            begin new line
i_CTRL-M        CTRL-M          same as <CR>
i_CTRL-N        CTRL-N          find next match for keyword in front of the
                                cursor
i_CTRL-O        CTRL-O          execute a single command and return to insert
                                mode
i_CTRL-P        CTRL-P          find previous match for keyword in front of
                                the cursor
i_CTRL-Q        CTRL-Q          same as CTRL-V, unless used for terminal
                                control flow
i_CTRL-R        CTRL-R {0-9a-z"%#*:=}
                                insert the contents of a register
i_CTRL-R_CTRL-R  CTRL-R CTRL-R {0-9a-z"%#*:=}
                                insert the contents of a register literally
i_CTRL-R_CTRL-O  CTRL-R CTRL-O {0-9a-z"%#*:=}
                                insert the contents of a register literally
                                and don't auto-indent
i_CTRL-R_CTRL-P  CTRL-R CTRL-P {0-9a-z"%#*:=}
                                insert the contents of a register literally
                                and fix indent.
                CTRL-S          (used for terminal control flow)
i_CTRL-T        CTRL-T          insert one shiftwidth of indent in current
                                line
i_CTRL-U        CTRL-U          delete all entered characters in the current
                                line
i_CTRL-V        CTRL-V {char}   insert next non-digit literally
i_CTRL-V_digit   CTRL-V {number} insert three digit decimal number as a single
                                byte.
i_CTRL-W        CTRL-W          delete word before the cursor
i_CTRL-X        CTRL-X {mode}   enter CTRL-X sub mode, see  i_CTRL-X_index
i_CTRL-Y        CTRL-Y          insert the character which is above the cursor
i_CTRL-Z        CTRL-Z          when 'insertmode' set: suspend Vim
i_<Esc>         <Esc>           end insert mode (unless 'insertmode' set)
i_CTRL-[        CTRL-[          same as <Esc>
i_CTRL-\_CTRL-N  CTRL-\ CTRL-N  go to Normal mode
i_CTRL-\_CTRL-G  CTRL-\ CTRL-G  go to mode specified with 'insertmode'
                CTRL-\ a - z    reserved for extensions
                CTRL-\ others   not used
i_CTRL-]        CTRL-]          trigger abbreviation
i_CTRL-^        CTRL-^          toggle use of  :lmap  mappings
i_CTRL-_        CTRL-_          When 'allowrevins' set: change language
                                (Hebrew, Farsi) {only when compiled with
                                the  +rightleft  feature}

                <Space> to '~'  not used, except '0' and '^' followed by
```

CTRL-D

i_0_CTRL-D	0 CTRL-D	delete all indent in the current line
i_^_CTRL-D	^ CTRL-D	delete all indent in the current line, restore it in the next line
i_<Del>	<Del>	delete character under the cursor
	Meta characters (0x80 to 0xff, 128 to 255)	not used
i_<Left>	<Left>	cursor one character left
i_<S-Left>	<S-Left>	cursor one word left
i_<C-Left>	<C-Left>	cursor one word left
i_<Right>	<Right>	cursor one character right
i_<S-Right>	<S-Right>	cursor one word right
i_<C-Right>	<C-Right>	cursor one word right
i_<Up>	<Up>	cursor one line up
i_<S-Up>	<S-Up>	same as <PageUp>
i_<Down>	<Down>	cursor one line down
i_<S-Down>	<S-Down>	same as <PageDown>
i_<Home>	<Home>	cursor to start of line
i_<C-Home>	<C-Home>	cursor to start of file
i_<End>	<End>	cursor past end of line
i_<C-End>	<C-End>	cursor past end of file
i_<PageUp>	<PageUp>	one screenful backward
i_<PageDown>	<PageDown>	one screenful forward
i_<F1>	<F1>	same as <Help>
i_<Help>	<Help>	stop insert mode and display help window
i_<Insert>	<Insert>	toggle Insert/Replace mode
i_<LeftMouse>	<LeftMouse>	cursor at mouse click
i_<ScrollWheelDown>	<ScrollWheelDown>	move window three lines down
i_<S-ScrollWheelDown>	<S-ScrollWheelDown>	move window one page down
i_<ScrollWheelUp>	<ScrollWheelUp>	move window three lines up
i_<S-ScrollWheelUp>	<S-ScrollWheelUp>	move window one page up
i_<ScrollWheelLeft>	<ScrollWheelLeft>	move window six columns left
i_<S-ScrollWheelLeft>	<S-ScrollWheelLeft>	move window one page left
i_<ScrollWheelRight>	<ScrollWheelRight>	move window six columns right
i_<S-ScrollWheelRight>	<S-ScrollWheelRight>	move window one page right

commands in CTRL-X submode i_CTRL-X_index

i_CTRL-X_CTRL-D	CTRL-X CTRL-D	complete defined identifiers
i_CTRL-X_CTRL-E	CTRL-X CTRL-E	scroll up
i_CTRL-X_CTRL-F	CTRL-X CTRL-F	complete file names
i_CTRL-X_CTRL-I	CTRL-X CTRL-I	complete identifiers
i_CTRL-X_CTRL-K	CTRL-X CTRL-K	complete identifiers from dictionary
i_CTRL-X_CTRL-L	CTRL-X CTRL-L	complete whole lines
i_CTRL-X_CTRL-N	CTRL-X CTRL-N	next completion
i_CTRL-X_CTRL-O	CTRL-X CTRL-O	omni completion
i_CTRL-X_CTRL-P	CTRL-X CTRL-P	previous completion
i_CTRL-X_CTRL-S	CTRL-X CTRL-S	spelling suggestions
i_CTRL-X_CTRL-T	CTRL-X CTRL-T	complete identifiers from thesaurus
i_CTRL-X_CTRL-Y	CTRL-X CTRL-Y	scroll down

```
 i_CTRL-X_CTRL-U        CTRL-X CTRL-U   complete with 'completefunc'
 i_CTRL-X_CTRL-V        CTRL-X CTRL-V   complete like in : command line
 i_CTRL-X_CTRL-]        CTRL-X CTRL-]   complete tags
 i_CTRL-X_s             CTRL-X s        spelling suggestions
{not available when compiled without the |+insert_expand| feature}

==============================================================================
2. Normal mode                                                  normal-index

CHAR     any non-blank character
WORD     a sequence of non-blank characters
N        a number entered before the command
{motion} a cursor movement command
Nmove    the text that is moved over with a {motion}
SECTION  a section that possibly starts with '}' instead of '{'

note: 1 = cursor movement command; 2 = can be undone/redone

tag             char          note action in Normal mode
------------------------------------------------------------------------------
                CTRL-@                  not used
 CTRL-A         CTRL-A          2       add N to number at/after cursor
 CTRL-B         CTRL-B          1       scroll N screens Backwards
 CTRL-C         CTRL-C                  interrupt current (search) command
 CTRL-D         CTRL-D                  scroll Down N lines (default: half a screen)
 CTRL-E         CTRL-E                  scroll N lines upwards (N lines Extra)
 CTRL-F         CTRL-F          1       scroll N screens Forward
 CTRL-G         CTRL-G                  display current file name and position
 <BS>           <BS>            1       same as "h"
 CTRL-H         CTRL-H          1       same as "h"
 <Tab>          <Tab>           1       go to N newer entry in jump list
 CTRL-I         CTRL-I          1       same as <Tab>
 <NL>           <NL>            1       same as "j"
 CTRL-J         CTRL-J          1       same as "j"
                CTRL-K                  not used
 CTRL-L         CTRL-L                  redraw screen
 <CR>           <CR>            1       cursor to the first CHAR N lines lower
 CTRL-M         CTRL-M          1       same as <CR>
 CTRL-N         CTRL-N          1       same as "j"
 CTRL-O         CTRL-O          1       go to N older entry in jump list
 CTRL-P         CTRL-P          1       same as "k"
                CTRL-Q                  (used for terminal control flow)
 CTRL-R         CTRL-R          2       redo changes which were undone with 'u'
                CTRL-S                  (used for terminal control flow)
 CTRL-T         CTRL-T                  jump to N older Tag in tag list
 CTRL-U         CTRL-U                  scroll N lines Upwards (default: half a
                                        screen)
 CTRL-V         CTRL-V                  start blockwise Visual mode
 CTRL-W         CTRL-W {char}           window commands, see  CTRL-W
 CTRL-X         CTRL-X          2       subtract N from number at/after cursor
 CTRL-Y         CTRL-Y                  scroll N lines downwards
 CTRL-Z         CTRL-Z                  suspend program (or start new shell)
                CTRL-[ <Esc>            not used
 CTRL-\_CTRL-N  CTRL-\ CTRL-N           go to Normal mode (no-op)
```

```
CTRL-\_CTRL-G  CTRL-\ CTRL-G      go to mode specified with 'insertmode'
               CTRL-\ a - z       reserved for extensions
               CTRL-\ others      not used
CTRL-]         CTRL-]             :ta to ident under cursor
CTRL-^         CTRL-^             edit Nth alternate file (equivalent to
                                  ":e #N")
               CTRL-_             not used

<Space>        <Space>         1  same as "l"
!              !{motion}{filter}
                               2  filter Nmove text through the {filter}
                                  command
!!             !!{filter}      2  filter N lines through the {filter} command
quote          "{a-zA-Z0-9.%#:-"}  use register {a-zA-Z0-9.%#:-"} for next
                                  delete, yank or put (uppercase to append)
                                  ({.%#:} only work with put)
#              #               1  search backward for the Nth occurrence of
                                  the ident under the cursor
$              $               1  cursor to the end of Nth next line
%              %               1  find the next (curly/square) bracket on
                                  this line and go to its match, or go to
                                  matching comment bracket, or go to matching
                                  preprocessor directive.
N%             {count}%        1  go to N percentage in the file
&              &               2  repeat last :s
'              '{a-zA-Z0-9}    1  cursor to the first CHAR on the line with
                                  mark {a-zA-Z0-9}
''             ''              1  cursor to the first CHAR of the line where
                                  the cursor was before the latest jump.
'(             '(              1  cursor to the first CHAR on the line of the
                                  start of the current sentence
')             ')              1  cursor to the first CHAR on the line of the
                                  end of the current sentence
'<             '<              1  cursor to the first CHAR of the line where
                                  highlighted area starts/started in the
                                  current buffer.
'>             '>              1  cursor to the first CHAR of the line where
                                  highlighted area ends/ended in the current
                                  buffer.
'[             '[              1  cursor to the first CHAR on the line of the
                                  start of last operated text or start of put
                                  text
']             ']              1  cursor to the first CHAR on the line of the
                                  end of last operated text or end of put
                                  text
'{             '{              1  cursor to the first CHAR on the line of the
                                  start of the current paragraph
'}             '}              1  cursor to the first CHAR on the line of the
                                  end of the current paragraph
(              (               1  cursor N sentences backward
)              )               1  cursor N sentences forward
star           *               1  search forward for the Nth occurrence of
                                  the ident under the cursor
+              +               1  same as <CR>
```

,	,	1	repeat latest f, t, F or T in opposite direction N times
-	-	1	cursor to the first CHAR N lines higher
.	.	2	repeat last change with count replaced with N
/	/{pattern}<CR>	1	search forward for the Nth occurrence of {pattern}
/<CR>	/<CR>	1	search forward for {pattern} of last search
count	0	1	cursor to the first char of the line
count	1		prepend to command to give a count
count	2		"
count	3		"
count	4		"
count	5		"
count	6		"
count	7		"
count	8		"
count	9		"
:	:	1	start entering an Ex command
N:	{count}:		start entering an Ex command with range from current line to N-1 lines down
;	;	1	repeat latest f, t, F or T N times
<	<{motion}	2	shift Nmove lines one 'shiftwidth' leftwards
<<	<<	2	shift N lines one 'shiftwidth' leftwards
=	={motion}	2	filter Nmove lines through "indent"
==	==	2	filter N lines through "indent"
>	>{motion}	2	shift Nmove lines one 'shiftwidth' rightwards
>>	>>	2	shift N lines one 'shiftwidth' rightwards
?	?{pattern}<CR>	1	search backward for the Nth previous occurrence of {pattern}
?<CR>	?<CR>	1	search backward for {pattern} of last search
@	@{a-z}	2	execute the contents of register {a-z} N times
@:	@:		repeat the previous ":" command N times
@@	@@	2	repeat the previous @{a-z} N times
A	A	2	append text after the end of the line N times
B	B	1	cursor N WORDS backward
C	["x]C	2	change from the cursor position to the end of the line, and N-1 more lines [into register x]; synonym for "c$"
D	["x]D	2	delete the characters under the cursor until the end of the line and N-1 more lines [into register x]; synonym for "d$"
E	E	1	cursor forward to the end of WORD N
F	F{char}	1	cursor to the Nth occurrence of {char} to the left
G	G	1	cursor to line N, default last line
H	H	1	cursor to line N from top of screen
I	I	2	insert text before the first CHAR on the line N times
J	J	2	Join N lines; default is 2
K	K		lookup Keyword under the cursor with

			'keywordprg'
L	L	1	cursor to line N from bottom of screen
M	M	1	cursor to middle line of screen
N	N	1	repeat the latest '/' or '?' N times in opposite direction
O	O	2	begin a new line above the cursor and insert text, repeat N times
P	["x]P	2	put the text [from register x] before the cursor N times
Q	Q		switch to "Ex" mode
R	R	2	enter replace mode: overtype existing characters, repeat the entered text N-1 times
S	["x]S	2	delete N lines [into register x] and start insert; synonym for "cc".
T	T{char}	1	cursor till after Nth occurrence of {char} to the left
U	U	2	undo all latest changes on one line
V	V		start linewise Visual mode
W	W	1	cursor N WORDS forward
X	["x]X	2	delete N characters before the cursor [into register x]
Y	["x]Y		yank N lines [into register x]; synonym for "yy"
ZZ	ZZ		store current file if modified, and exit
ZQ	ZQ		exit current file always
[	[{char}		square bracket command (see [below)
\			not used
]	]{char}		square bracket command (see] below)
^	^	1	cursor to the first CHAR of the line
_	_	1	cursor to the first CHAR N - 1 lines lower
`	`{a-zA-Z0-9}	1	cursor to the mark {a-zA-Z0-9}
`(	`(	1	cursor to the start of the current sentence
`)	`)	1	cursor to the end of the current sentence
`<	`<	1	cursor to the start of the highlighted area
`>	`>	1	cursor to the end of the highlighted area
`[	`[	1	cursor to the start of last operated text or start of putted text
`]	`]	1	cursor to the end of last operated text or end of putted text
``	``	1	cursor to the position before latest jump
`{	`{	1	cursor to the start of the current paragraph
`}	`}	1	cursor to the end of the current paragraph
a	a	2	append text after the cursor N times
b	b	1	cursor N words backward
c	["x]c{motion}	2	delete Nmove text [into register x] and start insert
cc	["x]cc	2	delete N lines [into register x] and start insert
d	["x]d{motion}	2	delete Nmove text [into register x]
dd	["x]dd	2	delete N lines [into register x]
do	do	2	same as ":diffget"
dp	dp	2	same as ":diffput"
e	e	1	cursor forward to the end of word N

f	f{char}	1	cursor to Nth occurrence of {char} to the right
g	g{char}		extended commands, see g below
h	h	1	cursor N chars to the left
i	i	2	insert text before the cursor N times
j	j	1	cursor N lines downward
k	k	1	cursor N lines upward
l	l	1	cursor N chars to the right
m	m{A-Za-z}		set mark {A-Za-z} at cursor position
n	n	1	repeat the latest '/' or '?' N times
o	o	2	begin a new line below the cursor and insert text, repeat N times
p	["x]p	2	put the text [from register x] after the cursor N times
q	q{0-9a-zA-Z"}		record typed characters into named register {0-9a-zA-Z"} (uppercase to append)
q	q		(while recording) stops recording
q:	q:		edit : command-line in command-line window
q/	q/		edit / command-line in command-line window
q?	q?		edit ? command-line in command-line window
r	r{char}	2	replace N chars with {char}
s	["x]s	2	(substitute) delete N characters [into register x] and start insert
t	t{char}	1	cursor till before Nth occurrence of {char} to the right
u	u	2	undo changes
v	v		start characterwise Visual mode
w	w	1	cursor N words forward
x	["x]x	2	delete N characters under and after the cursor [into register x]
y	["x]y{motion}		yank Nmove text [into register x]
yy	["x]yy		yank N lines [into register x]
z	z{char}		commands starting with 'z', see z below
{	{	1	cursor N paragraphs backward
bar	|	1	cursor to column N
}	}	1	cursor N paragraphs forward
~	~	2	'tildeop' off: switch case of N characters under cursor and move the cursor N characters to the right
~	~{motion}		'tildeop' on: switch case of Nmove text
<C-End>	<C-End>	1	same as "G"
<C-Home>	<C-Home>	1	same as "gg"
<C-Left>	<C-Left>	1	same as "b"
<C-LeftMouse>	<C-LeftMouse>		":ta" to the keyword at the mouse click
<C-Right>	<C-Right>	1	same as "w"
<C-RightMouse>	<C-RightMouse>		same as "CTRL-T"
<Del>	["x]<Del>	2	same as "x"
N<Del>	{count}<Del>		remove the last digit from {count}
<Down>	<Down>	1	same as "j"
<End>	<End>	1	same as "$"
<F1>	<F1>		same as <Help>
<Help>	<Help>		open a help window
<Home>	<Home>	1	same as "0"
<Insert>	<Insert>	2	same as "i"

<Left>	<Left>	1	same as "h"
<LeftMouse>	<LeftMouse>	1	move cursor to the mouse click position
<MiddleMouse>	<MiddleMouse>	2	same as "gP" at the mouse click position
<PageDown>	<PageDown>		same as CTRL-F
<PageUp>	<PageUp>		same as CTRL-B
<Right>	<Right>	1	same as "l"
<RightMouse>	<RightMouse>		start Visual mode, move cursor to the mouse click position
<S-Down>	<S-Down>	1	same as CTRL-F
<S-Left>	<S-Left>	1	same as "b"
<S-LeftMouse>	<S-LeftMouse>		same as "*" at the mouse click position
<S-Right>	<S-Right>	1	same as "w"
<S-RightMouse>	<S-RightMouse>		same as "#" at the mouse click position
<S-Up>	<S-Up>	1	same as CTRL-B
<Undo>	<Undo>	2	same as "u"
<Up>	<Up>	1	same as "k"
<ScrollWheelDown>	<ScrollWheelDown>		move window three lines down
<S-ScrollWheelDown>	<S-ScrollWheelDown>		move window one page down
<ScrollWheelUp>	<ScrollWheelUp>		move window three lines up
<S-ScrollWheelUp>	<S-ScrollWheelUp>		move window one page up
<ScrollWheelLeft>	<ScrollWheelLeft>		move window six columns left
<S-ScrollWheelLeft>	<S-ScrollWheelLeft>		move window one page left
<ScrollWheelRight>	<ScrollWheelRight>		move window six columns right
<S-ScrollWheelRight>	<S-ScrollWheelRight>		move window one page right

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2.1 Text objects objects

These can be used after an operator or in Visual mode to select an object.

tag	command	action in op-pending and Visual mode
v_aquote	a"	double quoted string
v_a'	a'	single quoted string
v_a(	a(	same as ab
v_a)	a)	same as ab
v_a<	a<	"a <>" from '<' to the matching '>'
v_a>	a>	same as a<
v_aB	aB	"a Block" from "[{" to "]}" (with brackets)
v_aW	aW	"a WORD" (with white space)
v_a[	a[	"a []" from '[' to the matching ']'
v_a]	a]	same as a[
v_a`	a`	string in backticks
v_ab	ab	"a block" from "[(" to "])" (with braces)
v_ap	ap	"a paragraph" (with white space)
v_as	as	"a sentence" (with white space)
v_at	at	"a tag block" (with white space)
v_aw	aw	"a word" (with white space)
v_a{	a{	same as aB
v_a}	a}	same as aB
v_iquote	i"	double quoted string without the quotes
v_i'	i'	single quoted string without the quotes
v_i(	i(	same as ib
v_i)	i)	same as ib

v_i<	i<	"inner <>" from '<' to the matching '>'
v_i>	i>	same as i<
v_iB	iB	"inner Block" from "[{" and "]}"
v_iW	iW	"inner WORD"
v_i[	i[	"inner []" from '[' to the matching ']'
v_i]	i]	same as i[
v_i`	i`	string in backticks without the backticks
v_ib	ib	"inner block" from "[(" to "])"
v_ip	ip	"inner paragraph"
v_is	is	"inner sentence"
v_it	it	"inner tag block"
v_iw	iw	"inner word"
v_i{	i{	same as iB
v_i}	i}	same as iB

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2.2 Window commands CTRL-W

tag	command	action in Normal mode
CTRL-W_CTRL-B	CTRL-W CTRL-B	same as "CTRL-W b"
CTRL-W_CTRL-C	CTRL-W CTRL-C	same as "CTRL-W c"
CTRL-W_CTRL-D	CTRL-W CTRL-D	same as "CTRL-W d"
CTRL-W_CTRL-F	CTRL-W CTRL-F	same as "CTRL-W f"
	CTRL-W CTRL-G	same as "CTRL-W g .."
CTRL-W_CTRL-H	CTRL-W CTRL-H	same as "CTRL-W h"
CTRL-W_CTRL-I	CTRL-W CTRL-I	same as "CTRL-W i"
CTRL-W_CTRL-J	CTRL-W CTRL-J	same as "CTRL-W j"
CTRL-W_CTRL-K	CTRL-W CTRL-K	same as "CTRL-W k"
CTRL-W_CTRL-L	CTRL-W CTRL-L	same as "CTRL-W l"
CTRL-W_CTRL-N	CTRL-W CTRL-N	same as "CTRL-W n"
CTRL-W_CTRL-O	CTRL-W CTRL-O	same as "CTRL-W o"
CTRL-W_CTRL-P	CTRL-W CTRL-P	same as "CTRL-W p"
CTRL-W_CTRL-Q	CTRL-W CTRL-Q	same as "CTRL-W q"
CTRL-W_CTRL-R	CTRL-W CTRL-R	same as "CTRL-W r"
CTRL-W_CTRL-S	CTRL-W CTRL-S	same as "CTRL-W s"
CTRL-W_CTRL-T	CTRL-W CTRL-T	same as "CTRL-W t"
CTRL-W_CTRL-V	CTRL-W CTRL-V	same as "CTRL-W v"
CTRL-W_CTRL-W	CTRL-W CTRL-W	same as "CTRL-W w"
CTRL-W_CTRL-X	CTRL-W CTRL-X	same as "CTRL-W x"
CTRL-W_CTRL-Z	CTRL-W CTRL-Z	same as "CTRL-W z"
CTRL-W_CTRL-]	CTRL-W CTRL-]	same as "CTRL-W]"
CTRL-W_CTRL-^	CTRL-W CTRL-^	same as "CTRL-W ^"
CTRL-W_CTRL-_	CTRL-W CTRL-_	same as "CTRL-W _"
CTRL-W_quote	CTRL-W "	terminal window: paste register
CTRL-W_+	CTRL-W +	increase current window height N lines
CTRL-W_-	CTRL-W -	decrease current window height N lines
CTRL-W_.	CTRL-W .	terminal window: type CTRL-W
CTRL-W_:	CTRL-W :	same as : , edit a command line
CTRL-W_<	CTRL-W <	decrease current window width N columns
CTRL-W_=	CTRL-W =	make all windows the same height & width
CTRL-W_>	CTRL-W >	increase current window width N columns
CTRL-W_H	CTRL-W H	move current window to the far left
CTRL-W_J	CTRL-W J	move current window to the very bottom

CTRL-W_K	CTRL-W K	move current window to the very top
CTRL-W_L	CTRL-W L	move current window to the far right
CTRL-W_N	CTRL-W N	terminal window: go to Terminal Normal mode
CTRL-W_P	CTRL-W P	go to preview window
CTRL-W_R	CTRL-W R	rotate windows upwards N times
CTRL-W_S	CTRL-W S	same as "CTRL-W s"
CTRL-W_T	CTRL-W T	move current window to a new tab page
CTRL-W_W	CTRL-W W	go to N previous window (wrap around)
CTRL-W_]	CTRL-W]	split window and jump to tag under cursor
CTRL-W_^	CTRL-W ^	split current window and edit alternate file N
CTRL-W__	CTRL-W _	set current window height to N (default: very high)
CTRL-W_b	CTRL-W b	go to bottom window
CTRL-W_c	CTRL-W c	close current window (like :close)
CTRL-W_d	CTRL-W d	split window and jump to definition under the cursor
CTRL-W_f	CTRL-W f	split window and edit file name under the cursor
CTRL-W_F	CTRL-W F	split window and edit file name under the cursor and jump to the line number following the file name.
CTRL-W_g_CTRL-]	CTRL-W g CTRL-]	split window and do :tjump to tag under cursor
CTRL-W_g]	CTRL-W g]	split window and do :tselect for tag under cursor
CTRL-W_g}	CTRL-W g }	do a :ptjump to the tag under the cursor
CTRL-W_gf	CTRL-W g f	edit file name under the cursor in a new tab page
CTRL-W_gF	CTRL-W g F	edit file name under the cursor in a new tab page and jump to the line number following the file name.
CTRL-W_h	CTRL-W h	go to Nth left window (stop at first window)
CTRL-W_i	CTRL-W i	split window and jump to declaration of identifier under the cursor
CTRL-W_j	CTRL-W j	go N windows down (stop at last window)
CTRL-W_k	CTRL-W k	go N windows up (stop at first window)
CTRL-W_l	CTRL-W l	go to Nth right window (stop at last window)
CTRL-W_n	CTRL-W n	open new window, N lines high
CTRL-W_o	CTRL-W o	close all but current window (like :only)
CTRL-W_p	CTRL-W p	go to previous (last accessed) window
CTRL-W_q	CTRL-W q	quit current window (like :quit)
CTRL-W_r	CTRL-W r	rotate windows downwards N times
CTRL-W_s	CTRL-W s	split current window in two parts, new window N lines high
CTRL-W_t	CTRL-W t	go to top window
CTRL-W_v	CTRL-W v	split current window vertically, new window N columns wide
CTRL-W_w	CTRL-W w	go to N next window (wrap around)
CTRL-W_x	CTRL-W x	exchange current window with window N (default: next window)
CTRL-W_z	CTRL-W z	close preview window
CTRL-W_bar	CTRL-W |	set window width to N columns
CTRL-W_}	CTRL-W }	show tag under cursor in preview window

CTRL-W_<Down>	CTRL-W <Down>	same as "CTRL-W j"
CTRL-W_<Up>	CTRL-W <Up>	same as "CTRL-W k"
CTRL-W_<Left>	CTRL-W <Left>	same as "CTRL-W h"
CTRL-W_<Right>	CTRL-W <Right>	same as "CTRL-W l"

2.3 Square bracket commands [ ]

tag	char	note	action in Normal mode
[_CTRL-D	[CTRL-D		jump to first #define found in current and included files matching the word under the cursor, start searching at beginning of current file
[_CTRL-I	[CTRL-I		jump to first line in current and included files that contains the word under the cursor, start searching at beginning of current file
[#	[#	1	cursor to N previous unmatched #if, #else or #ifdef
['	['	1	cursor to previous lowercase mark, on first non-blank
[(	[(	1	cursor N times back to unmatched '('
[star	[*	1	same as "[/"
[`	[`	1	cursor to previous lowercase mark
[/	[/	1	cursor to N previous start of a C comment
[D	[D		list all defines found in current and included files matching the word under the cursor, start searching at beginning of current file
[I	[I		list all lines found in current and included files that contain the word under the cursor, start searching at beginning of current file
[P	[P	2	same as "[p"
[[	[[	1	cursor N sections backward
[]	[]	1	cursor N SECTIONS backward
[c	[c	1	cursor N times backwards to start of change
[d	[d		show first #define found in current and included files matching the word under the cursor, start searching at beginning of current file
[f	[f		same as "gf"
[i	[i		show first line found in current and included files that contains the word under the cursor, start searching at beginning of current file
[m	[m	1	cursor N times back to start of member function
[p	[p	2	like "P", but adjust indent to current line
[s	[s	1	move to the previous misspelled word
[z	[z	1	move to start of open fold
[{	[{	1	cursor N times back to unmatched '{'
[<MiddleMouse>	[<MiddleMouse>	2	same as "[p"

]_CTRL-D	] CTRL-D		jump to first #define found in current and included files matching the word under the cursor, start searching at cursor position
]_CTRL-I	] CTRL-I		jump to first line in current and included files that contains the word under the cursor, start searching at cursor position
]#	]#	1	cursor to N next unmatched #endif or #else
]'	]'	1	cursor to next lowercase mark, on first non-blank
])	])	1	cursor N times forward to unmatched ')'
]star	]*	1	same as "]/"
]`	]`	1	cursor to next lowercase mark
]/	]/	1	cursor to N next end of a C comment
]D	]D		list all #defines found in current and included files matching the word under the cursor, start searching at cursor position
]I	]I		list all lines found in current and included files that contain the word under the cursor, start searching at cursor position
]P	]P	2	same as "[p"
][	][	1	cursor N SECTIONS forward
]]	]]	1	cursor N sections forward
]c	]c	1	cursor N times forward to start of change
]d	]d		show first #define found in current and included files matching the word under the cursor, start searching at cursor position
]f	]f		same as "gf"
]i	]i		show first line found in current and included files that contains the word under the cursor, start searching at cursor position
]m	]m	1	cursor N times forward to end of member function
]p	]p	2	like "p", but adjust indent to current line
]s	]s	1	move to next misspelled word
]z	]z	1	move to end of open fold
]}	]}	1	cursor N times forward to unmatched '}'
]<MiddleMouse>	]<MiddleMouse>	2	same as "]p"

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2.4 Commands starting with 'g' g

tag	char	note	action in Normal mode
g_CTRL-A	g CTRL-A		only when compiled with MEM_PROFILE defined: dump a memory profile
g_CTRL-G	g CTRL-G		show information about current cursor position
g_CTRL-H	g CTRL-H		start Select block mode
g_CTRL-]	g CTRL-]		:tjump to the tag under the cursor
g#	g#	1	like "#", but without using "\<" and "\>"
g$	g$	1	when 'wrap' off go to rightmost character of

			the current line that is on the screen; when 'wrap' on go to the rightmost character of the current screen line
g&	g&	2	repeat last ":s" on all lines
g'	g'{mark}	1	like ' but without changing the jumplist
g`	g`{mark}	1	like ` but without changing the jumplist
gstar	g*	1	like "*", but without using "\<" and "\>"
g+	g+		go to newer text state N times
g,	g,	1	go to N newer position in change list
g-	g-		go to older text state N times
g0	g0	1	when 'wrap' off go to leftmost character of the current line that is on the screen; when 'wrap' on go to the leftmost character of the current screen line
g8	g8		print hex value of bytes used in UTF-8 character under the cursor
g;	g;	1	go to N older position in change list
g<	g<		display previous command output
g?	g?	2	Rot13 encoding operator
g?g?	g??	2	Rot13 encode current line
g?g?	g?g?	2	Rot13 encode current line
gD	gD	1	go to definition of word under the cursor in current file
gE	gE	1	go backwards to the end of the previous WORD
gH	gH		start Select line mode
gI	gI	2	like "I", but always start in column 1
gJ	gJ	2	join lines without inserting space
gN	gN	1,2	find the previous match with the last used search pattern and Visually select it
gP	["x]gP	2	put the text [from register x] before the cursor N times, leave the cursor after it
gQ	gQ		switch to "Ex" mode with Vim editing
gR	gR	2	enter Virtual Replace mode
gT	gT		go to the previous tab page
gU	gU{motion}	2	make Nmove text uppercase
gV	gV		don't reselect the previous Visual area when executing a mapping or menu in Select mode
g]	g]		:tselect on the tag under the cursor
g^	g^	1	when 'wrap' off go to leftmost non-white character of the current line that is on the screen; when 'wrap' on go to the leftmost non-white character of the current screen line
g_	g_	1	cursor to the last CHAR N - 1 lines lower
ga	ga		print ascii value of character under the cursor
gd	gd	1	go to definition of word under the cursor in current function
ge	ge	1	go backwards to the end of the previous word
gf	gf		start editing the file whose name is under the cursor

gF	gF		start editing the file whose name is under the cursor and jump to the line number following the filename.
gg	gg	1	cursor to line N, default first line
gh	gh		start Select mode
gi	gi	2	like "i", but first move to the '^ mark
gj	gj	1	like "j", but when 'wrap' on go N screen lines down
gk	gk	1	like "k", but when 'wrap' on go N screen lines up
gn	gn	1,2	find the next match with the last used search pattern and Visually select it
gm	gm	1	go to character at middle of the screenline
go	go	1	cursor to byte N in the buffer
gp	["x]gp	2	put the text [from register x] after the cursor N times, leave the cursor after it
gq	gq{motion}	2	format Nmove text
gr	gr{char}	2	virtual replace N chars with {char}
gs	gs		go to sleep for N seconds (default 1)
gt	gt		go to the next tab page
gu	gu{motion}	2	make Nmove text lowercase
gv	gv		reselect the previous Visual area
gw	gw{motion}	2	format Nmove text and keep cursor
netrw-gx	gx		execute application for file name under the cursor (only with netrw plugin)
g@	g@{motion}		call 'operatorfunc'
g~	g~{motion}	2	swap case for Nmove text
g<Down>	g<Down>	1	same as "gj"
g<End>	g<End>	1	same as "g$"
g<Home>	g<Home>	1	same as "g0"
g<LeftMouse>	g<LeftMouse>		same as <C-LeftMouse>
	g<MiddleMouse>		same as <C-MiddleMouse>
g<RightMouse>	g<RightMouse>		same as <C-RightMouse>
g<Up>	g<Up>	1	same as "gk"

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2.5 Commands starting with 'z' z

tag	char	note	action in Normal mode
z<CR>	z<CR>		redraw, cursor line to top of window, cursor on first non-blank
zN<CR>	z{height}<CR>		redraw, make window {height} lines high
z+	z+		cursor on line N (default line below window), otherwise like "z<CR>"
z-	z-		redraw, cursor line at bottom of window, cursor on first non-blank
z.	z.		redraw, cursor line to center of window, cursor on first non-blank
z=	z=		give spelling suggestions
zA	zA		open a closed fold or close an open fold recursively
zC	zC		close folds recursively
zD	zD		delete folds recursively

zE	zE		eliminate all folds
zF	zF		create a fold for N lines
zG	zG		mark word as good spelled word
zH	zH		when 'wrap' off scroll half a screenwidth to the right
zL	zL		when 'wrap' off scroll half a screenwidth to the left
zM	zM		set 'foldlevel' to zero
zN	zN		set 'foldenable'
zO	zO		open folds recursively
zR	zR		set 'foldlevel' to the deepest fold
zW	zW		mark word as wrong (bad) spelled word
zX	zX		re-apply 'foldlevel'
z^	z^		cursor on line N (default line above window), otherwise like "z-"
za	za		open a closed fold, close an open fold
zb	zb		redraw, cursor line at bottom of window
zc	zc		close a fold
zd	zd		delete a fold
ze	ze		when 'wrap' off scroll horizontally to position the cursor at the end (right side) of the screen
zf	zf{motion}		create a fold for Nmove text
zg	zg		mark word as good spelled word
zh	zh		when 'wrap' off scroll screen N characters to the right
zi	zi		toggle 'foldenable'
zj	zj	1	move to the start of the next fold
zk	zk	1	move to the end of the previous fold
zl	zl		when 'wrap' off scroll screen N characters to the left
zm	zm		subtract one from 'foldlevel'
zn	zn		reset 'foldenable'
zo	zo		open fold
zr	zr		add one to 'foldlevel'
zs	zs		when 'wrap' off scroll horizontally to position the cursor at the start (left side) of the screen
zt	zt		redraw, cursor line at top of window
zv	zv		open enough folds to view the cursor line
zw	zw		mark word as wrong (bad) spelled word
zx	zx		re-apply 'foldlevel' and do "zv"
zz	zz		redraw, cursor line at center of window
z<Left>	z<Left>		same as "zh"
z<Right>	z<Right>		same as "zl"

==========

3. Visual mode visual-index

Most commands in Visual mode are the same as in Normal mode. The ones listed here are those that are different.

tag	command	note	action in Visual mode

```
v_CTRL-\_CTRL-N  CTRL-\ CTRL-N    stop Visual mode
v_CTRL-\_CTRL-G  CTRL-\ CTRL-G    go to mode specified with 'insertmode'
v_CTRL-A        CTRL-A          2 add N to number in highlighted text
v_CTRL-C        CTRL-C            stop Visual mode
v_CTRL-G        CTRL-G            toggle between Visual mode and Select mode
v_<BS>          <BS>            2 Select mode: delete highlighted area
v_CTRL-H        CTRL-H          2 same as <BS>
v_CTRL-O        CTRL-O            switch from Select to Visual mode for one
                                  command
v_CTRL-V        CTRL-V            make Visual mode blockwise or stop Visual
                                  mode
v_CTRL-X        CTRL-X          2 subtract N from number in highlighted text
v_<Esc>         <Esc>             stop Visual mode
v_CTRL-]        CTRL-]            jump to highlighted tag
v_!             !{filter}       2 filter the highlighted lines through the
                                  external command {filter}
v_:             :                 start a command-line with the highlighted
                                  lines as a range
v_<             <               2 shift the highlighted lines one
                                  'shiftwidth' left
v_=             =               2 filter the highlighted lines through the
                                  external program given with the 'equalprg'
                                  option
v_>             >               2 shift the highlighted lines one
                                  'shiftwidth' right
v_b_A           A               2 block mode: append same text in all lines,
                                  after the highlighted area
v_C             C               2 delete the highlighted lines and start
                                  insert
v_D             D               2 delete the highlighted lines
v_b_I           I               2 block mode: insert same text in all lines,
                                  before the highlighted area
v_J             J               2 join the highlighted lines
v_K             K                 run 'keywordprg' on the highlighted area
v_O             O                 Move horizontally to other corner of area.
                Q                 does not start Ex mode
v_R             R               2 delete the highlighted lines and start
                                  insert
v_S             S               2 delete the highlighted lines and start
                                  insert
v_U             U               2 make highlighted area uppercase
v_V             V                 make Visual mode linewise or stop Visual
                                  mode
v_X             X               2 delete the highlighted lines
v_Y             Y                 yank the highlighted lines
v_aquote        a"                extend highlighted area with a double
                                  quoted string
v_a'            a'                extend highlighted area with a single
                                  quoted string
v_a(            a(                same as ab
v_a)            a)                same as ab
v_a<            a<                extend highlighted area with a <> block
v_a>            a>                same as a<
v_aB            aB                extend highlighted area with a {} block
```

v_aW	aW		extend highlighted area with "a WORD"
v_a[	a[		extend highlighted area with a [] block
v_a]	a]		same as a[
v_a`	a`		extend highlighted area with a backtick quoted string
v_ab	ab		extend highlighted area with a () block
v_ap	ap		extend highlighted area with a paragraph
v_as	as		extend highlighted area with a sentence
v_at	at		extend highlighted area with a tag block
v_aw	aw		extend highlighted area with "a word"
v_a{	a{		same as aB
v_a}	a}		same as aB
v_c	c	2	delete highlighted area and start insert
v_d	d	2	delete highlighted area
v_g_CTRL-A	g CTRL-A	2	add N to number in highlighted text
v_g_CTRL-X	g CTRL-X	2	subtract N from number in highlighted text
v_gJ	gJ	2	join the highlighted lines without inserting spaces
v_gq	gq	2	format the highlighted lines
v_gv	gv		exchange current and previous highlighted area
v_iquote	i"		extend highlighted area with a double quoted string (without quotes)
v_i'	i'		extend highlighted area with a single quoted string (without quotes)
v_i(	i(		same as ib
v_i)	i)		same as ib
v_i<	i<		extend highlighted area with inner <> block
v_i>	i>		same as i<
v_iB	iB		extend highlighted area with inner {} block
v_iW	iW		extend highlighted area with "inner WORD"
v_i[	i[		extend highlighted area with inner [] block
v_i]	i]		same as i[
v_i`	i`		extend highlighted area with a backtick quoted string (without the backticks)
v_ib	ib		extend highlighted area with inner () block
v_ip	ip		extend highlighted area with inner paragraph
v_is	is		extend highlighted area with inner sentence
v_it	it		extend highlighted area with inner tag block
v_iw	iw		extend highlighted area with "inner word"
v_i{	i{		same as iB
v_i}	i}		same as iB
v_o	o		move cursor to other corner of area
v_r	r	2	replace highlighted area with a character
v_s	s	2	delete highlighted area and start insert
v_u	u	2	make highlighted area lowercase
v_v	v		make Visual mode characterwise or stop Visual mode
v_x	x	2	delete the highlighted area
v_y	y		yank the highlighted area
v_~	~	2	swap case for the highlighted area

==========

4. Command-line editing ex-edit-index

Get to the command-line with the ':', '!', '/' or '?' commands.
Normal characters are inserted at the current cursor position.
"Completion" below refers to context-sensitive completion. It will complete
file names, tags, commands etc. as appropriate.

tag	command	action in Command-line editing mode
	CTRL-@	not used
c_CTRL-A	CTRL-A	do completion on the pattern in front of the cursor and insert all matches
c_CTRL-B	CTRL-B	cursor to begin of command-line
c_CTRL-C	CTRL-C	same as <Esc>
c_CTRL-D	CTRL-D	list completions that match the pattern in front of the cursor
c_CTRL-E	CTRL-E	cursor to end of command-line
'cedit'	CTRL-F	default value for 'cedit': opens the command-line window; otherwise not used
c_CTRL-G	CTRL-G	next match when 'incsearch' is active
c_<BS>	<BS>	delete the character in front of the cursor
c_digraph	{char1} <BS> {char2}	enter digraph when 'digraph' is on
c_CTRL-H	CTRL-H	same as <BS>
c_<Tab>	<Tab>	if 'wildchar' is <Tab>: Do completion on the pattern in front of the cursor
c_<S-Tab>	<S-Tab>	same as CTRL-P
c_wildchar	'wildchar'	Do completion on the pattern in front of the cursor (default: <Tab>)
c_CTRL-I	CTRL-I	same as <Tab>
c_<NL>	<NL>	same as <CR>
c_CTRL-J	CTRL-J	same as <CR>
c_CTRL-K	CTRL-K {char1} {char2}	enter digraph
c_CTRL-L	CTRL-L	do completion on the pattern in front of the cursor and insert the longest common part
c_<CR>	<CR>	execute entered command
c_CTRL-M	CTRL-M	same as <CR>
c_CTRL-N	CTRL-N	after using 'wildchar' with multiple matches: go to next match, otherwise: recall older command-line from history.
	CTRL-O	not used
c_CTRL-P	CTRL-P	after using 'wildchar' with multiple matches: go to previous match, otherwise: recall older command-line from history.
c_CTRL-Q	CTRL-Q	same as CTRL-V, unless it's used for terminal control flow
c_CTRL-R	CTRL-R {0-9a-z"%#*:= CTRL-F CTRL-P CTRL-W CTRL-A}	insert the contents of a register or object under the cursor as if typed
c_CTRL-R_CTRL-R	CTRL-R CTRL-R {0-9a-z"%#*:= CTRL-F CTRL-P CTRL-W CTRL-A}	insert the contents of a register or object under the cursor literally
	CTRL-S	(used for terminal control flow)
c_CTRL-T	CTRL-T	previous match when 'incsearch' is active

```
 c_CTRL-U       CTRL-U          remove all characters
 c_CTRL-V       CTRL-V          insert next non-digit literally, insert three
                                digit decimal number as a single byte.
 c_CTRL-W       CTRL-W          delete the word in front of the cursor
                CTRL-X          not used (reserved for completion)
                CTRL-Y          copy (yank) modeless selection
                CTRL-Z          not used (reserved for suspend)
 c_<Esc>        <Esc>           abandon command-line without executing it
 c_CTRL-[       CTRL-[          same as <Esc>
 c_CTRL-\_CTRL-N  CTRL-\ CTRL-N go to Normal mode, abandon command-line
 c_CTRL-\_CTRL-G  CTRL-\ CTRL-G go to mode specified with 'insertmode',
                                abandon command-line
                CTRL-\ a - d    reserved for extensions
 c_CTRL-\_e     CTRL-\ e {expr} replace the command line with the result of
                                {expr}
                CTRL-\ f - z    reserved for extensions
                CTRL-\ others   not used
 c_CTRL-]       CTRL-]          trigger abbreviation
 c_CTRL-^       CTRL-^          toggle use of  :lmap  mappings
 c_CTRL-_       CTRL-_          when 'allowrevins' set: change language
                                (Hebrew, Farsi)
 c_<Del>        <Del>           delete the character under the cursor

 c_<Left>       <Left>          cursor left
 c_<S-Left>     <S-Left>        cursor one word left
 c_<C-Left>     <C-Left>        cursor one word left
 c_<Right>      <Right>         cursor right
 c_<S-Right>    <S-Right>       cursor one word right
 c_<C-Right>    <C-Right>       cursor one word right
 c_<Up>         <Up>            recall previous command-line from history that
                                matches pattern in front of the cursor
 c_<S-Up>       <S-Up>          recall previous command-line from history
 c_<Down>       <Down>          recall next command-line from history that
                                matches pattern in front of the cursor
 c_<S-Down>     <S-Down>        recall next command-line from history
 c_<Home>       <Home>          cursor to start of command-line
 c_<End>        <End>           cursor to end of command-line
 c_<PageDown>   <PageDown>      same as <S-Down>
 c_<PageUp>     <PageUp>        same as <S-Up>
 c_<Insert>     <Insert>        toggle insert/overstrike mode
 c_<LeftMouse>  <LeftMouse>     cursor at mouse click

You found it, Arthur!                                holy-grail   :smile

==============================================================================
5. EX commands                                       ex-cmd-index   :index

This is a brief but complete listing of all the ":" commands, without
mentioning any arguments.  The optional part of the command name is inside [].
The commands are sorted on the non-optional part of their name.

tag           command         action
------------------------------------------------------------------------------
 :!             :!              filter lines or execute an external command
```

:!!	:!!	repeat last ":!" command
:#	:#	same as ":number"
:&	:&	repeat last ":substitute"
:star	:*	execute contents of a register
:<	:<	shift lines one 'shiftwidth' left
:=	:=	print the cursor line number
:>	:>	shift lines one 'shiftwidth' right
:@	:@	execute contents of a register
:@@	:@@	repeat the previous ":@"
:Next	:N[ext]	go to previous file in the argument list
:Print	:P[rint]	print lines
:X	:X	ask for encryption key
:append	:a[ppend]	append text
:abbreviate	:ab[breviate]	enter abbreviation
:abclear	:abc[lear]	remove all abbreviations
:aboveleft	:abo[veleft]	make split window appear left or above
:all	:al[l]	open a window for each file in the argument list
:amenu	:am[enu]	enter new menu item for all modes
:anoremenu	:an[oremenu]	enter a new menu for all modes that will not be remapped
:args	:ar[gs]	print the argument list
:argadd	:arga[dd]	add items to the argument list
:argdelete	:argd[elete]	delete items from the argument list
:argedit	:arge[dit]	add item to the argument list and edit it
:argdo	:argdo	do a command on all items in the argument list
:argglobal	:argg[lobal]	define the global argument list
:arglocal	:argl[ocal]	define a local argument list
:argument	:argu[ment]	go to specific file in the argument list
:ascii	:as[cii]	print ascii value of character under the cursor
:autocmd	:au[tocmd]	enter or show autocommands
:augroup	:aug[roup]	select the autocommand group to use
:aunmenu	:aun[menu]	remove menu for all modes
:buffer	:b[uffer]	go to specific buffer in the buffer list
:bNext	:bN[ext]	go to previous buffer in the buffer list
:ball	:ba[ll]	open a window for each buffer in the buffer list
:badd	:bad[d]	add buffer to the buffer list
:bdelete	:bd[elete]	remove a buffer from the buffer list
:behave	:be[have]	set mouse and selection behavior
:belowright	:bel[owright]	make split window appear right or below
:bfirst	:bf[irst]	go to first buffer in the buffer list
:blast	:bl[ast]	go to last buffer in the buffer list
:bmodified	:bm[odified]	go to next buffer in the buffer list that has been modified
:bnext	:bn[ext]	go to next buffer in the buffer list
:botright	:bo[tright]	make split window appear at bottom or far right
:bprevious	:bp[revious]	go to previous buffer in the buffer list
:brewind	:br[ewind]	go to first buffer in the buffer list
:break	:brea[k]	break out of while loop
:breakadd	:breaka[dd]	add a debugger breakpoint
:breakdel	:breakd[el]	delete a debugger breakpoint
:breaklist	:breakl[ist]	list debugger breakpoints
:browse	:bro[wse]	use file selection dialog
:bufdo	:bufdo	execute command in each listed buffer

:buffers	:buffers	list all files in the buffer list
:bunload	:bun[load]	unload a specific buffer
:bwipeout	:bw[ipeout]	really delete a buffer
:change	:c[hange]	replace a line or series of lines
:cNext	:cN[ext]	go to previous error
:cNfile	:cNf[ile]	go to last error in previous file
:cabbrev	:ca[bbrev]	like ":abbreviate" but for Command-line mode
:cabclear	:cabc[lear]	clear all abbreviations for Command-line mode
:caddbuffer	:cad[dbuffer]	add errors from buffer
:caddexpr	:cadde[xpr]	add errors from expr
:caddfile	:caddf[ile]	add error message to current quickfix list
:call	:cal[l]	call a function
:catch	:cat[ch]	part of a :try command
:cbottom	:cbo[ttom]	scroll to the bottom of the quickfix window
:cbuffer	:cb[uffer]	parse error messages and jump to first error
:cc	:cc	go to specific error
:cclose	:ccl[ose]	close quickfix window
:cd	:cd	change directory
:cdo	:cdo	execute command in each valid error list entry
:cfdo	:cfd[o]	execute command in each file in error list
:center	:ce[nter]	format lines at the center
:cexpr	:cex[pr]	read errors from expr and jump to first
:cfile	:cf[ile]	read file with error messages and jump to first
:cfirst	:cfir[st]	go to the specified error, default first one
:cgetbuffer	:cgetb[uffer]	get errors from buffer
:cgetexpr	:cgete[xpr]	get errors from expr
:cgetfile	:cg[etfile]	read file with error messages
:changes	:changes	print the change list
:chdir	:chd[ir]	change directory
:checkpath	:che[ckpath]	list included files
:checktime	:checkt[ime]	check timestamp of loaded buffers
:chistory	:chi[story]	list the error lists
:clast	:cla[st]	go to the specified error, default last one
:clearjumps	:cle[arjumps]	clear the jump list
:clist	:cl[ist]	list all errors
:close	:clo[se]	close current window
:cmap	:cm[ap]	like ":map" but for Command-line mode
:cmapclear	:cmapc[lear]	clear all mappings for Command-line mode
:cmenu	:cme[nu]	add menu for Command-line mode
:cnext	:cn[ext]	go to next error
:cnewer	:cnew[er]	go to newer error list
:cnfile	:cnf[ile]	go to first error in next file
:cnoremap	:cno[remap]	like ":noremap" but for Command-line mode
:cnoreabbrev	:cnorea[bbrev]	like ":noreabbrev" but for Command-line mode
:cnoremenu	:cnoreme[nu]	like ":noremenu" but for Command-line mode
:copy	:co[py]	copy lines
:colder	:col[der]	go to older error list
:colorscheme	:colo[rscheme]	load a specific color scheme
:command	:com[mand]	create user-defined command
:comclear	:comc[lear]	clear all user-defined commands
:compiler	:comp[iler]	do settings for a specific compiler
:continue	:con[tinue]	go back to :while
:confirm	:conf[irm]	prompt user when confirmation required
:copen	:cope[n]	open quickfix window

```
:cprevious      :cp[revious]    go to previous error
:cpfile         :cpf[ile]       go to last error in previous file
:cquit          :cq[uit]        quit Vim with an error code
:crewind        :cr[ewind]      go to the specified error, default first one
:cscope         :cs[cope]       execute cscope command
:cstag          :cst[ag]        use cscope to jump to a tag
:cunmap         :cu[nmap]       like ":unmap" but for Command-line mode
:cunabbrev      :cuna[bbrev]    like ":unabbrev" but for Command-line mode
:cunmenu        :cunme[nu]      remove menu for Command-line mode
:cwindow        :cw[indow]      open or close quickfix window
:delete         :d[elete]       delete lines
:delmarks       :delm[arks]     delete marks
:debug          :deb[ug]        run a command in debugging mode
:debuggreedy    :debugg[reedy]  read debug mode commands from normal input
:delcommand     :delc[ommand]   delete user-defined command
:delfunction    :delf[unction]  delete a user function
:diffupdate     :dif[fupdate]   update 'diff' buffers
:diffget        :diffg[et]      remove differences in current buffer
:diffoff        :diffo[ff]      switch off diff mode
:diffpatch      :diffp[atch]    apply a patch and show differences
:diffput        :diffpu[t]      remove differences in other buffer
:diffsplit      :diffs[plit]    show differences with another file
:diffthis       :diffthis       make current window a diff window
:digraphs       :dig[raphs]     show or enter digraphs
:display        :di[splay]      display registers
:djump          :dj[ump]        jump to #define
:dl             :dl             short for  :delete  with the 'l' flag
:del            :del[ete]l      short for  :delete  with the 'l' flag
:dlist          :dli[st]        list #defines
:doautocmd      :do[autocmd]    apply autocommands to current buffer
:doautoall      :doautoa[ll]    apply autocommands for all loaded buffers
:dp             :d[elete]p      short for  :delete  with the 'p' flag
:drop           :dr[op]         jump to window editing file or edit file in
                                current window
:dsearch        :ds[earch]      list one #define
:dsplit         :dsp[lit]       split window and jump to #define
:edit           :e[dit]         edit a file
:earlier        :ea[rlier]      go to older change, undo
:echo           :ec[ho]         echoes the result of expressions
:echoerr        :echoe[rr]      like :echo, show like an error and use history
:echohl         :echoh[l]       set highlighting for echo commands
:echomsg        :echom[sg]      same as :echo, put message in history
:echon          :echon          same as :echo, but without <EOL>
:else           :el[se]         part of an :if command
:elseif         :elsei[f]       part of an :if command
:emenu          :em[enu]        execute a menu by name
:endif          :en[dif]        end previous :if
:endfor         :endfo[r]       end previous :for
:endfunction    :endf[unction]  end of a user function
:endtry         :endt[ry]       end previous :try
:endwhile       :endw[hile]     end previous :while
:enew           :ene[w]         edit a new, unnamed buffer
:ex             :ex             same as ":edit"
:execute        :exe[cute]      execute result of expressions
```

```
:exit           :exi[t]          same as ":xit"
:exusage        :exu[sage]       overview of Ex commands
:file           :f[ile]          show or set the current file name
:files          :files           list all files in the buffer list
:filetype       :filet[ype]      switch file type detection on/off
:filter         :filt[er]        filter output of following command
:find           :fin[d]          find file in 'path' and edit it
:finally        :fina[lly]       part of a :try command
:finish         :fini[sh]        quit sourcing a Vim script
:first          :fir[st]         go to the first file in the argument list
:fixdel         :fix[del]        set key code of <Del>
:fold           :fo[ld]          create a fold
:foldclose      :foldc[lose]     close folds
:folddoopen     :foldd[oopen]    execute command on lines not in a closed fold
:folddoclosed   :folddoc[losed]  execute command on lines in a closed fold
:foldopen       :foldo[pen]      open folds
:for            :for             for loop
:function       :fu[nction]      define a user function
:global         :g[lobal]        execute commands for matching lines
:goto           :go[to]          go to byte in the buffer
:grep           :gr[ep]          run 'grepprg' and jump to first match
:grepadd        :grepa[dd]       like :grep, but append to current list
:gui            :gu[i]           start the GUI
:gvim           :gv[im]          start the GUI
:hardcopy       :ha[rdcopy]      send text to the printer
:help           :h[elp]          open a help window
:helpclose      :helpc[lose]     close one help window
:helpfind       :helpf[ind]      dialog to open a help window
:helpgrep       :helpg[rep]      like ":grep" but searches help files
:helptags       :helpt[ags]      generate help tags for a directory
:highlight      :hi[ghlight]     specify highlighting methods
:hide           :hid[e]          hide current buffer for a command
:history        :his[tory]       print a history list
:insert         :i[nsert]        insert text
:iabbrev        :ia[bbrev]       like ":abbrev" but for Insert mode
:iabclear       :iabc[lear]      like ":abclear" but for Insert mode
:if             :if              execute commands when condition met
:ijump          :ij[ump]         jump to definition of identifier
:ilist          :il[ist]         list lines where identifier matches
:imap           :im[ap]          like ":map" but for Insert mode
:imapclear      :imapc[lear]     like ":mapclear" but for Insert mode
:imenu          :ime[nu]         add menu for Insert mode
:inoremap       :ino[remap]      like ":noremap" but for Insert mode
:inoreabbrev    :inorea[bbrev]   like ":noreabbrev" but for Insert mode
:inoremenu      :inoreme[nu]     like ":noremenu" but for Insert mode
:intro          :int[ro]         print the introductory message
:isearch        :is[earch]       list one line where identifier matches
:isplit         :isp[lit]        split window and jump to definition of
                                 identifier
:iunmap         :iu[nmap]        like ":unmap" but for Insert mode
:iunabbrev      :iuna[bbrev]     like ":unabbrev" but for Insert mode
:iunmenu        :iunme[nu]       remove menu for Insert mode
:join           :j[oin]          join lines
:jumps          :ju[mps]         print the jump list
```

```
:k              :k              set a mark
:keepalt        :keepa[lt]      following command keeps the alternate file
:keepmarks      :kee[pmarks]    following command keeps marks where they are
:keepjumps      :keepj[umps]    following command keeps jumplist and marks
:keeppatterns   :keepp[atterns] following command keeps search pattern history
:lNext          :lN[ext]        go to previous entry in location list
:lNfile         :lNf[ile]       go to last entry in previous file
:list           :l[ist]         print lines
:laddexpr       :lad[dexpr]     add locations from expr
:laddbuffer     :laddb[uffer]   add locations from buffer
:laddfile       :laddf[ile]     add locations to current location list
:last           :la[st]         go to the last file in the argument list
:language       :lan[guage]     set the language (locale)
:later          :lat[er]        go to newer change, redo
:lbottom        :lbo[ttom]      scroll to the bottom of the location window
:lbuffer        :lb[uffer]      parse locations and jump to first location
:lcd            :lc[d]          change directory locally
:lchdir         :lch[dir]       change directory locally
:lclose         :lcl[ose]       close location window
:lcscope        :lcs[cope]      like ":cscope" but uses location list
:ldo            :ld[o]          execute command in valid location list entries
:lfdo           :lfd[o]         execute command in each file in location list
:left           :le[ft]         left align lines
:leftabove      :lefta[bove]    make split window appear left or above
:let            :let            assign a value to a variable or option
:lexpr          :lex[pr]        read locations from expr and jump to first
:lfile          :lf[ile]        read file with locations and jump to first
:lfirst         :lfir[st]       go to the specified location, default first one
:lgetbuffer     :lgetb[uffer]   get locations from buffer
:lgetexpr       :lgete[xpr]     get locations from expr
:lgetfile       :lg[etfile]     read file with locations
:lgrep          :lgr[ep]        run 'grepprg' and jump to first match
:lgrepadd       :lgrepa[dd]     like :grep, but append to current list
:lhelpgrep      :lh[elpgrep]    like ":helpgrep" but uses location list
:lhistory       :lhi[story]     list the location lists
:ll             :ll             go to specific location
:llast          :lla[st]        go to the specified location, default last one
:llist          :lli[st]        list all locations
:lmake          :lmak[e]        execute external command 'makeprg' and parse
                                error messages
:lmap           :lm[ap]         like ":map!" but includes Lang-Arg mode
:lmapclear      :lmapc[lear]    like ":mapclear!" but includes Lang-Arg mode
:lnext          :lne[xt]        go to next location
:lnewer         :lnew[er]       go to newer location list
:lnfile         :lnf[ile]       go to first location in next file
:lnoremap       :ln[oremap]     like ":noremap!" but includes Lang-Arg mode
:loadkeymap     :loadk[eymap]   load the following keymaps until EOF
:loadview       :lo[adview]     load view for current window from a file
:lockmarks      :loc[kmarks]    following command keeps marks where they are
:lockvar        :lockv[ar]      lock variables
:lolder         :lol[der]       go to older location list
:lopen          :lope[n]        open location window
:lprevious      :lp[revious]    go to previous location
:lpfile         :lpf[ile]       go to last location in previous file
```

```
:lrewind        :lr[ewind]      go to the specified location, default first one
:ls             :ls             list all buffers
:ltag           :lt[ag]         jump to tag and add matching tags to the
                                location list
:lunmap         :lu[nmap]       like ":unmap!" but includes Lang-Arg mode
:lua            :lua            execute  Lua  command
:luado          :luad[o]        execute Lua command for each line
:luafile        :luaf[ile]      execute  Lua  script file
:lvimgrep       :lv[imgrep]     search for pattern in files
:lvimgrepadd    :lvimgrepa[dd]  like :vimgrep, but append to current list
:lwindow        :lw[indow]      open or close location window
:move           :m[ove]         move lines
:mark           :ma[rk]         set a mark
:make           :mak[e]         execute external command 'makeprg' and parse
                                error messages
:map            :map            show or enter a mapping
:mapclear       :mapc[lear]     clear all mappings for Normal and Visual mode
:marks          :marks          list all marks
:match          :mat[ch]        define a match to highlight
:menu           :me[nu]         enter a new menu item
:menutranslate    :menut[ranslate] add a menu translation item
:messages       :mes[sages]     view previously displayed messages
:mkexrc         :mk[exrc]       write current mappings and settings to a file
:mksession      :mks[ession]    write session info to a file
:mkspell        :mksp[ell]      produce .spl spell file
:mkvimrc        :mkv[imrc]      write current mappings and settings to a file
:mkview         :mkvie[w]       write view of current window to a file
:mode           :mod[e]         show or change the screen mode
:mzscheme       :mz[scheme]     execute MzScheme command
:mzfile         :mzf[ile]       execute MzScheme script file
:nbclose        :nbc[lose]      close the current Netbeans session
:nbkey          :nb[key]        pass a key to Netbeans
:nbstart        :nbs[art]       start a new Netbeans session
:next           :n[ext]         go to next file in the argument list
:new            :new            create a new empty window
:nmap           :nm[ap]         like ":map" but for Normal mode
:nmapclear      :nmapc[lear]    clear all mappings for Normal mode
:nmenu          :nme[nu]        add menu for Normal mode
:nnoremap       :nn[oremap]     like ":noremap" but for Normal mode
:nnoremenu      :nnoreme[nu]    like ":noremenu" but for Normal mode
:noautocmd      :noa[utocmd]    following commands don't trigger autocommands
:noremap        :no[remap]      enter a mapping that will not be remapped
:nohlsearch     :noh[lsearch]   suspend 'hlsearch' highlighting
:noreabbrev     :norea[bbrev]   enter an abbreviation that will not be
                                remapped
:noremenu       :noreme[nu]     enter a menu that will not be remapped
:normal         :norm[al]       execute Normal mode commands
:noswapfile     :nos[wapfile]   following commands don't create a swap file
:number         :nu[mber]       print lines with line number
:nunmap         :nun[map]       like ":unmap" but for Normal mode
:nunmenu        :nunme[nu]      remove menu for Normal mode
:oldfiles       :ol[dfiles]     list files that have marks in the viminfo file
:open           :o[pen]         start open mode (not implemented)
:omap           :om[ap]         like ":map" but for Operator-pending mode
```

```
:omapclear      :omapc[lear]    remove all mappings for Operator-pending mode
:omenu          :ome[nu]        add menu for Operator-pending mode
:only           :on[ly]         close all windows except the current one
:onoremap       :ono[remap]     like ":noremap" but for Operator-pending mode
:onoremenu      :onoreme[nu]    like ":noremenu" but for Operator-pending mode
:options        :opt[ions]      open the options-window
:ounmap         :ou[nmap]       like ":unmap" but for Operator-pending mode
:ounmenu        :ounme[nu]      remove menu for Operator-pending mode
:ownsyntax      :ow[nsyntax]    set new local syntax highlight for this window
:packadd        :pa[ckadd]      add a plugin from 'packpath'
:packloadall    :packl[oadall]  load all packages under 'packpath'
:pclose         :pc[lose]       close preview window
:pedit          :ped[it]        edit file in the preview window
:perl           :pe[rl]         execute Perl command
:print          :p[rint]        print lines
:profdel        :profd[el]      stop profiling a function or script
:profile        :prof[ile]      profiling functions and scripts
:promptfind     :pro[mptfind]   open GUI dialog for searching
:promptrepl     :promptr[epl]   open GUI dialog for search/replace
:perldo         :perld[o]       execute Perl command for each line
:pop            :po[p]          jump to older entry in tag stack
:popup          :popu[p]        popup a menu by name
:ppop           :pp[op]         ":pop" in preview window
:preserve       :pre[serve]     write all text to swap file
:previous       :prev[ious]     go to previous file in argument list
:psearch        :ps[earch]      like ":ijump" but shows match in preview window
:ptag           :pt[ag]         show tag in preview window
:ptNext         :ptN[ext]        :tNext  in preview window
:ptfirst        :ptf[irst]       :trewind  in preview window
:ptjump         :ptj[ump]        :tjump  and show tag in preview window
:ptlast         :ptl[ast]        :tlast  in preview window
:ptnext         :ptn[ext]        :tnext  in preview window
:ptprevious     :ptp[revious]    :tprevious  in preview window
:ptrewind       :ptr[ewind]      :trewind  in preview window
:ptselect       :pts[elect]      :tselect  and show tag in preview window
:put            :pu[t]          insert contents of register in the text
:pwd            :pw[d]          print current directory
:py3            :py3            execute Python 3 command
:python3        :python3        same as :py3
:py3do          :py3d[o]        execute Python 3 command for each line
:py3file        :py3f[ile]      execute Python 3 script file
:python         :py[thon]       execute Python command
:pydo           :pyd[o]         execute Python command for each line
:pyfile         :pyf[ile]       execute Python script file
:pyx            :pyx            execute  python_x  command
:pythonx        :pythonx        same as :pyx
:pyxdo          :pyxd[o]        execute  python_x  command for each line
:pyxfile        :pyxf[ile]      execute  python_x  script file
:quit           :q[uit]         quit current window (when one window quit Vim)
:quitall        :quita[ll]      quit Vim
:qall           :qa[ll]         quit Vim
:read           :r[ead]         read file into the text
:recover        :rec[over]      recover a file from a swap file
:redo           :red[o]         redo one undone change
```

```
:redir          :redi[r]        redirect messages to a file or register
:redraw         :redr[aw]       force a redraw of the display
:redrawstatus   :redraws[tatus] force a redraw of the status line(s)
:registers      :reg[isters]    display the contents of registers
:resize         :res[ize]       change current window height
:retab          :ret[ab]        change tab size
:return         :retu[rn]       return from a user function
:rewind         :rew[ind]       go to the first file in the argument list
:right          :ri[ght]        right align text
:rightbelow     :rightb[elow]   make split window appear right or below
:ruby           :rub[y]         execute Ruby command
:rubydo         :rubyd[o]       execute Ruby command for each line
:rubyfile       :rubyf[ile]     execute Ruby script file
:rundo          :rund[o]        read undo information from a file
:runtime        :ru[ntime]      source vim scripts in 'runtimepath'
:rviminfo       :rv[iminfo]     read from viminfo file
:substitute     :s[ubstitute]   find and replace text
:sNext          :sN[ext]        split window and go to previous file in
                                argument list
:sandbox        :san[dbox]      execute a command in the sandbox
:sargument      :sa[rgument]    split window and go to specific file in
                                argument list
:sall           :sal[l]         open a window for each file in argument list
:saveas         :sav[eas]       save file under another name.
:sbuffer        :sb[uffer]      split window and go to specific file in the
                                buffer list
:sbNext         :sbN[ext]       split window and go to previous file in the
                                buffer list
:sball          :sba[ll]        open a window for each file in the buffer list
:sbfirst        :sbf[irst]      split window and go to first file in the
                                buffer list
:sblast         :sbl[ast]       split window and go to last file in buffer
                                list
:sbmodified     :sbm[odified]   split window and go to modified file in the
                                buffer list
:sbnext         :sbn[ext]       split window and go to next file in the buffer
                                list
:sbprevious     :sbp[revious]   split window and go to previous file in the
                                buffer list
:sbrewind       :sbr[ewind]     split window and go to first file in the
                                buffer list
:scriptnames    :scr[iptnames]  list names of all sourced Vim scripts
:scriptencoding  :scripte[ncoding]     encoding used in sourced Vim script
:scscope        :scs[cope]      split window and execute cscope command
:set            :se[t]          show or set options
:setfiletype    :setf[iletype]  set 'filetype', unless it was set already
:setglobal      :setg[lobal]    show global values of options
:setlocal       :setl[ocal]     show or set options locally
:sfind          :sf[ind]        split current window and edit file in 'path'
:sfirst         :sfir[st]       split window and go to first file in the
                                argument list
:shell          :sh[ell]        escape to a shell
:simalt         :sim[alt]       Win32 GUI: simulate Windows ALT key
:sign           :sig[n]         manipulate signs
```

```
:silent         :sil[ent]       run a command silently
:sleep          :sl[eep]        do nothing for a few seconds
:slast          :sla[st]        split window and go to last file in the
                                argument list
:smagic         :sm[agic]       :substitute with 'magic'
:smap           :smap           like ":map" but for Select mode
:smapclear      :smapc[lear]    remove all mappings for Select mode
:smenu          :sme[nu]        add menu for Select mode
:smile          :smi[le]        make the user happy
:snext          :sn[ext]        split window and go to next file in the
                                argument list
:snomagic       :sno[magic]     :substitute with 'nomagic'
:snoremap       :snor[emap]     like ":noremap" but for Select mode
:snoremenu      :snoreme[nu]    like ":noremenu" but for Select mode
:sort           :sor[t]         sort lines
:source         :so[urce]       read Vim or Ex commands from a file
:spelldump      :spelld[ump]    split window and fill with all correct words
:spellgood      :spe[llgood]    add good word for spelling
:spellinfo      :spelli[nfo]    show info about loaded spell files
:spellrepall    :spellr[epall]  replace all bad words like last  z=
:spellundo      :spellu[ndo]    remove good or bad word
:spellwrong     :spellw[rong]   add spelling mistake
:split          :sp[lit]        split current window
:sprevious      :spr[evious]    split window and go to previous file in the
                                argument list
:srewind        :sre[wind]      split window and go to first file in the
                                argument list
:stop           :st[op]         suspend the editor or escape to a shell
:stag           :sta[g]         split window and jump to a tag
:startinsert    :star[tinsert]  start Insert mode
:startgreplace   :startg[replace] start Virtual Replace mode
:startreplace   :startr[eplace] start Replace mode
:stopinsert     :stopi[nsert]   stop Insert mode
:stjump         :stj[ump]       do ":tjump" and split window
:stselect       :sts[elect]     do ":tselect" and split window
:sunhide        :sun[hide]      same as ":unhide"
:sunmap         :sunm[ap]       like ":unmap" but for Select mode
:sunmenu        :sunme[nu]      remove menu for Select mode
:suspend        :sus[pend]      same as ":stop"
:sview          :sv[iew]        split window and edit file read-only
:swapname       :sw[apname]     show the name of the current swap file
:syntax         :sy[ntax]       syntax highlighting
:syntime        :synti[me]      measure syntax highlighting speed
:syncbind       :sync[bind]     sync scroll binding
:t              :t              same as ":copy"
:tNext          :tN[ext]        jump to previous matching tag
:tabNext        :tabN[ext]      go to previous tab page
:tabclose       :tabc[lose]     close current tab page
:tabdo          :tabdo          execute command in each tab page
:tabedit        :tabe[dit]      edit a file in a new tab page
:tabfind        :tabf[ind]      find file in 'path', edit it in a new tab page
:tabfirst       :tabfir[st]     go to first tab page
:tablast        :tabl[ast]      go to last tab page
:tabmove        :tabm[ove]      move tab page to other position
```

```
:tabnew         :tabnew          edit a file in a new tab page
:tabnext        :tabn[ext]       go to next tab page
:tabonly        :tabo[nly]       close all tab pages except the current one
:tabprevious    :tabp[revious]   go to previous tab page
:tabrewind      :tabr[ewind]     go to first tab page
:tabs           :tabs            list the tab pages and what they contain
:tab            :tab             create new tab when opening new window
:tag            :ta[g]           jump to tag
:tags           :tags            show the contents of the tag stack
:tcl            :tc[l]           execute Tcl command
:tcldo          :tcld[o]         execute Tcl command for each line
:tclfile        :tclf[ile]       execute Tcl script file
:tearoff        :te[aroff]       tear-off a menu
:terminal       :ter[minal]      open a terminal window
:tfirst         :tf[irst]        jump to first matching tag
:throw          :th[row]         throw an exception
:tjump          :tj[ump]         like ":tselect", but jump directly when there
                                 is only one match
:tlast          :tl[ast]         jump to last matching tag
:tmapclear      :tmapc[lear]     remove all mappings for Terminal-Job mode
:tmap           :tma[p]          like ":map" but for Terminal-Job mode
:tmenu          :tm[enu]         define menu tooltip
:tnext          :tn[ext]         jump to next matching tag
:tnoremap       :tno[remap]      like ":noremap" but for Terminal-Job mode
:topleft        :to[pleft]       make split window appear at top or far left
:tprevious      :tp[revious]     jump to previous matching tag
:trewind        :tr[ewind]       jump to first matching tag
:try            :try             execute commands, abort on error or exception
:tselect        :ts[elect]       list matching tags and select one
:tunmap         :tunma[p]        like ":unmap" but for Terminal-Job mode
:tunmenu        :tu[nmenu]       remove menu tooltip
:undo           :u[ndo]          undo last change(s)
:undojoin       :undoj[oin]      join next change with previous undo block
:undolist       :undol[ist]      list leafs of the undo tree
:unabbreviate   :una[bbreviate]  remove abbreviation
:unhide         :unh[ide]        open a window for each loaded file in the
                                 buffer list
:unlet          :unl[et]         delete variable
:unlockvar      :unlo[ckvar]     unlock variables
:unmap          :unm[ap]         remove mapping
:unmenu         :unme[nu]        remove menu
:unsilent       :uns[ilent]      run a command not silently
:update         :up[date]        write buffer if modified
:vglobal        :v[global]       execute commands for not matching lines
:version        :ve[rsion]       print version number and other info
:verbose        :verb[ose]       execute command with 'verbose' set
:vertical       :vert[ical]      make following command split vertically
:vimgrep        :vim[grep]       search for pattern in files
:vimgrepadd     :vimgrepa[dd]    like :vimgrep, but append to current list
:visual         :vi[sual]        same as ":edit", but turns off "Ex" mode
:viusage        :viu[sage]       overview of Normal mode commands
:view           :vie[w]          edit a file read-only
:vmap           :vm[ap]          like ":map" but for Visual+Select mode
:vmapclear      :vmapc[lear]     remove all mappings for Visual+Select mode
```

:vmenu	:vme[nu]	add menu for Visual+Select mode
:vnew	:vne[w]	create a new empty window, vertically split
:vnoremap	:vn[oremap]	like ":noremap" but for Visual+Select mode
:vnoremenu	:vnoreme[nu]	like ":noremenu" but for Visual+Select mode
:vsplit	:vs[plit]	split current window vertically
:vunmap	:vu[nmap]	like ":unmap" but for Visual+Select mode
:vunmenu	:vunme[nu]	remove menu for Visual+Select mode
:windo	:windo	execute command in each window
:write	:w[rite]	write to a file
:wNext	:wN[ext]	write to a file and go to previous file in argument list
:wall	:wa[ll]	write all (changed) buffers
:while	:wh[ile]	execute loop for as long as condition met
:winsize	:wi[nsize]	get or set window size (obsolete)
:wincmd	:winc[md]	execute a Window (CTRL-W) command
:winpos	:winp[os]	get or set window position
:wnext	:wn[ext]	write to a file and go to next file in argument list
:wprevious	:wp[revious]	write to a file and go to previous file in argument list
:wq	:wq	write to a file and quit window or Vim
:wqall	:wqa[ll]	write all changed buffers and quit Vim
:wsverb	:ws[verb]	pass the verb to workshop over IPC
:wundo	:wu[ndo]	write undo information to a file
:wviminfo	:wv[iminfo]	write to viminfo file
:xit	:x[it]	write if buffer changed and quit window or Vim
:xall	:xa[ll]	same as ":wqall"
:xmapclear	:xmapc[lear]	remove all mappings for Visual mode
:xmap	:xm[ap]	like ":map" but for Visual mode
:xmenu	:xme[nu]	add menu for Visual mode
:xnoremap	:xn[oremap]	like ":noremap" but for Visual mode
:xnoremenu	:xnoreme[nu]	like ":noremenu" but for Visual mode
:xunmap	:xu[nmap]	like ":unmap" but for Visual mode
:xunmenu	:xunme[nu]	remove menu for Visual mode
:yank	:y[ank]	yank lines into a register
:z	:z	print some lines
:~	:~	repeat last ":substitute"

vim:tw=78:ts=8:noet:ft=help:norl:

howto.txt For Vim version 8.1. Last change: 2006 Apr 02

VIM REFERENCE MANUAL by Bram Moolenaar

How to ... howdoi how-do-i howto how-to

tutor	get started
:quit	exit? I'm trapped, help me!
initialization	initialize Vim
vimrc-intro	write a Vim script file (vimrc)
suspend	suspend Vim
usr_11.txt	recover after a crash
07.4	keep a backup of my file when writing over it
usr_07.txt	edit files
23.4	edit binary files
usr_24.txt	insert text
deleting	delete text
usr_04.txt	change text
04.5	copy and move text
usr_25.txt	format text
30.6	format comments
30.2	indent C programs
25.3	automatically set indent
usr_26.txt	repeat commands
02.5	undo and redo
usr_03.txt	move around
word-motions	word motions
left-right-motions	left-right motions
up-down-motions	up-down motions
object-motions	text-object motions
various-motions	various motions
object-select	text-object selection
'whichwrap'	move over line breaks
'virtualedit'	move to where there is no text
usr_27.txt	specify pattern for searches
tags-and-searches	do tags and special searches
29.4	search in include'd files used to find variables, functions, or macros
K	look up manual for the keyword under cursor
03.7	scroll
'sidescroll'	scroll horizontally/sideways
'scrolloff'	set visible context lines
mode-switching	change modes
04.4	use Visual mode
'insertmode'	start Vim in Insert mode
40.1	map keys

```
24.7                    create abbreviations

ins-expandtab           expand a tab to spaces in Insert mode
i_CTRL-R                insert contents of a register in Insert mode
24.3                    complete words in Insert mode
25.1                    break a line before it gets too long

20.1                    do command-line editing
20.3                    do command-line completion
'cmdheight'             increase the height of command-line
10.3                    specify command-line ranges
40.3                    specify commands to be executed automatically
                        before/after reading/writing entering/leaving a
                        buffer/window

'autowrite'             write automatically
30.1                    speedup edit-compile-edit cycle or compile and fix
                        errors within Vim

options                 set options
auto-setting            set options automatically
term-dependent-settings  set options depending on terminal name
save-settings           save settings
:quote                  comment my .vim files
'helpheight'            change the default help height
'highlight'             set various highlighting modes
'title'                 set the window title
'icon'                  set window icon title
'report'                avoid seeing the change messages on every line
'shortmess'             avoid  hit-enter  prompts

mouse-using             use mouse with Vim
usr_08.txt              manage multiple windows and buffers
gui.txt                 use the gui

|You can't! (yet)|      do dishes using Vim

usr_06.txt              switch on syntax highlighting
2html.vim               convert a colored file to HTML
less                    use Vim like less or more with syntax highlighting

 vim:tw=78:ts=8:noet:ft=help:norl:
```

tips.txt	For Vim version 8.1. Last change: 2009 Nov 07

VIM REFERENCE MANUAL	by Bram Moolenaar

Tips and ideas for using Vim	tips

These are just a few that we thought would be helpful for many users.
You can find many more tips on the wiki. The URL can be found on
http://www.vim.org

Don't forget to browse the user manual, it also contains lots of useful tips
usr_toc.txt .

==========
Editing C programs	C-editing

There are quite a few features in Vim to help you edit C program files. Here
is an overview with tags to jump to:

usr_29.txt	Moving through programs chapter in the user manual.
usr_30.txt	Editing programs chapter in the user manual.
C-indenting	Automatically set the indent of a line while typing
	text.
=	Re-indent a few lines.
format-comments	Format comments.

:checkpath	Show all recursively included files.
[i	Search for identifier under cursor in current and
	included files.
[_CTRL-I	Jump to match for "[i"
[I	List all lines in current and included files where
	identifier under the cursor matches.
[d	Search for define under cursor in current and included
	files.

```
 CTRL-]                 Jump to tag under cursor (e.g., definition of a
                        function).
 CTRL-T                 Jump back to before a CTRL-] command.
 :tselect               Select one tag out of a list of matching tags.

 gd                     Go to Declaration of local variable under cursor.
 gD                     Go to Declaration of global variable under cursor.

 gf                     Go to file name under the cursor.

 %                      Go to matching (), {}, [], /* */, #if, #else, #endif.
 [/                     Go to previous start of comment.
 ]/                     Go to next end of comment.
 [#                     Go back to unclosed #if, #ifdef, or #else.
 ]#                     Go forward to unclosed #else or #endif.
 [(                     Go back to unclosed '('
 ])                     Go forward to unclosed ')'
 [{                     Go back to unclosed '{'
 ]}                     Go forward to unclosed '}'

 v_ab                   Select "a block" from "[(" to "])", including braces
 v_ib                   Select "inner block" from "[(" to "])"
 v_aB                   Select "a block" from "[{" to "]}", including brackets
 v_iB                   Select "inner block" from "[{" to "]}"

==============================================================================
Finding where identifiers are used                          ident-search

You probably already know that  tags  can be used to jump to the place where a
function or variable is defined.  But sometimes you wish you could jump to all
the places where a function or variable is being used.  This is possible in
two ways:
1. Using the  :grep  command.  This should work on most Unix systems,
   but can be slow (it reads all files) and only searches in one directory.
2. Using ID utils.  This is fast and works in multiple directories.  It uses a
   database to store locations.  You will need some additional programs for
   this to work.  And you need to keep the database up to date.

Using the GNU id-tools:

What you need:
- The GNU id-tools installed (mkid is needed to create ID and lid is needed to
  use the macros).
- An identifier database file called "ID" in the current directory.  You can
  create it with the shell command "mkid file1 file2 ..".

Put this in your .vimrc:
        map _u :call ID_search()<Bar>execute "/\\<" . g:word . "\\>"<CR>
        map _n :n<Bar>execute "/\\<" . g:word . "\\>"<CR>

        function! ID_search()
          let g:word = expand("<cword>")
          let x = system("lid --key=none ". g:word)
```

```
        let x = substitute(x, "\n", " ", "g")
        execute "next " . x
      endfun
```

To use it, place the cursor on a word, type "_u" and vim will load the file
that contains the word. Search for the next occurrence of the word in the
same file with "n". Go to the next file with "_n".

This has been tested with id-utils-3.2 (which is the name of the id-tools
archive file on your closest gnu-ftp-mirror).

[the idea for this comes from Andreas Kutschera]

==
Switching screens in an xterm   xterm-screens   xterm-save-screen

(From comp.editors, by Juergen Weigert, in reply to a question)

:> Another question is that after exiting vim, the screen is left as it
:> was, i.e. the contents of the file I was viewing (editing) was left on
:> the screen. The output from my previous like "ls" were lost,
:> ie. no longer in the scrolling buffer. I know that there is a way to
:> restore the screen after exiting vim or other vi like editors,
:> I just don't know how. Helps are appreciated. Thanks.
:
:I imagine someone else can answer this. I assume though that vim and vi do
:the same thing as each other for a given xterm setup.

They not necessarily do the same thing, as this may be a termcap vs.
terminfo problem. You should be aware that there are two databases for
describing attributes of a particular type of terminal: termcap and
terminfo. This can cause differences when the entries differ AND when of
the programs in question one uses terminfo and the other uses termcap
(also see +terminfo).

In your particular problem, you are looking for the control sequences
^[[?47h and ^[[?47l. These switch between xterms alternate and main screen
buffer. As a quick workaround a command sequence like

```
        echo -n "^[[?47h"; vim ... ; echo -n "^[[?47l"
```

may do what you want. (My notation ^[means the ESC character, further down
you'll see that the databases use \E instead).

On startup, vim echoes the value of the termcap variable ti (terminfo:
smcup) to the terminal. When exiting, it echoes te (terminfo: rmcup). Thus
these two variables are the correct place where the above mentioned control
sequences should go.

Compare your xterm termcap entry (found in /etc/termcap) with your xterm
terminfo entry (retrieved with "infocmp -C xterm"). Both should contain
entries similar to:

```
        :te=\E[2J\E[?47l\E8:ti=\E7\E[?47h:
```

PS: If you find any difference, someone (your sysadmin?) should better check
    the complete termcap and terminfo database for consistency.

NOTE 1: If you recompile Vim with FEAT_XTERM_SAVE defined in feature.h, the
builtin xterm will include the mentioned "te" and "ti" entries.

NOTE 2: If you want to disable the screen switching, and you don't want to
change your termcap, you can add these lines to your .vimrc:
```
:set t_ti= t_te=
```

==
Scrolling in Insert mode   scroll-insert

If you are in insert mode and you want to see something that is just off the
screen, you can use CTRL-X CTRL-E and CTRL-X CTRL-Y to scroll the screen.
                                                    i_CTRL-X_CTRL-E

To make this easier, you could use these mappings:
```
:inoremap <C-E> <C-X><C-E>
:inoremap <C-Y> <C-X><C-Y>
```
(Type this literally, make sure the '<' flag is not in 'cpoptions').
You then lose the ability to copy text from the line above/below the cursor
 i_CTRL-E .

Also consider setting 'scrolloff' to a larger value, so that you can always see
some context around the cursor. If 'scrolloff' is bigger than half the window
height, the cursor will always be in the middle and the text is scrolled when
the cursor is moved up/down.

==
Smooth scrolling   scroll-smooth

If you like the scrolling to go a bit smoother, you can use these mappings:
```
:map <C-U> <C-Y><C-Y><C-Y><C-Y><C-Y><C-Y><C-Y><C-Y><C-Y><C-Y><C-Y><C-Y><C-Y><C
:map <C-D> <C-E><C-E><C-E><C-E><C-E><C-E><C-E><C-E><C-E><C-E><C-E><C-E><C-E><C
```

(Type this literally, make sure the '<' flag is not in 'cpoptions').

==
Correcting common typing mistakes   type-mistakes

When there are a few words that you keep on typing in the wrong way, make
abbreviations that correct them. For example:
```
:ab teh the
:ab fro for
```

==
Counting words, lines, etc.   count-items

To count how often any pattern occurs in the current buffer use the substitute
command and add the 'n' flag to avoid the substitution. The reported number
of substitutions is the number of items. Examples:

```
:%s/./&/gn              characters
:%s/\i\+/&/gn           words
:%s/^//n                lines
```

```
        :%s/the/&/gn            "the" anywhere
        :%s/\<the\>/&/gn        "the" as a word

You might want to reset 'hlsearch' or do ":nohlsearch".
Add the 'e' flag if you don't want an error when there are no matches.

An alternative is using  v_g_CTRL-G  in Visual mode.

If you want to find matches in multiple files use  :vimgrep .

                                                        count-bytes
If you want to count bytes, you can use this:

        Visually select the characters (block is also possible)
        Use "y" to yank the characters
        Use the strlen() function:
                :echo strlen(@")
A line break is counted for one byte.

==============================================================================
Restoring the cursor position                           restore-position

Sometimes you want to write a mapping that makes a change somewhere in the
file and restores the cursor position, without scrolling the text.  For
example, to change the date mark in a file:
   :map <F2> msHmtgg/Last [cC]hange:\s*/e+1<CR>"_D"=strftime("%Y %b %d")<CR>p'tzt`s

Breaking up saving the position:
        ms      store cursor position in the 's' mark
        H       go to the first line in the window
        mt      store this position in the 't' mark

Breaking up restoring the position:
        't      go to the line previously at the top of the window
        zt      scroll to move this line to the top of the window
        `s      jump to the original position of the cursor

For something more advanced see  winsaveview()  and  winrestview() .

==============================================================================
Renaming files                                          rename-files

Say I have a directory with the following files in them (directory picked at
random :-):

buffer.c
charset.c
digraph.c
...

and I want to rename *.c *.bla.  I'd do it like this:

        $ vim
        :r !ls *.c
```

```
	:%s/\(.*\).c/mv & \1.bla
	:w !sh
	:q!
```

==========
Change a name in multiple files *change-name*

Example for using a script file to change a name in several files:

	Create a file "subs.vim" containing substitute commands and a :update
	command:
```
		:%s/Jones/Smith/g
		:%s/Allen/Peter/g
		:update
```

	Execute Vim on all files you want to change, and source the script for
	each argument:

```
		vim *.let
		argdo source subs.vim
```

See :argdo .

==========
Speeding up external commands *speed-up*

In some situations, execution of an external command can be very slow. This
can also slow down wildcard expansion on Unix. Here are a few suggestions to
increase the speed.

If your .cshrc (or other file, depending on the shell used) is very long, you
should separate it into a section for interactive use and a section for
non-interactive use (often called secondary shells). When you execute a
command from Vim like ":!ls", you do not need the interactive things (for
example, setting the prompt). Put the stuff that is not needed after these
lines:

```
	if ($?prompt == 0) then
		exit 0
	endif
```

Another way is to include the "-f" flag in the 'shell' option, e.g.:

```
	:set shell=csh\ -f
```

(the backslash is needed to include the space in the option).
This will make csh completely skip the use of the .cshrc file. This may cause
some things to stop working though.

==========
Useful mappings *useful-mappings*

Here are a few mappings that some people like to use.

map-backtick

```
:map ' `
```

Make the single quote work like a backtick. Puts the cursor on the column of a mark, instead of going to the first non-blank character in the line.

emacs-keys

For Emacs-style editing on the command-line:

```
" start of line
:cnoremap <C-A>         <Home>
" back one character
:cnoremap <C-B>         <Left>
" delete character under cursor
:cnoremap <C-D>         <Del>
" end of line
:cnoremap <C-E>         <End>
" forward one character
:cnoremap <C-F>         <Right>
" recall newer command-line
:cnoremap <C-N>         <Down>
" recall previous (older) command-line
:cnoremap <C-P>         <Up>
" back one word
:cnoremap <Esc><C-B>    <S-Left>
" forward one word
:cnoremap <Esc><C-F>    <S-Right>
```

NOTE: This requires that the '<' flag is excluded from 'cpoptions'. <>

format-bullet-list

This mapping will format any bullet list. It requires that there is an empty line above and below each list entry. The expression commands are used to be able to give comments to the parts of the mapping.

```
:let m =     ":map _f  :set ai<CR>"    " need 'autoindent' set
:let m = m . "{O<Esc>"                 " add empty line above item
:let m = m . "}{)^W"                   " move to text after bullet
:let m = m . "i     <CR>     <Esc>"    " add space for indent
:let m = m . "gq}"                     " format text after the bullet
:let m = m . "{dd"                     " remove the empty line
:let m = m . "5lDJ"                    " put text after bullet
:execute m                             |" define the mapping
```

(<> notation <> . Note that this is all typed literally. ^W is "^" "W", not CTRL-W. You can copy/paste this into Vim if '<' is not included in 'cpoptions'.)

Note that the last comment starts with |", because the ":execute" command doesn't accept a comment directly.

You also need to set 'textwidth' to a non-zero value, e.g.,

```
:set tw=70
```

A mapping that does about the same, but takes the indent for the list from the first line (Note: this mapping is a single long line with a lot of spaces):

```
        :map _f :set ai<CR>}{a                                                  <Es
```

collapse

These two mappings reduce a sequence of empty (;b) or blank (;n) lines into a single line

```
    :map ;b   GoZ<Esc>:g/^$/.,/./-j<CR>Gdd
    :map ;n   GoZ<Esc>:g/^[ <Tab>]*$/.,/[^ <Tab>]/-j<CR>Gdd
```

==========

Compressing the help files gzip-helpfile

For those of you who are really short on disk space, you can compress the help files and still be able to view them with Vim. This makes accessing the help files a bit slower and requires the "gzip" program.

(1) Compress all the help files: "gzip doc/*.txt".

(2) Edit "doc/tags" and change the ".txt" to ".txt.gz":

```
        :%s=\(\t.*\.txt\)\t=\1.gz\t=
```

(3) Add this line to your vimrc:

```
        set helpfile={dirname}/help.txt.gz
```

Where {dirname} is the directory where the help files are. The gzip plugin will take care of decompressing the files.
You must make sure that $VIMRUNTIME is set to where the other Vim files are, when they are not in the same location as the compressed "doc" directory. See $VIMRUNTIME .

==========

Executing shell commands in a window shell-window

See terminal .

Another solution is splitting your terminal screen or display window with the "splitvt" program. You can probably find it on some ftp server. The person that knows more about this is Sam Lantinga <slouken@cs.ucdavis.edu>.

Another alternative is the "window" command, found on BSD Unix systems, which supports multiple overlapped windows. Or the "screen" program, found at www.uni-erlangen.de, which supports a stack of windows.

==========

Hex editing hex-editing using-xxd

See section 23.4 of the user manual.

If one has a particular extension that one uses for binary files (such as exe, bin, etc), you may find it helpful to automate the process with the following bit of autocmds for your <.vimrc>. Change that "*.bin" to whatever comma-separated list of extension(s) you find yourself wanting to edit:

```
        " vim -b : edit binary using xxd-format!
        augroup Binary
```

```
          au!
          au BufReadPre  *.bin let &bin=1
          au BufReadPost *.bin if &bin | %!xxd
          au BufReadPost *.bin set ft=xxd | endif
          au BufWritePre *.bin if &bin | %!xxd -r
          au BufWritePre *.bin endif
          au BufWritePost *.bin if &bin | %!xxd
          au BufWritePost *.bin set nomod | endif
        augroup END
```

==========

Using <> notation in autocommands autocmd-<>

The <> notation is not recognized in the argument of an :autocmd. To avoid having to use special characters, you could use a self-destroying mapping to get the <> notation and then call the mapping from the autocmd. Example:

map-self-destroy

```
 " This is for automatically adding the name of the file to the menu list.
 " It uses a self-destroying mapping!
 " 1. use a line in the buffer to convert the 'dots' in the file name to \.
 " 2. store that in register '"'
 " 3. add that name to the Buffers menu list
 " WARNING: this does have some side effects, like overwriting the
 " current register contents and removing any mapping for the "i" command.
 "
 autocmd BufNewFile,BufReadPre * nmap i :nunmap i<CR>O<C-R>%<Esc>:.g/\./s/\./\\./g<CR>0"9y
 autocmd BufNewFile,BufReadPre * normal i
```

Another method, perhaps better, is to use the ":execute" command. In the string you can use the <> notation by preceding it with a backslash. Don't forget to double the number of existing backslashes and put a backslash before '"'.

```
  autocmd BufNewFile,BufReadPre * exe "normal O\<C-R>%\<Esc>:.g/\\./s/\\./\\\\./g\<CR>0\"9y
```

For a real buffer menu, user functions should be used (see :function), but then the <> notation isn't used, which defeats using it as an example here.

==========

Highlighting matching parens match-parens

This example shows the use of a few advanced tricks:
- using the CursorMoved autocommand event
- using searchpairpos() to find a matching paren
- using synID() to detect whether the cursor is in a string or comment
- using :match to highlight something
- using a pattern to match a specific position in the file.

This should be put in a Vim script file, since it uses script-local variables. It skips matches in strings or comments, unless the cursor started in string or comment. This requires syntax highlighting.

A slightly more advanced version is used in the matchparen plugin.

```
let s:paren_hl_on = 0
function s:Highlight_Matching_Paren()
  if s:paren_hl_on
    match none
    let s:paren_hl_on = 0
  endif

  let c_lnum = line('.')
  let c_col = col('.')

  let c = getline(c_lnum)[c_col - 1]
  let plist = split(&matchpairs, ':\|,')
  let i = index(plist, c)
  if i < 0
    return
  endif
  if i % 2 == 0
    let s_flags = 'nW'
    let c2 = plist[i + 1]
  else
    let s_flags = 'nbW'
    let c2 = c
    let c = plist[i - 1]
  endif
  if c == '['
    let c = '\['
    let c2 = '\]'
  endif
  let s_skip ='synIDattr(synID(line("."), col("."), 0), "name") ' .
        \ '=~?  "string\\|comment"'
  execute 'if' s_skip '| let s_skip = 0 | endif'

  let [m_lnum, m_col] = searchpairpos(c, '', c2, s_flags, s_skip)

  if m_lnum > 0 && m_lnum >= line('w0') && m_lnum <= line('w$')
    exe 'match Search /\(\%' . c_lnum . 'l\%' . c_col .
          \ 'c\)\|\(\%' . m_lnum . 'l\%' . m_col . 'c\)/'
    let s:paren_hl_on = 1
  endif
endfunction

autocmd CursorMoved,CursorMovedI * call s:Highlight_Matching_Paren()
autocmd InsertEnter * match none
```

vim:tw=78:ts=8:noet:ft=help:norl:

message.txt For Vim version 8.1. Last change: 2018 Feb 04

VIM REFERENCE MANUAL by Bram Moolenaar

This file contains an alphabetical list of messages and error messages that Vim produces. You can use this if you don't understand what the message means. It is not complete though.

==========

1. Old messages :messages :mes message-history

The ":messages" command can be used to view previously given messages. This is especially useful when messages have been overwritten or truncated. This depends on the 'shortmess' option.

:messages	Show all messages.
:{count}messages	Show the {count} most recent messages.
:messages clear	Clear all messages.
:{count}messages clear	Clear messages, keeping only the {count} most recent ones.

The number of remembered messages is fixed at 20 for the tiny version and 200 for other versions.

g<

The "g<" command can be used to see the last page of previous command output. This is especially useful if you accidentally typed <Space> at the hit-enter prompt. You are then back at the hit-enter prompt and can then scroll further back.
Note: If the output has been stopped with "q" at the more prompt, it will only be displayed up to this point.
The previous command output is cleared when another command produces output.
The "g<" output is not redirected.

If you are using translated messages, the first printed line tells who maintains the messages or the translations. You can use this to contact the maintainer when you spot a mistake.

If you want to find help on a specific (error) message, use the ID at the start of the message. For example, to get help on the message:

    E72: Close error on swap file

or (translated):

        E72: Errore durante chiusura swap file

Use:

        :help E72

If you are lazy, it also works without the shift key:

        :help e72

==
2. Error messages   error-messages   errors

When an error message is displayed, but it is removed before you could read
it, you can see it again with:
  :echo errmsg
Or view a list of recent messages with:
  :messages
See `:messages` above.

LIST OF MESSAGES
                        E222   E228   E232   E256   E293   E298   E304   E317
                        E318   E356   E438   E439   E440   E316   E320   E322
                        E323   E341   E473   E570   E685   E950
  Add to read buffer
  makemap: Illegal mode
  Cannot create BalloonEval with both message and callback
  Hangul automata ERROR
  block was not locked
  Didn't get block nr {N}?
  ml_upd_block0(): Didn't get block 0??
  pointer block id wrong {N}
  Updated too many blocks?
  get_varp ERROR
  u_undo: line numbers wrong
  undo list corrupt
  undo line missing
  ml_get: cannot find line {N}
  cannot find line {N}
  line number out of range: {N} past the end
  line count wrong in block {N}
  Internal error
  Internal error: {function}
  fatal error in cs_manage_matches
  Invalid count for del_bytes(): {N}

This is an internal error. If you can reproduce it, please send in a bug
report. bugs

  ATTENTION
  Found a swap file by the name ...

See ATTENTION .

E92
  Buffer {N} not found

The buffer you requested does not exist. This can also happen when you have
wiped out a buffer which contains a mark or is referenced in another way.
 :bwipeout

E95
  Buffer with this name already exists

You cannot have two buffers with the same name.

E72
  Close error on swap file

The swap-file , that is used to keep a copy of the edited text, could not be
closed properly. Mostly harmless.

E169
  Command too recursive

This happens when an Ex command executes an Ex command that executes an Ex
command, etc. The limit is 200 or the value of 'maxfuncdepth', whatever is
larger. When it's more there probably is an endless loop. Probably a
 :execute or :source command is involved.

E254
  Cannot allocate color {name}

The color name {name} is unknown. See gui-colors for a list of colors that
are available on most systems.

E458
  Cannot allocate colormap entry, some colors may be incorrect

This means that there are not enough colors available for Vim. It will still
run, but some of the colors will not appear in the specified color. Try
stopping other applications that use many colors, or start them after starting
gvim.
Browsers are known to consume a lot of colors. You can avoid this with
netscape by telling it to use its own colormap:
        netscape -install
Or tell it to limit to a certain number of colors (64 should work well):
        netscape -ncols 64
This can also be done with a line in your Xdefaults file:
        Netscape*installColormap: Yes
or
        Netscape*maxImageColors: 64

E79
  Cannot expand wildcards

A filename contains a strange combination of characters, which causes Vim to attempt expanding wildcards but this fails. This does NOT mean that no matching file names could be found, but that the pattern was illegal.

E459

Cannot go back to previous directory

While expanding a file name, Vim failed to go back to the previously used directory. All file names being used may be invalid now! You need to have execute permission on the current directory.

E190 E212

Cannot open "{filename}" for writing
Can't open file for writing

For some reason the file you are writing to cannot be created or overwritten. The reason could be that you do not have permission to write in the directory or the file name is not valid.

E166

Can't open linked file for writing

You are trying to write to a file which can't be overwritten, and the file is a link (either a hard link or a symbolic link). Writing might still be possible if the directory that contains the link or the file is writable, but Vim now doesn't know if you want to delete the link and write the file in its place, or if you want to delete the file itself and write the new file in its place. If you really want to write the file under this name, you have to manually delete the link or the file, or change the permissions so that Vim can overwrite.

E46

Cannot change read-only variable "{name}"

You are trying to assign a value to an argument of a function a:var or a Vim internal variable v:var which is read-only.

E90

Cannot unload last buffer

Vim always requires one buffer to be loaded, otherwise there would be nothing to display in the window.

E40

Can't open errorfile <filename>

When using the ":make" or ":grep" commands: The file used to save the error messages or grep output cannot be opened. This can have several causes:
- 'shellredir' has a wrong value.
- The shell changes directory, causing the error file to be written in another directory. This could be fixed by changing 'makeef', but then the make command is still executed in the wrong directory.
- 'makeef' has a wrong value.
- The 'grepprg' or 'makeprg' could not be executed. This cannot always be

detected (especially on MS-Windows). Check your $PATH.

Can't open file C:\TEMP\VIoD243.TMP

On MS-Windows, this message appears when the output of an external command was to be read, but the command didn't run successfully. This can be caused by many things. Check the 'shell', 'shellquote', 'shellxquote', 'shellslash' and related options. It might also be that the external command was not found, there is no different error message for that.

E12
Command not allowed from exrc/vimrc in current dir or tag search

Some commands are not allowed for security reasons. These commands mostly come from a .exrc or .vimrc file in the current directory, or from a tags file. Also see 'secure'.

E74
Command too complex

A mapping resulted in a very long command string. Could be caused by a mapping that indirectly calls itself.

CONVERSION ERROR

When writing a file and the text "CONVERSION ERROR" appears, this means that some bits were lost when converting text from the internally used UTF-8 to the format of the file. The file will not be marked unmodified. If you care about the loss of information, set the 'fileencoding' option to another value that can handle the characters in the buffer and write again. If you don't care, you can abandon the buffer or reset the 'modified' option.

E302
Could not rename swap file

When the file name changes, Vim tries to rename the swap-file as well. This failed and the old swap file is now still used. Mostly harmless.

E43 E44
Damaged match string
Corrupted regexp program

Something inside Vim went wrong and resulted in a corrupted regexp. If you know how to reproduce this problem, please report it. bugs

E208 E209 E210
Error writing to "{filename}"
Error closing "{filename}"
Error reading "{filename}"

This occurs when Vim is trying to rename a file, but a simple change of file name doesn't work. Then the file will be copied, but somehow this failed.

The result may be that both the original file and the destination file exist
and the destination file may be incomplete.

  Vim: Error reading input, exiting...

This occurs when Vim cannot read typed characters while input is required.
Vim got stuck, the only thing it can do is exit. This can happen when both
stdin and stderr are redirected and executing a script that doesn't exit Vim.

                                                                    E47
  Error while reading errorfile

Reading the error file was not possible. This is NOT caused by an error
message that was not recognized.

                                                                    E80
  Error while writing

Writing a file was not completed successfully. The file is probably
incomplete.

                                                                E13   E189
  File exists (add ! to override)
  "{filename}" exists (add ! to override)

You are protected from accidentally overwriting a file. When you want to
write anyway, use the same command, but add a "!" just after the command.
Example:
        :w /tmp/test
changes to:
        :w! /tmp/test

                                                                    E768
  Swap file exists: {filename} (:silent! overrides)

You are protected from overwriting a file that is being edited by Vim. This
happens when you use ":w! filename" and a swapfile is found.
- If the swapfile was left over from an old crashed edit session you may want
  to delete the swapfile. Edit {filename} to find out information about the
  swapfile.
- If you want to write anyway prepend ":silent!" to the command. For example:
        :silent! w! /tmp/test
 The special command is needed, since you already added the ! for overwriting
  an existing file.

                                                                    E139
  File is loaded in another buffer

You are trying to write a file under a name which is also used in another
buffer. This would result in two versions of the same file.

                                                                    E142
  File not written: Writing is disabled by 'write' option

The 'write' option is off. This makes all commands that try to write a file
generate this message. This could be caused by a -m commandline argument.
You can switch the 'write' option on with ":set write".

                                                                        E25
  GUI cannot be used: Not enabled at compile time

You are running a version of Vim that doesn't include the GUI code. Therefore
"gvim" and ":gui" don't work.

                                                                        E49
  Invalid scroll size

This is caused by setting an invalid value for the 'scroll', 'scrolljump' or
'scrolloff' options.

                                                                        E17
  "{filename}" is a directory

You tried to write a file with the name of a directory. This is not possible.
You probably need to append a file name.

                                                                        E19
  Mark has invalid line number

You are using a mark that has a line number that doesn't exist. This can
happen when you have a mark in another file, and some other program has
deleted lines from it.

                                                                E219   E220
  Missing {.
  Missing }.

Using a {} construct in a file name, but there is a { without a matching } or
the other way around. It should be used like this: {foo,bar}. This matches
"foo" and "bar".

                                                                        E315
  ml_get: invalid lnum: {number}

This is an internal Vim error. Please try to find out how it can be
reproduced, and submit a bug report bugreport.vim .

                                                                        E173
  {number} more files to edit

You are trying to exit, while the last item in the argument list has not been
edited. This protects you from accidentally exiting when you still have more
files to work on. See argument-list . If you do want to exit, just do it
again and it will work.

                                                                E23   E194
  No alternate file

No alternate file name to substitute for '#'

The alternate file is not defined yet. See alternate-file .

E32

No file name

The current buffer has no name. To write it, use ":w fname". Or give the buffer a name with ":file fname".

E141

No file name for buffer {number}

One of the buffers that was changed does not have a file name. Therefore it cannot be written. You need to give the buffer a file name:
	:buffer {number}
	:file {filename}

E33

No previous substitute regular expression

When using the '~' character in a pattern, it is replaced with the previously used pattern in a ":substitute" command. This fails when no such command has been used yet. See /~ . This also happens when using ":s/pat/%/", where the "%" stands for the previous substitute string.

E35

No previous regular expression

When using an empty search pattern, the previous search pattern is used. But that is not possible if there was no previous search.

E24

No such abbreviation

You have used an ":unabbreviate" command with an argument which is not an existing abbreviation. All variations of this command give the same message: ":cunabbrev", ":iunabbrev", etc. Check for trailing white space.

/dev/dsp: No such file or directory

Only given for GTK GUI with Gnome support. Gnome tries to use the audio device and it isn't present. You can ignore this error.

E31

No such mapping

You have used an ":unmap" command with an argument which is not an existing mapping. All variations of this command give the same message: ":cunmap", ":unmap!", etc. A few hints:
- Check for trailing white space.
- If the mapping is buffer-local you need to use ":unmap <buffer>".
  :map-<buffer>

E37 E89

No write since last change (add ! to override)
No write since last change for buffer {N} (add ! to override)

You are trying to abandon a file that has changes. Vim protects you from losing your work. You can either write the changed file with ":w", or, if you are sure, abandon it anyway, and lose all the changes. This can be done by adding a '!' character just after the command you used. Example:

```
:e other_file
```

changes to:

```
:e! other_file
```

E162

No write since last change for buffer "{name}"

This appears when you try to exit Vim while some buffers are changed. You will either have to write the changed buffer (with :w), or use a command to abandon the buffer forcefully, e.g., with ":qa!". Careful, make sure you don't throw away changes you really want to keep. You might have forgotten about a buffer, especially when 'hidden' is set.

[No write since last change]

This appears when executing a shell command while at least one buffer was changed. To avoid the message reset the 'warn' option.

E38

Null argument

Something inside Vim went wrong and resulted in a NULL pointer. If you know how to reproduce this problem, please report it. bugs

E41 E82 E83 E342

Out of memory!
Out of memory! (allocating {number} bytes)
Cannot allocate any buffer, exiting...
Cannot allocate buffer, using other one...

Oh, oh. You must have been doing something complicated, or some other program is consuming your memory. Be careful! Vim is not completely prepared for an out-of-memory situation. First make sure that any changes are saved. Then try to solve the memory shortage. To stay on the safe side, exit Vim and start again.

Buffers are only partly kept in memory, thus editing a very large file is unlikely to cause an out-of-memory situation. Undo information is completely in memory, you can reduce that with these options:

- 'undolevels' Set to a low value, or to -1 to disable undo completely. This helps for a change that affects all lines.
- 'undoreload' Set to zero to disable.

E339

Pattern too long

This happens on systems with 16 bit ints: The compiled regexp pattern is
longer than about 65000 characters. Try using a shorter pattern.
It also happens when the offset of a rule doesn't fit in the space available.
Try simplifying the pattern.

E45

'readonly' option is set (add ! to override)

You are trying to write a file that was marked as read-only. To write the
file anyway, either reset the 'readonly' option, or add a '!' character just
after the command you used. Example:
	:w
changes to:
	:w!

E294 E295 E301

Read error in swap file
Seek error in swap file read
Oops, lost the swap file!!!

Vim tried to read text from the swap-file , but something went wrong. The
text in the related buffer may now be corrupted! Check carefully before you
write a buffer. You may want to write it in another file and check for
differences.

E192

Recursive use of :normal too deep

You are using a ":normal" command, whose argument again uses a ":normal"
command in a recursive way. This is restricted to 'maxmapdepth' levels. This
example illustrates how to get this message:
	:map gq :normal gq<CR>
If you type "gq", it will execute this mapping, which will call "gq" again.

E22

Scripts nested too deep

Scripts can be read with the "-s" command-line argument and with the ":source"
command. The script can then again read another script. This can continue
for about 14 levels. When more nesting is done, Vim assumes that there is a
recursive loop somewhere and stops with this error message.

E319

Sorry, the command is not available in this version

You have used a command that is not present in the version of Vim you are
using. When compiling Vim, many different features can be enabled or
disabled. This depends on how big Vim has chosen to be and the operating
system. See +feature-list for when which feature is available. The
 :version command shows which feature Vim was compiled with.

E300

Swap file already exists (symlink attack?)

This message appears when Vim is trying to open a swap file and finds it already exists or finds a symbolic link in its place. This shouldn't happen, because Vim already checked that the file doesn't exist. Either someone else opened the same file at exactly the same moment (very unlikely) or someone is attempting a symlink attack (could happen when editing a file in /tmp or when 'directory' starts with "/tmp", which is a bad choice).

E432

Tags file not sorted: {file name}

Vim (and Vi) expect tags files to be sorted in ASCII order. Binary searching can then be used, which is a lot faster than a linear search. If your tags files are not properly sorted, reset the 'tagbsearch' option.
This message is only given when Vim detects a problem when searching for a tag. Sometimes this message is not given, even though the tags file is not properly sorted.

E460

The resource fork would be lost (add ! to override)

On the Macintosh (classic), when writing a file, Vim attempts to preserve all info about a file, including its resource fork. If this is not possible you get this error message. Append "!" to the command name to write anyway (and lose the info).

E424

Too many different highlighting attributes in use

Vim can only handle about 223 different kinds of highlighting. If you run into this limit, you have used too many :highlight commands with different arguments. A ":highlight link" is not counted.

E77

Too many file names

When expanding file names, more than one match was found. Only one match is allowed for the command that was used.

E303

Unable to open swap file for "{filename}", recovery impossible

Vim was not able to create a swap file. You can still edit the file, but if Vim unexpectedly exits the changes will be lost. And Vim may consume a lot of memory when editing a big file. You may want to change the 'directory' option to avoid this error. See swap-file .

E140

Use ! to write partial buffer

When using a range to write part of a buffer, it is unusual to overwrite the original file. It is probably a mistake (e.g., when Visual mode was active when using ":w"), therefore Vim requires using a ! after the command, e.g.:

":3,10w!".

  Warning: Cannot convert string "<Key>Escape,_Key_Cancel" to type
  VirtualBinding

Messages like this appear when starting up. This is not a Vim problem, your
X11 configuration is wrong. You can find a hint on how to solve this here:
http://groups.yahoo.com/group/solarisonintel/message/12179.
[this URL is no longer valid]

                                                                    W10
  Warning: Changing a readonly file

The file is read-only and you are making a change to it anyway. You can use
the FileChangedRO autocommand event to avoid this message (the autocommand
must reset the 'readonly' option). See 'modifiable' to completely disallow
making changes to a file.
This message is only given for the first change after 'readonly' has been set.

                                                                    W13
  Warning: File "{filename}" has been created after editing started

You are editing a file in Vim when it didn't exist, but it does exist now.
You will have to decide if you want to keep the version in Vim or the newly
created file. This message is not given when 'buftype' is not empty.

                                                                    W11
  Warning: File "{filename}" has changed since editing started

The file which you have started editing has got another timestamp and the
contents changed (more precisely: When reading the file again with the current
option settings and autocommands you would end up with different text). This
probably means that some other program changed the file. You will have to
find out what happened, and decide which version of the file you want to keep.
Set the 'autoread' option if you want to do this automatically.
This message is not given when 'buftype' is not empty.

There is one situation where you get this message even though there is nothing
wrong: If you save a file in Windows on the day the daylight saving time
starts. It can be fixed in one of these ways:
- Add this line in your autoexec.bat:
            SET TZ=-1
 Adjust the "-1" for your time zone.
- Disable "automatically adjust clock for daylight saving changes".
- Just write the file again the next day. Or set your clock to the next day,
  write the file twice and set the clock back.

If you get W11 all the time, you may need to disable "Acronis Active
Protection" or register Vim as a trusted service/application.

                                                                    W12
  Warning: File "{filename}" has changed and the buffer was changed in Vim as well

Like the above, and the buffer for the file was changed in this Vim as well. You will have to decide if you want to keep the version in this Vim or the one on disk. This message is not given when 'buftype' is not empty.

W16
Warning: Mode of file "{filename}" has changed since editing started

When the timestamp for a buffer was changed and the contents are still the same but the mode (permissions) have changed. This usually occurs when checking out a file from a version control system, which causes the read-only bit to be reset. It should be safe to reload the file. Set 'autoread' to automatically reload the file.

E211
File "{filename}" no longer available

The file which you have started editing has disappeared, or is no longer accessible. Make sure you write the buffer somewhere to avoid losing changes. This message is not given when 'buftype' is not empty.

W14
Warning: List of file names overflow

You must be using an awful lot of buffers. It's now possible that two buffers have the same number, which causes various problems. You might want to exit Vim and restart it.

E931
Buffer cannot be registered

Out of memory or a duplicate buffer number. May happen after W14. Looking up a buffer will not always work, better restart Vim.

E296 E297
Seek error in swap file write
Write error in swap file

This mostly happens when the disk is full. Vim could not write text into the swap-file . It's not directly harmful, but when Vim unexpectedly exits some text may be lost without recovery being possible. Vim might run out of memory when this problem persists.

connection-refused
Xlib: connection to "<machine-name:0.0" refused by server

This happens when Vim tries to connect to the X server, but the X server does not allow a connection. The connection to the X server is needed to be able to restore the title and for the xterm clipboard support. Unfortunately this error message cannot be avoided, except by disabling the +xterm_clipboard and +X11 features.

E10
\\ should be followed by /, ? or &

A command line started with a backslash or the range of a command contained a backslash in a wrong place. This is often caused by command-line continuation being disabled. Remove the 'C' flag from the 'cpoptions' option to enable it. Or use ":set nocp".

E471

  Argument required

This happens when an Ex command with mandatory argument(s) was executed, but no argument has been specified.

E474 E475

  Invalid argument
  Invalid argument: {arg}

An Ex command has been executed, but an invalid argument has been specified.

E488

  Trailing characters

An argument has been added to an Ex command that does not permit one.

E477 E478

  No ! allowed
  Don't panic!

You have added a "!" after an Ex command that doesn't permit one.

E481

  No range allowed

A range was specified for an Ex command that doesn't permit one. See
 cmdline-ranges .

E482 E483

  Can't create file {filename}
  Can't get temp file name

Vim cannot create a temporary file.

E484 E485

  Can't open file {filename}
  Can't read file {filename}

Vim cannot read a temporary file. Especially on Windows, this can be caused by wrong escaping of special characters for cmd.exe; the approach was changed with patch 7.3.443. Try using shellescape() for all shell arguments given to system() , or explicitly add escaping with ^. Also see 'shellxquote' and 'shellxescape'.

E464

  Ambiguous use of user-defined command

There are two user-defined commands with a common name prefix, and you used

Command-line completion to execute one of them. user-cmd-ambiguous
Example:
```
        :command MyCommand1 echo "one"
        :command MyCommand2 echo "two"
        :MyCommand
```

E492
```
  Not an editor command
```

You tried to execute a command that is neither an Ex command nor
a user-defined command.

E943
```
  Command table needs to be updated, run 'make cmdidxs'
```

This can only happen when changing the source code, when adding a command in
src/ex_cmds.h. The lookup table then needs to be updated, by running:
```
        make cmdidxs
```

==========
3. Messages messages

This is an (incomplete) overview of various messages that Vim gives:

hit-enter press-enter hit-return
press-return hit-enter-prompt

```
  Press ENTER or type command to continue
```

This message is given when there is something on the screen for you to read,
and the screen is about to be redrawn:
- After executing an external command (e.g., ":!ls" and "=").
- Something is displayed on the status line that is longer than the width of
  the window, or runs into the 'showcmd' or 'ruler' output.

-> Press <Enter> or <Space> to redraw the screen and continue, without that
   key being used otherwise.
-> Press ':' or any other Normal mode command character to start that command.
-> Press 'k', <Up>, 'u', 'b' or 'g' to scroll back in the messages. This
   works the same way as at the more-prompt . Only works when 'compatible'
   is off and 'more' is on.
-> Pressing 'j', 'f', 'd' or <Down> is ignored when messages scrolled off the
   top of the screen, 'compatible' is off and 'more' is on, to avoid that
   typing one 'j' or 'f' too many causes the messages to disappear.
-> Press <C-Y> to copy (yank) a modeless selection to the clipboard register.
-> Use a menu. The characters defined for Cmdline-mode are used.
-> When 'mouse' contains the 'r' flag, clicking the left mouse button works
   like pressing <Space>. This makes it impossible to select text though.
-> For the GUI clicking the left mouse button in the last line works like
   pressing <Space>.
{Vi: only ":" commands are interpreted}

If you accidentally hit <Enter> or <Space> and you want to see the displayed
text then use g< . This only works when 'more' is set.

To reduce the number of hit-enter prompts:
- Set 'cmdheight' to 2 or higher.
- Add flags to 'shortmess'.
- Reset 'showcmd' and/or 'ruler'.

If your script causes the hit-enter prompt and you don't know why, you may find the v:scrollstart variable useful.

Also see 'mouse'. The hit-enter message is highlighted with the hl-Question group.

more-prompt pager

```
-- More --
-- More -- SPACE/d/j: screen/page/line down, b/u/k: up, q: quit
```

This message is given when the screen is filled with messages. It is only given when the 'more' option is on. It is highlighted with the hl-MoreMsg group.

Type	effect
<CR> or <NL> or j or <Down>	one more line
d	down a page (half a screen)
<Space> or f or <PageDown>	down a screen
G	down all the way, until the hit-enter prompt
<BS> or k or <Up>	one line back (*)
u	up a page (half a screen) (*)
b or <PageUp>	back a screen (*)
g	back to the start (*)
q, <Esc> or CTRL-C	stop the listing
:	stop the listing and enter a command-line
<C-Y>	yank (copy) a modeless selection to the clipboard ("* and "+ registers)
{menu-entry}	what the menu is defined to in Cmdline-mode.
<LeftMouse> (**)	next page

Any other key causes the meaning of the keys to be displayed.

(*) backwards scrolling is {not in Vi}. Only scrolls back to where messages started to scroll.
(**) Clicking the left mouse button only works:
- For the GUI: in the last line of the screen.
- When 'r' is included in 'mouse' (but then selecting text won't work).

Note: The typed key is directly obtained from the terminal, it is not mapped and typeahead is ignored.

The g< command can be used to see the last page of previous command output. This is especially useful if you accidentally typed <Space> at the hit-enter prompt.

vim:tw=78:ts=8:noet:ft=help:norl:

quotes.txt For Vim version 8.1. Last change: 2018 Mar 29

VIM REFERENCE MANUAL by Bram Moolenaar

quotes

Here are some nice quotes about Vim that I collected from news and mail.

vim (vim) noun - Ebullient vitality and energy. [Latin, accusative of vis, strength] (Dictionary)

Vim is so much better than vi that a great many of my old vi :map's became immediately obsolete! (Tony Nugent, Australia)

Coming with a very GUI mindset from Windows, I always thought of people using Vi as some kind of outer space alien in human clothes. Once I tried I really got addicted by its power and now I found myself typing Vim keypresses in the oddest places! That's why I would like to see Vim embedded in every application which deals with text editing. (José Fonseca)

I was a 12-year emacs user who switched to Vim about a year ago after finally giving up on the multiple incompatible versions, flaky contributed packages, disorganized keystrokes, etc. And it was one of the best moves I ever made. (Joel Burton)

Although all of the programs were used during the preparation of the new and revised material, most of the editing was done with Vim versions 4.5 and 5.0 under GNU-Linux (Redhat 4.2). (Arnold Robbins, Israel, author of "Learning the Vi editor")

Out of all the open software i've ever seen and used, and i've seen a lot, Vim is the best, most useful and highest quality to work with, second only to the linux kernel itself. (Peter Jay Salzman)

It's well worth noting that the _entirety_ of SourceForge was written using Vim and its nifty PHP syntax highlighting. I think the entire SF.net tech staff uses Vim and we're all excited to have you aboard! (Tim Perdue)

Vim is one of a select bunch of tools for which I have no substitute. It is a brilliant piece of work! (Biju Chacko)

A previous girlfriend of mine switched to emacs. Needless to say, the relationship went nowhere. (Geoffrey Mann)

I rarely think about Vim, in the same way that I guess a fish rarely thinks about water. It's the environment in which everything else happens. I'm a fairly busy system administrator working on a lot of different platforms. Vim is the only thing that's consistent across all my systems, and it's just about the only thing that doesn't break from time to time. When a new system comes in the door without Vim, I install it right away. Great to have a tool that's the same everywhere, that's completely reliable, so I can ignore it and think about other things. (Pete Schaeffer)

Having recently succeeded in running Vim via telnet through a Nokia Communicator, I can now report that it works nicely on a Palm Pilot too. (Allan Kelly, Scotland)

You've done a tremendous job with 'VIM', Bram! The more I use it, the more impressed I get (I am an old 'vi' die hard who once started out with early versions of 'emacs' in the late 1970's and was relieved by finding 'vi' in the first UNIX I came across in 1983). In my opinion, it's about time 'VIM' replace 'emacs' as the standard for top editors. (Bo Thide', Sweden)

I love and use Vim heavily too. (Larry Wall)

Vi is like a Ferrari, if you're a beginner, it handles like a bitch, but once you get the hang of it, it's small, powerful and FAST! (Unknown)
Vim is like a new model Ferrari, and sounds like one too - "VIIIIIIMMM!" (Stephen Riehm, Germany)

Schon bei Nutzung eines Bruchteils der Vim-Funktionen wird der Benutzer recht schnell die Vorzuege dieses Editors kennen- und schaetzenlernen.
Translated: Even when only using a fraction of Vim-functions, the user will quickly get used to and appreciate the advantages of this editor. (Garry Glendown, conclusion of an article on Vim in iX magazine 9/1998)

I've recently acquired the O'Reilly book on Vi (it also discusses Vim in-depth), and I'm amazed at just how powerful this application is. (Jeffrey Rankin)

This guide was written using the Windows 9.x distribution of gvim, which is quite possibly the greatest thing to come along since God created the naked girl. (Michael DiBernardo)

Boy, I thought I knew almost everything about Vim, but every time I browse the online documentation, I hit upon a minor but cool aspect of a Vim feature that I didn't know before! I must say the documentation is one the finest I've ever seen in a product -- even better than most commercial products. (Gautam Mudunuri)

Vim 4.5 is really a fantastic editor. It has sooooo many features and more importantly, the defaults are so well thought out that you really don't have to change anything!! Words cannot express my amazement and gratitude to the creators of Vim. Keep it up. (Vikas, USA)

I wonder how long it will be before people will refer to other Vi editors as Vim clones? (Darren Hiebert)

I read about [auto-positioning-in-file-based-on-the-errors-from-make] in one of those "Perfect Programmer's Editor" threads and was delighted to discover that Vim already supports it. (Brendan Macmillan, Australia)

I just discovered Vim (5.0) and I'm telling everyone I know about it!
I tell them Vim stands for Vi for the new (M)illenium. Thanks so much! (Matt F. Valentine)

I think from now on "vi" should be called "Vim Imitation", not the other way around. (Rungun Ramanathan)

The Law of Vim:
For each member b of the possible behaviour space B of program P, there exists a finite time t before which at least one user u in the total user space U of program P will request b becomes a member of the allowed behaviour space B' (B' <= B).
In other words: Sooner or later everyone wants everything as an option.
(Negri)

Whenever I move to a new computing platform, the first thing I do is to port Vim. Lately, I am simply stunned by its ease of compilation using the configure facility. (A.M. Sabuncu, Turkey)

The options are really excellent and very powerful. (Anish Maharaj)

The Spring user-interface designs are in, and word from the boutiques is that 80x24 text-only mode is back with a *vengeance! Vi editor clone Vim burst onto March desk-tops with a dazzling show of pastel syntax highlights for its 5.0 look. Strident and customizable, Vim raises eyebrows with its interpretation of the classic Vi single-key macro collection.
http://www.ntk.net/index.cgi?back=archive98/now0327.txt&line=179#l

I just wanted to take this opportunity to let you know that Vim 5 ROCKS! Syntax highlighting: how did I survive without it?! Thank you for creating mankind's best editor! (Mun Johl, USA)

Thanks again for Vim. I use it every day on Linux. (Eric Foster-Johnson, author of the book "UNIX Programming Tools")

The BEST EDITOR EVER (Stuart Woolford)

I have used most of Vim's fancy features at least once, many frequently, and I can honestly say that I couldn't live with anything less anymore. My productivity has easily doubled compared to what it was when I used vi.
(Sitaram Chamarty)

I luv Vim. It is incredible. I'm naming my first-born Vimberly. (Jose Unpingco, USA)

Hint: "Vim" is "vi improved" - much better! (Sven Guckes, Germany)

I use Vim every day. I spend more time in Vim than in any other program... It's the best vi clone there is. I think it's great. (Craig Sanders, Australia)

I strongly advise using Vim--its infinite undo/redo saved me much grief.
(Terry Brown)

Thanks very much for writing what in my opinion is the finest text editor on the planet. If I were to get another cat, I would name it "Vim".
(Bob Sheehan, USA)

I typed :set all and the screen FILLED up with options. A whole screen of things to be set and unset. I saw some of my old friends like wrapmargin, modelines and showmode, but the screen was FILLED with new friends! I love them all! I love Vim! I'm so happy that I've found this editor! I feel like how I once felt when I started using vi after a couple of years of using ed. I never thought I'd forsake my beloved ed, but vi ... oh god, vi was great. And now, Vim. (Peter Jay Salzman, USA)

I am really happy with such a wonderful software package. Much better than almost any expensive, off the shelf program. (Jeff Walker)

Whenever I reread the Vim documentation I'm overcome with excitement at the power of the editor. (William Edward Webber, Australia)

Hurrah for Vim!! It is "at your fingertips" like vi, and has the extensions that vi sorely needs: highlighting for executing commands on blocks, an easily navigable and digestible help screen, and more. (Paul Pax)

The reason WHY I don't have this amazingly useful macro anymore, is that I now use Vim - and this is built in!! (Stephen Riehm, Germany)

I am a user of Vim and I love it. I use it to do all my programming, C, C++, HTML what ever. (Tim Allwine)

I discovered Vim after years of struggling with the original vi, and I just can't live without it anymore. (Emmanuel Mogenet, USA)

Emacs has not a bit of chance to survive so long as Vim is around. Besides, it also has the most detailed software documentation I have ever seen---much better than most commercial software! (Leiming Qian)

This version of Vim will just blow people apart when they discover just how fantastic it is! (Tony Nugent, Australia)

I took your advice & finally got Vim & I'm really impressed. Instant convert. (Patrick Killelea, USA)

Vim is by far my favorite piece of shareware and I have been particularly pleased with version 3.0. This is really a solid piece of work. (Robert Colon, USA)

Vim is a joy to use, it is so well thought and practical that I wonder why anybody would use visual development tools. Vim is powerful and elegant, it looks deceptively simple but is almost as complex as a 747 (especially when I look at my growing .vimrc), keep up that wonderful job, Vim is a centerpiece of the free software world. (Louis-David Mitterand, USA)

I cannot believe how great it is to use Vim. I think the guys at work are getting tired of hearing me bragging about it. Others eyes are lighting up. (Rick Croote)

Emacs takes way too much time to start up and run, it is too big and bulky for effective use and the interface is more confusing than it is of any help. Vim however is short, it is fast, it is powerful, it has a good interface and it

is all purpose. (Paal Ditlefsen Ekran)

From the first time I got Vim3.0, I was very enthusiastic. It has almost no problems. The swapfile handling and the backup possibilities are robust, also the protection against editing one file twice. It is very compatible to the real VI (and that is a MUST, because my brain is trained over years in using it). (Gert van Antwerpen, Holland)

Visual mode in Vim is a very powerful thing! (Tony Nugent, Australia)

I have to say that Vim is =THE= single greatest piece of source code to ever come across the net (Jim Battle, USA).

In fact, if you do want to get a new vi I'd suggest Vim-3.0. This is, by far, the best version of vi I've ever seen (Albert W. Schueller).

I should mention that Vim is a very good editor and can compete with anything (Ilya Beloozerov).

To tell the truth sometimes I used elvis, vile, xvi, calvin, etc. And this is the reason that I can state that Vim is the best! (Ferenc Deak, Hungary)

Vim is by far the best editor that I have used in a long time, and I have looked at just about every thing that is available for every platform that I use. Vim is the best on all of them. (Guy L. Oliver)

Vim is the greatest editor since the stone chisel. (Jose Unpingco, USA)

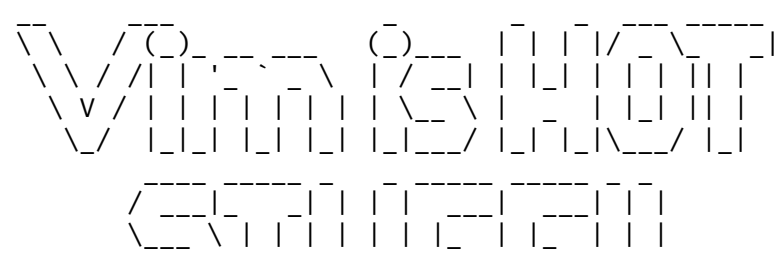
I would like to say that with Vim I am finally making the 'emacs to vi' transition - as an Editor it is so much better in many ways: keyboard layout, memory usage, text alteration to name 3. (Mark Adam)

In fact, now if I want to know what a particular setting does in vi, I fire up Vim and check out its help! (Nikhil Patel, USA)

As a vi user, Vim has made working with text a far more pleasant task than before I encountered this program. (Steinar Knutsen, Norway)

I use Vim since version 3.0. Since that time, it is the ONLY editor I use, with Solaris, Linux and OS/2 Warp. I suggest all my friends to use Vim, they try, and they continue using it. Vim is really the best software I have ever downloaded from the Internet, and the best editor I know of. (Marco Eccettuato, Italy)

In summary:



```
 ___) || | | |_| |  _| |  _| |_|_|
|____/ |_|  \___/|_|   |_|   (_|_)      (Tony Nugent, Australia)

vim:tw=78:ts=8:noet:ft=help:norl:
```

todo.txt For Vim version 8.1. Last change: 2018 May 17

VIM REFERENCE MANUAL by Bram Moolenaar

TODO list for Vim todo

This is a veeeery long list of known bugs, current work and desired
improvements. To make it a little bit accessible, the older items are grouped
by subject. In the first column of the line a classification is used to be
able to look for "the next thing to do":

Priority classification:
9 next point release
8 next release
7 as soon as possible
6 soon
5 should be included
4 nice to have
3 consider including
2 maybe not
1 probably not
- unclassified

votes-for-changes
See develop.txt for development plans. You can vote for which items should
be worked on, but only if you sponsor Vim development. See sponsor .

Issues can also be entered online: https://github.com/vim/vim/issues
Only use this for bug reports, not for questions! Those belong on the
maillist. Updates will be forwarded to the vim_dev maillist. Issues
entered there will not be repeated below, unless there is extra information.

The #1234 numbers refer to an issue or pull request on github. To see it in a
browser use: https://github.com/vim/vim/issues/1234

known-bugs
---------- Known bugs and current work -----------------------

Graduate FEAT_VREPLACE, it's not much code and a lot of #ifdefs

Prompt buffer:
- Add a command line history.
- delay next prompt until plugin gives OK?

Terminal debugger:
- Make prompt-buffer variant work better.
- When only gdb window exists, on "quit" edit another buffer.
- Termdebug does not work when Vim was build with mzscheme: gdb hangs just
  after "run". Everything else works, including communication channel. Not
  initializing mzscheme avoid the problem, thus it's not some #ifdef.

Terminal emulator window:

- When the job in the terminal doesn't use mouse events, let the scroll wheel
  scroll the scrollback, like a terminal does at the shell prompt. #2490
  And use modeless selection. #2962
- With a vertical split only one window is updated. (Linwei, 2018 Jun 2,
  #2977)
- When pasting should call vterm_keyboard_start_paste(), e.g. when using
  K_MIDDLEMOUSE, calling insert_reg().
- Users expect parsing the :term argument like a shell does, also support
  single quotes. E.g. with: :term grep 'alice says "hello"' (#1999)
- Win32: Redirecting input does not work, half of Test_terminal_redir_file()
  is disabled.
- Win32: Redirecting output works but includes escape sequences.
- Win32: Make terminal used for :!cmd in the GUI work better. Allow for
  redirection.
- Terminal API: Add more functionality? (Ozaki Kiichi 2018 May 13, #2907)
- When the job only outputs lines, we could handle resizing the terminal
  better: store lines separated by line breaks, instead of screen lines,
  then when the window is resized redraw those lines.
- Redrawing is slow with Athena and Motif. (Ramel Eshed)
- For the GUI fill termios with default values, perhaps like pangoterm:
  http://bazaar.launchpad.net/~leonerd/pangoterm/trunk/view/head:/main.c#L134
- When 'encoding' is not utf-8, or the job is using another encoding, setup
  conversions.

Does not build with MinGW out of the box:
- _stat64 is not defined, need to use "struct stat" in vim.h
- WINVER conflict, should use 0x0600 by default?

Patches for Python: #3162, #3263 (Ozaki Kiichi)
    Needs update.

Crash when mixing matchadd and substitute()? (Max Christian Pohle, 2018 May
13, #2910) Can't reproduce?

On Win32 when not in the console and t_Co >= 256, allow using 'tgc'.
(Nobuhiro Takasaki, #2833) Also check t_Co.

Errors found with random data:
    heap-buffer-overflow in alist_add (#2472)

Improve fallback for menu translations, to avoid having to create lots of
files that source the actual file. E.g. menu_da_de -> menu_da
Include part of #3242?

Inlcude Chinese-Taiwan translations. (bystar, #3261)

Using mouse for inputlist() doesn't work after patch 8.0.1756. (Dominique
Pelle, 2018 Jul 22, #3239) Also see 8.0.0722. Check both console and GUI.

More warnings from static analysis:
https://lgtm.com/projects/g/vim/vim/alerts/?mode=list

Pasting foo} causes Vim to behave weird. (John Little, 2018 Jun 17)
Related to bracketed paste. I cannot reproduce it.

Using ":file" in quickfix window during an autocommand doesn't work.
(Jason Franklin, 2018 May 23) Allow for using it when there is no argument.

Patch in pull request #2967: Allow white space in sign text. (Ben Jackson)
Test fails in AppVeyor.

Removing flags from 'cpoptions' breaks the Winbar buttons in termdebug.
(Dominique Pelle, 2018 Jul 16)

Problem with two buffers with the same name a/b, if it didn't exist before and
is created outside of Vim. (dskloetg, 2018 Jul 16, #3219)

```
Memory leak in test_assert:
==19127==    by 0x2640D7: alloc (misc2.c:874)
==19127==    by 0x2646D6: vim_strsave (misc2.c:1315)
==19127==    by 0x1B68D2: f_getcwd (evalfunc.c:4950)
And:
==19127==    by 0x2640D7: alloc (misc2.c:874)
==19127==    by 0x1A9477: set_var (eval.c:7601)
==19127==    by 0x19F96F: set_var_lval (eval.c:2233)
==19127==    by 0x19EA3A: ex_let_one (eval.c:1810)
==19127==    by 0x19D737: ex_let_vars (eval.c:1294)
==19127==    by 0x19D6B4: ex_let (eval.c:1259)
Memory leaks in test_channel? (or is it because of fork())
Using uninitialized value in test_crypt.
Memory leaks in test_escaped_glob
==20651==    by 0x2640D7: alloc (misc2.c:874)
==20651==    by 0x2646D6: vim_strsave (misc2.c:1315)
==20651==    by 0x3741EA: get_function_args (userfunc.c:131)
==20651==    by 0x378779: ex_function (userfunc.c:2036)
Memory leak in test_terminal:
==23530==    by 0x2640D7: alloc (misc2.c:874)
==23530==    by 0x2646D6: vim_strsave (misc2.c:1315)
==23530==    by 0x25841D: FullName_save (misc1.c:5443)
==23530==    by 0x17CB4F: fix_fname (buffer.c:4794)
==23530==    by 0x17CB9A: fname_expand (buffer.c:4838)
==23530==    by 0x1759AB: buflist_new (buffer.c:1889)
==23530==    by 0x35C923: term_start (terminal.c:421)
==23530==    by 0x2AFF30: mch_call_shell_terminal (os_unix.c:4377)
==23530==    by 0x2B16BE: mch_call_shell (os_unix.c:5383)
```

gethostbyname() is old, use getaddrinfo() if available. (#3227)

matchaddpos() gets slow with many matches. Proposal by Rick Howe, 2018 Jul
19.

Script generated by :mksession does not work well if there are windows with
modified buffers
  change "silent only" into "silent only!"
  change "edit fname" of first buffer to "hide edit fname"
  skip "badd fname" if "fname" is already in the buffer list
  remove remark about unloading buffers from documentation

Patch to make :help work for tags with a ?. (Hirohito Higashi, 2018 May 28)

Patch to have a stack trace in Ruby. (Masataka Pocke Kuwabara, 2018 Jul 30,
#3267)

Patch to adjust to DPI setting for GTK. (Roel van de Kraats, 2017 Nov 20,
#2357)

Patch to fix window size when using VTP. (Nobuhiro Takasaki, #3164)

Compiler warnings (geeknik, 2017 Oct 26):
- signed integer overflow in do_sub() (#2249)
- signed integer overflow in get_address() (#2248)
- signed integer overflow in getdecchrs() (#2254)
- undefined left shift in get_string_tv() (#2250)

Win32 console: <F11> and <F12> typed in Insert mode don't result in normal
characters. (#3246)

Patch for more quickfix refactoring. (Yegappan Lakshmanan, #2950)

Tests failing for "make testgui" with GTK:
- Test_setbufvar_options()
- Test_exit_callback_interval()

When using CTRL-W CR in the quickfix window, the jumplist in the opened window
is cleared, to avoid going back to the list of errors buffer (would have two
windows with it). Can we just remove the jump list entries for the quickfix
buffer?

Patch to stack and pop the window title and icon. (IWAMOTO Kouichi, 2018 Jun
22, #3059)
8   For xterm need to open a connection to the X server to get the window
    title, which can be slow. Can also get the title with "<Esc>[21t", no
    need to use X11 calls. This returns "<Esc>]l{title}<Esc>\".
Using title stack probably works better.

When a function is defined in the sandbox (with :function or as a lambda)
always execute it in the sandbox. (#3182)
Remove "safe" argument from call_vim_function(), it's always FALSE.

Make balloon_show() work outside of 'balloonexpr'? Users expect it to work:
#2948. (related to #1512?)
On Win32 it stops showing, because showState is already ShS_SHOWING.
balloon_show() does not work properly in the terminal. (Ben Jackson, 2017 Dec
20, #2481)
Also see #2352, want better control over balloon, perhaps set the position.

Try out background make plugin:
  https://github.com/AndrewVos/vim-make-background
or asyncmake:
  https://github.com/yegappan/asyncmake

Add a ModeChanged autocommand that has an argument indicating the old and new

mode. Also used for switching Terminal mode.

Add an option with file patterns, to be used when unloading a buffer: If there
is a match, remove entries for the buffer from marks, jumplist, etc. To be
used for git temp files.

Cursor in wrong position when line wraps. (#2540)

Patch for Lua support. (Kazunobu Kuriyama, 2018 May 26)

Make {skip} argument of searchpair() consistent with other places where we
pass an expression to evaluate. Allow passing zero for "never skip".

Add an option similar to 'lazyredraw' to skip redrawing while executing a
script or function.

Universal solution to detect if t_RS is working, using cursor position.
Koichi Iwamoto, #2126

Patch to fix profiling condition lines. (Ozaki Kiichi,, 2017 Dec 26, #2499)

When using a menu item while the "more" prompt is displayed doesn't work well.
E.g. after using help->version. Have a key that ends the "more" prompt and
does nothing otherwise?

MS-Windows: write may fail if another program is reading the file.
If 'readonly' is not set but the file appears to be readonly later, try again
(wait a little while).
CreateFile() returns ERROR_SHARING_VIOLATION (Linwei, 2018 May 5)

Should add a test for every command line argument. Check coverage for what is
missing: --nofork, -A , -b, -h, etc.

":au * * command" should not be allowed, only use * for event when listing or
deleting autocmds, not when adding them.

Quickfix window height is not kept with a vertical split. (Lifepillar, 2018
Jun 10, #2998)

Improve the installer for MS-Windows. There are a few alternatives:
- Add silent install option. (Shane Lee, #751)
- Installer from Cream (Steve Hall).
- Modern UI 2.0 for the Nsis installer. (Guopeng Wen)
    https://github.com/gpwen/vim-installer-mui2
- make it possible to do a silent install, see
    http://nsis.sourceforge.net/Docs/Chapter4.html#4.12
    Version from Guopeng Wen does this.
- MSI installer: https://github.com/petrkle/vim-msi/
- The one on Issue 279.
Problem: they all work slightly different (e.g. don't install vimrun.exe).
How to test that it works well for all Vim users?

Alternative manpager.vim. (Enno, 2018 Jan 5, #2529)

Patch to use NGETTEXT() in many more places. (Sergey Alyoshin, 2018 May 25)
Updated ptach May 27.

Does setting 'cursorline' cause syntax highlighting to slow down? Perhaps is mess up the cache? (Mike Lee Williams, 2018 Jan 27, #2539)
Also: 'foldtext' is evaluated too often. (Daniel Hahler, #2773)

With 'foldmethod' "indent" and appending an empty line, what follows isn't included in the existing fold. Deleting the empty line and undo fixes it. (Oleg Koshovetc, 2018 Jul 15, #3214)

When using :packadd files under "later" are not used, which is inconsistent with packages under "start". (xtal8, #1994)

Patch to support "xxd -ps". (Erik Auerswald, 2018 May 1)
Lacks a test.

Column number is wrong when using 'linebreak' and 'wrap'. (Keith Smiley, 2018 Jan 15, #2555)

":bufdo e" disabled syntax HL in windows other than the current. (BPJ)

Check argument of systemlist(). (Pavlov)

No maintainer for Vietnamese translations.
No maintainer for Simplified Chinese translations.

Python indenting: alternative way to indent arguments:
http://orchistro.tistory.com/236
Should be supported with a flag.

Starting job with cwd option, when the directory does not exist, gives a confusing error message. (Wang Shidong, 2018 Jan 2, #2519)

Add the debug command line history to viminfo.

Issue #686: apply 'F' in 'shortmess' to more messages. Also #3221.

Avoid that "sign unplace id" does a redraw right away, esp. when there is a sequence of these commands. (Andy Stewart, 2018 Mar 16)

ch_sendraw() with long string does not try to read in between, which may cause a deadlock if the reading side is waiting for the write to finish. (Nate Bosch, 2018 Jan 13, #2548)
Perhaps just make chunks of 1024 bytes?

Patch to include a cfilter plugin to filter quickfix/location lists.
(Yegappan Lakshmanan, 2018 May 12)

Add Makefiles to the runtime/spell directory tree, since nobody uses Aap.
Will have to explain the manual steps (downloading the .aff and .dic files, applying the diff, etc.

Pasting a register in Visual mode cannot be repeated. (Mahmoud Al-Qudsi, 2018

Apr 26, #2849)

User dictionary ~/.vim/spell/lang.utf-8.add not used for spell checking until a word is re-added to it. (Matej Cepl, 2018 Feb 6)

Fold at end of the buffer behaves inconsistently. (James McCoy, 2017 Oct 9)

With foldmethod=syntax and nofoldenable comment highlighting isn't removed. (Marcin Szewczyk, 2017 Apr 26)

Using 'wildignore' also applies to literally entered file name. Also with :drop (remote commands).

Patch to support ":tag <tagkind> <tagname". (emmrk, 2018 May 7, #2871)

Inserting a line in a CompleteDone autocommand may confuse undo. (micbou, 2018 Jun 18, #3027)

Implement option_save() and option_restore():
option_restore({list})   option_restore()
                Restore options previously saved by option_save().
                When buffer-local options have been saved, this function must
                be called when the same buffer is the current buffer.
                When window-local options have been saved, this function must
                be called when the same window is the current window.
                When in the wrong buffer and/or window an error is given and
                the local options won't be restored.

option_save({list})   option_save()
                Saves the options named in {list}. The returned value can be
                passed to option_restore(). Example:
                        let s:saved_options = option_save([
                            \ 'ignorecase',
                            \ 'iskeyword',
                            \ ])
                         au <buffer> BufLeave *
                            \ call option_restore(s:saved_options)
               The advantage over using `:let` is that global and local
                values are handled and the script ID is restored, so that
                `:verbose set` will show where the option was originally set,
                not where it was restored.

"gvim --remote" from a directory with non-word characters changes the current directory (Paulo Marcel Coelho Arabic, 2017 Oct 30, #2266)
Also see #1689.

ml_get error when using a Python script. (Yggdroot, 2017 Jun 1, #1737)
Lemonboy can reproduce (2017 Jun 5)

crash when removing an element while inside map(). (Nikolai Pavlov, 2018 Feb 17, #2652)

When 'virtualedit' is "all" and 'cursorcolumn' is set, the wrong column may be highlighted. (van-de-bugger, 2018 Jan 23, #2576)

Patch to parse ":line" in tags file and use it for search. (Daniel Hahler,
#2546) Fixes #1057. Missing a test.

":file" does not show anything when 'shortmess' contains 'F'. (#3070)

Patch to add winlayout() function. (Yegappan Lakshmanan, 2018 Jan 4)

No profile information for function that executes ":quit". (Daniel Hahler,
2017 Dec 26, #2501)

Get a "No Name" buffer when 'hidden' is set and opening a new window from the
quickfix list. (bfrg, 2018 Jan 22, #2574)

CTRL-X on zero gets stuck on 0xfffffffffffffffe. (Hengyang Zhao, #2746)

A function on a dictionary is not profiled. (ZyX, 2010 Dec 25)

Invalid range error when using BufWinLeave for closing terminal.
(Gabriel Barta, 2017 Nov 15, #2339)

Using an external diff is inefficient. Not all systems have a good diff
program available (esp. MS-Windows). Would be nice to have in internal diff
implementation. Can then also use this for displaying changes within a line.
Olaf Dabrunz is working on this. (10 Jan 2016)
9   Instead invoking an external diff program, use builtin code. One can be
    found here: http://www.ioplex.com/~miallen/libmba/dl/src/diff.c
    It's complicated and badly documented.
Alternative: use the xdiff library. Patch from Christian Brabandt, 2018 Mar
20, #2732)

ml_get errors with buggy script. (Dominique, 2017 Apr 30)

Error in emsg with buggy script. (Dominique, 2017 Apr 30)

Join truncates xml comment. (Dmitrii Tcyganok, 2017 Dec 24, #2494)
Requires 'formatoptions' to include "j". (Gary Johnson, 2017 Dec 24)

Patch to support hunspell. (Matej Cepl, Jan 2018, #2500) Based on older patch
in #846)
Doesn't work on Windows yet. Not ready to included, hard coded paths.

Win32 GUI: when running a fast timer, the cursor no longer blinks.
Was reported: cursor blinks in terminal on widows with a timer. (xtal8, #2142)

When a timer is running and typing CTRL-R on the command line, it is not
redrawn properly. (xtal8, 2017 Oct 23, #2241)

In an optional package the "after" directory is not scanned?
(Renato Fabbri, 2018 Feb 22)

Patch for Neovim concerning restoring when closing help window. (glacambre
neovim #7431)

Default install on MS-Windows should source defaults.vim.
Ask whether to use Windows or Vim key behavior?

Patch for improving detecting Ruby on Mac in configure. (Ilya Mikhaltsou, 2017 Nov 21)

When t_Co is changed from termresponse, the OptionSet autocmmand event isn't triggered. Use the code from the end of set_num_option() in set_color_count().

Add another autocommand like TermResponse that is fired for the other terminal responses, such as bg and fg. Use "bg", "fg", "blink", etc. for the name.

When using command line window, CmdlineLeave is triggered without CmdlineEnter. (xtal8, 2017 Oct 30, #2263)
Add some way to get the nested state. Although CmdwinEnter is obviously always nested.

matchit hasn't been maintained for a long time. #955.

Patch to add variable name after "scope add". (Eddie Lebow, 2018 Feb 7, #2620)
Maybe not needed?

Problem with 'delcombine'. (agguser, 2017 Nov 10, #2313)

MS-Windows: buffer completion doesn't work when using backslash (or slash) for a path separator. (xtal8, #2201)

Test runtime files.
Start with filetype detection: testdir/test_filetype.vim

Window not closed when deleting buffer. (Harm te Hennepe, 2017 Aug 27, #2029)

Add options_default() / options_restore() to set several options to Vim defaults for a plugin. Comments from Zyx, 2017 May 10.
Perhaps use a vimcontext / endvimcontext command block.

After using :noautocmd CursorMoved may still trigger. (Andy Stewart, 2017 Sep 13, #2084). Set old position after the command.

When bracketed paste is used, pasting at the ":append" prompt does not get the line breaks. (Ken Takata, 2017 Aug 22)

The ":move" command does not honor closed folds. (Ryan Lue, #2351)

Patch to fix increment/decrement not working properly when 'virtualedit' is set. (Hirohito Higashi, 2016 Aug 1, #923)

Patch to make gM move to middle of line. (Yasuhiro Matsumoto, Sep 8, #2070)

Cannot copy modeless selection when cursor is inside it. (lkintact, #2300)

Include Haiku port. (Adrien Destugues, Siarzhuk Zharski, 2013 Oct 24)
It can replace the BeOS code, which is likely not used anymore.

```
Now on github: #1856.  Updated Oct 2017
Got permission to include this under the Vim license.

Refactored HTML indent file. (Michael Lee, #1821)

Test_writefile_fails_conversion failure on Solaris because if different iconv
behavior.  Skip when "uname" returns "SunOS"? (Pavel Heimlich, #1872)

'tagrelative' is broken in specific situation. (xaizek, 2017 Oct 19, #2221)

All functions are global, which makes functions like get() and len() awkward.
For the future use the ~get() and ~len() syntax, e.g.:
    mylist~get(idx)
    mydict~get(idx)
    mystring~len()
Alternatives for ~:
    ^  list^get()    could also be used
    .  list.get()    already means concatenate
    $  list$get()    harder to read
    @  list@get()    harder to read
    ->  list->get()  two characters, used for lambda

The ++ options for the :edit command are also useful on the Vim command line.

When recovering a file, put the swap file name in b:recovered_swapfile.  Then
a command can delete it.

When a swap file exists, is not for a running process, is from the same
machine and recovering results in the same text, we could silently delete it.
#1237

Overlong utf-8 sequence is displayed wrong. (Harm te Hennepe, 2017 Sep 14,
#2089)  Patch with possible solution by Björn Linse.

The change list index is local to a buffer, but it doesn't make sense using it
for another buffer.  (lacygoll) Copy w_changelistidx to wininfo_S and back.

X11: Putting more than about 262040 characters of text on the clipboard and
pasting it in another Vim doesn't work.  (Dominique Pelle, 2008 Aug 21-23)
clip_x11_request_selection_cb() is called with zero value and length.
Also: Get an error message from free() in the process that owns the selection.
Seems to happen when the selection is requested the second time, but before
clip_x11_convert_selection_cb() is invoked, thus in X library code.
Kazunobu Kuriyama is working on a proper fix. (2017 Jul 25)

Include a few color schemes, based on popularity:
http://www.vim.org/scripts/script_search_results.php?keywords=&script_type=color+scheme&or
http://vimawesome.com/?q=tag:color-scheme
Use names that indicate their appearance (Christian Brabandt, 2017 Aug 3)
- monokai - Xia Crusoe (2017 Aug 4)
- seoul256 - Christian Brabandt (2017 Aug 3)
- gruvbox -  Christian Brabandt (2017 Aug 3) (simplified version from
      Lifepillar, 2018 Jan 22, #2573)
- janah - Marco Hinz (2017 Aug 4)
```

- apprentice - Romain Lafourcade (2017 Aug 6) remarks about help file #1964
Suggested by Hiroki Kokubun:
- [Iceberg](https://github.com/cocopon/iceberg.vim) (my one)
- [hybrid](https://github.com/w0ng/vim-hybrid)
Include solarized color scheme?, it does not support termguicolors.
- Sanitized version of pablo (Lifepillar, 2017 Nov 21)

Problem with three-piece comment. (Michael Lee, 2017 May 11, #1696)

Creating a partial with an autoload function is confused about the "self"
attribute of the function. For an unknown function assume "self" and make
that optiona? (Bjorn Linse, 2017 Aug 5)

Cindent: returning a structure has more indent for the second item.
(Sam Pagenkopf, 2017 Sep 14, #2090)

Completion mixes results from the current buffer with tags and other files.
Happens when typing CTRL-N while still search for results. E.g., type "b_" in
terminal.c and then CTRL-N twice.
Should do current file first and not split it up when more results are found.
(Also #1890)

Patch from Christian Brabandt to preserve upper case marks when wiping out a
buffer. (2013 Dec 9)
Also fixes #2166?

Patch to add argument to :cquit. (Thinca, 2014 Oct 12)

Python: After "import vim" error messages only show the first line of the
stack trace. (Yggdroot, 2017 Jul 28, #1887)

Profile of a dict function is lost when the dict is deleted. Would it be
possible to collect this? (Daniel Hahler, #2350)

Add `:filter` support for various commands (Marcin Szamotulski, 2017 Nov 12
#2322) Now in #2327?

When checking if a bufref is valid, also check the buffer number, to catch the
case of :bwipe followed by :new.

Patch to skip writing a temp file for diffing if the buffer is equal to the
existing file. (Akria Sheng, 2017 Jul 22)
Could also skip writing lines that are the same.

Patch with Files for Latvian language. (Vitolins, 2017 May 3, #1675)

MS-Windows: Opening same file in a second gvim hangs. (Sven Bruggemann, 2017
Jul 4)

Setting 'clipboard' to "unnamed" makes a global command very slow (Daniel
Drucker, 2017 May 8).
This was supposed to be fixed, did it break again somehow?
Christian cannot reproduce it.

Using composing char in mapping does not work properly. maparg() shows the
wrong thing. (Nikolai Pavlov, 2017 Jul 8, #1827)
Or is this not an actual problem?

Better TeX indent file. (Christian Brabandt, 2017 May 3)

Patch to use a separate code for BS on Windows. (Linwei, #1823)

Use gvimext.dll from the nightly build? (Issue #249)

'synmaxcol' works with bytes instead of screen cells. (Llandon, 2017 May 31,
#1736)

Problem with using :cd when remotely editing a file. (Gerd Wachsmuth, 2017 May
8, #1690)

Running test_gui and test_gui_init with Motif sometimes kills the window
manager. Problem with Motif?

Bogus characters inserted when triggering indent while changing text.
(Vitor Antunes, 2016 Nov 22, #1269)

Using "wviminfo /tmp/viminfo" does not store file marks that Vim knows about,
it only works when merging with an existing file. (Shougo, 2017 Jun 19, #1781)

Segmentation fault with complete(). (Lifepillar, 2017 Apr 29, #1668)
Check for "pat" to be NULL in search_for_exact_line()?
How did it get NULL? Comment by Christian, Apr 30.

Is it possible to keep the complete menu open when calling complete()?
(Prabir Shrestha, 2017 May 19, #1713)

Memory leak in test97? The string is actually freed. Weird.

Patch to add configure flags to skip rtl, farsi and arabic support.
(Diego Carrión, #1867)

assert_fails() can only check for the first error. Make it possible to have
it catch multiple errors and check all of them.

New value "uselast" for 'switchbuf'. (Lemonboy, 2017 Apr 23, #1652)

Add a toolbar in the terminal. Can be global, above all windows, or specific
for one window.

Make maparg() also return the raw rhs, so that it doesn't depend on 'cpo'.
(Brett Stahlman, 2017 May 23)
Even better: add a way to disable a mapping temporarily and re-enable it
later. This is for a sub-mode that is active for a short while (one buffer).
Still need maplist() to find the mappings. What can we use to identify a
mapping? Something unique would be better than the LHS.
Perhaps simpler: actually delete the mappings. Use maplist() to list matching
mappings (with a lhs prefix, like maparg()), mapdelete() to delete,
maprestore() to restore (using the output of maplist()).

Add an argument to :mkvimrc (or add another command) to skip mappings from
plugins (source is a Vim script). No need to put these in a .vimrc, they will
be defined when the plugin is loaded.

Use tb_set(winid, [{'text': 'stop', 'cb': callback, 'hi': 'Green'}])
    tb_highlight(winid, 'ToolBar')
    tb_get(winid)

json_encode(): should convert to utf-8. (Nikolai Pavlov, 2016 Jan 23)
What if there is an invalid character?

Json string with trailing \u should be an error. (Lcd)

import can't be used in define option when include matches too.
(Romain Lafourcade, 2017 Jun 18, #1519)

When session file has name in argument list but the buffer was deleted, the
buffer is not deleted when using the session file. (#1393)
Should add the buffer in hidden state.

When an item in the quickfix list has a file name that does not exist, behave
like the item was not a match for :cnext.

Wrong diff highlighting with three files. (2016 Oct 20, #1186)
Also get E749 on exit.
Another example in #1309

When deleting a mark or register, leave a tombstone, so that it's also deleted
when writing viminfo (and the delete was the most recent action). #1339

Suggestion to improve pt-br spell checking. (Marcelo D Montu, 2016 Dec 15,
#1330)

Error in test_startup_utf8 on Solaris. (Danek Duvall, 2016 Aug 17)

Completion for :!cmd shows each match twice. #1435

GTK: When adding a timer from 'balloonexpr' it won't fire, because
g_main_context_iteration() doesn't return. Need to trigger an event when the
timer expires.

Screen update bug related to matchparen. (Chris Heath, 2017 Mar 4, #1532)

Rule to use "^" for statusline does not work if a space is defined with
highlighting for both stl and stlnc. Patch by Ken Hamada (itchyny, 2016 Dec 11)

8   "stl" and "stlnc" in 'fillchars' don't work for multi-byte characters.
    Patch by Christian Wellenbrock, 2013 Jul 5.

Using CTRL-G_U in InsertCharPre causes trouble for redo. (Israel Chauca
Fuentes, 2017 Feb 12, #1470)

Add a "keytrans()" function, which turns the internal byte representation of a

key into a form that can be used for :map. E.g.
    let xx = "\<C-Home>"
    echo keytrans(xx)
    <C-Home>

Check for errors E704 and E705 only does VAR_FUNC, should also do VAR_PARTIAL.
(Nikolai Pavlov, 2017 Mar 13, #1557)
Make a function to check for function-like type?

Screen updated delayed when using CTRL-O u in Insert mode.
(Barlik, #1191) Perhaps because status message?

Implement optional arguments for functions.
    func Foo(start, count = 1 all = 1)
    call Foo(12)
    call Foo(12, all = 0)
    call Foo(12, 15, 0)

Change the Farsi code to work with UTF-8. Possibly combined with the Arabic
support, or similar.
Invalid read error in Farsi mode. (Dominique Pelle, 2009 Aug 2)

Add a command to take a range of lines, filter them and put the output
somewhere else. :{range}copy {dest} !cmd

Patch to fix that empty first tab is not in session.
(Hirohito Higashi, 2016 Nov 25, #1282)

Patch to add random number generator. (Hong Xu, 2010 Nov 8, update Nov 10)
Alternative from Christian Brabandt. (2010 Sep 19)
New one from Yasuhiro Matsumoto, #1277.

Patch to fix escaping of job arguments. (Yasuhiro Matsumoto, 2016 Oct 5)
Update Oct 14: https://gist.github.com/mattn/d47e7d3bfe5ade4be86062b565a4bfca
Update Aug 2017: #1954

The TermResponse event is not triggered when a plugin has set 'eventignore' to
"all". Netrw does this. (Gary Johnson, 2017 Jan 24)
Postpone the event until 'eventignore' is reset.

Expanding /**/ is slow. Idea by Luc Hermitte, 2017 Apr 14.

Once .exe with updated installer is available: Add remark to download page
about /S and /D options (Ken Takata, 2016 Apr 13)
Or point to nightly builds: https://github.com/vim/vim-win32-installer/releases

Problem passing non-UTF-8 strings to Python 3. (Björn Linse, 2016 Sep 11,
#1053) With patch, does it work?

Using --remote to open a file in which a # appears does not work on
MS-Windows. Perhaps in \# the \ is seen as a path separator. (Axel Bender,
2017 Feb 9) Can we expand wildcards first and send the path literally to the
receiving Vim? Or make an exception for #, it's not useful remotely.

":sbr" docs state it respects 'switchbuf', but "vsplit" does not cause a
vertical split. (Haldean Brown, 2017 Mar 1)

Use ADDR_OTHER instead of ADDR_LINES for many more commands.
Add tests for using number larger than number of lines in buffer.

Might be useful to have isreadonly(), like we have islocked().
Avoids exceptions, e.g. when using the b: namespace as a dict.

Patch to make v:shell_error writable. (Christian Brabandt, 2016 Sep 27)
Useful to restore it. Is there another solution?

"ci[" does not look for next [like ci" does look for next ".
(J.F. 2017 Jan 7)

Patch for wrong cursor position on wrapped line, involving breakindent.
(Ozaki Kiichi, 2016 Nov 25)
Does this also fix #1408 ?

'cursorline' and match interfere. (Ozaki Kiichi, 2017 Jun 23, #1792)

Patch for 'cursorlinenr' option. (Ozaki Kiichi, 2016 Nov 30)

Patch to be able to separately map CTRL-H and BS on Windows.
(Linwei, 2017 Jul 11, #1833)

When 'completeopt' has "noselect" does not insert a newline. (Lifepillar, 2017
Apr 23, #1653)

Window resizing with 'winfixheight': With a vertical split the height changes
anyway. (Tommy allen, 2017 Feb 21, #1502)

When adding an item to a new quickfix list make ":cnext" jump to that item.
Make a difference being at the first item and not having used :cnext at all.
(Afanasiy Fet, 2017 Jan 3)

Invalid behavior with NULL list. (Nikolai Pavlov, #768)
E.g. deepcopy(test_null_list())

Patch to make it possible to extend a list with itself.
(Nikolai Pavlov, 2016 Sep 23)

Patch to add Zstandard compressed file support. (Nick Terrell, 2016 Oct 24)

Patch to add MODIFIED_BY to MSVC build file. (Chen Lei, 2016 Nov 24, #1275)

Patch to change argument of :marks. (LemonBoy, 2017 Jan 29, #1426)

On Windows buffer completion sees backslash as escape char instead of path
separator. (Toffanim, 2016 Nov 24, #1274)

min() and max() spawn lots of error messages if sorted list/dictionary
contains invalid data (Nikolay Pavlov, 2016 Sep 4, #1039)

Should :vmap in matchit.vim be :xmap? (Tony Mechelynck)

Problem with whitespace in errorformat. (Gerd Wachsmuth, 2016 May 15, #807)

Undo problem: "g-" doesn't go back, gets stuck. (Björn Linse, 2016 Jul 18)

Add "unicode true" to NSIS installer. Doesn't work with Windows 95, which we
no longer support.

sort() is not stable when using numeric/float sort (Nikolay Pavlov, 2016 Sep
4#1038)

+channel:
- Add a separate timeout for opening a socket. Currently it's fixed at 50
  msec, which is too small for a remote connection. (tverniquet, #2130)
- Problem with stderr on Windows? (Vincent Rischmann, 2016 Aug 31, #1026)
- Writing raw mode to a buffer should still handle NL characters as line
  breaks. (Dmitry Zotikov, 2017 Aug 16)
- When out_cb executes :sleep, the close_cb may be invoked. (Daniel Hahler,
  2016 Dec 11, #1320)
- Implement job-term ?
- Channel test fails with Motif. Sometimes kills the X11 server.
- When a message in the queue but there is no callback, drop it after a while?
  Add timestamp to queued messages and callbacks with ID, remove after a
  minute. Option to set the droptime.
- Add an option to drop text of very long lines? Default to 1 Mbyte.
- Add remark about undo sync, is there a way to force it?
- When starting a job, have an option to open the server socket, so we know
  the port, and pass it to the command with --socket-fd {nr}. (Olaf Dabrunz,
  Feb 9) How to do this on MS-Windows?
- For connection to server, a "keep open" flag would be useful. Retry
  connecting in the main loop with zero timeout.
- job_start(): run job in a newly opened terminal (not a terminal window).
    With xterm could use -S{pty}.
    Although user could use "xterm -e 'cmd arg'".

Regexp problems:
- When search pattern has the base character both with and without combining
  character, search fails. E.g. "□□□□" in "□□□□□□□□□□□□". (agguser, #2312)
- [:space:] only matches ASCII spaces. Add [:white:] for all space-like
  characters, esp. including 0xa0. Use character class zero.
- Since 7.4.704 the old regex engine fails to match [[:print:]] in 0xf6.
  (Manuel Ortega, 2016 Apr 24)
  Test fails on Mac. Avoid using isalpha(), isalnum(), etc? Depends on
  LC_CTYPE
- The old engine does not find a match for "/\%#=1\(\)\{80}", the new engine
  matches everywhere.
- Using win_linetabsize() can still be slow. Cache the result, store col and
  vcol. Reset them when moving to another line.
- Very slow with a long line and Ruby highlighting. (John Whitley, 2014 Dec 4)
- Bug with pattern: '\vblock (\d+)\.\n.*\d+%(\1)@<!\.$'
  (Lech Lorens, 2014 Feb 3)
- Issue 164: freeze on regexp search.
- Ignorecase not handled properly for multi-byte characters. (Axel Bender,

  2013 Dec 11)
- Using \@> and \?. (Brett Stahlman, 2013 Dec 21) Remark from Marcin
  Szamotulski; Remark from Brett 2014 Jan 6 and 7.
- NFA regexp doesn't handle \%<v correctly. (Ingo Karkat, 2014 May 12)
- Does not work with NFA regexp engine:
  \%u, \%x, \%o, \%d followed by a composing character
- Search for \%d0\+ may fail with E363. (Christian Brabandt, 2016 Oct 4)
- \%'[does not work. '%'] does work. (Masaaki Nakamura, 2016 Apr 4)
- Bug relating to back references. (Ingo Karkat, 2014 Jul 24)
- New RE does not give an error for empty group: "\(\)\{2}" (Dominique Pelle,
  2015 Feb 7)
- Using back reference before the capturing group sometimes works with the old
  engine, can we do this with the new engine? E.g. with
  "/\%(<\1>\)\@<=.*\%(<\/\(\w\+\)>\)\@=" matching text inside HTML tags.
  This problem is probably the same: "\%(^\1.*$\n\)\@<=\(\d\+\).*$".
  (guotuofeng, 2015 Jun 22)
- Strange matching with "\(Hello\n\)\@<=A". (Anas Syed, 2015 Feb 12)
- Problem with \v(A)@<=b+\1c. (Issue 334)
- Diff highlighting can be very slow. (Issue 309)
- Using %> for a virtual column has a check based on 'tabsize'. Better would
  be to cache the result of win_linetabsize(col), storing both col and vcol,
  and use them to decide whether win_linetabsize() needs to be called. Reset
  col and vcol when moving to another line.
- this doesn't work: "syntax match ErrorMsg /.\%9l\%>20c\&\%<28c/". Leaving
  out the \& works. Seems any column check after \& fails.
- Difference between two engines: ".*\zs\/\@>\/" on text "///"
  (Chris Paul, 2016 Nov 13) New engine not greedy enough?
  Another one: echom matchstr(" sdfsfsf\n sfdsdfsdf",'[^\n]*')
  (2017 May 15, #1252)

Patch to add "cmdline" completion to getcompletion(). (Shougo, Oct 1, #1140)

Feature request: Complete members of a dictionary. (Luc Hermitte, 2017 Jan 4,
#1350)

Undo message is not always properly displayed. Patch by Ken Takata, 2013 oct
3. Doesn't work properly according to Yukihiro Nakadaira.
Also see #1635.

Patch for systemlist(), add empty item. (thinca, Sep 30, #1135)
Add an argument to choose binary or non-binary (like readfile()), when omitted
use the current behavior.
Include the test.

Patch to add tagfunc(). Cleaned up by Christian Brabandt, 2013 Jun 22.
New update 2017 Apr 10, #1628

When 'keywordprg' starts with ":" the argument is still escaped as a shell
command argument. (Romain Lafourcade, 2016 Oct 16, #1175)

Patch to support CamelCase for spell checking: See a lower-to-upper case
change as a word boundary. (btucker-MPCData, 2016 Nov 6, #1235)
patch for 'spellcamelcase' option: spellcheck each CamelCased word.
(Ben Tucker, 2016 Dec 2)

Idea from Sven: record sequence of keys. Useful to show others what they are
doing (look over the shoulder), and also to see what happened.
Probably list of keystrokes, with some annotations for mode changes.
Could store in logfile to be able to analyse it with an external command.
E.g. to see when's the last time a plugin command was used.

execute() cannot be used with command completion. (Daniel Hahler, 2016 Oct 1,
#1141)

cmap using execute() has side effects. (Killthemule, 2016 Aug 17, #983)

:map X may print invalid data. (Nikolay Pavlov, 2017 Jul 3, #1816)

Patch to order results from taglist(). (Duncan McDougall, 2016 Oct 25)

When using ":diffput" through a mapping, undo in the target buffer isn't
synced. (Ryan Carney, 2016 Sep 14)

Syntax highlighting for messages with RFC3339 timestamp (#946)
Did maintainer reply?

Patch to avoid problem with special characters in file name.
(Shougo, 2016 Sept 19, #1099) Not finished?

ml_get errors when reloading file. (Chris Desjardins, 2016 Apr 19)
Also with latest version.

Cannot delete a file with square brackets with delete(). (#696)

Patch to add ":syn foldlevel" to use fold level further down the line.
(Brad King, 2016 Oct 19, update 2017 Jan 30)

Completion for input() does not expand environment variables. (chdiza, 2016
Jul 25, #948)

Patch to add 'systemencoding', convert between 'encoding' and this for file
names, shell commands and the like. (Kikuchan, 2010 Oct 14)
Assume the system converts between the actual encoding of the filesystem to
the system encoding (usually utf-8).

Using ":tab drop file" does not trigger BufEnter or TabEnter events.
(Andy Stewart, 2017 Apr 27, #1660)
Autocommands blocked in do_arg_all(). Supposed to happen later?

'hlsearch' interferes with a Conceal match. (Rom Grk, 2016 Aug 9)

MS-Windows: use WS_HIDE instead of SW_SHOWMINNOACTIVE in os_win32.c?
Otherwise task flickers in taskbar.

Should make ":@r" handle line continuation. (Cesar Romani, 2016 Jun 26)
Also for ":@.".

Repeating 'opfunc' in a function only works once. (Tarmean, 2016 Jul 15, #925)

Have a way to get the call stack, in a function and from an exception.
#1125

Second problem in #966: ins_compl_add_tv() uses get_dict_string() multiple
times, overwrites the one buffer. (Nikolay Pavlov, 2016 Aug 5)

This does not work: :set cscopequickfix=a-
(Linewi, 2015 Jul 12, #914)

Possibly wrong value for seq_cur. (Florent Fayolle, 2016 May 15, #806)

Filetype plugin for awk. (Doug Kearns, 2016 Sep 5)

Patch to improve map documentation. Issue #799.

Patch for syntax folding optimization. (Shougo, 2016 Sep 6, #1045)

We can use '. to go to the last change in the current buffer, but how about
the last change in any buffer? Can we use ', (, is next to .)?

Ramel Eshed: system() is much slower than job_start(), why? (Aug 26)

When generating the Unicode tables with runtime/tools/unicode.vim the
emoji_width table has only one entry.

It's possible to add ",," to 'wildignore', an empty entry. Causes problems.
Reject the value? #710.

When doing "vi buf.md" a BufNew autocommand for *.md is not triggered.
Because of using the initial buffer? (Dun Peal, 2016 May 12)

Patch to add the :bvimgrep command. (Christian Brabandt, 2014 Nov 12)
Updated 2016 Jun 10, #858 Update 2017 Mar 28: use <buffer>

Add redrawtabline command. (Naruhiko Nishino, 2016 Jun 11)

Neovim patch for utfc_ptr2char_len() https://github.com/neovim/neovim/pull/4574
No test, needs some work to include.

Patch to improve indenting for C++ constructor with initializer list.
(Hirohito Higashi, 2016 Mar 31)

Zero-out krypt key information when no longer in use. (Ben Fritz, 2017 May 15)

Add stronger encryption. Could use libsodium (NaCl).
https://github.com/jedisct1/libsodium/
Possibly include the needed code so that it can be build everywhere.

Add a way to restart a timer. It's similar to timer_stop() and timer_start(),
but the reference remains valid.

Need to try out instructions in INSTALLpc.txt about how to install all
interfaces and how to build Vim with them.

Appveyor build with self-installing executable, includes getting most
interfaces: https://github.com/k-takata/vim/tree/chrisbra-appveyor-build
result: https://ci.appveyor.com/project/k-takata/vim/history

Problem that a previous silent ":throw" causes a following try/catch not to
work. (ZyX, 2013 Sep 28) With examples: (Malcolm Rowe, 2015 Dec 24)

Problem using ":try" inside ":execute". (ZyX, 2013 Sep 15)

Patch to make tests pass with EBCDIC. (Owen Leibman, 2016 Apr 10)

Add ":read :command", to insert the output of an Ex command?
Can already do it with ":$put =execute('command')".

When repeating the 'confirm' dialog one needs to press Enter. (ds26gte, 2016
Apr 17) #762

exists(":tearoff") does not tell you if the command is implemented. (Tony
Mechelynck) Perhaps use exists("::tearoff") to check?

Use vim.vim syntax highlighting for help file examples, but without ":" in
'iskeyword' for syntax.

Patch to make "%:h:h" return "." instead of the full path.
(Coot, 2016 Jan 24, #592)

Remove SPACE_IN_FILENAME ? What could possibly go wrong?

When command names are very long :command output is difficult to read. Use a
maximum for the column width? (#871)
Patcy by varmanishant, 2016 Jun 18, #876

Installation of .desktop files does not work everywhere.
It's now fixed, but the target directory probably isn't right.
Add configure check?
Should use /usr/local/share/applications or /usr/share/applications.
Or use $XDG_DATA_DIRS.
Also need to run update-desktop-database (Kuriyama Kazunobu, 2015 Nov 4)

Test object i{ and it do not behave the same. #1379
Do not include the linebreak at the start?

Patch to have text objects defined by arbitrary single characters. (Daniel
Thau, 2013 Nov 20, 2014 Jan 29, 2014 Jan 31)
Added tests (James McCoy, 2016 Aug 3). Still needs more work.

Feature request: add the "al" text object, to manipulate a screen line.
Especially useful when using 'linebreak'

":cd C:\Windows\System32\drivers\etc*" does not work, even though the
directory exists. (Sergio Gallelli, 2013 Dec 29)

In debug mode one can inspect variables, but not the function parameters
(starting with a:). (Luc Hermitte, 2017 Jan 4, #1352)

If ":bd" also closes a Tab page then the " mark is not set. (Harm te Hennepe, 2016 Apr 25, #780)

Patch to avoid redrawing tabline when the popup menu is visible.
(Christian Brabandt, 2016 Jan 28)

Patch to add {skip} argument to search(). (Christian Brabandt, 2016 Feb 24)
Update 2016 Jun 10, #861

Patch to be able to use hex numbers with :digraph. (Lcd, 2015 Sep 6)
Update Sep 7. Update by Christian Brabandt, 2015 Sep 8, 2016 Feb 1.

Patch to show search statistics. (Christian Brabandt, 2016 Jul 22)

When the CursorMovedI event triggers, and CTRL-X was typed, a script cannot restore the mode properly. (Andrew Stewart, 2016 Apr 20)
Do not trigger the event?

Using ":windo" to set options in all windows has the side effect that it changes the window layout and the current window. Make a variant that saves and restores. Use in the matchparen plugin.
Perhaps we can use ":windo <restore> {cmd}"?
Patch to add <restore> to :windo, :bufdo, etc. (Christian Brabandt, 2015 Jan 6, 2nd message)
Alternative: ":keeppos" command modifier: ":keeppos windo {cmd}".

Patch to fix that executable() may fail on very long filename in MS-Windows.
(Ken Takata, 2016 Feb 1)

Patch to fix display of listchars on the cursorline. (Nayuri Aohime, 2013)
Update suggested by Yasuhiro Matsumoto, 2014 Nov 25:
https://gist.github.com/presuku/d3d6b230b9b6dcfc0477

Patch to make the behavior of "w" more straightforward, but not Vi compatible.
With a 'cpo' flag. (Christian Brabandt, 2016 Feb 8)

Patch to add optionproperties(). (Anton Lindqvist, 2016 Mar 27, update Apr 13)

Patch to add TagNotFound autocommand. (Anton Lindqvist, 2016 Feb 3)

Patch to add Error autocommand. (Anton Lindqvist, 2016 Feb 17)
Only remembers one error.

GVim: when both Tab and CTRL-I are mapped, use CTRL-I not for Tab.

Unexpected delay when using CTRL-O u. It's not timeoutlen.
(Gary Johnson, 2015 Aug 28)

Instead of separately uploading patches to the ftp site, we can get them from github with a URL like this:
   https://github.com/vim/vim/compare/v7.4.920%5E...v7.4.920.diff
Diff for version.c contains more context, can't skip a patch.

Python: ":py raw_input('prompt')" doesn't work. (Manu Hack)

Comparing nested structures with "==" uses a different comparator than when comparing individual items.
Also, "'' == 0" evaluates to true, which isn't nice.
Add "===" to have a strict comparison (type and value match).
Add "==*" (?) to have a value match, but no automatic conversion, and v:true equals 1 and 1.0, v:false equals 0 and 0.0.?

Using uninitialized memory. (Dominique Pelle, 2015 Nov 4)

MS-Windows: When editing a file with a leading space, writing it uses the wrong name. (Aram, 2014 Nov 7) Vim 7.4.

Can't recognize the $ProgramFiles(x86) environment variable. Recognize it specifically? First try with the parens, then without.

Patch to add :mapgroup, put mappings in a group like augroup.
(Yasuhiro Matsumoto, 2016 Feb 19)

Value returned by virtcol() changes depending on how lines wrap. This is inconsistent with the documentation.

Value of virtcol() for '[and '] depend on multi-byte character.
(Luchr, #277)

Can we cache the syntax attributes, so that updates for 'relativenumber' and 'cursorline'/'cursorcolumn' are a lot faster? Thus store the attributes before combining them.

C highlighting: modern C allows: /* comment */ #ifdef
and also line continuation after #include.
I can't recommend it though.

Build with Python on Mac does not always use the right library.
(Kazunobu Kuriyama, 2015 Mar 28)

Patch to add arguments to argc() and argv(). (Yegappan Lakshmanan, 2016 Jan 24) Also need a way to get the global arg list? Update later on Jan 24 Update Mar 5. Update Apr 7. Update Jun 5.

To support Thai (and other languages) word boundaries, include the ICU library: http://userguide.icu-project.org/boundaryanalysis

When complete() first argument is before where insert started and 'backspace' is Vi compatible, the completion fails. (Hirohito Higashi, 2015 Feb 19)

Patch to use two highlight groups for relative numbers. (Shaun Brady, 2016 Jan 30)

MS-Windows: Crash opening very long file name starting with "\\".
(Christian Brock, 2012 Jun 29)

The OptionSet autocommand event is not always triggered. (Rick Howe, 2015 Sep

24): :diffthis, :diffoff.

":set all&" still does not handle all side effects. Centralize handling side
effects for when set by the user, on init and when reset to default.

":tag" does not jump to the right entry of a :tselect. (James Speros, 2015 Oct
9)

The argument for "-S" is not taken literally, the ":so" command expands
wildcards. Add a ":nowild" command modifier? (ZyX, 2015 March 4)

Proposal to make options.txt easier to read. (Arnaud Decara, 2015 Aug 5)
Update Aug 14.

When using --remote-tab on MS-Windows 'encoding' hasn't been initialized yet,
the file name ends up encoded wrong. (Raul Coronado, 2015 Dec 21)

Example in editing.txt uses $HOME with the expectation that it ends in a
slash. For me it does, but perhaps not for everybody. Add a function that
inserts a slash when needed? pathconcat(dir, path) (Thilo Six, 2015 Aug 12)

ml_updatechunk() is slow when retrying for another encoding. (John Little,
2014 Sep 11)

Patch to fix checking global option value when not using it.
(Arnaud Decara, 2015 Jul 23)

When 'showbreak' is set repeating a Visual operation counts the size of the
'showbreak' text as part of the operation. (Axel Bender, 2015 Jul 20)

Patch for multi-byte characters in langmap and applying a mapping on them.
(Christian Brabandt, 2015 Jun 12, update July 25)
Is this the right solution? Need to cleanup langmap behavior:
- in vgetorpeek() apply langmap to the typeahead buffer and put the result in
  a copy-buffer, only when langmap is appropriate for the current mode. Then
  check for mapping and let gotchars() work on the copy-buffer.
- Remove LANGMAP_ADJUST() in other parts of the code. Make sure the mode is
  covered by the above change.
So that replaying the register doesn't use keymap/langmap and still does the
same thing. Remarks on issue 543 (Roland Puntaier).
Also see #737: langmap not applied to replaying recording.

Patch to add grepfile(). (Scott Prager, 2015 May 26)
Work in progress.

Would be useful to have a treemap() or deepmap() function. Like map() but
when an item is a list or dict would recurse into it.

Patch for global-local options consistency. (Arnaud Decara, 2015 Jul 22)
Is this right?

Patch to make getregtype() return the right size for non-linux systems.
(Yasuhiro Matsumoto, 2014 Jul 8)
Breaks test_eval. Inefficient, can we only compute y_width when needed?

Patch to use different terminal mode settings for system(). (Hayaki Saito)
Does this work for everybody?

Patch for man.vim. (SungHyun Nam, 2015 May 20)
Doesn't work completely (Dominique Orban)

Patch to add a "literal" argument to bufnr(). (Olaf Dabrunz, 2015 Aug 4)

When a session file is created and there are "nofile" buffers, these are not
filled. Need to trigger BufReadCmd autocommands. Also handle deleting the
initial empty buffer better. (ZyX, 2015 March 8)

Extended file attributes lost on write (backupcopy=no). Issue 306.

Patch to add :lockjumps. (Carlo Baldassi, 2015 May 25)
OK to not block marks?

Mixup of highlighting when there is a match and SpellBad. (ZyX, 2015 Jan 1)

Patch on Issue 72: 'autochdir' causes problems for :vimgrep.

When two SIGWINCH arrive very quickly, the second one may be lost.
(Josh Triplett, 2015 Sep 17)

Make comments in the test Makefile silent. (Kartik Agaram, 2014 Sep 24)

Result of systemlist() does not show whether text ended in line break.
(Bjorn Linse, 2014 Nov 27)

When in 'comments' "n:x" follows after three-part comment directly it repeats
any one-character from the previous line. (Kartik Agaram, 2014 Sep 19)

Syntax highlighting slow (hangs) in SASS file. (Niek Bosch, 2013 Aug 21)

Adding "~" to 'cdpath' doesn't work for completion? (Davido, 2013 Aug 19)

Should be easy to highlight all matches with 'incsearch'. Idea by Itchyny,
2015 Feb 6.

Wrong scrolling when using incsearch. Patch by Christian Brabandt, 2014 Dec 4.
Is this a good solution?

Patch: Let rare word highlighting overrule good word highlighting.
(Jakson A. Aquino, 2010 Jul 30, again 2011 Jul 2)

Patch to add digits argument to round(). (Yasuhiro Matsumoto, 2015 Apr 26)

Can assign to s:type when a function s:type has been defined.
Also the other way around: define a function while a variable with that name
was already defined.
(Yasuhiro Matsumoto, 2014 Nov 3)

Patch for ordered dict. (Ozaki Kiichi, 2015 May 7)

Patch to make closed folds line up. (Charles Campbell, 2014 Sep 12)
Remark from Roland Eggner: does it cause crashes? (2014 Dec 12)
Updated patch by Roland Eggner, Dec 16
Updated patch from Charles, 2016 Jul 2

Patch to open folds for 'incsearch'. (Christian Brabandt, 2015 Jan 6)

Patch for building a 32bit Vim with 64bit MingW compiler.
(Michael Soyka, 2014 Oct 15)

Patch: On MS-Windows shellescape() may have to triple double quotes.
(Ingo Karkat, 2015 Jan 16)

Redo only remembers the last change. Could use "{count}g." to redo an older change. How does the user know which change? At least have a way to list them: ":repeats".

Patch for glob(), adding slash to normal files. (Ingo Karkat, 2014 Dec 22)

When entering and leaving the preview window autocommands are triggered, but these may not work well. Perhaps set a flag to indicate that the preview window is involved? (John Otter, 2015 Oct 27)

Using "." to repeat an Ex command puts that command in history. Probably should not happen. If the command is the result of a mapping it's not put in history either. (Jacob Niehus, 2014 Nov 2)
Patch from Jacob, Nov 2.

"hi link" does not respect groups with GUI settings only. (Mark Lodato, 2014 Jun 8)

Bug: Autocompleting ":tag/pat" replaces "/pat" with a match but does not insert a space. (Micha Mos, 2014 Nov 7)

No error for missing endwhile. (ZyX, 2014 Mar 20)

Patch to make extend() fail early when it might fail at some point.
(Olaf Dabrunz, 2015 May 2) Makes extend() slower, do we still want it?
Perhaps only the checks that can be done without looping over the dict or arguments.

Problem with transparent and matchgroup. Issue #475

Patch to add :arglocal and :arglists. (Marcin Szamotulski, 2014 Aug 6)

Spell files use a latin single quote. Unicode also has another single quote: 0x2019. (Ron Aaron, 2014 Apr 4)
New OpenOffice spell files support this with ICONV. But they are not compatible with Vim spell files. The old files can no longer be downloaded.

Spell checking: Add a feature to only consider two spaces after a dot to start a new sentence. Don't give the capitalization error when there is one space.

xterm should be able to pass focus changes to Vim, so that Vim can check for
buffers that changed. Perhaps in misc.c, function selectwindow().
Xterm 224 supports it!
Patch to make FocusGained and FocusLost work in modern terminals. (Hayaki
Saito, 2013 Apr 24) Update 2016 Aug 12.
Also see issue #609.
We could add the enable/disable sequences to t_ti/t_te or t_ks/t_ke.

Idea: For a window in the middle (has window above and below it), use
right-mouse-drag on the status line to move a window up/down without changing
its height? It's like dragging the status bar above it at the same time.

Patch to add a :domodeline command. (Christian Brabandt, 2014 Oct 21)

This does not give an error: (Andre Sihera, 2014 Mar 21)
    vim -u NONE 1 2 3 -c 'bufdo if 1 | echo 1'
This neither: (ZyX)
    vim -u NONE 1 2 3 -c 'bufdo while 1 | echo 1'

'viewdir' default on MS-Windows is not a good choice, it's a system directory.
Change 'viewdir' to "$HOME/vimfiles/view" and use 'viewdiralt' to also read
from?

Problem with upwards search on Windows (works OK on Linux). (Brett Stahlman,
2014 Jun 8)

Include a plugin manager with Vim? Neobundle seems to be the best currently.
Also Vundle: https://github.com/gmarik/vundle
Long message about this from ZyX, 2014 Mar 23. And following replies.
Also see http://vim-wiki.mawercer.de/wiki/topic/vim%20plugin%20managment.html
User view:
- Support multiple sources, basically any http:// URL. Or a central place that
  will work for everybody (github? redirects from vim.org?).
  Be able to look into the files before deciding to install.
- Be able to try out a plugin and remove it again with (almost) no traces.
- Each plugin needs a "manifest" file that has the version, dependencies
  (including Vim version and features), conflicts, list of files, etc.
  Updater uses that to decide what/how to update.
  Dependencies can use a URL for specific versions, or short name for scripts
  on vim.org.
- Once a plugin is installed it remembers where it came from, updater checks
  there. Can manually update when really needed.
- Must be possible to install for one user. Also system wide?
- Can edit plugin config with Vim. Can temporarily disable a plugin.
- Run the update manually, find latest version and install.
- Be able to download without special tools, must work for 95% of users.
Implementation:
- Avoid the 'runtimepath' getting long. Need some other way to keep each
  plugin separate.
- When installing or updating, first figure out what needs to be done. This
  may involve recursively fetching manifest files for dependencies. Then show
  the user what's going to change and ask for OK.
- Scripts on Vim.org must be able to consist of several files. Is zip format
  sufficient? Upload the manifest? Or refer to a site that has the manifest?

- Best is to fetch individual files or use a Vimball. Reduces dependency on
  tools that might be missing and allows inspection of the files before
  installing.
Out of scope:
- Overview of plugins, ratings, comments, etc. That's another world.
- Development work on plugins (although diff with distributed version would be
  useful).

Setting the spell file in a session only reads the local additions, not the
normal spell file. (Enno Nagel, 2014 Mar 29)

When typing the first character of a command, e.g. "f", then using a menu, the
menu item doesn't work. Clear typeahead when using a menu?

Editing an ascii file as ucs-2 or ucs-4 causes display errors.
(ZyX, 2014 Mar 30)

":Next 1 some-arg" does not complain about trailing argument. Also for
various other commands. (ZyX, 2014 Mar 30)

Patch to skip sort if no line matches the expression.
(Christian Brabandt, 2014 Jun 25)

VMS: Select() doesn't work properly, typing ESC may hang Vim. Use sys$qiow
instead. (Samuel Ferencik, 2013 Sep 28)

Patch for XDG base directory support. (Jean François Bignolles, 2014 Mar 4)
Remark on the docs. Should not be a compile time feature. But then what?

Completion of ":e" is ":earlier", should be ":edit". Complete to the matching
command instead of doing this alphabetically. (Mikel Jorgensen)

Patch to define macros for hardcoded values. (Elias Diem, 2013 Dec 14)

Several syntax file match "^\s*" which may get underlined if that's in the
highlight group. Add a "\zs" after it?

The undo file name can get too long. (Issue 346)
For the path use a hash instead of dir%dir%dir%name hash%name.

Patch to add ":undorecover", get as much text out of the undo file as
possible. (Christian Brabandt, 2014 Mar 12, update Aug 22)

Updated spec ftplugin. (Matěj Cepl, 2013 Oct 16)

Patch to right-align signs. (James Kolb (email james), 2013 Sep 23)

Patch to handle integer overflow. (Aaron Burrow, 2013 Dec 12)

Patch to add "ntab" item in 'listchars' to repeat first character. (Nathaniel
Braun, pragm, 2013 Oct 13) A better solution 2014 Mar 5.

7   Windows XP: When using "ClearType" for text smoothing, a column of yellow
    pixels remains when typing spaces in front of a "D" ('guifont' set to

    "lucida_console:h8").
Patch by Thomas Tuegel, also for GTK, 2013 Nov 24

:help gives example for z?, but it does not work. m? and t? do work.

Discussion about canonicalization of Hebrew. (Ron Aaron, 2011 April 10)

Checking runtime scripts: Thilo Six, 2012 Jun 6.

When evaluating expression in backticks, autoload doesn't work.
(Andy Wokula, 2013 Dec 14)

Using <nr>ifoobar<esc> can slow down Vim. Patch by Christian Brabandt, 2013 Dec 13. Only helps a bit, 10000ii<Esc> is still too slow.

GTK: problem with 'L' in 'guioptions' changing the window width.
(Aaron Cornelius, 2012 Feb 6)

Patch to add option that tells whether small deletes go into the numbered registers. (Aryeh Leib Taurog, 2013 Nov 18)

Javascript file where indent gets stuck on: GalaxyMaster, 2012 May 3.

The BufUnload event is triggered when re-using the empty buffer.
(Pokey Rule, 2013 Jul 22)
Patch by Marcin Szamotulski, 2013 Jul 22.

The CompleteDone autocommand needs some info passed to it:
- The word that was selected (empty if abandoned complete)
- Type of completion: tag, omnifunc, user func.

Patch to allow more types in remote_expr(). (Lech Lorens, 2014 Jan 5)
Doesn't work for string in list. Other way to pass all types of variables reliably?

Patch to add {lhs} to :mapclear: clear all maps starting with {lhs}.
(Christian Brabandt, 2013 Dec 9)

Exception caused by argument of return is not caught by try/catch.
(David Barnett, 2013 Nov 19)

Patch to fix that 'cedit' is recognized after :normal. (Christian Brabandt, 2013 Mar 19, later message)

Patch to view coverage of the tests. (Nazri Ramliy, 2013 Feb 15)

Patch to invert characters differently in GTK. (Yukihiro Nakadaira, 2013 May 5)

Patch to add "Q" and "A" responses to interactive :substitute. They are carried over when using :global. (Christian Brabandt, 2013 Jun 19)

Bug with 'cursorline' in diff mode. Line being scrolled into view gets highlighted as the cursor line. (Alessandro Ivaldi, 2013 Jun 4)

Two highlighting bugs. (ZyX, 2013 Aug 18)

Patch to support 'u' in interactive substitute. (Christian Brabandt, 2012 Sep 28) With tests: Oct 9.

Patch from Christian Brabandt to make the "buffer" argument for ":sign place" optional. (2013 Jul 12)

Dialog is too big on Linux too. (David Fishburn, 2013 Sep 2)

Patch to make fold updates much faster. (Christian Brabandt, 2012 Dec)

-   Add regex for 'paragraphs' and 'sections': 'parare' and 'sectre'. Combine
    the two into a regex for searching. (Ned Konz)
Patch by Christian Brabandt, 2013 Apr 20, unfinished.

Bug: findfile("any", "file:///tmp;") does not work.

In the ATTENTION message about an existing swap file, mention the name of the process that is running. It might actually be some other program, e.g. after a reboot.

patch to add "combine" flag to syntax commands. (so8res, 2012 Dec 6)

Syntax update problem in one buffer opened in two windows, bottom window is not correctly updated. (Paul Harris, 2012 Feb 27)

Patch to add getsid(). (Tyru, 2011 Oct 2) Do we want this? Update Oct 4.
Or use expand('<sid>')?

Patch to make confirm() display colors. (Christian Brabandt, 2012 Nov 9)

Patch to add functions for signs. (Christian Brabandt, 2013 Jan 27)

Patch to remove flicker from popup menu. (Yasuhiro Matsumoto, 2013 Aug 15)

Problem with refresh:always in completion. (Tyler Wade, 2013 Mar 17)

b:undo_ftplugin cannot call a script-local function. (Boris Danilov, 2013 Jan 7)

Win32: The Python interface only works with one version of Python, selected at compile time. Can this be made to work with version 2.1 and 2.2 dynamically?

Python: Be able to define a Python function that can be called directly from Vim script. Requires converting the arguments and return value, like with vim.bindeval().

Patch for :tabcloseleft, after closing a tab go to left tab. (William Bowers, 2012 Aug 4)

Patch to improve equivalence classes in regexp patterns.
(Christian Brabandt, 2013 Jan 16, update Jan 17)

Patch to add new regexp classes :ident:, :keyword:, :fname:.
(ichizok, 2016 Jan 12, #1373)

Patch with suggestions for starting.txt. (Tony Mechelynck, 2012 Oct 24)
But use Gnome instead of GTK?

Should be possible to enable/disable matchparen per window or buffer.
Add a check for b:no_match_paren in Highlight_matching_Pair() (Marcin
Szamotulski, 2012 Nov 8)

Session file creation: 'autochdir' causes trouble. Keep it off until after
loading all files.

MS-Windows resizing problems:
- Windows window on screen positioning: Patch by Yukihiro Nakadaira, 2012 Jun
  20. Uses getWindowRect() instead of GetWindowPlacement()
- Win32: When the taskbar is at the top of the screen creating the tabbar
  causes the window to move unnecessarily. (William E. Skeith III, 2012 Jan
  12) Patch: 2012 Jan 13 Needs more work (2012 Feb 2)

'iminsert' global value set when using ":setlocal iminsert"? (Wu, 2012 Jun 23)

Patch to append regexp to tag commands to make it possible to select one out
of many matches. (Cody Cutler, 2013 Mar 28)

The input map for CTRL-O in mswin.vim causes problems after CTRL-X CTRL-O.
Suggestion for another map. (Philip Mat, 2012 Jun 18)
But use "gi" instead of "a". Or use CTRL-\ CTRL-O.

When there are no command line arguments ":next" and ":argu" give E163, which
is confusing. Should say "the argument list is empty".

URXVT:
- will get stuck if byte sequence does not contain the expected semicolon.
- Use urxvt mouse support also in xterm. Explanations:
  http://www.midnight-commander.org/ticket/2662

Patch to have the fold and sign column and at the last line of the buffer.
(Marco Hinz, 2014 Sep 25)
Alternate suggestion: let all columns continue, also the number column.

Patch to add tests for if_xcmdsrv.c., Jul 8, need some more work. (Brian Burns)
New tests Jul 13. Update Jul 17. Discussion Jul 18.

When running Vim in silent ex mode, an existing swapfile causes Vim to wait
for a user action without a prompt. (Maarten Billemont, 2012 Feb 3)
Do give the prompt? Quit with an error?

Patch to list user digraphs. (Christian Brabandt, 2012 Apr 14)

Patch to add digraph() function. (Christian Brabandt, 2013 Aug 22, update Aug
24)

Patch for input method status. (Hirohito Higashi, 2012 Apr 18)

Update Vim app icon (for Gnome). (Jakub Steiner, 2013 Dec 6)

Patch to use .png icons for the toolbar on MS-Windows. (Martin Gieseking, 2013 Apr 18)

Patch for has('unnamedplus') docs. (Tony Mechelynck, 2011 Sep 27)
And one for gui_x11.txt.

":cd" doesn't work when current directory path contains "**".
finddir() has the same problem. (Yukihiro Nakadaira, 2012 Jan 10)
Requires a rewrite of the file_file_in_path code.

Should use has("browsefilter") in ftplugins. Requires patch 7.3.593.

Update for vim2html.pl. (Tyru, 2013 Feb 22)

Patch to sort functions starting with '<' after others. Omit dict functions, they can't be called. (Yasuhiro Matsumoto, 2011 Oct 11)

Patch to pass list to or(), and() and xor(). (Yasuhiro Matsumoto, 2012 Feb 8)

Patch to improve "it" and "at" text object matching. (Christian Brabandt, 2011 Nov 20)

Patch to improve GUI find/replace dialog. (Christian Brabandt, 2012 May 26)
Update Jun 2.

`] moves to character after insert, instead of the last inserted character. (Yukihiro Nakadaira, 2011 Dec 9)

Plugin for Modeleasy. (Massimiliano Tripoli, 2011 Nov 29)

BufWinLeave triggers too late when quitting last window in a tab page. (Lech Lorens, 2012 Feb 21)

Patch for 'transparency' option. (Sergiu Dotenco, 2011 Sep 17)
Only for MS-Windows. No documentation. Do we want this?

Patch to support cursor shape in Cygwin console. (Ben bgold, 2011 Dec 27)

On MS-Windows a temp dir with a & init causes system() to fail. (Ben Fritz, 2012 Jun 19)

'cursorline' is displayed too short when there are concealed characters and 'list' is set. (Dennis Preiser)
Patch 7.3.116 was the wrong solution.
Christian Brabandt has another incomplete patch. (2011 Jul 13)

With concealed text mouse click doesn't put the cursor in the right position. (Herb Sitz) Fix by Christian Brabandt, 2011 Jun 16. Doesn't work properly, need to make the change in where RET_WIN_BUF_CHARTABSIZE() is called.

Syntax region with 'concealends' and a 'cchar' value, 'conceallevel' set to 2, only one of the two ends gets the cchar displayed. (Brett Stahlman, 2010 Aug 21, Ben Fritz, 2010 Sep 14)

The :syntax cchar value can only be a single character. It would be useful to support combining characters. (Charles Campbell)

'cursorline' works on a text line only. Add 'cursorscreenline' for highlighting the screen line. (Christian Brabandt, 2012 Mar 31)

Win32: Patch to use task dialogs when available. (Sergiu Dotenco, 2011 Sep 17) New feature, requires testing. Made some remarks.

Win32: Patch for alpha-blended icons and toolbar height. (Sergiu Dotenco, 2011 Sep 17) Asked for feedback from others.

Win32: Cannot cd into a directory that starts with a space. (Andy Wokula, 2012 Jan 19)

Need to escape $HOME on Windows for fnameescape()? (ZyX, 2011 Jul 21, discussion 2013 Jul 4) Can't simply use a backslash, \$HOME has a different meaning already. Would be possible to use $$HOME where $HOME is to be used.

"2" in 'formatoptions' not working in comments. (Christian Corneliussen, 2011 Oct 26)

Bug in repeating Visual "u". (Lawrence Kesteloot, 2010 Dec 20)

With "unamedplus" in 'clipboard' pasting in Visual mode causes error for empty register. (Michael Seiwald, 2011 Jun 28) I can't reproduce it.

Windows keys not set properly on Windows 7? (cncyber, 2010 Aug 26)

When using a Vim server, a # in the path causes an error message. (Jeff Lanzarotta, 2011 Feb 17)

When there is a ">" in a line that "gq" wraps to the start of the next line, then the following line will pick it up as a leader. Should get the leader from the first line, not a wrapped line. (Matt Ackeret, 2012 Feb 27)

Using ":break" or something else that stops executing commands inside a ":finally" does not rethrow a previously uncaught exception. (ZyX, 2010 Oct 15)

Vim using lots of memory when joining lines. (John Little, 2010 Dec 3)

BT regexp engine: After trying a \@> match and failing, submatches are not cleared. See test64.

Patch to make "z=" work when 'spell' is off. Does this have nasty side effects? (Christian Brabandt, 2012 Aug 5, Update 2013 Aug 12)
Would also need to do this for spellbadword() and spellsuggest().

On 64 bit MS-Windows "long" is only 32 bits, but we sometimes need to store a

64 bits value. Change all number options to use nropt_T and define it to the
right type.

string() can't parse back "inf" and "nan". Fix documentation or fix code?
(ZyX, 2010 Aug 23)

When doing "redir => s:foo" in a script and then "redir END" somewhere else
(e.g. in a function) it can't find s:foo.
When a script contains "redir => s:foo" but doesn't end redirection, a
following "redir" command gives an error for not being able to access s:foo.
(ZyX, 2011 Mar 27)

When setqflist() uses a filename that triggers a BufReadCmd autocommand Vim
doesn't jump to the correct line with :cfirst. (ZyX, 2011 Sep 18)

Behavior of i" and a" text objects isn't logical. (Ben Fritz, 2013 Nov 19)

maparg() does not show the <script> flag. When temporarily changing a
mapping, how to restore the script ID?

Bug in try/catch: return with invalid compare throws error that isn't caught.
(ZyX, 2011 Jan 26)

When setting a local option value from the global value, add a script ID that
indicates this, so that ":verbose set" can give a hint. Check with options in
the help file.

After patch 7.3.097 still get E15. (Yukihiro Nakadaira, 2011 Jan 18)
Also for another example (ZyX, 2011 Jan 24)

Build problem with small features on Mac OS X 10.6. (Rainer, 2011 Jan 24)

"0g@$" puts '] on last byte of multi-byte. (ZyX, 2011 Jan 22)

Patch for :tabrecently. (Hirokazu Yoshida, 2012 Jan 30)

Problem with "syn sync grouphere". (Gustavo Niemeyer, 2011 Jan 27)

Loading autoload script even when usage is inside "if 0". (Christian Brabandt,
2010 Dec 18)

With a filler line in diff mode, it isn't displayed in the column with line
number, but it is in the sign column. Doesn't look right. (ZyX 2011 Jun 5)
Patch by Christian Brabandt, 2011 Jun 5. Introduces new problems.

Add jump() function. (Marcin Szamotulski, 2013 Aug 29)
Is this needed? CTRL-O and CTRL-I do the same, just more difficult to use.

8   Add a command to jump to the next character highlighted with "Error".
Patch by Christian Brabandt, uses]e [e]t and [t. 2011 Aug 9.

Add event for when the text scrolls. A bit like CursorMoved. Also a similar
one for insert mode. Use the event in matchparen to update the highlight if
the match scrolls into view.

7   Use "++--", "+++--" for different levels instead of "+---" "+----".
Patch by Christian Brabandt, 2011 Jul 27.
Update by Ben Fritz, with fix for TOhtml. (2011 Jul 30)

9   Add %F to 'errorformat': file name without spaces. Useful on Unix to
    avoid matching something up to a time 11:22:33.
Patch by Christian Brabandt, 2011 Jul 27.

Patch to add up to 99 match groups. (Christian Brabandt, 2010 Dec 22)
Also add named groups: \%{name}(re) and \%{name}g

In the sandbox it's not allowed to do many things, but it's possible to change
or set variables. Add a way to prevent variables from being changed in the
sandbox? E.g.: ":protect g:restore_settings".

GTK: drawing a double-width combining character over single-width characters
doesn't look right. (Dominique Pelle, 2010 Aug 8)

GTK: tear-off menu does not work. (Kurt Sonnenmoser, 2010 Oct 25)

Win32: tear-off menu does not work when menu language is German. (Markus
Bossler, 2011 Mar 2) Fixed by 7.3.095?

Wish for NetBeans commands:
    - make it possible to have 'defineAnnoType' also handle terminal colors.

Version of netbeans.c for use with MacVim. (Kazuki Sakamoto, 2010 Nov 18)

7.3.014 changed how backslash at end of line works, but still get a NUL when
there is one backslash. (Ray Frush, 2010 Nov 18) What does the original ex
do?

Searching mixed with Visual mode doesn't redraw properly. (James Vega, 2010 Nov
22)

New esperanto spell file can't be processed. (Dominique Pelle, 2011 Jan 30)
- move compflags to separate growarray?
- instead of a regexp use a hashtable. Expand '?', '*', '+'. What would be
  the maximum repeat for * and +?

"L'Italie" noted as a spell error at start of the sentence. (Dominique Pelle,
2011 Feb 27)

Editing a file with a ^M with 'ff' set to "mac", opening a help file, then the
^M is displayed as ^J sometimes. Getting 'ff' value from wrong window/buffer?

When Vim is put in the background (SIGTSTP) and then gets a SIGHUP it doesn't
exit. It exists as soon as back in the foreground. (Stephen Liang, 2011 Jan
9) Caused by vim_handle_signal(SIGNAL_BLOCK); in ui.c.

g` not working correctly when using :edit. It works OK when editing a file on
the command line. (Ingo Karkat, 2011 Jan 25)

Since patch 7.2.46 Yankring plugin has become very slow, eventually make Vim crash? (Raiwil, 2010 Nov 17)

Patch to add FoldedLineNr highlighting: different highlighting for the line number of a closed fold. (eXerigumo Clanjor, 2013 Jul 15)

Regexp engine performance:
- Profiling:
        ./vim -u NONE -s ~/vim/test/ruby.vim
        ./vim -u NONE -s ~/vim/test/loop.vim
        ./vim -u NONE -s ~/vim/test/alsa.vim
        ./vim -s ~/vim/test/todo.vim
        ./vim -s ~/vim/test/xml.vim
    Dominique Pelle: xmlSyncDT is particularly slow (Jun 7)
- More test files from the src/pkg/regexp/testdata directory in the Go repo.
- Performance tests:
  - Using asciidoc syntax. (Marek Schimara, 2013 Jun 6)
  - ~/vim/text/FeiqCfg.xml (file from Netjune)
  - ~/vim/text/edl.svg (also XML)
  - glts has five tests. (May 25)
  - ~/vim/test/slowsearch
  - ~/vim/test/rgb.vim
  - search for a.*e*exn in the vim executable. Go to last line to use 'hlsearch'.
  - Slow combination of folding and PHP syntax highlighting. Script to reproduce it. Caused by "syntax sync fromstart" in combination with patch 7.2.274. (Christian Brabandt, 2010 May 27) Generally, folding with 'foldmethod' set to "syntax" is slow. Do profiling to find out why.

Problem producing tags file when hebrew.frx is present. It has a BOM. Results in E670. (Tony Mechelynck, 2010 May 2)

'beval' option should be global-local.

Ruby: ":ruby print $buffer.number" returns zero.

setpos() does not restore cursor position after :normal. (Tyru, 2010 Aug 11)

7   The 'directory' option supports changing path separators to "%" to make file names unique, also support this for 'backupdir'. (Mikolaj Machowski)
    Patch by Christian Brabandt, 2010 Oct 21.
    Is this an update: related to: #179
    https://github.com/chrisbra/vim-mq-patches/blob/master/backupdir
    Fixed patch 2017 Jul 1.

With "tw=55 fo+=a" typing space before) doesn't work well. (Scott Mcdermott, 2010 Oct 24)

Messages in message.txt are highlighted as examples.

When using cp850 the NBSP (0xff) is not drawn correctly. (Brett Stahlman, 2010 Oct 22) 'isprint' is set to "@,161-255".

":echo "\x85" =~# '[\u0085]'" returns 1 instead of 0. (ZyX, 2010 Oct 3)

'cindent' not correct when 'list' is set. (Zdravi Korusef, 2010 Apr 15)

C-indenting: A matching { in a comment is ignored, but intermediate { are not checked to be in a comment. Implement FM_SKIPCOMM flag of findmatchlimit(). Issue 46.

Mac with X11: clipboard doesn't work properly. (Raf, 2010 Aug 16)

Using CompilerSet doesn't record where an option was set from. E.g., in the gcc compiler plugin. (Gary Johnson, 2010 Dec 13)

":helpgrep" does not put the cursor in the correct column when preceded by accented character. (Tony Mechelynck, 2010 Apr 15)

Don't call check_restricted() for histadd(), setbufvar(), settabvar(), setwinvar().

Patch for gVimExt to show an icon. (Dominik Riebeling, 2010 Nov 7)

When 'lines' is 25 and 'scrolloff' is 12, "j" scrolls zero or two lines instead of one. (Constantin Pan, 2010 Sep 10)

Gui menu edit/paste in block mode insert only inserts in one line (Bjorn Winckler, 2011 May 11)
Requires a map mode for Insert mode started from blockwise Visual mode.

Writing nested List and Dict in viminfo gives error message and can't be read back. (Yukihiro Nakadaira, 2010 Nov 13)

Problem with cursor in the wrong column. (SungHyun Nam, 2010 Mar 11)
Additional info by Dominique Pelle. (also on 2010 Apr 10)

CreateFile and CreateFileW are used without sharing, filewritable() fails when the file was already open (e.g. script is being sourced). Add FILE_SHARE_READ| FILE_SHARE_WRITE in mch_access()? (Phillippe Vaucher, 2010 Nov 2)

Is ~/bin (literally) in $PATH supposed to work? (Paul, 2010 March 29)
Looks like only bash can do it. (Yakov Lerner)

Cscope "cs add" stopped working somewhat before 7.2.438. (Gary Johnson, 2010 Jun 29) Caused by 7.2.433?

I often see pasted text (from Firefox, to Vim in xterm) appear twice.
Also, Vim in xterm sometimes loses copy/paste ability (probably after running an external command).

Jumplist doesn't work properly in Insert mode? (Jean Johner, 2010 Mar 20)

Problem with transparent cmdline. Also: Terminal title is wrong with non-ASCII character. (Lily White, 2010 Mar 7)

iconv() doesn't fail on an illegal character, as documented. (Yongwei Wu, 2009 Nov 15, example Nov 26) Add argument to specify whether iconv() should fail

or replace with a character and continue?

Add local time at start of --startuptime output.
Requires configure check for localtime().
Use format year-month-day hr:min:sec.

Patch to add "combine" to :syntax, combines highlight attributes. (Nate Soares, 2012 Dec 3)

Patch to make ":hi link" also take arguments. (Nate Soares, 2012 Dec 4)

Shell not recognized properly if it ends in "csh -f". (James Vega, 2009 Nov 3)
Find tail? Might have a / in argument. Find space? Might have space in path.

Test 51 fails when language set to German. (Marco, 2011 Jan 9)
Dominique can't reproduce it.

'ambiwidth' should be global-local.

":function f(x) keepjumps" creates a function where every command is executed like it has ":keepjumps" before it.

Coverity: Check if there are new reported defects:
https://scan.coverity.com/projects/241

Patch to support :undo absolute jump to file save number. (Christian Brabandt, 2010 Nov 5)

Patch to use 'foldnestmax' also for "marker" foldmethod. (Arnaud Lacombe, 2011 Jan 7)

Bug with 'incsearch' going to wrong line. (Wolfram Kresse, 2009 Aug 17)
Only with "vim -u NONE".

Problem with editing file in binary mode. (Ingo Krabbe, 2009 Oct 8)

With 'wildmode' set to "longest:full,full" and pressing Tab once the first entry in wildmenu is highlighted, that shouldn't happen. (Yuki Watanabe, 2011 Feb 12)

Display error when 'tabline' that includes a file name with double-width characters. (2010 Aug 14, bootleq)

Problem with stop directory in findfile(). (Adam Simpkins, 2009 Aug 26)

Using ']' as the end of a range in a pattern requires double escaping:
    /[@-\\]] (Andy Wokula, 2011 Jun 28)

Syntax priority problem. (Charles Campbell, 2011 Sep 15)

When completion inserts the first match, it may trigger the line to be folded.
Disable updating folds while completion is active? (Peter Odding, 2010 Jun 9)

When a:base in 'completefunc' starts with a number it's passed as a number,
not a string. (Sean Ma) Need to add flag to call_func_retlist() to force a
string value.

For running gvim on a USB stick: avoid the OLE registration. Use a command
line argument -noregister.

When using an expression in 'statusline' leading white space sometimes goes
missing (but not always). (ZyX, 2010 Nov 1)

When a mapping exists both for insert mode and lang-insert mode, the last one
doesn't work. (Tyru, 2010 May 6) Or is this intended?

Still a problem with ":make" in the wrong directory. Caused by ":bufdo".
(Ajit Thakkar, 2009 Jul 1) More information Jul 9, Jul 15.
Caused by "doautoall syntaxset BufEnter *" in syntax/nosyntax.vim ?
There also is a BufLeave/BufEnter aucmd to save/restore view.
Does the patch to save/restore globaldir work?

":bufdo normal gg" while 'hidden' is set leaves buffers without syntax
highlighting. Don't disable Syntax autocommands then? Or add a flag/modifier
to avoid changing 'eventignore'?

Patch for displaying 0x200c and 0x200d. (Ali Gholami Rudi, 2009 May 6)
Probably needs a bit of work.

Patch to add farsi handling to arabic.c (Ali Gholami Rudi, 2009 May 2)
Added test, updates, June 23.
Updated for 7.4: http://litcave.rudi.ir/farsi_vim.diff
With modification for Tatweel character: https://dpaste.de/VmFw
Remark from Ameretat Reith (2014 Oct 13)

List of encoding aliases. (Takao Fujiwara, 2009 Jul 18)
Are they all OK? Update Jul 22.

Win32: Improved Makefile for MSVC. (Leonardo Valeri Manera, 2010 Aug 18)

Win32: Expanding 'path' runs into a maximum size limit. (bgold12, 2009 Nov 15)

Win32: Patch for enabling quick edit mode in console. (Craig Barkhouse, 2010
Sep 1)

Win32: Patch for using .png files for icons. (Charles Peacech, 2012 Feb 5)

Putting a Visual block while 'visualedit' is "all" does not leave the cursor
on the first character. (John Beckett, 2010 Aug 7)

Setting 'tags' to "tagsdir/*" does not find "tagsdir/tags". (Steven K. Wong,
2009 Jul 18)

Patch to add "focusonly" to 'scrollopt', so that scrollbind also applies in
window that doesn't have focus. (Jonathon Mah, 2009 Jan 12)
Needs more work.

Problem with <script> mappings (Andy Wokula, 2009 Mar 8)

When starting Vim with "gvim -f -u non_existent_file > foo.txt" there are a few control characters in the output. (Dale Wiles, 2009 May 28)

'cmdwinheight' is only used in last window when 'winheight' is a large value. (Tony Mechelynck, 2009 Apr 15)

Status line containing winnr() isn't updated when splitting the window (Clark J. Wang, 2009 Mar 31)

When $VIMRUNTIME is set in .vimrc, need to reload lang files. Already done for GTK, how about others? (Ron Aaron, 2010 Apr 10)

Patch for GTK buttons X1Mouse and X2Mouse. (Christian J. Robinson, 2010 Aug 9)

Motif: Build on Ubuntu can't enter any text in dialog text fields.

":tab split fname" doesn't set the alternate file in the original window, because win_valid() always returns FALSE. Below win_new_tabpage() in ex_docmd.c.

Space before comma in function definition not allowed: "function x(a , b)" Give a more appropriate error message. Add a remark to the docs.

string_convert() should be able to convert between utf-8 and utf-16le. Used for GTK clipboard. Avoid requirement for iconv.

Now that colnr_T is int instead of unsigned, more type casts can be removed.

'delcombine' does not work for the command line. (Tony Mechelynck, 2009 Jul 20)

Don't load macmap.vim on startup, turn it into a plugin. (Ron Aaron, 2009 Apr 7) Reminder Apr 14.

Add "no_hlsearch" to winsaveview().

Cursorline highlighting combines with Search ('hlsearch') but not with SpellBad. (Jim Karsten, 2009 Mar 18)

When 'foldmethod' is "indent", adding an empty line below a fold and then indented text, creates a new fold instead of joining it with the previous one. (Evan Laforge, 2009 Oct 17)

Bug: When reloading a buffer changed outside of Vim, BufRead autocommands are applied to the wrong buffer/window. (Ben Fritz, 2009 Apr 2, May 11)
Ignore window options when not in the right window?
Perhaps we need to use a hidden window for applying autocommands to a buffer that doesn't have a window.

When using "ab foo bar" and mapping <Tab> to <Esc>, pressing <Tab> after foo doesn't trigger the abbreviation like <Esc> would. (Ramana Kumar, 2009 Sep 6)

getbufvar() to get a window-local option value for a buffer that's not displayed in a window should return the value that's stored for that buffer.

":he ctrl_u" can be auto-corrected to ":he ctrl-u".

There should be a way after an abbreviation has expanded to go back to what was typed. CTRL-G h ? Would also undo last word or line break inserted perhaps. And undo CTRL-W. CTRL-G l would redo.

Diff mode out of sync. (Gary Johnson, 2010 Aug 4)

Win32 GUI: last message from startup doesn't show up when there is an echoerr command. (Cyril Slobin, 2009 Mar 13)

Win32: completion of file name ":e c:\!test" results in ":e c:\\!test", which does not work. (Nieko Maatjes, 2009 Jan 8, Ingo Karkat, 2009 Jan 22)

opening/closing window causes other window with 'winfixheight' to change height. Also happens when there is another window in the frame, if it's not very high. (Yegappan Lakshmanan, 2010 Jul 22, Michael Peeters, 2010 Jul 22)

Directory wrong in session file, caused by ":lcd" in BufEnter autocommand. (Felix Kater, 2009 Mar 3)

Session file generates error upon loading, cause by --remote-silent-tab. (7tommm (ytommm) 2010 Nov 24)

Using ~ works OK on 'a' with composing char, but not on 0x0418 with composing char 0x0301. (Tony Mechelynck, 2009 Mar 4)

Searching for composing char works, but not when inside []. (ZyX, Benjamin R. Haskell, 2010 Aug 24)

This does not work yet: "a\(%C\)" (get composing characters into a submatch).

Inconsistent: starting with $LANG set to es_ES.utf-8 gives Spanish messages, even though locale is not supported. But ":lang messages es_ES.utf-8" gives an error and doesn't switch messages. (Dominique Pelle, 2009 Jan 26)

When $HOME contains special characters, such as a comma, escape them when used in an option. (Michael Hordijk, 2009 May 5)
Turn "esc" argument of expand_env_esc() into string of chars to be escaped.

Should make 'ignorecase' global-local, so that it makes sense setting it from a modeline.

Add cscope target to Makefile. (Tony Mechelynck, 2009 Jun 18, replies by Sergey Khorev)

Consider making YankRing or something else that keeps a list of yanked text part of standard Vim. The "1 to "9 registers are not sufficient.

After doing "su" $HOME can be the old user's home, thus ~root/file is not

correct. Don't use it in the swap file.

Completion for ":buf" doesn't work properly on Win32 when 'shellslash' is off.
(Henrik Ohman, 2009, Jan 29)

shellescape() depends on 'shellslash' for quoting. That doesn't work when
'shellslash' is set but using cmd.exe. (Ben Fritz)
Use a different option or let it depend on whether 'shell' looks like a
unix-like shell?

Bug: in Ex mode (after "Q") backslash before line break, when yanked into a
register and executed, results in <Nul>: instead of line break.
(Konrad Schwarz, 2010 Apr 16)

Have a look at patch for utf-8 line breaking. (Yongwei Wu, 2008 Mar 1, Mar 23)
Now at: http://vimgadgets.sourceforge.net/liblinebreak/

Greek sigma character should be lower cased depending on the context. Can we
make this work? (Dominique Pelle, 2009 Sep 24)

When changing 'encoding' convert all the swap file names, so that we can
still delete them. Also convert all buffer file names?

"gqip" in Insert mode has an off-by-one error, causing it to reflow text.
(Raul Coronado, 2009 Nov 2)

Update src/testdir/main.aap.

Something wrong with session that has "cd" commands and "badd", in such a way
that Vim doesn't find the edited file in the buffer list, causing the
ATTENTION message? (Tony Mechelynck, 2008 Dec 1)
Also: swap files are in ~/tmp/ One has relative file name ".mozilla/...".

Add v:motion_force. (Kana Natsuno, 2008 Dec 6)
Maybe call it v:motiontype.

MS-Windows: editing the first, empty buffer, 'ffs' set to "unix,dos", ":enew"
doesn't set 'ff' to "unix". (Ben Fritz, 2008 Dec 5) Reusing the old buffer
probably causes this.

'scrollbind' is not respected when deleting lines or undo. (Milan Vancura,
2009 Jan 16)

Document that default font in Athena can be set with resources:
   XtDefaultFont: "9x15"
   XtDefaultFontSet: "9x15"
(Richard Sherman, 2009 Apr 12)

Having "Syntax" in 'eventignore' for :bufdo may cause problems, e.g. for
":bufdo e" when buffers are open in windows. ex_listdo(eap) could set the
option only for when jumping to another buffer, not when the command argument
is executed.

":pedit %" with a BufReadPre autocommand causes the cursor to move to the

first line. (Ingo Karkat, 2008 Jul 1) Ian Kelling is working on this.
Similar problem with ":e". (Marc Montu, 2014 Apr 22)

Wildmenu not deleted: "gvim -u NONE", ":set nocp wildmenu cmdheight=3
laststatus=2", CTRL-D CTRL-H CTRL-H CTRL-H. (A.Politz, 2008 April 1)
Works OK with Vim in an xterm.

Cursor line moves in other window when using CTRL-W J that doesn't change
anything. (Dasn, 2009 Apr 7)

On Unix "glob('does not exist~')" returns the string. Without the "~" it
doesn't. (John Little, 2008 Nov 9)
Shell expansion returns unexpanded string?
Don't use shell when "~" is not at the start?

When using ":e ++enc=foo file" and the file is already loaded with
'fileencoding' set to "bar", then do_ecmd() uses that buffer, even though the
fileencoding differs. Reload the buffer in this situation? Need to check for
the buffer to be unmodified.
Unfinished patch by Ian Kelling, 2008 Jul 11. Followup Jul 14, need to have
another look at it.

c.vim: XXX in a comment is colored yellow, but not when it's after "#if 0".
(Ilya Dogolazky, 2009 Aug 7)

You can type ":w ++bad=x fname", but the ++bad argument is ignored. Give an
error message? Or is this easy to implement? (Nathan Stratton Treadway, 2008
Aug 20) This is in ucs2bytes(), search for 0xBF. Using the ++bad argument is
at the other match for 0xBF.

When adding "-complete=file" to a user command this also changes how the
argument is processed for <f-args>. (Ivan Tishchenko, 2008 Aug 19)

Win32: associating a type with Vim doesn't take care of space after a
backslash? (Robert Vibrant, 2008 Jun 5)

When 'rightleft' is set, cursorcolumn isn't highlighted after the end of a
line. It's also wrong in folds. (Dominique Pelle, 2010 Aug 21)

Using an insert mode expression mapping, cursor is not in the expected
position. (ZyX, 2010 Aug 29)

After using <Tab> for command line completion after ":ta blah" and getting E33
(no tags file), further editing the command to e.g., ":echo 'blah'", the
command is not executed. Fix by Ian Kelling?

":help s/~" jumps to *s/\~*, while ":help s/\~" doesn't find anything. (Tim
Chase) Fix by Ian Kelling, 2008 Jul 14.

When mapping : to ; and ; to :, @; doesn't work like @: and @: doesn't work
either. Matt Wozniski: nv_at() calls do_execreg() which uses
put_in_typebuf(). Char mapped twice?

Despite adding save_subexpr() this still doesn't work properly:

Regexp: matchlist('12a4aaa', '^\(.\{-}\)\(\%5c\@<=a\+\)\(.\+\)\?')
Returns ['12a4', 'aaa', '4aaa'], should be ['12a4', 'aaa', '']
Backreference not cleared when retrying after \@<= fails?
(Brett Stahlman, 2008 March 8)

Problem with remote_send(). (Charles Campbell, 2008 Aug 12)

ftplugin for help file should set 'isk' to help file value.

Win32: remote editing fails when the current directory name contains "[".
(Ivan Tishchenko, Liu Yubao) Suggested patch by Chris Lubinski: Avoid
escaping characters where the backslash is not removed later. Asked Chris for
an alternate solution, also for src/ex_getln.c.
This also fails when the file or directory name contains "%". (Thoml, 2008
July 7)
Using --remote-silent while the current directory has a # in the name does not
work, the # needs to be escaped. (Tramblay Bruno, 2012 Sep 15)

When using remote-silent the -R flag is not passed on. (Axel Bender, 2012 May
31)

Win32: A --remote command that has a directory name starting with a (doesn't
work, the backslash is removed, assuming that it escapes the (. (Valery
Kondakoff, 2009 May 13)

Win32: Using "gvim --remote-tab-silent elŝuti.txt" doesn't work, the
multi-byte character isn't passed and edits elsuti.txt.
(Raúl Núñez de Arenas Coronado, 2015 Dec 18)

Problem with 'langmap' being used on the rhs of a mapping. (Nikolai Weibull,
2008 May 14)
Possibly related problem: Alexey Muranov, 2015 Apr 2

Problem with CTRL-F. (Charles Campbell, 2008 March 21)
Only happens with "gvim -geometry "160x26+4+27" -u NONE -U NONE prop.c".
'lines' is 54. (2008 March 27)

Problem with pointer wrapping around in getvcol(). (Wolfgang Kroworsch, 2008
Oct 19) Check for "col" being "MAXCOL" separately?

Unexpectedly inserting a double quote. (Anton Woellert, 2008 Mar 23)
Works OK when 'cmdheight' is 2.

8   Use a mechanism similar to omni completion to figure out the kind of tab
    for CTRL-] and jump to the appropriate matching tag (if there are
    several).
    Alternative: be able to define a function that takes the tag name and uses
    taglist() to find the right location. With indication of using CTRL-] so
    that the context can be taken into account. (Robert Webb)
Patch by Christian Brabandt, 2013 May 31.

The utf class table is missing some entries:
        0x2212, minus sign
        0x2217, star

```
        0x2500, bar
        0x26ab, circle

Visual line mode doesn't highlight properly when 'showbreak' is used and the
line doesn't fit. (Dasn, 2008 May 1)

GUI: In Normal mode can't yank the modeless selection.  Make "gy" do this?
Works like CTRL-Y in Command line mode.

Mac: Move Carbon todo items to os_mac.txt.  Note that this version is frozen,
try the Cocoa version.

Mac: After a ":vsplit" the left scrollbar doesn't appear until 'columns' is
changed or the window is resized.

GTK: when setting 'columns' in a startup script and doing ":vertical diffsplit"
the window isn't redrawn properly, see two vertical bars.

Mac: Patch for configure: remove arch from ruby link args. (Knezevic, 2008
Mar 5)  Alternative: Kazuki Sakamoto, Mar 7.

Mac: trouble compiling with Motif, requires --disable-darwin. (Raf, 2008 Aug
1)  Reply by Ben Schmidt.

C't: On utf-8 system, editing file with umlaut through Gnome results in URL
with %nn%nn, which is taken as two characters instead of one.
Try to reproduce at work.

Patch for default choice in file changed dialog. (Bjorn Winckler, 2008 Oct 19)
Is there a way to list all the files first?

When 'smartcase' is set and using CTRL-L to add to the search pattern it may
result in no matches.  Convert chars to lower case? (Erik Wognsen, 2009 Apr
16)

Fail to edit file after failed register access.  Error flag remains set?
(Lech Lorens, 2010 Aug 30)

Patch for redo register. (Ben Schmidt, 2007 Oct 19)
Await response to question to make the register writable.

Problem with 'ts' set to 9 and 'showbreak' to ">>>". (Matthew Winn, 2007 Oct
1)

In the swapfile dialog, add a H(elp) option that gives more info about what
each choice does.  Similar to  ":help swap-exists-choices"

try/catch not working for argument of return. (Matt Wozniski, 2008 Sep 15)

try/catch not working when inside a for loop. (ZyX, 2011 Jan 25)

":tab help" always opens a new tab, while ":help" re-uses an existing window.
Would be more consistent when an existing tab is re-used. (Tony Mechelynck)
```

Add ":nofold". Range will apply without expanding to closed fold.

Using Aap to build Vim: add remarks about how to set personal preferences.
Example on http://www.calmar.ws/tmp/aap.html

Syntax highlighting wrong for transparent region. (Doug Kearns, 2007 Feb 26)
Bug in using a transparent syntax region. (Hanlen in vim-dev maillist, 2007
Jul 31)

C syntax: {} inside () causes following {} to be highlighted as error.
(Michalis Giannakidis, 2006 Jun 1)

When 'diffopt' has "context:0" a single deleted line causes two folds to merge
and mess up syncing. (Austin Jennings, 2008 Jan 31)

Gnome improvements: Edward Catmur, 2007 Jan 7
    Also use Save/Discard for other GUIs

New PHP syntax file, use it? (Peter Hodge)

":echoe" in catch block stops processing, while this doesn't happen outside of
a catch block. (ZyX, 2011 Jun 2)

'foldcolumn' in modeline applied to wrong window when using a session. (Teemu
Likonen, March 19)

Test 54 uses shell commands, that doesn't work on non-Unix systems. Use some
other way to test buffer-local autocommands.

The documentation mentions the priority for ":2match" and ":3match", but it
appears the last one wins. (John Beckett, 2008 Jul 22) Caused by adding
matchadd()? Suggested patch by John, 2008 Jul 24.

When 'encoding' is utf-8 the command line is redrawn as a whole on every
character typed. (Tyler Spivey, 2008 Sep 3) Only redraw cmdline for
'arabicshape' when there is a character on the command line for which
(ARABIC_CHAR(u8c)) is TRUE.

Cheng Fang made javacomplete. (2007 Aug 11)
Asked about latest version: 0.77.1 is on www.vim.org.

More AmigaOS4 patches. (Peter Bengtsson, Nov 9)

Amiga patches with vbcc. (Adrien Destugues, 2010 Aug 30)
http://pulkomandy.ath.cx/drop/vim73_vbcc_amiga.diff

Insert mode completion: When editing the text and pressing CTRL-N again goes
back to originally completed text, edited text is gone. (Peng Yu, 2008 Jul 24)
Suggestion by Ben Schmidt, 2008 Aug 6.

Problem with compound words? (Bert, 2008 May 6)
No warning for when flags are defined after they are used in an affix.

Screen redrawing when continuously updating the buffer and resizing the

terminal. (Yakov Lerner, 2006 Sept 7)

Add option settings to help ftplugin. (David Eggum, 2006 Dec 18)

Autoconf problem: when checking for iconv library we may add -L/usr/local/lib, but when compiling further tests -liconv is added without the -L argument, that may fail (e.g., sizeof(int)). (Blaine, 2007 Aug 21)

When opening quickfix window, disable spell checking?

Problem with ".add" files when using two languages and restarting Vim. (Raul Coronado, 2008 Oct 30)

Popup menu redraw: Instead of first redrawing the text and then drawing the popup menu over it, first draw the new popup menu, remember its position and size and then redraw the text, skipping the characters under the popup menu. This should avoid flicker. Other solution by A.Politz, 2007 Aug 22.

When a register contains illegal bytes, writing viminfo in utf-8 and reading it back doesn't result in utf-8. (Devin Bayer)

Command line completion: Scanning for tags doesn't check for typed key now and then? Hangs for about 5 seconds. Appears to be caused by finding include files with "foo/**" in 'path'. (Kalisiak, 2006 July 15)
Additional info: When using the wildcards ** globing, vim hangs indefinitely on lots of directories. The file-searching globing, like in ":set path=/**" does not hang as often as with globing with wildcards , like in ":1find /**/file". This is for files that unix "find" can find very quickly. Merging the 2 kinds of globing might make this an easier fix. (Ian Kelling, 2008 July 4)

When the file name has parenthesis, e.g., "foo (bar).txt", ":!ls '%'" has the parenthesis escaped but not the space. That's inconsistent. Either escape neither or both. No escaping might be best, because it doesn't depend on particularities of the shell. (Zvi Har'El, 2007 Nov 10) (Teemu Likonen, 2008 Jun 3)
However, for backwards compatibility escaping might be necessary. Check if the user put quotes around the expanded item?

A throw in a function causes missing an endif below the call. (Spiros Bousbouras, 2011 May 16)

Error E324 can be given when a cron script has wiped out our temp directory. Give a clear error message about this (and tell them not to wipe out /tmp).

Color for cUserLabel should differ from case label, so that a mistake in a switch list is noticed:

```
    switch (i)
    {
    case 1:
    foobar:
    }
```

Look at http://www.gtk-server.org/ . It has a Vim script implementation.

Netbeans problem. Use "nc -l 127.0.0.1 55555" for the server, then run gvim
with "gvim -nb:localhost:55555:foo". From nc do: '1:editFile!0 "foo"'. Then
go to Insert mode and add a few lines. Then backspacing every other time
moves the cursor instead of deleting. (Chris Kaiser, 2007 Sep 25)

Windows installer could add a "open in new tab of existing Vim" menu entry.
GvimExt: patch to add "Edit with single Vim &tabbed" menu entry.
Just have two choices, always using one Vim and selecting between using an
argument list or opening each file in a separate tab.
(Erik Falor, 2008 May 21, 2008 Jun 26)

Windows installer: licence text should not use indent, causes bad word wrap.
(Benjamin Fritz, 2010 Aug 16)

Dos uninstal may delete vim.bat from the wrong directory (e.g., when someone
makes his own wrapper). Add a magic string with the version number to the
.bat file and check for it in the uninstaller. E.g.
          # uninstall key: vim7.3*

Changes for Win32 makefile. (Mike Williams, 2007 Jan 22, Alexei Alexandrov,
2007 Feb 8)

Win32: Can't complete shell command names. Why is setting xp_context in
set_one_cmd_context() inside #ifndef BACKSLASH_IN_FILENAME?

Win32: Patch for cscope external command. (Mike Williams, 2007 Aug 7)

Win32: XPM support only works with path without spaces. Patch by Mathias
Michaelis, 2006 Jun 9. Another patch for more path names, 2006 May 31.
New version: http://members.tcnet.ch/michaelis/vim/patches.zip (also for other
patches by Mathias, see mail Feb 22)

Win32: compiling with normal features and OLE fails. Patch by Mathias
Michaelis, 2006 Jun 4.

Win32: after "[I" showing matches, scroll wheel messes up screen. (Tsakiridis,
2007 Feb 18)
Patch by Alex Dobrynin, 2007 Jun 3. Also fixes other scroll wheel problems.

Win32: using CTRL-S in Insert mode doesn't remove the "+" from the tab pages
label. (Tsakiridis, 2007 Feb 18) Patch from Ian Kelling, 2008 Aug 6.

Win32: using "gvim --remote-tab-silent fname" sometimes gives an empty screen
with the more prompt. Caused by setting the guitablabel? (Thomas Michael
Engelke, 2007 Dec 20 - 2008 Jan 17)

Win32: patch for fullscreen mode. (Liushaolin, 2008 April 17)

Win32: When 'shell' is bash shellescape() doesn't always do the right thing.
Depends on 'shellslash', 'shellquote' and 'shellxquote', but shellescape()
only takes 'shellslash' into account.

Menu item that does "xxd -r" doesn't work when 'fileencoding' is utf-16.

Check for this and use iconv? (Edward L. Fox, 2007 Sep 12)
Does the conversion in the other direction work when 'fileencodings' is set
properly?

Cursor displayed in the wrong position when using 'numberwidth'. (James Vega,
2007 Jun 21)

When $VAR contains a backslash expand('$VAR') removes it. (Teemu Likonen, 2008
Jun 18)

If the variable "g:x#y#z" exists completion after ":echo g:x#" doesn't work.

Feature request: Command to go to previous tab, like what CTRL-W p does for
windows. (Adam George)

F1 - F4 in an xterm produce a different escape sequence when used with a
modifier key. Need to catch three different sequences. Use K_ZF1, like
K_ZHOME? (Dickey, 2007 Dec 2)

In debug mode, using CTRL-R = to evaluate a function causes stepping through
the function. (Hari Krishna Dara, 2006 Jun 28)

C++ indenting wrong with "=". (James Kanze, 2007 Jan 26)

":lockvar" should use copyID to avoid endless loop.

When using --remote-silent and the file name matches 'wildignore' get an E479
error. without --remote-silent it works fine. (Ben Fritz, 2008 Jun 20)

GVim: dialog for closing Vim should check if Vim is busy writing a file. Then
use a different dialog: "busy saving, really quit? yes / no".

Check other interfaces for changing curbuf in a wrong way. Patch like for
if_ruby.c.

":helpgrep" should use the directory from 'helpfile'.

The need_fileinfo flag is messy. Instead make the message right away and put
it in keep_msg?

Editing a file remotely that matches 'wildignore' results in a "no match"
error. Should only happen when there are wildcards, not when giving the file
name literally, and esp. if there is only one name.

Test 61 fails sometimes. This is a timing problem: "sleep 2" sometimes takes
longer than 2 seconds.

Using ":au CursorMoved * cmd" invokes mch_FullName(), which can be slow.
Can this be avoided? (Thomas Waba, 2008 Aug 24)
Also for ":w" without a file name.
The buffer has the full path in ffname, should pass this to the autocommand.

"vim -C" often has 'nocompatible', because it's set in some startup script.
Set 'compatible' after startup is done? Patch by James Vega, 2008 Feb 7.

VMS: while editing a file found in complex, Vim will save file into the first
directory of the path and not to the original location of the file.
(Zoltan Arpadffy)

VMS: VFC files are in some cases truncated during reading (Zoltan Arpadffy)

input() completion should not insert a backslash to escape a space in a file
name?

Ruby completion is insecure. Can this be fixed?

When 'backupskip' is set from $TEMP special characters need to be escaped.
(patch by Grembowietz, 2007 Feb 26, not quite right)
Another problem is that file_pat_to_reg_pat() doesn't recognize "\\", so "\\("
will be seen as a path separator plus "\(".

gvim d:\path\path\(FILE).xml should not remove the \ before the (.
This also fails with --remote.

When doing ":quit" the Netbeans "killed" event isn't sent. (Xavier de Gaye,
2008 Nov 10) call netbeans_file_closed() at the end of buf_freeall(), or in
all places where buf_freeall() is called?

aucmd_prepbuf() should also use a window in another tab page.

When unloading a buffer in a BufHidden autocommand the hidden flag is reset?
(Bob Hiestand, 2008 Aug 26, Aug 27)

Substituting an area with a line break with almost the same area does change
the Visual area. Can this be fixed? (James Vega, 2006 Sept 15)

GUI: When combining fg en bg make sure they are not equal.

Spell checking: Add a way to specify punctuation characters. Add the
superscript numbers by default: 0x2070, 0xb9, 0xb2, 0xb3, 0x2074 - 0x2079.

Spell checking in popup menu: If the only problem is the case of the first
character, don't offer "ignore" and "add to word list".

Use different pt_br dictionary for spell checking. (Jackson A. Aquino, 2006
Jun 5)

Use different romanian dictionary for spell checking. (Andrei Popescu, Nov
2008) Use http://downloads.sourceforge.net/rospell/ro_RO.3.2.zip
Or the hunspell-ro.3.2.tar.gz file, it also has a iso-8859-2 list.

In a C file with spell checking, in "% integer" "nteger" is seen as an error,
but "]s" doesn't find it. "nteger" by itself is found. (Ralf Wildenhues, 2008
Jul 22)

There should be something about spell checking in the user manual.

Spell menu: When using the Popup menu to select a replacement word,

":spellrepeat" doesn't work. SpellReplace() uses setline(). Can it use "z="
somehow? Or use a new function.

Mac: Using gvim: netrw window disappears. (Nick Lo, 2006 Jun 21)

Add an option to specify the character to use when a double-width character is
moved to the next line. Default '>', set to a space to blank it out. Check
that char is single width when it's set (compare with 'listchars').

The generated vim.bat can avoid the loop for NT. (Carl Zmola, 2006 Sep 3)

When showing a diff between a non-existent file and an existing one, with the
cursor in the empty buffer, the other buffer only shows the last line. Change
the "insert" into a change from one line to many? (Yakov Lerner, 2008 May 27)

These two abbreviations don't give the same result:
```
	let asdfasdf = "xyz\<Left>"
	cabbr XXX <C-R>=asdfasdf<CR>
	cabbr YYY xyz<Left>
```

Michael Dietrich: maximized gvim sometimes displays output of external command
partly. (2006 Dec 7)

In FileChangedShell command it's no longer allowed to switch to another
buffer. But the changed buffer may differ from the current buffer, how to
reload it then?

For Aap: include a config.arg.example file with hints how to use config.arg.

Command line completion when 'cmdheight' is maximum and 'wildmenu' is set,
only one buffer line displayed, causes display errors.

Completing with 'wildmenu' and using <Up> and <Down> to move through directory
tree stops unexpectedly when using ":cd " and entering a directory that
doesn't contain other directories.

Default for 'background' is wrong when using xterm with 256 colors.
Table with estimates from Matteo Cavalleri, 2014 Jan 10.

Setting 'background' resets the Normal background color:
```
   highlight Normal ctermbg=DarkGray
   set background=dark
```
This is undesired, 'background' is supposed to tell Vim what the background
color is, not reset it.

Linux distributions:
- Suggest compiling xterm with --enable-tcap-query, so that nr of colors is
  known to Vim. 88 colors instead of 16 works better. See ":help
  xfree-xterm".
- Suggest including bare "vi" and "vim" with X11, syntax, etc.

Completion menu: For a wrapping line, completing a long file name, only the
start of the path is shown in the menu. Should move the menu to the right to
show more text of the completions. Shorten the items that don't fit in the

middle?

Accessing file#var in a function should not need the g: prepended.

When exiting detects a modified buffer, instead of opening the buffer in the current tab, use an existing tab, if possible. Like finding a window where the buffer is displayed. (Antonios Tsakiridis)

When ":cn" moves to an error in the same line the message isn't shortened. Only skip shortening for ":cc"?

Write "making vim work better" for the docs (mostly pointers): nice
    - sourcing $VIMRUNTIME/vimrc_example.vim
    - setting 'mouse' to "a"
    - getting colors in xterm
    - compiling Vim with X11, GUI, etc.

Problem with ":call" and dictionary function. Hari Krishna Dara, Charles Campbell 2006 Jul 06.

Syntax HL error caused by "containedin". (Peter Hodge, 2006 Oct 6)

A custom completion function in a ":command" cannot be a Funcref. (Andy Wokula, 2007 Aug 25)

Problem with using :redir in user command completion function? (Hari Krishna Dara, 2006 June 21)

Another resizing problem when setting 'columns' and 'lines' to a very large number. (Tony Mechelynck, 2007 Feb 6)

After starting Vim, using '0 to jump somewhere in a file, ":sp" doesn't center the cursor line. It works OK after some other commands.

Win32: Is it possible to have both postscript and Win32 printing?

Problem with 'cdpath' on MS-Windows when a directory is equal to $HOME. (2006 Jul 26, Gary Johnson)

Using UTF-8 character with ":command" does not work properly. (Matt Wozniski, 2008 Sep 29)

In the Netbeans interface add a "vimeval" function, so that the other side can check the result of has("patch13").

Cursor line at bottom of window instead of halfway after saving view and restoring. Only with 'nowrap'. (Robert Webb, 2008 Aug 25)

Netrw has trouble executing autocommands only for a directory. Add <isdir> and <notisdir> to autocommand patterns? Also <isfile>?

Add command modifier that skips wildcard expansion, so that you don't need to put backslashes before special chars, only for white space.

Syntax HL: open two windows on the same C code, delete a ")" in one window, resulting in highlighted "{" in that window, not in the other.

In mswin.vim: Instead of mapping <C-V> for Insert mode in a complicated way, can it be done like ":imap <C-V> <MiddleMouse>" without negative side effects?

GTK: when the Tab pages bar appears or disappears while the window is maximized the window is no longer maximized. Patch that has some idea but doesn't work from Geoffrey Antos, 2008 May 5.
Also: the window may no longer fit on the screen, thus the command line is not visible.

When right after "vim file", "M" then CTRL-W v the windows are scrolled differently and unexpectedly. Caused by patch 7.2.398?

The magic clipboard format "VimClipboard2" appears in several places. Should be only one.

Win32, NTFS: When editing a specific infostream directly and 'backupcopy' is "auto" should detect this situation and work like 'backupcopy' is "yes". File name is something like "c:\path\foo.txt:bar", includes a colon. (Alex Jakushev, 2008 Feb 1)

Small problem displaying diff filler line when opening windows with a script. (David Luyer, 2007 Mar 1 ~/Mail/oldmail/mool/in.15872)

Is it allowed that 'backupext' is empty? Problems when backup is in same dir as original file? If it's OK don't compare with 'patchmode'. (Thierry Closen)

Patch for supporting count before CR in quickfix window. (AOYAMA Shotaro, 2007 Jan 1)

Patch for adding ":lscscope". (Navdeep Parhar, 2007 Apr 26; update 2008 Apr 23)

":mkview" isn't called with the right buffer argument. Happens when using tabs and the autocommand "autocmd BufWinLeave * mkview". (James Vega, 2007 Jun 18)

When completing from another file that uses a different encoding completion text has the wrong encoding. E.g., when 'encoding' is utf-8 and file is latin1. Example from Gombault Damien, 2007 Mar 24.

Syntax HL: When using "nextgroup" and the group has an empty match, there is no search at that position for another match. (Lukas Mai, 2008 April 11)

In gvim the backspace key produces a backspace character, but on Linux the VERASE key is Delete. Set VERASE to Backspace? (patch by Stephane Chazelas, 2007 Oct 16)

TermResponse autocommand isn't always triggered when using vimdiff. (Aron Griffis, 2007 Sep 19)

Create a gvimtutor.1 file and change Makefiles to install it.

When 'encoding' is utf-8 typing text at the end of the line causes previously typed characters to be redrawn. Caused by patch 7.1.329. (Tyler Spivey, 2008 Sep 3, 11)

When Vim in an xterm owns the selection and the user does ":shell" Vim doesn't respond to selection requests. Invoking XtDisownSelection() before executing the shell doesn't help. Would require forking and doing a message loop, like what happens for the GUI.

":vimgrep" does not recognize a recursive symlink. Is it possible to detect this, at least for Unix (using device/inode)?

When switching between windows the cursor is often put in the middle.
Remember the relative position and restore that, just like lnum and col are restored. (Luc St-Louis)

Patch to support horizontal scroll wheel in GTK. Untested. (Bjorn Winckler, 2010 Jun 30)

Add an option for a minimal text length before inserting a line break for 'textwidth'. Avoids very short lines when a very long word follows.
(Kartik Agaram)

Better plugin support (not plugin manager, see elsewhere for that):
- Avoid use of feedkeys, add eval functions where needed:
  - manipulating the Visual selection?
- Add createmark(): add a mark like mM, but return a unique ID. Need some way to clean them up again... Use a name + the script ID.
  Add createmark(, 'c') to track inserts/deletes before the column.
- Plugins need to make a lot of effort, lots of mappings, to know what happened before pressing the key that triggers a plugin action. How about keeping the last N pressed keys, so that they do not need to be mapped?
- equivalent of netbeans_beval_cb(). With an autocommand?
- Add something to enable debugging when a remote message is received.

More patches:
- Another patch for Javascript indenting. (Hari Kumar, 2010 Jul 11)
   Needs a few tests.
- Add 'cscopeignorecase' option. (Liang Wenzhi, 2006 Sept 3)
- Load intl.dll too, not only libintl.dll. (Mike Williams, 2006 May 9, docs patch May 10)
- Extra argument to strtrans() to translate special keys to their name (Eric Arnold, 2006 May 22)
- 'threglookexp' option: only match with first word in thesaurus file. (Jakson A. Aquino, 2006 Jun 14)
- Mac: indicate whether a buffer was modified. (Nicolas Weber, 2006 Jun 30)
- Allow negative 'nrwidth' for left aligning. (Nathan Laredo, 2006 Aug 16)
- ml_append_string(): efficiently append to an existing line. (Brad Beveridge, 2006 Aug 26) Use in some situations, e.g., when pasting a character at a time?
- recognize hex numbers better. (Mark Manning, 2006 Sep 13)

- Add <AbbrExpand> key, to expand an abbreviation in a mapping. (Kana Natsuno, 2008 Jul 17)
- Add 'wspara' option, also accept blank lines like empty lines for "{" and "}". (Mark Lundquist, 2008 Jul 18)
- Patch to add CTRL-T to delete part of a path on cmdline. (Adek, 2008 Jul 21)
- Instead of creating a copy of the tutor in all the shell scripts, do it in vimtutor.vim. (Jan Minar, 2008 Jul 20)
- When fsync() fails there is no hint about what went wrong. Patch by Ben Schmidt, 2008 Jul 22.
- testdir/Make_dos_sh.mak for running tests with MingW. (Bill Mccarthy, 2008 Sep 13)
- Replace ccomplete.vim by cppcomplete.vim from www.vim.org? script 1520 by Vissale Neang. (Martin Stubenschrott) Asked Vissale to make the scripts more friendly for the Vim distribution.
  New version received 2008 Jan 6.
  No maintenance in two years...
- Patch to open dropped files in new tabs. (Michael Trim, 2010 Aug 3)

Awaiting updated patches:
9 Mac unicode patch (Da Woon Jung, Eckehard Berns):
  8 Add patch from Muraoka Taro (Mar 16) to support input method on Mac?
    New patch 2004 Jun 16
  - selecting proportional font breaks display
  - UTF-8 text causes display problems. Font replacement causes this.
  - Command-key mappings do not work. (Alan Schmitt)
  - With 'nopaste' pasting is wrong, with 'paste' Command-V doesn't work. (Alan Schmitt)
  - remove 'macatsui' option when this has been fixed.
  - when 'macatsui' is off should we always convert to "macroman" and ignore 'termencoding'?
9 HTML indenting can be slow. Caused by using searchpair(). Can search() be used instead? A.Politz is looking into a solution.
8 Win32: Add minidump generation. (George Reilly, 2006 Apr 24)
7 Completion of network shares, patch by Yasuhiro Matsumoto.
  Update 2004 Sep 6.
  How does this work? Missing comments.
8 Add a few more command names to the menus. Patch from Jiri Brezina (28 feb 2002). Will mess the translations...
7 ATTENTION dialog choices are more logical when "Delete it" appears before "Quit". Patch by Robert Webb, 2004 May 3.
- Include flipcase patch: ~/vim/patches/wall.flipcase2 ? Make it work for multi-byte characters.
- Win32: add options to print dialog. Patch from Vipin Aravind.
- Patch to add highlighting for whitespace. (Tom Schumm, 2003 Jul 5)
  use the patch that keeps using HLF_8 if HLF_WS has not
  been given values.
  Add section in help files for these highlight groups?
8 "fg" and "bg" don't work in an xterm. Get default colors from xterm with an ESC sequence.
  xterm can send colors for many things. E.g. for the cursor:
    <Esc>]12;?<Bel>
  Can use this to get the background color and restore the colors on exit.
7 Add "DefaultFG" and "DefaultBG" for the colors of the menu. (Marcin

    Dalecki has a patch for Motif and Carbon)
-   Add possibility to highlight specific columns (for Fortran). Or put a
    line in between columns (e.g., for 'textwidth').
    Patch to add 'hlcolumn' from Vit Stradal, 2004 May 20.
8   Add functions:
    gettext()   Translate a message. (Patch from Yasuhiro Matsumoto)
                        Update 2004 Sep 10
                        Another patch from Edward L. Fox (2005 Nov 24)
                        Search in 'runtimepath'?
                        More docs needed about how to use this.
                        How to get the messages into the .po files?
    confirm()   add "flags" argument, with 'v' for vertical
                            layout and 'c' for console dialog. (Haegg)
                            Flemming Madsen has a patch for the 'c' flag
                            (2003 May 13)
    raisewin()   raise gvim window (see HierAssist patch for
                            Tcl implementation ~/vim/HierAssist/)
    taglist()   add argument to specify maximum number of matches.
                        useful for interactive things or completion.
    col('^')   column of first non-white character.
                        Can use "len(substitute(getline('.'), '\S.*', '', ''))
                        + 1", but that's ugly.
7   Add patch from Benoit Cerrina to integrate Vim and Perl functions
    better. Now also works for Ruby (2001 Nov 10)
-   Patch from Herculano de Lima Einloft Neto for better formatting of the
    quickfix window (2004 dec 2)
7   When 'rightleft' is set, the search pattern should be displayed right
    to left as well? See patch of Dec 26. (Nadim Shaikli)
8   Option to lock all used memory so that it doesn't get swapped to disk
    (uncrypted). Patch by Jason Holt, 2003 May 23. Uses mlock.
7   Add ! register, for shell commands. (patch from Grenie)
8   In the gzip plugin, also recognize *.gz.orig, *.gz.bak, etc. Like it's
    done for filetype detection. Patch from Walter Briscoe, 2003 Jul 1.
7   Add a "-@ filelist" argument: read file names from a file. (David
    Kotchan has a patch for it)
7   Add ":justify" command. Patch from Vit Stradal 2002 Nov 25.
-   findmatch() should be adjusted for Lisp. See remark at
    get_lisp_indent(). Esp. \(and \) should be skipped. (Dorai Sitaram,
    incomplete patch Mar 18)
-   For GUI Find/Replace dialog support using a regexp. Patch for Motif
    and GTK by degreneir (nov 10 and nov 18).
-   Patch for "paranoid mode" by Kevin Collins, March 7. Needs much more work.

Vi incompatibility:
-   Try new POSIX tests, made after my comments. (Geoff Clare, 2005 April 7)
    Version 1.5 is in ~/src/posix/1.5. (Lynne Canal)
8   With undo/redo only marks in the changed lines should be changed. Other
    marks should be kept. Vi keeps each mark at the same text, even when it
    is deleted or restored. (Webb)
    Also: A mark is lost after: make change, undo, redo and undo.
    Example: "{d''" then "u" then "d''": deletes an extra line, because the ''
    position is one line down. (Veselinovic)
8   When stdin is not a tty, and Vim reads commands from it, an error should

make Vim exit.
7 Unix Vim (not gvim): Typing CTRL-C in Ex mode should finish the line (currently you can continue typing, but it's truncated later anyway). Requires a way to make CTRL-C interrupt select() when in cooked input.
8 When loading a file in the .exrc, Vi loads the argument anyway. Vim skips loading the argument if there is a file already. When no file argument given, Vi starts with an empty buffer, Vim keeps the loaded file. (Bearded)
6 In Insert mode, when using <BS> or <Del>, don't wipe out the text, but only move back the cursor. Behaves like '$' in 'cpoptions'. Use a flag in 'cpoptions' to switch this on/off.
8 When editing a file which is a symbolic link, and then opening another symbolic link on the same file, Vim uses the name of the first one. Adjust the file name in the buffer to the last one used? Use several file names in one buffer???
Also: When first editing file "test", which is symlink to "test2", and then editing "test2", you end up editing buffer "test" again. It's not logical that the name that was first used sticks with the buffer.
7 The ":undo" command works differently in Ex mode. Edit a file, make some changes, "Q", "undo" and _all_ changes are undone, like the ":visual" command was one command.
On the other hand, an ":undo" command in an Ex script only undoes the last change (e.g., use two :append commands, then :undo).
7 The ":map" command output overwrites the command. Perhaps it should keep the ":map" when it's used without arguments?
7 CTRL-L is not the end of a section? It is for Posix! Make it an option.
7 Implement 'prompt' option. Init to off when stdin is not a tty.
7 Add a way to send an email for a crashed edit session. Create a file when making changes (containing name of the swap file), delete it when writing the file. Supply a program that can check for crashed sessions (either all, for a system startup, or for one user, for in a .login file).
7 Vi doesn't do autoindenting when input is not from a tty (in Ex mode).
7 "z3<CR>" should still use the whole window, but only redisplay 3 lines.
7 ":tag xx" should move the cursor to the first non-blank. Or should it go to the match with the tag? Option?
7 Implement 'autoprint'/'ap' option.
7 Add flag in 'cpoptions' that makes <BS> after a count work like <Del> (Sayre).
7 Add flag in 'cpoptions' that makes operator (yank, filter) not move the cursor, at least when cancelled. (default Vi compatible).
7 This Vi-trick doesn't work: "Q" to go to Ex mode, then "g/pattern/visual". In Vi you can edit in visual mode, and when doing "Q" you jump to the next match. Nvi can do it too.
7 Support '\' for line continuation in Ex mode for these commands: (Luebking)

```
    g/./a\              g/pattern1/ s/pattern2/rep1\\
    line 1\             line 2\\
    line 2\             line 3\\
    .                   line4/
```

6 ":e /tmp/$tty" doesn't work. ":e $uid" does. Is $tty not set because of the way the shell is started?
6 Vi compatibility (optional): make "ia<CR><ESC>10." do the same strange thing. (only repeat insert for the first line).

GTK+ GUI known bugs:

9   Crash with X command server over ssh. (Ciaran McCreesh, 2006 Feb 6)
8   GTK 2: Combining UTF-8 characters not displayed properly in menus (Mikolaj
    Machowski) They are displayed as separate characters. Problem in
    creating a label?
8   GTK 2: Combining UTF-8 characters are sometimes not drawn properly.
    Depends on the font size, "monospace 13" has the problem. Vim seems to do
    everything right, must be a GTK bug. Is there a way to work around it?
9   Can't paste a Visual selection from GTK-gvim to vim in xterm or Motif gvim
    when it is longer than 4000 characters. Works OK from gvim to gvim and
    vim to vim. Pasting through xterm (using the shift key) also works.
    It starts working after GTK gvim loses the selection and gains it again.
-   Gnome2: When moving the toolbar out of the dock, so that it becomes
    floating, it can no longer be moved. Therefore making it float has been
    blocked for now.

Win32 GUI known bugs:
-   Win32: tearoff menu window should have a scrollbar when it's taller than
    the screen.
8   The -P argument doesn't work very well with many MDI applications.
    The last argument of CreateWindowEx() should be used, see MSDN docs.
    Tutorial: http://win32assembly.online.fr/tut32.html
8   In eval.c, io.h is included when MSWIN32 is defined. Shouldn't this be
    WIN32? Or can including io.h be moved to vim.h? (Dan Sharp)
6   Win32 GUI: With "-u NONE -U NONE" and doing "CTRL-W v" "CTRL-W o", the ":"
    of ":only" is highlighted like the cursor. (Lipelis)
8   When 'encoding' is "utf-8", should use 'guifont' for both normal and wide
    characters to make Asian languages work. Win32 fonts contain both
    type of characters.
7   When font smoothing is enabled, redrawing can become very slow. The reason
    appears to be drawing with a transparent background. Would it be possible
    to use an opaque background in most places?
7   The cursor color indicating IME mode doesn't work properly. (Shizhu Pan,
    2004 May 9)
8   Win32: When clicking on the gvim title bar, which gives it focus, produces
    a file-changed dialog, after clicking on a button in that dialog the gvim
    window follows the mouse. The button-up event is lost. Only with
    MS-Windows 98?
    Try this: ":set sw ts", get enter-prompt, then change the file in a
    console, go back to Vim and click "reload" in the dialog for the changed
    file: Window moves with the cursor!
    Put focus event in input buffer and let generic Vim code handle it?
8   Win32 GUI: With maximized window, ":set go-=r" doesn't use the space that
    comes available. (Poucet) It works OK on Win 98 but doesn't work on Win
    NT 4.0. Leaves a grey area where the scrollbar was. ":set go+=r" also
    doesn't work properly.
8   When Vim is minimized and when maximizing it a file-changed dialog pops
    up, Vim isn't maximized. It should be done before the dialog, so that it
    appears in the right position. (Webb)
9   When selecting at the more-prompt or hit-enter-prompt, the right mouse
    button doesn't give popup menu.
    At the hit-enter prompt CTRL-Y doesn't work to copy the modeless
    selection.
    On the command line, don't get a popup menu for the right mouse button.

Let the middle button paste selected text (not the clipboard but the non-Visual selection)? Otherwise CTRL-Y has to be used to copy the text.

8 When 'grepprg' doesn't execute, the error only flashes by, the user can hardly see what is wrong. (Moore)
Could use vimrun with an "-nowait" argument to only wait when an error occurs, but "command.com" doesn't return an error code.

8 When the 'shell' cannot be executed, should give an appropriate error msg. Esp. for a filter command, currently it only complains the file could not be read.

7 Add an option to add one pixel column to the character width? Lucida Console italic is wider than the normal font ("d" overlaps with next char). Opposite of 'linespace': 'columnspace'.

7 At the hit-enter prompt scrolling now no longer works. Need to use the keyboard to get around this. Pretend <CR> was hit when the user tries to scroll?

7 Scrollbar width doesn't change when selecting other windows appearance. Also background color of Toolbar and rectangle below vert. scrollbar.

6 Drawing text transparently doesn't seem to work (when drawing part cursor).

8 CTRL key doesn't always work in combination with ALT key. It does work for function keys, not for alphabetic characters. Perhaps this is because CTRL-ALT is used by Windows as AltGr?

8 CTRL-- doesn't work for AZERTY, because it's CTRL-[for QWERTY. How do we know which keyboard is being used?

7 When scrolling, and a background color is dithered, the dither pattern doesn't always join correctly between the scrolled area and the new drawn area (Koloseike).

8 When gui_init_font() is called with "*", p_guifont is freed while it might still be used somewhere. This is too tricky, do the font selection first, then set the new font by name (requires putting all logfont parameters in the font name).

Athena and Motif:

6 New Motif toolbar button from Marcin Dalecki:
- When the mouse pointer is over an Agide button the red becomes black. Something with the way colors are specified in the .xpm file.
- The pixmap is two pixels smaller than it should be. The gap is filled with grey instead of the current toolbar background color.

9 Can configure be changed to disable netbeans if the Xpm library is required and it's missing?

8 When using the resource "Vim*borderwidth 2" the widgets are positioned wrong.

9 XIM is disabled by default for SGI/IRIX. Fix XIM so that 'imdisable' can be off by default.

9 XIM doesn't work properly for Athena/Motif. (Yasuhiro Matsumoto) For now, keep XIM active at all times when the input method has the preediting flag.

8 X11: A menu that contains an umlaut is truncated at that character. Happens when the locale is "C", which uses ASCII instead of IS0-8859-1. Is there a way to use latin1 by default? Gnome_init() seems to do this.

8 Perhaps use fontsets for everything?

6 When starting in English and switching the language to Japanese, setting the locale with ":lang", 'guifontset' and "hi menu font=", deleting all menus and setting them again, the menus don't use the new font. Most of

    the tooltips work though...
7   Motif: when using a file selection dialog, the specified file name is not
    always used (when specifying a filter or another directory).
8   When 'encoding' is different from the current locale (e.g., utf-8) the
    menu strings don't work. Requires conversion from 'encoding' to the
    current locale. Workaround: set 'langmenu'.

Athena GUI:
9   The first event for any button in the menu or toolbar appears to get lost.
    The second click on a menu does work.
9   When dragging the scrollbar thumb very fast, focus is only obtained in
    the scrollbar itself. And the thumb is no longer updated when moving
    through files.
7   The file selector is not resizable. With a big font it is difficult to
    read long file names. (Schroeder)
4   Re-write the widget attachments and code so that we will not have to go
    through and calculate the absolute position of every widget every time the
    window is refreshed/changes size. This will help the "flashing-widgets"
    problem during a refresh.
5   When starting gvim with all the default colors and then typing
    ":hi Menu guibg=cyan", the menus change color but the background of the
    pullright pixmap doesn't change colors.
    If you type ":hi Menu guibg=cyan font=anyfont", then the pixmap changes
    colors as it should.
    Allocating a new pixmap and setting the resource doesn't change the
    pullright pixmap's colors. Why? Possible Athena bug?

Motif GUI:
-   gui_mch_browsedir() is missing, browsedir() doesn't work nicely.
7   Use XmStringCreateLocalized() instead of XmStringCreateSimple()?
    David Harrison says it's OK (it exists in Motif 1.2).
8   Lesstif: When deleting a menu that's torn off, the torn off menu becomes
    very small instead of disappearing. When closing it, Vim crashes.
    (Phillipps)

GUI:
9   On Solaris, creating the popup menu causes the right mouse button no
    longer to work for extending the selection. (Halevy)
9   When running an external program, it can't always be killed with CTRL-C.
    e.g., on Solaris 5.5, when using "K" (Keech). Other 'guipty' problems on
    Solaris 2.6. (Marley)
9   On Solaris: Using a "-geometry" argument, bigger than the window where Vim
    is started from, causes empty lines below the cmdline. (raf)
8   X11 GUI: When menu is disabled by excluding 'm' from 'guioptions', ALT key
    should not be used to trigger a menu (like the Win32 version).
8   When setting 'langmenu', it should be effective immediately. Store both
    the English and the translated text in the menu structure. Re-generate
    the translation when 'langmenu' has changed.
8   Basic flaw in the GUI code: NextScreen is updated before calling
    gui_write(), but the GUI code relies on NextScreen to represent the state
    of where it is processing the output.

Need better separation of Vim core and GUI code.
8 When fontset support is enabled, setting 'guifont' to a single font doesn't work.
8 Menu priority for sub-menus for: Amiga.
8 When translating menus ignore the part after the Tab, the shortcut. So that the same menu item with a different shortcut (e.g., for the Mac) are still translated.
8 Add menu separators for Amiga.
8 Add way to specify the file filter for the browse dialog. At least for browse().
8 Add dialog for search/replace to other GUIs? Tk has something for this, use that code? Or use console dialog.
8 When selecting a font with the font dialog and the font is invalid, the error message disappears too quick.
7 More features in the find/replace dialog:
- regexp on/off
- search in selection/buffer/all buffers/directory
when all buffers/directory is used:
- filter for file name
when directory is used:
- subdirectory on/off
- top directory browser
8 gui_check_colors() is not called at the right moment. Do it much later, to avoid problems.
8 gui_update_cursor() is called for a cursor shape change, even when there are mappings to be processed. Only do something when going to wait for input. Or maybe every 100 ms?
8 X11: When the window size is reduced to fit on screen, there are blank lines below the text and bottom scrollbar. "gvim -geometry 80x78+0+0". When the "+0+0" is omitted it works.
8 When starting an external command, and 'guipty' set, BS and DEL are mixed up. Set erase character somehow?
8 A dead circumflex followed by a space should give the '^' character (Rommel). Look how xterm does this.
Also: Bednar has some code for dead key handling.
Also: Nedit 5.0.2 with USE_XMIM does it right. (Gaya)
8 The compose key doesn't work properly (Cepas). Both for Win32 and X11.
7 The cursor in an inactive window should be hollow. Currently it's not visible.
7 GUI on Solaris 2.5.1, using /usr/dt/..: When gvim starts, cursor is hollow, after window lowered/raised it's OK. (Godfrey)
7 When starting GUI with ":gui", and window is made smaller because it doesn't fit on the screen, there is an extra redraw.
8 When setting font with .Xdefaults, there is an extra empty line at the bottom, which disappears when using ":set guifont=<Tab>". (Chadzelek)
8 When font shape changes, but not the size, doing ":set font=" does not redraw the screen with the new font. Also for Win32.
When the size changes, on Solaris 2.5 there isn't a redraw for the remaining part of the window (Phillipps).
- Flashes really badly in certain cases when running remotely from a Sun.
4 Re-write the code so that the highlighting isn't changed multiple times when doing a ":hi clear". The color changes happen three or more times currently. This is very obvious on a 66Mhz 486.

```
Win32 console:
8   Should $USERPROFILE be preferred above $HOMEDRIVE/$HOMEPATH?  No, but it's
    a good fallback, thus use:
            $HOME
            $HOMEDRIVE$HOMEPATH
            SHGetSpecialFolderPath(NULL, lpzsPath, CSIDL_APPDATA, FALSE);
            $USERPROFILE
            SHGetSpecialFolderPath(NULL, lpzsPath, CSIDL_COMMON_APPDATA, FALSE);
            $ALLUSERSPROFILE
            $SYSTEMDRIVE\
            C:\
8   Win32 console: <M-Up> and <M-Down> don't work. (Geddes)  We don't have
    special keys for these.  Should use modifier + key.
8   Win32 console: caps-lock makes non-alpha keys work like with shift.
    Should work like in the GUI version.
8   Environment variables in DOS are not case sensitive.  Make a define for
    STRCMP_ENV(), and use it when comparing environment var names.
8   Setting 'shellslash' has no immediate effect.  Change all file names when
    it is set/reset?  Or only use it when actually executing a shell command?
8   When editing a file on a Samba server, case might matter.  ":e file"
    followed by ":e FILE" will edit "file" again, even though "FILE" might be
    another one.  Set last used name in buflist_new()?  Fix do_ecmd(), etc.
8   When a buffer is editing a file like "ftp://mach/file", which is not going
    to be used like a normal file name, don't change the slashes to
    backslashes. (Ronald Hoellwarth)


Win32 console:
9   When editing a file by its short file name, it should be expanded into its
    long file name, to avoid problems like these: (Mccollister)
     1) Create a file called ".bashrc" using some other editor.
     2) Drag that file onto a shortcut or the actual executable.
     3) Note that the file name is something like BASHRC~1
     4) Go to File->Save As menu item and type ".bashrc" as the file name.
     5) Press "Yes" to indicate that I want to overwrite the file.
     6) Note that the message "File exists (add ! to override)" is displayed
        and the file is not saved.
    Use FindFirstFile() to expand a file name and directory in the path to its
    long name.
8   Also implement 'conskey' option for the Win32 console version?  Look at
    how Xvi does console I/O under Windows NT.
7   Re-install the use of $TERM and support the use of different terminals,
    besides the console.
8   Use of <altgr> modifier doesn't work?  5.3 was OK. (Garcia-Suarez/Guckes)
9   Mapping <C-S-Tab> doesn't work correctly.  How to see the difference with
    <C-S-i>?
9   tmpnam() uses file in root of file system: "\asdf".  That doesn't work on
    a Netware network drive.  Use same function as for Win32 GUI?
8   In os_win32.h, HAVE_STRICMP and HAVE_STRNICMP are defined only if __GNUC__
    is not defined.  Shouldn't that be the other way around?


Amiga:
```

8   In mch_inchar() should use convert_input_safe() to handle incomplete byte
    sequences.
9   In mch_expandpath() a "*" is to be expanded, but "*" isn't. Remove
    backslashes in result.
8   Executing a shell, only one option for 'shell' is separated. Should do
    all options, using white space separation.

Macintosh:
-   GUI: gui_mch_browsedir() is missing.
7   Loading the Perl library only works on OS/X 10.2 or 10.3, never on both.
    Load the Perl library dynamically see Python sources file dynload_mac
    (Jack)
    dynamic linking: http://developer.apple.com/technotes/tn2002/tn2064.html
8   inputdialog() doesn't resize when giving more text lines. (David Fishburn,
    2006 Sept 28)
8   Define vim_mkdir() for Macintosh.
8   Define mch_writable() for Macintosh.
9   When DiskLock is running, using a swap file causes a crash. Appears to be
    a problem with writing a file that starts with a dot. (Giacalone)
9   In mac_expandpath() check that handling of backslashes is done properly.

"Small" problems:
-   Can't disable terminal flow control, to enable the use of CTRL-S and
    CTRL-Q. Add an option for it?
-   When using e_secure in do_one_cmd() mention the command being executed,
    otherwise it's not clear where it comes from.
-   When the quickfix window is open and executing ":echo 'hello'" using the
    Command-line window, the text is immediately removed by the redrawing.
    (Michael Henry, 2008 Nov 1)
    Generic solution: When redrawing while there is a message on the
    cmdline, don't erase the display but draw over the existing text.
    Other solution, redraw after closing the cmdline window, before executing
    the command.
9   For Turkish vim_tolower() and vim_toupper() also need to use utf_
    functions for characters below 0x80. (Sertacyildiz)
9   When the last edited file is a help file, using '0 in a new Vim doesn't
    edit the file as a help file. 'filetype' is OK, but 'iskeyword' isn't,
    file isn't readonly, etc.
8   When an ":edit" is inside a try command and the ATTENTION prompt is used,
    the :catch commands are always executed, also when the file is edited
    normally. Should reset did_emsg and undo side effects. Also make sure
    the ATTENTION message shows up. Servatius Brandt works on this.
7   Vimtutor leaves escape sequence in terminal. This is the xterm response to
    requesting the version number. (Yasuhiro Matsumoto)
8   When redirecting and using ":silent" the current column for displaying and
    redirection can be different. Use a separate variable to hold the column
    for redirection.
7   The messages for "vim --help" and "vim --version" don't use
    'termencoding'.
-   Could the hit-enter prompt be avoided when a message only overlaps the
    'showcmd' area? Clear that area when the next cmd is typed.
8   When 'scrollbind' is set, a window won't scroll horizontally if the cursor

line is too short. Add a word in 'scrollopt' to allow moving the cursor to longer line that is visible. A similar thing is done for the GUI when using the horizontal scrollbar.

7 VisVim can only open one file. Hard to solve: each opened file is passed with a separate invocation, would need to use timestamps to know the invocations belong together.

8 When giving a ":bwipeout" command a file-changed dialog may popup for this buffer, which is pointless. (Mike Williams)

8 On MS-Windows ":make" doesn't show output while it is working. Use the tee.exe from http://unxutils.sourceforge.net/ ? About 16 Kbyte in the UnxUtils.zip archive.
Is it better than what we have in src/tee?

8 When doing Insert mode completion a mapping cannot recursively call edit(), because the completion information is global. Put everything in an allocated structure?

8 Command line completion: buffers "foo.txt" and "../b/foo.txt", completing ":buf foo<Tab>" doesn't find the second one. (George V. Reilly)

7 mb_off2cells() doesn't work correctly on the tail byte of a double-byte character. (Yasuhiro Matsumoto) It should return 1 when used on a tail byte, like for utf-8. Store second byte of double-byte in ScreenLines2[] (like for DBCS_JPNU) and put a zero in the second byte (like for UTF-8).

7 Inside a function with "perl <<EOF" a line with "$i++" is recognized as an ":insert" command, causing the following "endfunction" not to be found. Add skipping this perl construction inside function definitions.

7 When 'ttimeoutlen' is 10 and 'timeoutlen' is 1000, there is a keycode "<Esc>a" and a mapping <Esc>x", when typing "<Esc>a" with half a second delay should not be interpreted as a keycode. (Hans Ginzel)

7 ":botright 1 new" twice causes all window heights to be changed. Make the bottom window only bigger as much as needed.

7 The Cygwin and MingW makefiles define "PC", but it's not used anywhere. Remove? (Dan Sharp)

9 User commands use the context of the script they were defined in. This causes a "s:var" argument to unexpectedly use a variable in the defining script, not the calling script. Add an argument to ":command": "-keepcontext". Do replace <SID>, so that a function in the defining script can be called.

8 The Japanese message translations for MS-Windows are called ja.sjis.po, but they use encoding cp932. Rename the file and check that it still works.

8 A very long message in confirm() can't be quit. Make this possible with CTRL-C.

8 "gf" always excludes trailing punctuation characters. file_name_in_line() is currently fixed to use ".,:;!". Add an option to make this configurable?

8 'hkmap' should probably be global-local.

8 Using ":s" in a function changes the previous replacement string. Save "old_sub" in save_search_patterns()?

8 Should allow multi-byte characters for the delimiter: ":s+a+b+" where "+" is a multi-byte character.

8 When appending to a file and 'patchmode' isn't empty, a backup file is always written, even when the original file already exists.

9 When getting focus while writing a large file, could warn for this file being changed outside of Vim. Avoid checking this while the file is being written.

7 The message in bt_dontwrite_msg() could be clearer.
8 The script ID that is stored with an option and displayed with ":verbose set" isn't reset when the option is set internally. For example when 'foldlevel' is set from 'foldlevelstart'.
8 Also store the line number with the script ID and use it for ":verbose", so that "set nocompatible" is found when it changes other option values. When an option is set indirectly mention the command? E.g. when ":diffsplit" sets 'foldmethod'.
8 In the fileformat dialog, "Cancel" isn't translated. Add a global variable for this. (Eduardo Fernandez)
9 When editing a file with 'readonly' set, there is no check for an existing swap file. Then using ":write" (without making any changes) doesn't give a warning either. Should check for an existing swap file without creating one. Unfinished patch by Ian Kelling, 2008 July 14.
7 When 'showbreak' is set, the amount of space a Tab occupies changes. Should work like 'showbreak' is inserted without changing the Tabs.
7 When 'mousefocus' is set and switching to another window with a typed command, the mouse pointer may be moved to a part of the window that's covered by another window and we lose focus. Only move in the y direction, not horizontally?
8 ":hardcopy":
- Using the cterm_color[] table is wrong when t_colors is > 16.
- Need to handle unprintable characters.
- Win32: On a B&W printer syntax highlighting isn't visible. Perform dithering to make grey text?
- Add a flag in 'printoptions' to add an empty page to make the total number even. "addempty"? (Mike Williams)
- Respect 'linebreak'. Perhaps also 'showbreak'?
- Should interpret CTRL-L as a page break.
- Grey line numbers are not always readable. Add field in 'printoptions'. Default to black when no syntax highlighting.
- Be able to print a window in diff mode.
- Be able to specify a colorscheme to use for printing. And a separate one for B&W printing (if that can be detected).
8 When 'virtualedit' is "block,insert" and encoding is "utf-8", selecting a block of one double-wide character, then "d" deletes only half of it.
8 When 'virtualedit' is set, should "I" in blockwise visual mode also insert in lines that don't extend into the block?
8 With 'virtualedit' set, in Insert mode just after the end of line, CTRL-O yh does not yank the last character of the line. (Pavel Papushev) Doing "hl" first appears to make it work.
8 With 'virtualedit' set it's possible to move into the blank area from 'linebreak'.
8 With 'virtualedit' set and 'selection' "exclusive", a Visual selection that ends in or after a tab, "d" doesn't delete (part of) the tab. (Helmut Stiegler)
9 When jumping to a tag, the search pattern is put in the history. When 'magic' is on, the pattern may not work. Translate the pattern depending on p_magic when putting it in the history? Alternative: Store value of 'magic' in history. (Margo)
9 optwin.vim: Restoring a mapping for <Space> or <CR> is not correct for ":noremap". Add "mapcmd({string}, {mode})? Use code from ":mkexrc".
9 incsearch is incorrect for "/that/<Return>/this/;//" (last search pattern isn't updated).

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9   term_console is used before it is set (msdos, Amiga).
9   Get out-of-memory for ":g/^/,$s//@/" on 1000 lines, this is not handled
    correctly.  Get many error messages while redrawing the screen, which
    cause another redraw, etc.
8   [<C-I> doesn't work when '*' is in 'iskeyword'.  find_pattern_in_path()
    must escape special characters in the pattern.
8   Vim can overwrite a read-only file with ":w!".  ":w" can't overwrite an
    existing file, "w!" can, but perhaps not a read-only file?  Then use
    ":w!!" for that.
    Or ask for permission to overwrite it (if file can be made writable) and
    restore file to readonly afterwards.
    Overwriting a file for which a swap file exists is similar issue.
7   When compiled with "xterm_clipboard", startup can be slower and might get
    error message for invalid $DISPLAY.  Try connecting to the X server in the
    background (forked), so that Vim starts up quicker?  Connect as soon as
    the clipboard is to be used (Visual select mode starts, paste from
    clipboard)
7   X11: Some people prefer to use CLIPBOARD instead of PRIMARY for the normal
    selection.  Add an "xclipboard" argument to the 'clipboard' option? (Mark
    Waggoner)
6   When the xterm reports the number of colors, a redraw occurs.  This is
    annoying on a slow connection.  Wait for the xterm to report the number of
    colors before drawing the screen.  With a timeout.
8   When the builtin xterm termcap contains codes that are not wanted, need a
    way to avoid using the builtin termcap.
8   Xterm sends ^[[H for <Home> and ^[[F for <End> in some mode.  Also
    recognize these keys?  Mostly useful for xterm simulators, like gnometerm.
    See http://dickey.his.com/xterm/xterm.faq.html#xterm_pc_style.
8   For xterm also recognize keypad up/down/left/right and insert.
8   '[ and '] should be set to start/end of line when using a linewise operator
    (e.g., ":w").
8   CTRL-A can't handle big "long" numbers, they become negative.  Check for
    "-" character, if not present, use unsigned long.
8   Add suspending with CTRL-Z at the "more" prompt, and when executing a long
    script in do_cmdline().
8   When using 'hidden', many swap files will be open.  When Vim runs into the
    maximum number of open files, error messages will appear.  Detect that
    this problem is present, and close any hidden files that don't have
    changes.
8   With 'viminfo' set such that the ".viminfo" file is written on a FAT
    filesystem, an illegal file name may be created: ".vim".
8   For each buffer that is opened, the viminfo file is opened and read to
    check for file marks.  This can be slow.
7   In xterm, recognize both vt100 and vt220 cursor keys.  Change
    add_termcode() to not remove an existing entry for a name, when it's
    needed.
    Need a generic solution to recognize different codes for the same key.
8   Core dump within signal function: gdb doesn't show stack backtrace!  Option
    to skip catch_signals()?
9   Repeating a "cw" with "." doesn't work if the text was pasted from the
    clipboard. (Thomas Jones)  It's because the menu/toolbar item exits Insert
    mode and uses "gP".  How to fix this without breaking inserting a block of
    text?
8   In Replace mode pasting from the clipboard (using menu or toolbar) inserts
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all the text. Add ":rmenu"?
8 Pasting with the mouse in Replace mode inserts the text, instead of overwriting, when it is more than one line. Same for using <C-R>.
9 CTRL-E and CTRL-Y don't work in small window when 'so' is 4 and lines are wrapping (Acevedo/in.226). E.g., when using CTRL-E, window height 7, window might actually scroll down when last line of buffer is displayed. --> Remember if the previous command was "cursor follows screen" or "screen follow cursor" and use this in cursupdate().
7 tilde_replace() can only handle "~/", should also do "~user/". Get the list of home directories (from /etc/passwd? Use getpwent()) and use some clever algorithm to match a path with that. Find common strings in the list?
8 When dragging status line with mouse, sometimes a jump when first clicking on the status line (caused by 'winheight'). Select window on button up, instead of on button down.
8 Dragging the status line doesn't scroll but redraw.
9 Evaluating 'statusline' in build_stl_str_hl() does not properly check for reaching the end of the available buffer. Patch to dynamically allocate the buffer for % items. (Eric Arnold, 2006 May 14)
8 When performing incremental search, should abort searching as soon as a character is typed.
8 When the value of $MAKE contains a path, configure can't handle this. It's an autoconf bug. Remove the path from $MAKE to work around it.
8 How to set VIMRC_FILE to \"something\" for configure? Why does this not work: CFLAGS='-DVIMRC_FILE=\"/mydir/myfile\"' ./configure
8 The temporary file is sometimes not writable. Check for this, and use an alternate name when it isn't. Or add the 'temptemplate' option: template for the temp file name ":set temptemplate=/usr/tmp/?????.tmp". Also: Win32 version uses Windows temp directory, which might not work for cygwin bash.
7 Get error "*, \+ or \(operand could be empty" for pattern "\(.\)\1\{3}". Remember flags for backreferences.
7 When switching to Daylight Saving Time, Vim complains that a file has been changed since last read. Can we use a function that uses GMT?
7 When completing an environment variable after a '$', check for file names that contain a '$' after all have been found.
8 When "cm" termcap entry is missing, starting gvim shouldn't complain about it. (Lohner) Try out with "vt100" entry, cm replaced with cX.
7 When an include file starts with "../", the check for already visiting this file doesn't work. Need to simplify the file name.
7 The names and comments for the arguments of do_browse() are confusing. "dflt" isn't the default file name when "initdir" is not NULL and "initdir" is the default path to be used.
7 When 'scrolloff' is exactly half the window height, "j" causes a scroll of two lines at a time. "k" doesn't do this. (Cory T. Echols)
8 When write_viminfo() is used while there are many orphaned viminfo tempfiles writing the viminfo file fails. Give a clear error message so that the user knows he has to delete the files.
7 It's possible to redefine a script-local function with ":func <SNR>123_Test()". (Krishna) Disallow this.

I can't reproduce these (if you can, let me know how!):

9	NT 4.0 on NTFS file system: Editing ".bashrc" (drag and drop), file
	disappears. Editing ".xyz" is OK. Also, drag&drop only works for three
	files. (McCollister)

Problems that will (probably) not be solved:
-	GTK: when using the popup menu with spelling suggestions and releasing the
	right mouse button before the menu appears selecting an item with the
	right mouse button has no effect. GTK does not produce an event for this.
-	GTK 2: Cannot use the file selector. When using it many things become
	slow. This is caused by some code in GTK that writes
	~/.recently-used.xbel every time an event is handled. It assumes the main
	loop is never quit, which is a wrong assumption. Also, it overwrites the
	file with different file permissions, which is a privacy issue. This
	needs to be fixed in GTK. A solution in Vim would be really complicated.
	(2008 Jul 31) This appears to be fixed in Vim 7.3.
-	xterm title: The following scenario may occur (esp. when running the Vim
	test script): Vim 1 sets the title to "file1", then restores the title to
	"xterm" with an ESC sequence when exiting. Vim 2 obtains the old title
	with an X library call, this may result in "file1", because the window
	manager hasn't processed the "xterm" title yet. Can apparently only be
	worked around with a delay.
-	In a terminal with 'mouse' set such that the mouse is active when entering
	a command line, after executing a shell command that scrolls up the
	display and then pressing ":": Selecting text with the mouse works like
	the display wasn't scrolled. Vim doesn't know how much the external
	command scrolled up the display. Use Shift to select text.
-	X windows: When $DISPLAY points to a X server where there is no access
	permission, trying to connect to the X server causes an error message.
	XtOpenDisplay() prints this directly, there is no way to avoid it.
-	X windows: Setting 'guifontset' to an illegal value sometimes crashes Vim.
	This is caused by a fault in a X library function, can't be solved in Vim.
-	Win32 tcl: has("tcl") hangs when the tcl84.dll is from cygwin.
-	Motif: When adding a menu item "Find this &Symbol", the "s" in "this" will
	be underlined, instead of in "Symbol". Motif doesn't let us specify which
	character gets the highlighting.
-	Moving the cursor removes color in color-xterm. This is a color-xterm
	problem! color-xterm ver. 6.1 beta 3 and later work properly.
-	In zsh, "gvim&" changes the terminal settings. This is a zsh problem.
	(Jennings)
-	Problem with HPterm under X: old contents of window is lost (Cosentino).
-	Amiga: When using quickfix with the Manx compiler we only get the first 25
	errors. How do we get the rest?
-	Amiga: The ":cq" command does not always abort the Manx compiler. Why?
-	Linux: A file with protection r--rw-rw- is seen readonly for others. The
	access() function in GNU libc is probably wrong.
-	When doing a CTRL-Z and typing a command for the shell, while Vim is busy
	(e.g. writing a file), the command for the shell is sometimes eaten by Vim,
	because the terminal mode is changed from RAW to CBREAK.
-	An old version of GNU tgoto can't handle the terminfo code for "AF". The
	"%p1" is interpreted as "%p" and "1", causing color not to be working.
	Fix: Change the "%p1" in the "AF" and "AB" terminfo entries to "%p".
	(Benzinger).
-	When running an external command from the GUI, typeahead is going to that

program, not to Vim. It looks like the shell eats the characters, Vim
can't get back what the external command didn't use.
- Win32 GUI: Error code from external command not returned in shell_error.
  It appears that cmd.exe and command.com don't return an error code.
- Win32 GUI: The Toolbar is a bit too high when the flat style is being
  used. We don't have control over the height of the Toolbar.
- Win32: All files created on the day of switching from winter to summer
  time cause "changed since editing started" messages. It goes away when
  the file is written again the next day, or the timezone is adjusted.
  DJGPP version is OK. (Zaimi) Looks like a problem with the Win32 library.
  Rebooting doesn't help. Time stamps look OK in directory. (Penn)
  Is this on FAT (stores wall clock time) or NTFS (stores UTS)?
- Win32, MS-Windows XP: $HOME uses the wrong drive when the user profiles
  are not on the boot disk. This is caused by a wrong value of $HOMEDRIVE.
  This is a bug in XP, see MSKB article 818134.
- Win32, MS-Windows: expanding plugin/**/*.vim also picks up
  dir/ctags.vim,v. This is because the short file name is something like
  "ctags~1.vim" and that matches the pattern.
- SunOS 5.5.1 with Motif: The file open dialog does not have a horizontal
  scroll bar for the "files" selection. This is a problem in the Motif
  libraries, get a patch from Sun.
- Solaris 2.6 with GTK and Perl: gvim crashes when started. Problem with X
  input method called from GDK code. Without Perl it doesn't crash.
- VMS: Vimdiff doesn't work with the VMS diff, because the output looks
  different. This makes test 47 fail. Install a Unix-compatible diff.
- Win32 GUI: mouse wheel always scrolls rightmost window. The events arrive
  in Vim as if the rightmost scrollbar was used.
- GTK with Gnome: Produces an error message when starting up:
      Gdk-WARNING **: locale not supported by C library
  This is caused by the gnome library gnome_init() setting $LC_CTYPE to
  "en_US". Not all systems support this locale name, thus causing the
  error. Hopefully a newer version of GTK/Gnome fixes this problem.
- GTK 2: With this mapping the hit-enter prompt is _sometimes_ below the
  screen, at other times there is a grey area below the command line:
      :nmap <F11> :if &guioptions=~'m' \| set guioptions-=m \| else \| set guioptions+=m
- GTK: When pasting a selection from Vim to xclipboard gvim crashes with a
  ABRT signal. Probably an error in the file gdkselection.c, the assert
  always fails when XmbTextListToTextProperty() fails. (Tom Allard)
- GTK 2: gives an assertion error for every non-builtin icon in the toolbar.
  This is a GTK 2.4.x bug, fixed in GTK 2.4.2. (Thomas de Grenier de Latour)
- When using an xterm that supports the termresponse feature, and the 't_Co'
  termcap option was wrong when Vim started, it will be corrected when the
  termresponse is received. Since the number of colors changes, the
  highlighting needs to be initialized again. This may cause colors defined
  in the vimrc file to be lost.
- On Windows NT 4.0 the number of files passed to Vim with drag&drop and
  "Edit with Vim" is limited. The maximum command line length is 255 chars.

--------------------- extensions and improvements ----------------------
                                                    extensions-improvements

Most interesting new features to be added when all bugs have been fixed:
- Using ":exe edit fname" has escaping problems. Use ":edit ++(fname)".
  Thus use "++=" to give arguments as expressions, comma separated as if

    calling a function.
    With options: ":edit ++(['!', '++enc=abc'], ['+/pat'], fname)".
    Alternative: Make a function for Ex commands: cmd_edit().
-   Add COLUMN NUMBERS to ":" commands ":line1,line2[col1,col2]cmd". Block
    can be selected with CTRL-V. Allow '$' (end of line) for col2.
-   ECLIPSE plugin. Problem is: the interface is very complicated. Need to
    implement part in Java and then connect to Vim. Some hints from Alexandru
    Roman, 2004 Dec 15. Should then also work with Oracle Jdeveloper, see JSR
    198 standard http://www.jcp.org/en/jsr/detail?id=198.
    Eclim does it: http://eclim.sourceforge.net/ (Eric Van Dewoestine)
    Plugin that uses a terminal emulator: http://vimplugin.sf.net
    And another one: http://www.satokar.com/viplugin/index.php
-   STICKY CURSOR: Add a way of scrolling that leaves the cursor where it is.
    Especially when using the scrollbar. Typing a cursor-movement command
    scrolls back to where the cursor is.
-   Scroll commands by screen line. g CTRL-E and g CTRL-Y ? Requires the
    first line to be able to start halfway.
8   Add a command to jump to a certain kind of tag. Allow the user to specify
    values for the optional fields. E.g., ":tag size type=m".
    Also allow specifying the file and command, so that the result of
    taglist() can be used.
-   X11: Make it possible to run Vim inside a window of another program.
    This can be done with XReparentWindow(). But how exactly?

Documentation:
8   List of Vim runtime directories. dotvim.txt from Charles Campbell, 2007
    Feb 20.
8   The GUI help should explain the Find and Find/Replace dialogs. Add a link
    to it from ":promptrepl" and ":promptfind".
8   List of options should mention whether environment variables are expanded
    or not.
8   Extend usr_27.txt a bit. (Adam Seyfarth)
9   Make the Reference Manual more precise. For each command mention:
    - change to cursor position and curswant
    - if it can be undone (u/CTRL-R) and redone (.)
    - how it works for folded lines
    - how it works with multi-byte characters
9   In change.txt, remark about Javadoc isn't right. Right alignment would
    work too.
8   Spread the windows commands over the other files. For example, ":stag"
    should be with ":tag". Cross-link with tags to avoid too much double
    text.
8   Add tags for all features, e.g. "gui_running".
7   MS-Windows: When a wrong command is typed with an ALT key, give a hint to
    look at the help for 'winaltkeys'.
7   Add a help.vim plugin that maps <Tab> to jump to the next tag in || and
    <C-Tab> (and <S-Tab>) to the previous tag.
    Patch by Balazs Kezes, 2007 Dec 30. Remark from A. Politz.
-   Check text editor compendium for vi and Vim remarks.

Help:
-   First try using the ":help" argument literally, before using it as a

pattern. And then match it as part of a tag.
- When a help item has multiple matches make it possible to use ":tn" to go to the other matches.
- Support a way to view (and edit) .info files.
- Implement a "sticky" help window, some help text lines that are always displayed in a window with fixed height. (Guckes) Use "~/.vimhelp" file, user can edit it to insert his favorite commands, new account can contain a default contents.
- Make 'winminheight' a local option, so that the user can set a minimal height for the help window (and other windows).
- ":help :s^I" should expand to ":help :substitute".
- Make the help key (<F1>) context sensitive?
- Learn mode: show short help while typing commands.

User Friendlier:
8 Windows install with install.exe: Use .exe instead of .bat files for links, so that command line arguments are passed on unmodified? (Walter Briscoe)
8 Windows install: Be able to associate Vim with a selection of file types?
8 Windows uninstall: Have uninstal.c delete the vimfiles directories that dosinst.c creates. List the contents of the directory (recursively) if the user asks for it. Requires an implementation of "rm -rf".
8 Remember the name of the vimrc file that was used (~/.vimrc, $VIM/_vimrc, $HOME/_vimrc, etc.) and add "edit vimrc" to the File menu.
- Add a way to save local settings and mappings into a new plugin file. ":mkplugin <file>"?
- Add mappings local to a window: ":map <window> ..."?
9 Add buffer-local menu. Should offer a choice between removing the menu or disabling it. Be careful that tear-offs don't disappear (keep one empty item?).
Alternative: use BufEnter and BufLeave autocommands.
8 make a vimtutor script for Amiga and other systems.
7 When Vim detects a file is being edited elsewhere and it's a gvim session of the same user it should offer a "Raise" button, so that the other gvim window can be displayed. (Eduard)
8 Support saving and restoring session for X windows? It should work to do ":mksession" and use "-S fname" for the restart command. The gui_x11_wm_protocol_handler() already takes care of the rest.
global_event_filter() for GTK.

Tab pages:
9 GUI implementation for the tab pages line for other systems.
7 GUI: Control over the appearance of the text in the labels (bold, color, font, etc.)
8 Make GUI menu in tab pages line configurable. Like the popup menu.
8 balloons for the tab page labels that are shortened to show the full path.
7 :tabdup   duplicate the tab with all its windows.
7 Option to put tab line at the left or right? Need an option to specify its width. It's like a separate window with ":tabs" output.
8 Add local options for each tab page? E.g., 'diffopt' could differ between tab pages.
7 Add local highlighting for each tab page?

7	Add local directory for tab pages? How would this interfere with
	window-local directories?

Spell checking:
-	Support more regions? Caolan McNamara argues it's needed for es_XX.
	https://bugzilla.redhat.com/bugzilla/show_bug.cgi?id=219777
-	Unicode defines another quote character: 0x2019. Use it as an equivalent
	of a single quote, thus use it as a word character like a quote and match
	with words, replacing the curly quote with a single quote.
-	Could filter é things for HTML before doing spell checking.
	Similarly for TeX.
-	The Hungarian spell file uses four extra characters in the FOL/UPP/LOW
	items than other spell files with the ISO-8859-2 encoding, that causes
	problem when changing 'spelllang'. There is no obvious way to fix this.
-	Considering Hunspell 1.1.4:
	What does MAXNGRAMSUGS do?
	Is COMPLEXPREFIXES necessary when we have flags for affixes?
-	Support spelling words in CamelCase as if they were two separate words.
	Requires some option to enable it. (Timothy Knox)
-	There is no Finnish spell checking file. For openoffice Voikko is now
	used, which is based on Malaga: http://home.arcor.de/bjoern-beutel/malaga/
	(Teemu Likonen)
8	":mkspell" still takes much too long in Hungarian dictionary from
	hunspell. Only solution appears to be to postpone secondary suffixes.
8	Handle postponed prefix with COMPOUNDPERMITFLAG or COMPOUNDFORBIDFLAG.
	WFP_COMPPERMIT and WFP_COMPFORBID
8	implement use of <compoptions> in .spl file:
	implement CHECKCOMPOUNDREP: when a compound word seems to be OK apply REP
	items and check if the result is a valid word.
	implement CHECKCOMPOUNDDUP
	implement CHECKCOMPOUNDTRIPLE
	Add CHECKCOMPOUNDCASE: when compounding make leading capital lower case.
	How is it supposed to work?
-	Add a command the repeats]s and z=, showing the misspelled word in its
	context. Thus to spell-check a whole file.
-	suggestion for "KG" to "kg" when it's keepcase.
-	For flags on affixes: Use a "AFFCOMPSET" flag; means the compound flags of
	the word are not used.
-	Support breakpoint character ? 0xb7 and ignore it? Makes it possible to
	use same wordlist for hyphenation.
-	Compound word is accepted if nr of words is <= COMPOUNDWORDMAX OR nr of
	syllables <= COMPOUNDSYLMAX. Specify using AND in the affix file?
-	NEEDCOMPOUND also used for affix? Or is this called ONLYINCOMPOUND now?
	Or is ONLYINCOMPOUND only for inside a compound, not at start or end?
-	Do we need a flag for the rule that when compounding is done the following
	word doesn't have a capital after a word character, even for Onecap words?
-	New hunspell home page: http://hunspell.sourceforge.net/
	- Version 1.1.0 is out now, look into that.
	- Lots of code depends on LANG, that isn't right. Enable each mechanism
	  in the affix file separately.
	- Example with compounding dash is bad, gets in the way of setting
	  COMPOUNDMIN and COMPOUNDWORDMAX to a reasonable value.
	- PSEUDOROOT == NEEDAFFIX

    - COMPOUNDROOT -> COMPOUNDED? For a word that already is a compound word
            Or use COMPOUNDED2, COMPOUNDED3, etc.
-   CIRCUMFIX: when a word uses a prefix marked with the CIRCUMFIX flag, then
    the word must also have a suffix marked with the CIRCUMFIX flag. It's a
    bit primitive, since only one flag is used, which doesn't allow matching
    specific prefixes with suffixes.
    Alternative:
        PSFX {flag} {pchop} {padd} {pcond} {schop} {sadd}[/flags] {scond}
    We might not need this at all, you can use the NEEDAFFIX flag and the
    affix which is required.
-   When a suffix has more than one syllable, it may count as a word for
    COMPOUNDWORDMAX.
-   Add flags to count extra syllables in a word. SYLLABLEADD1 SYLLABLEADD2,
    etc.? Or make it possible to specify the syllable count of a word
    directly, e.g., after another slash: /abc/3
-   MORPHO item in affix file: ignore TAB and morphological field after
    word/flags and affix.
-   Implement multiple flags for compound words and CMP item?
    Await comments from other spell checking authors.
-   Also see tklspell: http://tkltrans.sourceforge.net/
8   Charles Campbell asks for method to add "contained" groups to existing
    syntax items (to add @Spell).
    Add ":syntax contains {pattern} add=@Spell" command? A bit like ":syn
    cluster" but change the contains list directly for matching syntax items.
-   References: MySpell library (in OpenOffice.org).
        http://spellchecker.mozdev.org/source.html
        http://whiteboard.openoffice.org/source/browse/whiteboard/lingucomponent/source/spe
      author: Kevin Hendricks <kevin.hendricks@sympatico.ca>
8   It is currently not possible to mark "can not" as rare, because "can" and
    "not" are good words. Find a way to let "rare" overrule "good"?
8   Make "en-rare" spell file? Ask Charles Campbell.
8   The English dictionaries for different regions are not consistent in their
    use of words with a dash.
7   Insert mode completion mechanism that uses the spell word lists.
8   Add hl groups to 'spelllang'?
        :set spelllang=en_us,en-rare/SpellRare,en-math/SpellMath
    More complicated: Regions with different languages? E.g., comments
    in English, strings in German (po file).

Diff mode:
9   When making small changes, e.g. deleting a character, update the diff.
    Possibly without running diff.
8   Also show difference with the file when editing started? Should show what
    can be undone. (Tom Popovich)

Folding:
    (commands still available: zI zJ zK zp zP zq zQ zV zy zY;
    secondary: zB zS zT zZ, z=)
8   Vertical folds: looks like vertically split windows, but the cursor moves
    through the vertical separator, separator moves when scrolling.
8   Add "z/" and "z?" for searching in not folded text only.
8   When a closed fold is displayed open because of 'foldminlines', the
    behavior of commands is still like the fold is closed. How to make the

    user aware of this?
8   Add an option 'foldskip' with values like 'foldopen' that specifies which
    commands skip over a closed fold.
8   "H" and "L" count buffer lines instead of window lines. (Servatius Brandt)
8   Add a way to add fold-plugins. Johannes Zellner has one for VB.
7   When using manual folding, the undo command should also restore folds.
-   Allow completely hiding a closed fold. E.g., by setting 'foldtext' to an
    empty string. Require showing a character in 'foldcolumn' to avoid the
    missing line goes unnoticed.
    How to implement this?
-   When pressing the down arrow of a scrollbar, a closed fold doesn't scroll
    until after a long time. How to make scrolling with closed folds
    smoother?
-   When creating a session, also store folds for buffers in the buffer list,
    using the wininfo in wi_folds.
-   When currently editing the first file in the argument list the session
    file can contain:
        args version.c main.c
        edit version.c
    Can editing version.c twice be avoided?
-   'foldmethod' "textobject": fold on sections and paragraph text objects.
-   "zuf": undo change in manual fold. "zUf" redo change in manual fold. How
    to implement this?
-   "zJ" command: add the line or fold below the fold in the fold under the
    cursor.
-   'foldmethod' "syntax": "fold=3" argument: set fold level for a region or
    match.
-   Apply a new foldlevel to a range of lines. (Steve Litt)

Multi-byte characters:
-   When editing a file with both utf-8 and latin1 text Vim always falls back
    to latin1. Add a command to convert the latin1 characters to utf-8?
        :unmix utf-8,latin1 filename
    Would only work when 'encoding' is utf-8.
9   When the tail byte of a double-byte character is illegal (e.g., a CR), the
    display is messed up (Yasuhiro Matsumoto). Should check for illegal
    double-byte characters and display them differently (display each single
    byte).
9   'fenc' in modeline problem: add option to reload the file when 'fenc' is
    set to a different value in a modeline? Option can be default on. Could
    it be done with an autocommand?
8   Add an item in 'fileencodings' to check the first lines of a file for
    the encoding. See Python PEP: http://www.python.org/peps/pep-0263.html.
    To avoid getting a wrong encoding only accept something Emacs-like:
    "-*- coding: enc-na_me.foo -*-" and "-*- coding= enc-na_me.foo -*-"
    Match with "-*-\s*coding[:=]\s*\([::word::-_.]\+\)\s*-*-" and use first
    item.
8   Add an item in 'fileencodings' to check the first line of an XML file for
    the encoding. <?xml version="1.0" encoding="UTF-8"?> Or "charset=UTF-8"?
    For HTML look for "charset=utf-8".
8   The quickfix file is read without conversion, thus in 'encoding'. Add an
    option to specify the encoding of the errorfile and convert it. Also for
    ":grep" and ":helpgrep".
    More generic solution: support a filter (e.g., by calling a function).

8 When a file was converted from 'fileencoding' to 'encoding', a tag search
should also do this on the search pattern. (Andrzej M. Ostruszka)
8 When filtering changes the encoding 'fileencoding' may not work. E.g.,
when using xxd and 'fileencoding' is "utf-16". Add an option to set a
different fileencoding for filter output?
7 When converting a file fails, mention which byte could not be converted,
so that the user can fix the problem.
8 Add configure option to be able to disable using the iconv library. (Udo
Schweigert)
9 'aleph' should be set to 1488 for Unicode. (Zvi Har'El)
8 Should add test for using various commands with multi-byte characters.
8 'infercase' doesn't work with multi-byte characters.
8 toupper() function doesn't handle byte count changes.
7 Searching and composing characters:
When searching, should order of composing characters be ignored?
Add a special item to match with a composing character, so that composing
characters can be manipulated.
8 Should implement 'delcombine' for command line editing.
8 Detect overlong UTF-8 sequences and handle them like illegal bytes.
8 ":s/x/\u\1/" doesn't work, making uppercase isn't done for multi-byte
characters.
8 UTF-8: "r" in Visual mode doesn't take composing characters.
8 UTF-8: When there is a precomposed character in the font, use it instead
of a character and a composing character. See xterm for an example.
7 When a character can't be displayed, display its digraph instead.
'display' option to specify this.
7 Use ideas for nl_langinfo() from Markus Kuhn in enc_default():
(www.cl.cam.ac.uk/~mgk25/ucs/langinfo.c)
- GTK and Win32: Allow selecting fonts for 'guifontset' with the
fontselector somehow.
- GTK and Win32: make it possible to set the font for the menu to make it
possible to have 'encoding' different from the current locale.
- dbcs_class() only works for Japanese and Korean. Implement this for
other encodings. The "euc-jp" and "euc-kr" choices might be wrong.
- Find some way to automatically select the right GUI font or fontset,
depending on the default value of 'encoding'.
Irrelevant in the GTK+ 2 GUI so long as UTF-8 is used.
For Windows, the charset_pairs[] table could be used. But how do we know
if a font exists?
- Do keyboard conversion from 'termencoding' to 'encoding' with
convert_input() for Mac GUI.
- Add mnemonics from RFC1345 longer than two characters.
Support CTRL-K _{mnemonic}_
- Make 'breakat' accept multi-byte characters. Problem: can't use a lookup
table anymore (breakat_flags[]).
Simplistic solution: when 'formatoptions' contains "m" also break a line
at a multi-byte character >= 0x100.
- Add the possibility to enter mappings which are used whenever normal text
could be entered. E.g., for "f" command. But not in Normal mode. Sort
of opposite of 'langmap'. Use ":amap" command?
- When breaking a line, take properties of multi-byte characters into
account. The "linebreak" program from Bruno Haible can do it:
ftp://ftp.ilog.fr/pub/Users/haible/gnu/linebreak-0.1.tar.gz
But it's very complicated...

```
Printing:
7   Implement "undercurl" for printing.
-   Add "page width" to wrap long lines.
-   Win32: use a font dialog for setting 'printfont'.  Can reuse the code for
    the 'guifont' dialog, put the common code in a separate function.
-   Add the file timestamp to the page header (with an option). (George
    Reilly)
-   Win32: when 'printfont' is empty use 'guifont'.
-   Unix: Use some dialog box to do the obvious settings (paper size, printer
    name, portrait/landscape, etc).
-   PostScript: Only works for text that can be converted to an 8-bit
    character set.  How to support Unicode fully?
-   Allow specifying the paper size, instead of using a standard size.  Same
    units as for the margins.
-   Support right-to-left text?
8   Make the foreground color darkening function preserve the hue of the
    color.


Syntax highlighting:
8   Make ":syn off" use 'runtimepath' instead of $VIMRUNTIME. (Gary Johnson)
    Should do the same for ":syn on" and ":syn manual".
8   Support "containedin" argument for ":syn include", so that the defined
    cluster can be added to existing syntax items.
8   C syntax: Don't highlight {} as errors inside () when used like this:
    "({ something })", often used in GCC code.
7   Add a "startgroup" to a region.  Used like "nextgroup" inside the region,
    preferred item at the start of the region. (Charles Campbell)
8   When editing a new file without a name and giving it a name (by writing
    it) and 'filetype' is not set, detect the filetype.  Avoid doing it for
    ":wq file".
7   For "nextgroup" we have skipwhite, skipnl and skipempty.  It would be
    really nice to be able to skip with a pattern.  Or skip with a syntax
    group. (Nikolai Weibull, 2007 Feb 27)
8   Make conversion to HTML faster (Write it in C or pre-compile the script).
9   There is still a redraw bug somewhere.  Probably because a cached state is
    used in a wrong way.  I can't reproduce it...
7   Be able to change only the background highlighting.  Useful for Diff* and
    Search highlighting.
7   When 'number' is set highlight the number of the current line.
    Must be enabled with an option, because it slows down display updating.
8   Allow the user to add items to the Syntax menu sorted, without having to
    change this for each release.
8   Add a "matchcontains" for regions: items contained in the start or end
    pattern, but not in the body.
8   Add a "keepend-contained" argument: Don't change the end of an item this
    one is contained in.  Like "keepend" but specified on the contained item,
    instead of the containing item.
8   cpp.vim: In C++ it's allowed to use {} inside ().
8   Some syntax files set 'iskeyword', they should use "syn iskeyword".
    Also need a separate 'iskeyword' for the command line, e.g., in a help
    window ":e /asdf/asdf/" CTRL-W works different.
```

8 Add specific syntax item to match with parens/braces that don't have a
"%" match. :syntax nomatch cMatchError (,{,[,),},] [contained]
8 Highlight the text between two matching parens (e.g., with a grey
background) when on one of the parens or in between them.
Option for the matchparen plugin?
8 When using a cterm, and no ctermfg or ctermbg are defined, use start/stop
sequences. Add remark in docs that :if 'term' == "term-name" should be
used.
8 Add @spell cluster to String and Comment groups for many languages. Will
allow spell checking. (Fleiner)
8 When listing syntax items, try to sort the keywords alphabetically. And
re-insert the [] if possible.
8 Make it possible to use color of text for Visual highlight group (like for
the Cursor).
8 It would be useful to make the highlight group name an expression. Then
when there is a match, the expression would be evaluated to find out what
highlight group to use. Could be used to check if the shell used in a
password file appears in /etc/shells. (Nikolai Weibull)
syn match =s:checkShell(v:match) contained 'pattern'
8 Make it possible to only highlight a sub-expression of a match. Like
using "\1" in a ":s" command.
8 Support for deleting syntax items:
:syn keyword cTodo remove this
:syn match cTodo remove "pattern"
:syn region cString remove start="this" end="that"
8 Add possibility to sync on something else, when the syncing in one way
doesn't find match. For HTML: When no {script} is found, try looking for
a '<'. (Fleiner)
7 Replace the synchronizing method with a state machine specification?
Should be able to start at any line in the file, search forwards or
backwards, and use the result of matching a pattern.
7 Use parsing like awk, so that e.g., a (without a matching) can be
detected.
8 Make it possible to use "inverted" highlighting, invert the original
character. For Visual mode. (xterm-selection already does this).
8 Highlight non-printable characters with "SpecialChar", linked to
"Special". Display them with the digraph characters, if possible.
8 Highlight the clipboard-selection with a highlight group.
8 Be able to reset highlighting to its original (default) values.
7 Be able to write current highlighting to a file as commands, similar to
":mkvimrc".
8 Improve c.vim:
- Add check for unterminated strings, with a variable to switch it on:
"c_strict_ansi".
- Detect unbalanced "#endif". Requires looking back a long way...
8 Add an option to restrict the updating of syntax highlighting to the
current line while in Insert mode.
8 When guessing value of 'background', the syntax file has already been
loaded (from the .gvimrc). After changing 'background', load it again?
8 Add ":syn resync" command, to re-parse the whole file until the current
display position.
8 Should support "me" offset for a region start pattern. To be used to
allow searching for the end pattern inside the match of the end pattern.
Example: syn region pikeXX start="([^{]" end=")" should work on "()".

```
8   When using a regexp for "contains=", should delay matching with it until
    redrawing happens.  Set a flag when a group is added, check this flag when
    highlighting starts.
7   It's possible for an item to be transparent, so that the colors of an item
    lower on the stack is used.  Also do this with highlighting, so that the
    user can set transparent highlighting?  E.g. a number in a C comment would
    get the color of a comment, a number in an assignment Normal. (Nikolai
    Weibull)
7   Add "semitrans": Add highlighting.  E.g., make the text bold, but keep the
    colors.  And add colors, so that Green+Red becomes Yellow.
    E.g. for this html:
        <B> bold text <I> italic+bold text </B> italic text </I>
7   CTRL-] checks the highlight group for finding out what the tag is.
7   Add an explanation how a list of words can be used to highlight misspelled
    words.
8   Add more command line completion for :syntax.
8   Add more command line completion for :highlight.
7   Should find a better way to parse the :syntax and :highlight commands.
    Use tables or lists that can be shared by parsing for execution and
    completion?
8   Add ColorSchemePost autocommand event, so that scripts can set up their
    highlighting. (Salman Halim)
7   Add a few sets of colors (e.g. Borland Turbo C one).  With a menu to
    select one of the sets.
8   Add offsets to sub-matches: "\(a*\) *"he=e1-1
    'e' is end of match 'e1' is end of sub-match 1, 's2' is start of submatch
    2, etc.
8   In Insert mode, when there are typeahead characters, postpone the
    highlighting (for "." command).
8   Syncing on comments isn't 100% correct when / / lines mix with / * and * /.
    For example: What about a line that starts with / / and contains * /?
8   Ignore / * and  * / inside strings, when syncing.
7   Build a few more syntax files from the file "/usr/share/misc/vgrindefs":
    ISP, LDL, Icon, ratfor.  And check "nedit/source/highlight.c".
6   Add possibility to have background color continue until the right edge of
    the window.  Useful for comment blocks and function headings. (Rogall)
-   Make it possible to add "contains" items for all items in a group.  Useful
    when extending an already existing syntax file.
-   Add line-continuation pattern for non-syncing items too?
-   Add possibility to highlight the whole line, including the right margin
    (for comment blocks).
-   Add 'hlmatch' option: List of flags:
    'c': highlight match for character under the cursor.
    'b': highlight the previous (, and its match.
    'a': highlight all text from the previous ( until its match.
         Also for {}, <>, etc.?
    'e': highlight all braces without a match (slow?)
    OR: add an argument "cursor" to the syntax command, which means that the
    region/match/keyword is only highlighted when the cursor is on it.
    (Campbell)
    Or do it like Elvis: define text objects and how to highlight them around
    the cursor. (Iain Truskett)
7   Make it possible to use all words in the tags files as Keyword.
    Can also be done with a script (but it's slow).
```

```
7   Make it possible to call a ":" command when a match is found.  Should
    allow for adding keywords from the text (e.g. variables that are set).
    And allows for sections with different highlighting.
7   Add highlight group for commandline: "Commandline".  Make sure it
    highlights the command line while typing a command, and any output from
    messages.  And external commands?
8   Make a version that works like less, but with highlighting: read stdin for
    text, exit at end of file, don't allow editing, etc.  moreim?  lessim?
7   SpecialKey highlighting overrules syntax highlighting.  Can't give an
    unprintable char another color.  Would be useful for ^M at end of line.


Vim script language:
8   Make the filename and line number available to script functions, so that
    they can give useful debugging info.  The whole call stack would be ideal.
    At least use this for error messages.
7   Execute a function with standard option values.  No need to save and
    restore option values.  Especially useful for new options.  Problem: how
    to avoid a performance penalty (esp. for string options)?
8   Add referring to key options with "&t_xx".  Both for "echo &t_xx" and
    ":let &t_xx =".  Useful for making portable mappings.
-   Add ":let var ?= value", conditional assignment.  Patch by Dave Eggum,
    2006 Dec 11.
-   range for ":exec", pass it on to the executed command.  (Webb)
8   ":{range}source": source the lines from the current file.
        You can already yank lines and use :@" to execute them.
        Most of do_source() would not be used, need a new function.
        It's easy when not doing breakpoints or profiling.
    Requires copying the lines into a list and then creating a function to
    execute lines from the list.  Similar to getnextac().
7   ":include" command: just like ":source" but doesn't start a new scriptID?
    Will be tricky for the list of script names.
8   Have a look at VSEL.  Would it be useful to include? (Bigham)
8   Have a prefix for a function to make it unique.  When using packages it
    can be the plugin name.
    Perhaps also have a way to remove everything that the package added?
    including autocommands.
7   Pre-parse or compile Vim scripts into a bytecode.
    1. Put the bytecode with the original script, with an ":if
       has('bytecode')" around it, so that it's only used with a Vim that
       supports it.  Update the code with a command, can be used in an
       autocommand.
    2. Use a ".vic" file (like Python use .pyc).  Create it when writing a
       .vim file.  Problem: distribution.
    3. Use a cache directory for each user.  How to recognize which cached
       file belongs to a sourced script?
7   Add argument to winwidth() to subtract the space taken by 'foldcolumn',
    signs and/or 'number'.
6   Add ++ and -- operators?  They only work on variables (lvals), how to
    implement this?
8   Add functions:
        has(":command")         Check if ":command" works.  compare function
                                with "ex_ni".  E.g. for ":simalt".
        escape()                Add argument to specify what to escape with.
```

```
        modestack()             Instead of just the current mode return the
                                stack of Insert / CTRL-O / :normal things.
        realname()              Get user name (first, last, full)
                                user_fullname() patch by Nikolai Weibull, Nov
                                3 2002
                                Only add this when also implemented for
                                non-Unix systems, otherwise a shell cmd could
                                be used.
                                get_user_name() gets login name.
        menuprop({name}, {idx}, {what})
                                Get menu property of menu {name} item {idx}.
                                menuprop("", 1, "name") returns "File".
                                menuprop("File", 1, "n") returns "nmenu
                                File.Open..." argument.
                                Patch by Ilya Sher, 2004 Apr 22
                                Return a list of menus and/or a dictionary
                                with properties instead.
        mapname({idx}, mode)    return the name of the idx'th mapping.
                                Patch by Ilya Sher, 2004 Mar 4.
                                Return a list instead.
        char2hex()              convert char string to hex string.
        crypt()                 encrypt string
        decrypt()               decrypt string
        base64enc()             base 64 encoding
        base64dec()             base 64 decoding
        attributes()            return file protection flags "drwxrwxrwx"
        filecopy(from, to)      Copy a file
        shorten(fname)          shorten a file name, like home_replace()
        perl(cmd)               call Perl and return string
        inputrl()               like input() but right-to-left
        typed()                 return the characters typed and consumed (to
                                find out what happened)
        virtualmode()           add argument to obtain whether "$" was used in
                                Visual block mode.
        getacp()                Win32: get codepage (Glenn Maynard)
        libcall()               Allow more than one argument.
        libcallext()            Like libcall(), but using a callback function
                                to allow the library to execute a command or
                                evaluate an expression.
7   Make bufname("'0") return the buffer name from mark '0.  How to get the
    column and line number?  col("'0") currently returns zero.
8   argc() returns 0 when using "vim -t tag".  How to detect that no file was
    specified in any way?  To be able to jump to the last edited file.
8   Pass the command line arguments to Vim scripts in some way.  As v:args
    List?  Or extra parameter to argv()?
8   Add command arguments with three dashes, passed on to Vim scripts.
9   Add optional arguments to user functions:
        :func myFunc(arg1, arg2, arg3 = "blah", arg4 = 17)
6   User functions: Functions local to buffer "b:func()"?
8   For Strings add ":let var[{expr}] = {expr}".  When past the end of "var"
    just ignore.
8   The "= register should be writable, if followed by the name of a variable,
    option or environment variable.
8   ":let &option" should list the value of the option.
```

```
8   ":let Func().foo = value" should work, also when "foo" doesn't exist.
    Also: ":let Func()[foo] = value" should work.  Same for a List.
7   Add synIDlist(), making the whole list of syntax items on the syntax stack
    available as a List.
8   Add autocommand-event for when a variable is changed:
        :au VarChanged {varname} {commands}
8   Add "has("gui_capable")", to check if the GUI can be started.
8   Add possibility to use variables like registers: characterwise (default),
    linewise (when ending in '\n'), blockwise (when ending in '\001').  reg0,
    rega, reg%, etc.  Add functions linewise({expr}), blockwise({expr}) and
    charwise({expr}).
7   Make it possible to do any command on a string variable (make a buffer
    with one line, containing the string).  Maybe add an (invisible) scratch
    buffer for this?
        result = scratch(string, command)
        result = apply(string, command)
        result = execute(string, command)
    "command" would use <> notation.
    Does scratch buffer have a number?  Or re-use same number?
7   Add function to generate unique number (date in milliseconds).


Robustness:
6   Add file locking.  Lock a file when starting to edit it with flock() or
    fcntl().  This patch has advisory file locking while reading/writing
    the file for Vim 5.4: ~/vim/patches/kahn_file_locking .
    The patch is incomplete (needs support for more systems, autoconf).
    Andy doesn't have time to work on it.
    Disadvantage: Need to find ways to gracefully handle failure to obtain a
    lock.  When to release a lock: When buffer is unloaded?


Performance:
7   For string variables up to 3 bytes don't allocate memory, use v_list
    itself as a character array.  Use VAR_SSTRING (short string).
7   Add 'lazysize' option: Above this size Vim doesn't load everything before
    starting to edit a file.  Things like 'fileencodings' only work up to this
    size, modelines only work at the top.  Useful for large log files where
    you only want to look at the first few pages.  Use zero to disable it.
8   move_lines() copies every line into allocated memory, making reloading a
    buffer a lot slower than re-editing the file.  Can the memline be locked
    so that we don't need to make a copy?  Or avoid invoking ml_updatechunk(),
    that is taking a lot of time.  (Ralf Wildenhues, 2008 Jul 7)
    With a patch, but does it work?
8   Turn b_syn_ic and b_syn_containedin into b_syn_flags.
9   Loading menu.vim still takes quite a bit of time.  How to make it faster?
8   in_id_list() takes much time for syntax highlighting.  Cache the result?
7   setpcmark() shifts the jumplist, this takes quite a bit of time when
    jumping around.  Instead use an index for the start?
8   When displaying a space with only foreground highlighting, it's the same
    as a space without attributes.  Avoid displaying spaces for the "~" lines
    when starting up in a color terminal.
8   Avoid alloc() for scratch buffer use, esp. in syntax.c.  It's very slow on
    Win16.
```

```
8   Profiling shows that in_id_list() is used very often for C code.  Can this
    function be improved?
8   For an existing file, the page size of the swap file is always the
    default, instead of using the block size of the device, because the swap
    file is created only after setting the block size in mf_open().  How can
    this be improved?
8   Set default for 'ttyscroll' to half a screen height?  Should speed up
    MS-DOS version. (Negri)
7   C syntax highlighting gets a lot slower after ":set foldmethod=syntax".
    (Charles Campbell)  Inserting a "{" is very slow. (dman)
7   HTML syntax highlighting is slow for long lines.  Try displaying
    http://www.theregister.co.uk/content/4/22908.html. (Andre Pang)
7   Check how performance of loading the wordlist can be improved (adding a
    lot of abbreviations).
7   Compile Ex commands to byte codes.  Store byte codes in a vim script file
    at the end, after "compiled:.  Make it look like a single comment line
    for old Vim versions.  Insert first line "Vim script compiled <timestamp>.
    Only used compiled code when timestamp matches the file stat.
    Add command to compile a vim script and add it to the file in-place.
    Split Ex command executing into a parsing and executing phase.
    Use compiled code for functions, while loops, etc.
8   When defining autocommands (e.g., from $VIMRUNTIME/filetype.vim), need to
    compare each pattern with all existing patterns.  Use a hash code to avoid
    using strcmp() too often?
7   Include turbo_loader patches, speeding up reading a file?
    Speed up reading a file by reading it into a fixed-size buffer, creating
    the list of indexes in another buffer, and then copying the result into a
    memfile block with two copies.  Then read the next block into another
    fixed-size buffer, create the second list of indexes and copy text from
    the two blocks to the memfile block.
7   do_cmdline(): Avoid that the command line is copied to allocated memory
    and freed again later all the time.  For while loops, and for when called
    with an argument that can be messed with.
    Generic solution: Make a struct that contains a pointer and a flag that
    indicates if the pointer should be freed when replaced.
7   Check that the file size is not more than "sizeof(long)".
-   Further improve finding mappings in maphash[] in vgetorpeek()
8   Syntax highlighting is slow when deleting lines.  Try in
    $VIMRUNTIME/filetype.vim.
-   "out of memory" after deleting (1,$d) and changing (:%s/^/> /) a lot of
    lines (27000) a few times.  Memory fragmentation?
-   Have a look at how pdksh does memory allocation (alloc.c). (Dalecki)
-   Do profiling on:
    - :g/pat/normal cmd
    - deleting 10Mbyte worth of lines (netscape binary)
    - "[i" and "[d" (Yegappan Lakshmanan)
    - ":g/^/m0" on a 450Kbyte file.  And the "u".
    - highlighting "~/vim/test/longline.tex", "~/vim/test/scwoop.tcl" and
      "~/vim/test/lockup.pl".
    - loading a syntax file to highlight all words not from a dictionary.
    - editing a Vim script with syntax highlighting on (loading vim.vim).
7   Screen updating can be further improved by only redrawing lines that were
    changed (and lines after them, when syntax highlighting was used, and it
    changed).
```

```
    - On each change, remember start and end of the change.
    - When inserting/deleting lines, remember begin, end, and line count.
-   Use macros/duarte/capicua for profiling.  Nvi 1.71 is the fastest!
-   When using a file with one long line (1Mbyte), then do "$hhhh", is still
    very slow.  Avoid calling getvcol() for each "h"?
-   Executing a register, e.g. "10000@@" is slow, because ins_typebuf has to
    move the previous commands forward each time.  Pass count from
    normal_cmd() down to do_execreg().
-   Avoid calls to plines() for cursor line, use w_cline_height.
-   After ":set nowrap" remove superfluous redraw with wrong hor. offset if
    cursor is right of the screen.
8   Make CTRL-C on Unix generate a signal, avoid using select() to check for a
    CTRL-C (it's slow).


Code size:
8   GUI: When NO_CONSOLE is defined, more code can be excluded.
-   Put getline() and cookie in a struct, so only one argument has to be
    passed to do_cmdline() and other functions.
8   Make a GUI-only version for Unix?
8   In buf_write _() isn't needed when setting errmsg, do it once when using
    it.
7   When compiling with a GUI-only version, the code for cterm colors can be
    left out.
8   When compiled with a GUI-only version, the termcap entries for terminals
    can be removed.
8   Can the check for libelf in configure.ac be removed?


Messages:
8   When using ":q" in a changed file, the error says to "add !".  Add the
    command so that beginners understand it: "use :q!".
8   For 'verbose' level 12 prints commands from source'ed files.  How to skip
    lines that aren't executed?  Perhaps move the echoing to do_cmdline()?
8   Use 'report' for ":bdel"?  (Krishna)  To avoid these messages when using a
    script.
-   Delete message after new command has been entered and have waited for key.
    Perhaps after ten seconds?
-   Make message history available in "msg" variables: msg1, msg2, .. msg9.
8   When reading from stdin allow suppressing the "reading from stdin"
    message.
9   Check handling of overwriting of messages and delays:
    Very wrong: errors while redrawing cause endless loop.
    When switching to another file and screen scrolls because of the long
    message and return must be typed, don't scroll the screen back before
    redrawing.
8   When address range is wrong you only get "Invalid range".  Be a bit more
    specific: Negative, beyond last line, reverse range?  Include the text.
8   Make it possible to ignore errors for a moment ('errorignore'?).  Another
    option to switch off giving error messages ('errorquiet'?).  Also an option
    not to give any messages ('quiet')?  Or ":quiet on", ":quiet off".
    Careful: For a severe error (out of memory), and when the user starts
    typing, error messages must be switched back on.
    Also a flag to ignore error messages for shell commands (for mappings).
```

```
-   Option to set time for emsg() sleep.  Interrupt sleep when key is typed?
    Sleep before second message?
8   In Ex silent mode or when reading commands from a file, what exactly is
    not printed and what is?  Check ":print", ":set all", ":args", ":vers",
    etc.  At least there should be no prompt. (Smulders)  And don't clear the
    screen when reading commands from stdin. (Kendall)
    --> Make a difference between informative messages, prompts, etc. and
        error messages, printing text, etc.
8   Window should be redrawn when resizing at the hit-enter prompt.
    Also at the ":tselect" prompt.  Find a generic solution for redrawing when
    a prompt is present (with a callback function?).


Screen updating:
7   Add a string to the 'display' option to make CTRL-E and CTRL-Y scroll one
    screen line, also if this means the first line doesn't start with the
    first character (like what happens with a single line that doesn't fit).
-   screen_line():
    - insert/delete character stuff.
    - improve delete rest of line (spaces at end of line).
-   When moving or resizing window, try to avoid a complete redraw (esp. when
    dragging the status line with the mouse).
-   When 'lazyredraw' set, don't echo :ex commands?  Need a flag to redraw when
    waiting for a character.
8   Add a ":refresh [winnr]" command, to force updating a window.  Useful from
    an event handler where ":normal" can't be used.  Also useful when
    'lazyredraw' is set in a mapping.

Scrolling:
8   Add "zy" command: scroll horizontally to put the cursor in the middle.
6   Add option to set the overlap for CTRL-F and CTRL-B. (Garhi)
-   extend 'scrollbind' option: 'scrollopt' words "search", "relative", etc..
    Also 'e'xecute some commands (search, vertical movements) in all bound
    windows.
7   Add 'scrollbind' feature to make the offset of one window with the next
    one equal to the window height.  When editing one file in both windows it
    looks like each window displays a page of the buffer.
-   Allow scrolling by dragging with the mouse (grab a character and move it
    up/down).  Like the "hand" in Acrobat reader.  Use Alt-LeftMouse for this?
    (Goldfarb)
-   Add command to execute some commands (search, vertical movements) in all
    bound windows.
-   Add 'search' option to 'scrollopt' to allow 'scrollbind' windows to
    be bound by regexp searches
-   Add "z>" and "z<": scroll sideways one screenful. (Campbell)
-   Add option to set the number of lines when not to scroll, instead of the
    fixed number used now (for terminals that scroll slow with a large number
    of lines but not with a single line).


Autoconf:
8   Should use acconfig.h to define prototypes that are used by autoheader.
8   Some compilers don't give an error for "-OPT:Olimit" but a warning. (Webb)
    Add a check for the warning, so that "Olimit" can be added automatically?
```

```
-   Autoconf: Use @datadir@ for the system independent files.  Make sure the
    system dependent and system independent files are separated. (Leitner).
-   Add autoconf check for waitpid()/wait4().
-   Remove fcntl() from autoconf, all systems have it?
-   Set default for 'dictionary', add search for dictionary to autoconf.


Perl interface:
8   Rename typemap file to something else?
7   Make buffers accessed as Perl arrays. (Clark)
7   Make it possible to compile with non-ANSI C?
6   Tcl/Tk has the "load" command: load a shared library (.so or .dll).


Shared libraries:
8   libcall() can keep the library around instead of always calling dlclose().
    (Jason Felice, 2018 Mar 20)
6   Add support for loading shared libraries, and calling functions in it.
        :libload internal-name libname
        :libunload internal-name
        :liblist
        :libcall internal-name function(arg1, arg2, ...)
        :libcall function(arg1, arg2, ...)
    libcall() can have only one integer or String argument at the moment.
6   Have a look on how Perl handles loading dynamic libraries.


Tags:
9   With ":set tags=./tags,../tags" and a tag appears in both tags files it is
    added twice.  Requires figuring out the actual file name for each found
    match.  Remove tag_fname from the match and combine it with the fname in
    the match (without expanding or other things that take time).  When
    'tagrelative' is off tag_fname isn't needed at all.
8   For 'tags' wildcard in the file name is not supported, only in the path.
    This is due to it using  file-searching . Suboptimal solution would be to
    make the filename or the whole option use  wildcards  globing, better
    would be to merge the 2 kinds of globing. originally (Erik Falor, 2008
    April 18), updated (Ian Kelling, 2008 July 4)
7   Can CTRL-] (jump to tag) include a following "." and "->" to restrict the
    number of possible matches? Check tags file for an item that has members.
    (Flemming Madsen)
8   Scope arguments for ":tag", e.g.: ":tag class:cPage open", like Elvis.
8   When output of ":tselect" is long, getting the more-prompt, should be able
    to type the tag number directly.
7   Add the possibility to use the "-t {tag}" argument multiple times.  Open a
    window for each tag.
7   Make output of ":tselect" a bit nicer.  Use highlighting?
7   Highlight the "tag 1 of >2" message.  New highlight group, or same as "hit
    bottom" search message.
7   When using ":tag" at the top of the tag stack, should add another entry,
    so CTRL-T can bring you back to where you are now AND to where you were
    before the previous ":tag" command. (Webb)
-   When doing "[^I" or "[^D" add position to tag stack.
-   Add command to put current position to tag stack: ":tpush".
```

-   Add functions to save and restore the tag stack? Or a command to switch
    to another tag stack? So that you can do something else and come back to
    what you were working on.
7   When using CTRL-] on someClass::someMethod, separate class from method and
    use ":ta class:someClass someMethod".
    Include C++ tags changes (Bertin). Change "class::func" tag into "func"
    with "class=class"? Docs in oldmail/bertin/in.xxx.
7   Add ":tagargs", to set values for fields:
        :tagargs class:someclass file:version.c
        :tagargs clear
    These are then the default values (changes the order of priority in tag
    matching).
7   Support for "gtags" and "global"? With ":rtag" command?
    There is an example for how to do this in Nvi.
    Or do it like Elvis: 'tagprg' and 'tagprgonce' options. (Yamaguchi)
    The Elvis method is far more flexible, do it that way.
7   Support "col:99" extra field, to position the cursor in that column. With
    a flag in 'cpoptions' to switch it off again.
7   Better support for jumping to where a function or variable is used. Use
    the id-utils, with a connection to "gid" (Emacs can do it too). Add
    ":idselect", which uses an "ID" database (made by "mkid") like "tselect".

Win32 GUI:
8   Make debug mode work while starting up (vim -D). Open console window for
    the message and input?
7   GvimExt: when there are several existing Vims, move the list to a submenu.
    (Mike McCollister)
8   When using "Edit with Vim" for one file it changes directory, when several
    files are selected and using "Edit with single Vim" the directory isn't
    changed. At least change directory when the path is the same for all
    files. Perhaps just use the path of the first file or use the longest
    common part of the path.
8   Add font argument to set the lfCharSet. (Bobcik)
8   Somehow automatically detect the system language and set $LANG, so that
    gettext and menus work.
8   Could keep console open to run multiple commands, to avoid the need to hit
    return in every console.
    Also: Look at how Emacs does run external commands:
        http://www.cs.washington.edu/homes/voelker/ntemacs.html.
8   Need a separate PopUp menu for modeless selection. Need two new commands:
    Copy selection to clipboard, Paste selection (as typed text).
8   Support copy/paste for other file formats. At least HTML, perhaps RTF.
    Add "copy special" and "paste special" commands?
7   Use different default colors, to match the current Windows color scheme.
    Sys_WindowText, Sys_Window, etc. (Lionel Schaffhauser)
7   Use <C-Tab> to cycle through open windows (e.g., the find dialog).
7   <Esc> should close a dialog.
7   Keep the console for external commands open. Don't wait for a key to be
    hit. Re-open it when the user has closed it anyway. Or use a prepended
    command: ":nowait {cmd}", or ":quiet", which executes {cmd} without any
    prompts.
7   Should be able to set an option so that when you double click a file that
    is associated with Vim, you can either get a new instance of Vim, or have

    the file added into an already running Vim.
7   The "-P" argument only works for the current codepage. Use wide
    functions to find the window title.

GUI:
8   Make inputdialog() work for Photon, Amiga.
-   <C--> cannot be mapped. Should be possible to recognize this as a
    normal "-" with the Ctrl modifier.
7   Implement ":popup" for other systems than Windows.
8   Implement ":tearoff" for other systems than Win32 GUI.
6   Implement ":untearoff": hide a torn-off menu.
8   When using the scrollbar to scroll, don't move the cursor position. When
    moving the cursor: scroll to the cursor position.
9   Make <S-Insert> paste from the clipboard by default. (Kunze)
7   Menu local to a buffer, like mappings. Or local to a filetype?
8   In Buffers menu, add a choice whether selecting a buffer opens it in the
    current window, splits the window or uses ":hide".
8   Dragging the mouse pointer outside of a Vim Window should make the text
    scroll. Return a value from gui_send_mouse_event() to the machine
    specific code to indicate the time in which the event should be repeated.
8   Make it possible to ignore a mouse click when it's used to give Vim (gvim)
    window focus. Also when a mouse click is used to bring a window to front.
8   Make the split into system independent code and system specific code more
    explicit. There are too many #ifdefs in gui.c.
    If possible, separate the Vim code completely from the GUI code, to allow
    running them in separate processes.
7   X11: Support cursorColor resource and "-cr" argument.
8   X11 (and others): CTRL-; is not different from ';'. Set the modifier mask
    to include CTRL for keys where CTRL produces the same ASCII code.
7   Add some code to handle proportional fonts on more systems? Need to draw
    each character separately (like xterm). Also for when a double-width font
    is not exactly double-width. (Maeda)
8   Should take font from xterm where gvim was started (if no other default).
8   Selecting font names in X11 is difficult, make a script or something to
    select one.
8   Visual highlighting should keep the same font (bold, italic, etc.).
8   Add flag to 'guioptions' to not put anything in the clipboard at all?
8   Should support a way to use keys that we don't recognize yet. Add a
    command that adds entries to special_keys somehow. How do we make this
    portable (X11, Win32, ..)?
7   Add a flag to 'guioptions' that tells not to remove inactive menu items.
    For systems where greying-out or removing menu items is very slow. The
    menu items would remain visibly normally, but not do anything.
7   Add ":minimize" and ":maximize", which iconize the window and back.
    Useful when using gvim to run a script (e.g. 2html.vim).
7   X11: Is it possible to free allocated colors, so that other programs can
    use them again? Otherwise, allow disabling allocating the default colors.
    Or allocate an own colormap (check UAE). With an option to use it. For
    the commandline, "-install" is mostly used for X11 programs.
7   Should support multi-column menus.
-   Should add option for where to put the "Help" menu: like Motif at the far
    right, or with the other menus (but still at the right).
-   Add menu item to "Keep Insert mode".

8 ":mkgvimrc" command, that includes menus.
6 Big change: Move GUI to separate program "vimgui", to make startup of vim a lot faster, but still be able to do "vim -g" or ":gui".
7 More explicit mouse button binding instead of 'mousemodel'?
7 Add option to set the position of the window on the screen. 'windowpos', which has a value of "123,456": <x>,<y>.
Or add a command, like ":winsize"?
7 Add toolbar for more GUIs.
8 Make it possible to use "amenu icon=BuiltIn##", so that the toolbar item name can be chosen free.
7 Make it possible to put the toolbar on top, left, right and/or bottom of the window? Allows for softkey-like use.
6 Separate the part of Vim that does the editing from the part that runs the GUI. Communicate through a pseudo-tty. Vim starts up, creates a pty that is connected to the terminal. When the GUI starts, the pty is reconnected to the GUI process. When the GUI stops, it is connected to the terminal again. Also use the pty for external processes, it looks like a vt100 terminal to them. Vim uses extra commands to communicate GUI things.
7 Motif: For a confirm() dialog <Enter> should be ignored when no default button selected, <Esc> should close the dialog.
7 When using a pseudo-tty Vim should behave like some terminal (vt52 looks simple enough). Terminal codes to/from shell should be translated.
- Would it be useful to be able to quit the GUI and go back to the terminal where it was started from?
7 Support "-visual <type>" command line argument.

Autocommands:
9 Rework the code from FEAT_OSFILETYPE for autocmd-osfiletypes to use 'filetype'. Only for when the current buffer is known.
- Put autocommand event names in a hashtable for faster lookup?
8 When the SwapExists event is triggered, provide information about the swap file, e.g., whether the process is running, file was modified, etc. Must be possible to check the situation that it's probably OK to delete the swap file. (Marc Merlin)
8 When all the patterns for an event are "*" there is no need to expand buffer names to a full path. This can be slow for NFS.
7 For autocommand events that trigger multiple times per buffer (e.g., CursorHold), go through the list once and cache the result for a specific buffer. Invalidate the cache when adding/deleting autocommands or changing the buffer name.
7 Add TagJump event: do something after jumping to a tag.
8 Add "TagJumpFile" autocommand: When jumping to another file for a tag. Can be used to open "main.c.gz" when "main.c" isn't found.
8 Use another option than 'updatetime' for the CursorHold event. The two things are unrelated for the user (but the implementation is more difficult).
7 Add autocommand event for when a buffer cannot be abandoned. So that the user can define the action taking (autowrite, dialog, fail) based on the kind of file. (Yakov Lerner) Or is BufLeave sufficient?
8 Autocommand for when modified files have been found, when getting input focus again (e.g., FileChangedFocus).
Check when: getting focus, jumping to another buffer, ...

```
8   Autocommands should not change registers.  And marks?  And the jumplist?
    And anything else?  Add a command to save and restore these things.
8   Add autocommands, user functions and user commands to ":mkvimrc".
6   Add KeymapChanged event, so that the effects of a different keymap can be
    handled (e.g., other font) (Ron Aaron)
7   When trying to open a directory, trigger an OpenDirectory event.
7   Add file type in front of file pattern: <d> for directory, <l> for link,
    <x> for executable, etc.  With commas to separate alternatives.  The
    autocommand is only executed when both the file type AND the file pattern
    match. (Leonard)
5   Add option that specifies extensions which are to be discarded from the
    file name.  E.g. 'ausuffix', with ".gz,.orig".  Such that file.c.gz will
    trigger the "*.c" autocommands.  (Belabas)
7   Add something to break the autocommands for the current event, and for
    what follows.  Useful for a "BufWritePre" that wants to avoid writing the
    file.
8   When editing "tt.gz", which is in DOS format, 'fileformat' stays at
    "unix", thus writing the file changes it.  Somehow detect that the read
    command used dos fileformat.  Same for 'fileencoding'.
-   Add events to autocommands:
    Error           - When an error happens
    ModeChange      - after changing mode (before waiting for a char)
    VimLeaveCheck    - Before Vim decides to exit, so that it can be cancelled
                       when exiting isn't a good idea.
    CursorHoldC     - CursorHold while command-line editing
    WinMoved        - when windows have been moved around, e.g, ":wincmd J"
    SearchPost      - After doing a search command (e.g. to do "M")
    PreDirChanged/PostDirChanged
                    - Before/after ":cd" has been used (for changing the
                      window title)
    ShutDown        - when the system is about to shut down
    InsertCharPost  - user typed a character in Insert mode, after inserting
                      the char.
    BufModified     - When a buffer becomes modified, or unmodified (for
                      putting a [+] in the window title or checking out the
                      file from CVS).
    BufFirstChange  - When making a change, when 'modified' is set.  Can be
                      used to do a :preserve for remote files.
    BufChange       - after a change was made.  Set some variables to indicate
                      the position and number of inserted/deleted lines, so
                      that marks can be updated.  HierAssist has patch to add
                      BufChangePre, BufChangePost and RevertBuf. (Shah)
    ViewChanged     - triggered when the text scrolls and when the window size
                      changes.
    WinResized      - After a window has been resized
    WinClose        - Just before closing a window
-   Write the file now and then ('autosave'):
                                  'autosave'   'as'   'noautosave'   'noas'
    'autosave' 'as' number  (default 0)
            Automatically write the current buffer to file N seconds after the
            last change has been made and when  'modified'  is still set.
            Default: 0 = do not autosave the buffer.
    Alternative: have 'autosave' use 'updatetime' and 'updatecount' but make
    them save the file itself besides the swapfile.
```

```
Omni completion:
-   Add a flag to 'complete' to be able to do omni completion with CTRL-N (and
    mix it with other kinds of completion).
-   Ideas from the Vim 7 BOF at SANE:
        - For interpreted languages, use the interpreter to obtain information.
          Should work for Java (Eclipse does this), Python, Tcl, etc.
          Richard Emberson mentioned working on an interface to Java.
        - Check Readline for its completion interface.
-   Ideas from others:
        http://www.wholetomato.com/
        http://www.vim.org/scripts/script.php?script_id=747
            http://sourceforge.net/projects/insenvim
                or http://insenvim.sourceforge.net
            Java, XML, HTML, C++, JSP, SQL, C#
            MS-Windows only, lots of dependencies (e.g. Perl, Internet
                explorer), uses .dll shared libraries.
            For C++ uses $INCLUDE environment var.
            Uses Perl for C++.
            Uses ctags to find the info:
                ctags -f $allTagsFile --fields=+aiKmnsSz --language-force=C++ --C++-kinds=+
        www.vim.org script 1213 (Java Development Environment) (Fuchuan Wang)
        IComplete: http://www.vim.org/scripts/script.php?script_id=1265
            and http://stud4.tuwien.ac.at/~e0125672/icomplete/
        http://cedet.sourceforge.net/intellisense.shtml (for Emacs)
        Ivan Villanueva has something for Java.
        Emacs: http://www.xref-tech.com/xrefactory/more_c_completion.html
        Completion in .NET framework SharpDevelop: http://www.icsharpcode.net
-   Pre-expand abbreviations, show which abbrevs would match?


Insert mode completion/expansion:
-   GUI implementation of the popup menu.
7   When searching in other files the name flash by, too fast to read.  Only
    display a name every second or so, like with ":vimgrep".
7   When expanding file names with an environment variable, add the match with
    the unexpanded var.  So $HOME/tm expands to "/home/guy/tmp" and
    "$HOME/tmp"
8   When there is no word before the cursor but something like "sys." complete
    with "sys.".  Works well for C and similar languages.
9   ^X^L completion doesn't repeat correctly.  It uses the first match with
    the last added line, instead of continuing where the last match ended.
    (Webb)
8   Add option to set different behavior for Insert mode completion:
    - ignore/match case
    - different characters than 'iskeyword'
8   Add option 'isexpand', containing characters when doing expansion (so that
    "." and "\" can be included, without changing 'iskeyword'). (Goldfarb)
    Also: 'istagword': characters used for CTRL-].
    When 'isexpand' or 'istagword' are empty, use 'iskeyword'.
    Alternative: Use a pattern so that start and end of a keyword can be
    defined, only allow dash in the middle, etc.
8   Add a command to undo the completion, go back to the original text.
```

```
7   Completion of an abbreviation: Can leave letters out, like what Instant
    text does: www.textware.com
8   Use the class information in the tags file to do context-sensitive
    completion.  After "foo." complete all member functions/variables of
    "foo".  Need to search backwards for the class definition of foo.
    Should work for C++ and Java.
    Even more context would be nice: "import java.^N" -> "io", "lang", etc.
7   When expanding $HOME/dir with ^X^F keep the $HOME (with an option?).
7   Add CTRL-X command in Insert mode like CTRL-X CTRL-N, that completes WORDS
    instead of words.
8   Add CTRL-X CTRL-R: complete words from register contents.
8   Add completion of previously inserted texts (like what CTRL-A does).
    Requires remembering a number of insertions.
8   Add 'f' flag to 'complete': Expand file names.
    Also apply 'complete' to whole line completion.
-   Add a flag to 'complete' to only scan local header files, not system
    header files. (Andri Moell)
-   Make it possible to search include files in several places.  Use the
    'path' option?  Can this be done with the dictionary completion (use
    wildcards in the file name)?
-   Make CTRL-X CTRL-K do a binary search in the dictionary (if it's sorted).
-   Speed up CTRL-X CTRL-K dictionary searching (don't use a regexp?).
-   Set a mark at the position where the match was found (file mark, could
    be in another file).
-   Add CTRL-A command in CTRL-X mode: show all matches.
-   Make CTRL-X CTRL-L use the 'complete' option?
-   Add command in CTRL-X mode to add following words to the completed string
    (e.g. to complete "Pointer->element" with CTRL-X CTRL-P CTRL-W CTRL-W)
-   CTRL-X CTRL-F: Use 'path' to find completions.
-   CTRL-X CTRL-F: Option to use forward slashes on MS-Windows?
-   CTRL-X CTRL-F: Don't replace "$VIM" with the actual value. (Kelly)
-   Allow listing all matches in some way (and picking one from the list).


Command line editing:
7   Add commands (keys) to delete from the cursor to the end of the command
    line.
8   Custom completion of user commands can't use the standard completion
    functions.  Add a hook to invoke a user function that returns the type of
    completion to be done: "file", "tag", "custom", etc.
-   Add flags to 'whichwrap' for command line editing (cursor right at end of
    lines wraps to start of line).
-   Make editing the command line work like Insert mode in a single-line view
    on a buffer that contains the command line history.  But this has many
    disadvantages, only implement it when these can be solved.  Elvis has run
    into these, see remarks from Steve (~/Mail/oldmail/kirkendall/in.00012).
    - Going back in history and editing a line there would change the history.
      Would still need to keep a copy of the history elsewhere.  Like the
      cmdwin does now already.
    - Use CTRL-O to execute one Normal mode command.  How to switch to normal
      mode for more commands?  <Esc> should cancel the command line.  CTRL-T?
    - To allow "/" and "= need to recursively call getcmdline(), overwrite the
      cmdline.  But then we are editing a command-line again.  How to avoid
      that the user gets confused by the stack of command lines?
```

```
    - Use edit() for normal cmdline editing?  Would have to integrate
      getcmdline() into edit().  Need to solve conflicts between Insert mode
      and Command-line mode commands.  Make it work like Korn shell and tcsh.
      Problems:
        - Insert: completion with 'wildchar'
        - Insert: use cmdline abbreviations
        - Insert: CTRL-D deletes indent instead of listing matches
        - Normal: no CTRL-W commands
        - Normal: no ":" commands?
        - Normal: allow Visual mode only within one line.
    - where to show insert/normal mode message?  Change highlighting of
      character in first column?
    - Implementation ideas:
      - Set "curwin" and "curbuf" to the command line window and buffer.
      - curwin->w_topline is always equal to curwin->w_cursor.lnum.
      - never set 'number', no folding, etc.  No status line.
      - sync undo after entering a command line?
      - use NV_NOCL flag for commands that are not allowed in Command-line
        Mode.


Command line completion:
8   Change expand_interactively into a flag that is passed as an argument.
8   With command line completion after '%' and '#', expand current/alternate
    file name, so it can be edited.  Also with modifiers, such as "%:h".
8   When completing command names, either sort them on the long name, or list
    them with the optional part inside [].
8   Add an option to ignore case when doing interactive completion.  So that
    ":e file<Tab>" also lists "Filelist" (sorted after matching case matches).
7   Completion of ":map x ": fill in the current mapping, so that it can be
    edited. (Sven Guckes)
-   For 'wildmenu': Simplify "../bar" when possible.
-   When using <Up> in wildmenu mode for a submenu, should go back to the
    current menu, not the first one.  E.g., ":emenu File.Save<Up>".
8   When using backtick expansion, the external command may write a greeting
    message.  Add an option or commands to remove lines that match a regexp?
7   When listing matches of files, display the common path separately from the
    file names, if this makes the listing shorter. (Webb)
-   Add command line completion for ":ilist" and friends, show matching
    identifiers (Webb).
8   Add command line completion for "old value" of a command.  ":args <key>"
    would result in the current list of arguments, which you can then edit.
7   Add command line completion with CTRL-X, just like Insert mode completion.
    Useful for ":s/word/xx/".
-   Add command to go back to the text as it was before completion started.
    Also to be used for <Up> in the command line.
-   Add 'wildlongest' option: Key to use to find longest common match for
    command line completion (default CTRL-L), like 'wildchar'. (Cregut)
    Also: when there are several matches, show them line a CTRL-D.


Command line history:
-   Add "KeyWasTyped" flag: It's reset before each command and set when a
    character from the keyboard is consumed. Value is used to decide to put a
```

```
    command line in history or not. Put line in history if it didn't
    completely result from one mapping.
-   When using ":browse", also put the resulting edit command in the history,
    so that it can be repeated. (Demirel)


Insert mode:
9   When 'autoindent' is set, hitting <CR> twice, while there is text after
    the cursor, doesn't delete the autoindent in the resulting blank line.
    (Rich Wales) This is Vi compatible, but it looks like a bug.
8   When using CTRL-O in Insert mode, then executing an insert command
    "a" or "i", should we return to Insert mode after <Esc>? (Eggink)
    Perhaps it can be allowed a single time, to be able to do
    "<C-O>10axyz<Esc>".  Nesting this further is confusing.
    ":map <F2> 5aabc<Esc>" works only once from Insert mode.
8   When using CTRL-G CTRL-O do like CTRL-\ CTRL-O, but when returning with
    the cursor in the same position and the text didn't change continue the
    same change, so that "." repeats the whole insert.
7   Use CTRL-G <count> to repeat what follows.  Useful for inserting a
    character multiple times or repeating CTRL-Y.
-   Make 'revins' work in Replace mode.
7   Use 'matchpairs' for 'showmatch': When inserting a character check if it
    appears in the rhs of 'matchpairs'.
-   In Insert mode (and command line editing?): Allow undo of the last typed
    character.  This is useful for CTRL-U, CTRL-W, delete and backspace, and
    also for characters that wrap to the next line.
    Also: be able to undo CTRL-R (insert register).
    Possibly use 'backspace'="whole" for a mode where at least a <CR> that
    inserts autoindent is undone by a single <BS>.
-   Use CTRL-G in Insert mode for an extra range of commands, like "g" in
    Normal mode.
-   Make 'paste' work without resetting other options, but override their
    value.  Avoids problems when changing files and modelines or autocommands
    are used.
-   When typing CTRL-V and a digit higher than 2, only expect two digits.
-   Insert binary numbers with CTRL-V b.
-   Make it possible to undo <BS>, <C-W> and <C-U>.  Bash uses CTRL-Y.


'cindent', 'smartindent':
9   Wrapping a variable initialization should have extra indent:
        char * veryLongName =
                "very long string"
    Also check if "cino=+10" is used correctly.
8   Lisp indenting: "\\" confuses the indenter. (Dorai Sitaram, 2006 May 17)
8   Why are continuation lines outside of a {} block not indented?  E.g.:
        long_type foo =
        value;
8   Java: Inside an anonymous class, after an "else" or "try" the indent is
    too small. (Vincent Bergbauer)
    Problem of using {} inside (), 'cindent' doesn't work then.
8   In C++ it's possible to have {} inside (): (Kirshna)
                func(
                        new String[] {
```

```
                        "asdf",
                        "asdf"
                    }
                );
```

8 In C++ a function isn't recognized inside a namespace:
(Chow Loong Jin)

```
    namespace {
        int
             func(int arg) {
             }
    }
```

6 Add 'cino' flag for this function argument layout: (Spencer Collyer)

```
        func( arg1
            , arg2
            , arg3
            );
```

7 Add separate "(0" option into inside/outside a function (Zellner):

```
    func(
       int x)       // indent like "(4"
    {
       if (a
           && b)    // indent like "(0"
```

9 Using "{" in a comment: (Helmut Stiegler)

```
if (a)
{
        if (b)
        {
                // {
        }
        } <-- this is indented incorrect
```

Problem is that find_start_brace() checks for the matching brace to be in a comment, but not braces in between. Requires adding a comment check to findmatchlimit().

- Make smartindenting configurable. Add 'sioptions', e.g. '#' setting the indent to 0 should be switched on/off.

7 Support ANSI style function header, with each argument on its own line.

- "[p" and "]p" should use 'cindent' code if it's on (only for the first line).
- Add option to 'cindent' to set indent for comments outside of {}?
- Make a command to line up a comment after a code line with a previous comment after a code line. Can 'cindent' do this automatically?
- When 'cindent'ing a '}', showmatch is done before fixing the indent. It looks better when the indent is fixed before the showmatch. (Webb)
- Add option to make indenting work in comments too (for commented-out code), unless the line starts with "*".
- Don't use 'cindent' when doing formatting with "gq"?
- When formatting a comment after some text, insert the '*' for the new line (indent is correct if 'cindent' is set, but '*' doesn't get inserted).

8 When 'comments' has both "s1:/*,mb:*,ex:*/" and "s1:(*,mb:*,ex:*)", the 'x' flag always uses the first match. Need to continue looking for more matches of "*" and remember all characters that could end the comment.

- For smartindent: When typing 'else' line it up with matching 'if'.
- 'smartindent': allow patterns in 'cinwords', for e.g. TeX files, where lines start with "\item".

```
-   Support this style of comments (with an option): (Brown)
        /* here is a comment that
        is just autoindented, and
        nothing else */
-   Add words to 'cinwords' to reduce the indent, e.g., "end" or "fi".
7   Use Tabs for the indent of starting lines, pad with spaces for
    continuation lines.  Allows changing 'tabstop' without messing up the
    indents.
    Patch by Lech Lorens, 2010 Mar.  Update by James McCoy, 2014 Mar 15.


Java:
8   Can have {} constructs inside parens.  Include changes from Steve
    Odendahl?
8   Recognize "import java.util.Vector" and use $CLASSPATH to find files for
    "[i" commands and friends.
-   For files found with 'include': handle "*" in included name, for Java.
    (Jason)
-   How to make a "package java.util" cause all classes in the package to be
    searched?  Also for "import java.util.*". (Mark Brophy)


'comments':
8   When formatting C comments that are after code, the "*" isn't repeated
    like it's done when there is no code.  And there is no automatic wrapping.
    Recognize comments that come after code.  Should insert the comment leader
    when it's "#" or "//".
    Other way around: when a C command starts with "* 4" the "*" is repeated
    while it should not.  Use syntax HL comment recognition?
7   When using "comments=fg:--", Vim inserts three spaces for a new line.
    When hitting a TAB, these spaces could be removed.
7   The 'n'esting flag doesn't do the indenting of the last (rightmost) item.
6   Make strings in 'comments' option a RE, to be able to match more
    complicated things. (Phillipps)  Use a special flag to indicate that a
    regexp is used.
8   Make the 'comments' option with "/* * */" lines only repeat the "*" line
    when there is a "/*" before it?  Or include this in 'cindent'?


Virtual edit:
8   Make the horizontal scrollbar work to move the text further left.
7   Allow specifying it separately for Tabs and beyond end-of-line?


Text objects:
8   Add text object for fold, so that it can be yanked when it's open.
8   Add test script for text object commands "aw", "iW", etc.
8   Add text object for part of a CamelHumpedWord and under_scored_word.
    (Scott Graham)  "ac" and "au"?
8   Add a text object for any kind of quoting, also with multi-byte
    characters.  Option to specify what quotes are recognized (default: all)
    use "aq" and "iq".  Use 'quotepairs' to define pairs of quotes, like
    'matchpairs'?
8   Add text object for any kind of parens, also multi-byte ones.
```

8   Add a way to make an ":omap" for a user-defined text object. Requires
    changing the starting position in oap->start.
8   Add "gp" and "gP" commands: insert text and make sure there is a single
    space before it, unless at the start of the line, and after it, unless at
    the end of the line or before a ".".
7   Add objects with backwards extension? Use "I" and "A". Thus "2dAs"
    deletes the current and previous sentence. (Jens Paulus)
7   Add "g{" and "g}" to move to the first/last character of a paragraph
    (instead of the line just before/after a paragraph as with "{" and "}").
6   Ignore comment leaders for objects. Make "das" work in reply-email.
5   Make it possible to use syntax group matches as a text object. For
    example, define a "ccItem" group, then do "da<ccItem>" to delete one.
    Or, maybe just define "dai", delete-an-item, to delete the syntax item the
    cursor is on.

Select mode:
8   In blockwise mode, typed characters are inserted in front of the block,
    backspace deletes a column before the block. (Steve Hall)
7   Alt-leftmouse starts block mode selection in MS Word.
    See http://vim.wikia.com/wiki/Use_Alt-Mouse_to_select_blockwise.
7   Add Cmdline-select mode. Like Select mode, but used on the command line.
    - Change gui_send_mouse_event() to pass on mouse events when 'mouse'
      contains 'C' or 'A'.
    - Catch mouse events in ex_getln.c. Also shift-cursor, etc., like in
      normal_cmd().
    - remember start and end of selection in cmdline_info.
    - Typing text replaces the selection.

Visual mode:
8   Support using "." in Visual mode. Use the operator applied to the Visual
    selection, if possible.
-   When dragging the Visual selection with the mouse and 'scrolloff' is zero,
    behave like 'scrolloff' is one, so that the text scrolls when the pointer
    is in the top line.
-   Displaying size of Visual area: use 24-33 column display.
    When selecting multiple lines, up to about a screenful, also count the
    characters.
8   When using "I" or "A" in Visual block mode, short lines do not get the new
    text. Make it possible to add the text to short lines too, with padding
    where needed.
7   With a Visual block selected, "2x" deletes a block of double the width,
    "3y" yanks a block of triple width, etc.
7   When selecting linewise, using "itext" should insert "text" at the start
    of each selected line.
8   What is "R" supposed to do in Visual mode?
8   Make Visual mode local to the buffer. Allow changing to another buffer.
    When starting a new Visual selection, remove the Visual selection in any
    other buffer. (Ron Aaron)
8   Support dragging the Visual area to drop it somewhere else. (Ron Aaron,
    Ben Godfrey)
7   Support dragging the Visual area to drop it in another program, and
    receive dropped text from another program. (Ben Godfrey)

7   With blockwise Visual mode and "c", "C", "I", "A", etc., allow the use of
    a <CR>. The entered lines are repeated over the Visual area.
7   Filtering a block should only apply to the block, not to the whole lines.
    When the number of lines is increased, add lines. When decreased, pad with
    spaces or delete? Use ":`<,`>" on the command line.
8   After filtering the Visual area, make "gv" select the filtered text?
    Currently "gv" only selects a single line, not useful.
7   Don't move the cursor when scrolling? Needed when the selection should
    stay the same. Scroll to the cursor at any movement command. With an
    option!
7   In Visual block mode, need to be able to define a corner on a position
    that doesn't have text? Also: when using the mouse, be able to select
    part of a TAB. Even more: Add a mode where the cursor can be on a screen
    position where there is no text. When typing, add spaces to fill the gap.
    Other solution: Always use curswant, so that you can move the cursor to
    the right column, and then use up/down movements to select the line,
    without changing the column.
6   ":left" and ":right" should work in Visual block mode.
7   CTRL-I and CTRL-O should work in Visual mode, but only jump to marks in the
    current buffer.
6   In non-Block mode, "I" should insert the same text in front of each line,
    before the first non-blank, "gI" in column 1.
6   In non-Block mode, "A" should append the same text after each line.
6   When in blockwise visual selection (CTRL-V), allow cursor to be placed
    right of the line. Could also allow cursor to be placed anywhere on a TAB
    or other special character.
6   Add commands to move selected text, without deselecting.

More advanced repeating commands:
-   Add "." command for visual mode: redo last visual command (e.g. ":fmt").
-   Add command to repeat last movement. Including count.
-   Add "." command after operator: repeat last command of same operator. E.g.
    "c." will repeat last change, also when "x" used since then (Webb).
    "y." will repeat last yank.
    "c2." will repeat the last but one change?
    Also: keep history of Normal mode commands, add command to list the history
    and/or pick an older command.
-   History stack for . command? Use "g." command.

Mappings and Abbreviations:
8   When "0" is mapped (it is a movement command) this mapping should not be
    used after typing another number, e.g. "20l". (Charles Campbell)
    Is this possible without disabling the mapping of the following command?
8   Should mapping <C-A> and <C-S-A> both work?
7   ":abbr b byte", append "b " to an existing word still expands to "byte".
    This is Vi compatible, but can we avoid it anyway?
8   To make a mapping work with a prepended "x to select a register, store the
    last _typed_ register name and access it with "&.
8   Add ":amap", like ":amenu".
7   Add a mapping that works always, for remapping the keyboard.
8   Add ":cab!", abbreviations that only apply to Command-line mode and not to
    entering search strings.

8   Add a flag to ":abbrev" to eat the character that triggers the
    abbreviation. Thus "abb ab xxx" and typing "ab<Space>" inserts "xxx" and
    not the <Space>.
8   Give a warning when using CTRL-C in the lhs of a mapping. It will never
    (?) work.
7   Add <0x8f> (hex), <033> (octal) and <123> (decimal) to <> notation?
7   When someone tries to unmap with a trailing space, and it fails, try
    unmapping without the trailing space. Helps for ":unmap xx | unmap yy".
6   Context-sensitive abbreviations: Specify syntax group(s) in which the
    abbreviations are to be used.
-   Add mappings that take arguments. Could work like the ":s" command. For
    example, for a mouse escape sequence:
        :mapexp <Esc>{\([0-9]*\),\([0-9]*\);   H\1j\2l
-   Add optional <Number> argument for mappings:
    :map <Number>q   ^W^W<Number>G
    :map <Number>q<Number>t ^W^W<Number1-1>G<Number2>l
    :map q<Char>   :s/<Char>/\u\0/g
    Or implicit:
    :map q   <Register>d<Number>$
-   Add command to repeat a whole mapping ("." only repeats the last change in
    a mapping). Also: Repeat a whole insert command, including any mappings
    that it included. Sort-of automatic recording?
-   Include an option (or flag to 'cpoptions') that makes errors in mappings
    not flush the rest of the mapping (like nvi does).
-   Use context sensitiveness of completion to switch abbreviations and
    mappings off for :unab and :unmap.
6   When using mappings in Insert mode, insert characters for incomplete
    mappings first, then remove them again when a mapping matches. Avoids
    that characters that are the start of some mapping are not shown until you
    hit another character.
-   Add mappings for replace mode: ":rmap". How do we then enter mappings for
    non-replace Insert mode?
-   Add separate mappings for Visual-character/block/line mode?
-   Add 'mapstop' command, to stop recursive mappings.
-   List mappings that have a raw escape sequence both with the name of the key
    for that escape sequence (if there is one) and the sequence itself.
-   List mappings: Once with special keys listed as <>, once with meta chars as
    <M-a>, once with the byte values (octal?). Sort of "spell mapping" command?
-   When entering mappings: Add the possibility to enter meta keys like they
    are displayed, within <>: <M-a>, <~@> or <|a>.
-   Allow multiple arguments to :unmap.
-   Command to show keys that are not used and available for mapping
    ":freekeys".
-   Allow any character except white space in abbreviations lhs (Riehm).

Incsearch:
-   Add a limit to the number of lines that are searched for 'incsearch'?
-   When no match is found and the user types more, the screen is redrawn
    anyway. Could skip that. Esp. if the line wraps and the text is scrolled
    up every time.
-   Temporarily open folds to show where the search ends up. Restore the
    folds when going to another line.
-   When incsearch used and hitting return, no need to search again in many

```
    cases, saves a lot of time in big files. (Slootman wants to work on this?)
    When not using special characters, can continue search from the last match
    (or not at all, when there was no match).  See oldmail/webb/in.872.


Searching:
9   Should have an option for :vimgrep to find lines without a match.
8   Add "g/" and "gb" to search for a pattern in the Visually selected text?
    "g?" is already used for rot13.
    The vis.vim script has a ":S" command that does something like this.
    Can use "g/" in Normal mode, uses the '< to '> area.
    Use "&/" for searching the text in the Visual area?
9   Add "v" offset: "/pat/v": search for pattern and start Visual mode on the
    matching text.
8   Add a modifier to interpret a space like "\_s\+" to make it much easier to
    search for a phrase.
8   Add a mechanism for recursiveness: "\@(([^()]*\@g[^()]*)\)".  \@g stands
    for "go recursive here" and \@( \) marks the recursive part.
    Perl does it this way:
            $paren = qr/ \(( [^()] | (??{ $paren }) )* \) /x;
    Here $paren is evaluated when it's encountered.  This is like a regexp
    inside a regexp.  In the above terms it would be:
            \@((\([^()]\|\@g\)*)\)
8   Show the progress every second.  Could use the code that checks for CTRL-C
    to find out how much time has passed.  Or use SIGALRM.  Where to show the
    number?
7   Support for approximate-regexps to find similar words (agrep
    http://www.tgries.de/agrep/ tre: http://laurikari.net/tre/index.html).
8   Add an item for a big character range, so that one can search for a
    chinese character: \z[234-1234]  or \z[XX-YY] or \z[0x23-0x234].
7   Add an item stack to allow matching ().  One side is "push X on
    the stack if previous atom matched".  Other side is "match with top of
    stack, pop it when it matches".  Use "\@pX" and "\@m"?
        Example: \((\@p).\{-}\@m\)*
7   Add a flag to "/pat/" to discard an error.  Useful to continue a mapping
    when a search fails.  Could be "/pat/E" (e is already used for end offset).
7   Add pattern item to use properties of Unicode characters.  In Perl it's
    "\p{L}" for a letter.  See Regular Expression Pocket Reference.
8   Would it be possible to allow ":23,45/pat/flags" to search for "pat" in
    lines 23 to 45?  Or does this conflict with Ex range syntax?
8   Allow identical pairs in 'matchpairs'.  Restrict the search to the current
    line.
7   Allow longer pairs in 'matchpairs'.  Use matchit.vim as an
    example.
8   Make it possible to define the character that "%" checks for in
    #if/#endif.  For nmake it's !if/!endif.
-   For "%" command: set hierarchy for which things include other things that
    should be ignored (like "*/" or "#endif" inside /* */).
    Also: use "%" to jump from start to end of syntax region and back.
    Alternative: use matchit.vim
8   A pattern like "\([^a]\+\)\+" takes an awful long time.  Recognize that
    the recursive "\+" is meaningless and optimize for it.
    This one is also very slow on "/* some comment */": "^\/\*\(.*[^/]\)*$".
7   Recognize "[a-z]", "[0-9]", etc. and replace them with the faster "\l" and
```

"\d".
7 Add a way to specify characters in <C-M> or <Key> form. Could be \%<C-M>.
8 Add an argument after ":s/pat/str/" for a range of matches. For example, ":s/pat/str/#3-4" to replace only the third and fourth "pat" in a line.
8 When 'iskeyword' is changed the matches from 'hlsearch' may change. (Benji Fisher) redraw if some options are set while 'hlsearch' is set?
8 Add an option not to use 'hlsearch' highlighting for ":s" and ":g" commands. (Kahn) It would work like ":noh" is used after that command. Also: An extra flag to do this once, and a flag to keep the existing search pattern.
- Make 'hlsearch' a local/global option, so that it can be disabled in some of the windows.
- Add \%h{group-name}; to search for a specific highlight group.
Add \%s{syntax-group}; to search for a specific syntax group.
- Support Perl regexp. Use PCRE (Perl Compatible RE) package. (Shade)
Or translate the pattern to a Vim one.
Don't switch on with an option for typed commands/mappings/functions, it's too confusing. Use "\@@" in the pattern, to avoid incompatibilities.
8 Add a way to access the last substitute text, what is used for ":s//~/".
Can't use the ~ register, it's already used for drag & drop.
- Remember flags for backreferenced items, so that "*" can be used after it. Check with "\(\S\)\1\{3}". (Hemmerling)
8 Flags that apply to the whole pattern.
This works for all places where a regexp is used.
Add "\q" to not store this pattern as the last search pattern?
- Add flags to search command (also for ":s"?):
i ignore case
I use case
p use Perl regexp syntax (or POSIX?)
v use Vi regexp syntax
f forget pattern, don't keep it for "n" command
F remember pattern, keep it for "n" command
Perl uses these too:
e evaluate the right side as an expression (Perl only)
m multiple line expression (we don't need it)
o compile only once (Perl only)
s single line expression (we don't need it)
x extended regexp (we don't need it)
When used after ":g" command, backslash needed to avoid confusion with the following command.
Add 'searchflags' for default flags (replaces 'gdefault').
- Add command to display the last used substitute pattern and last used pattern. (Margo) Maybe make it accessible through a register (like "/ for search string)?
7 Use T-search algorithm, to speed up searching for strings without special characters. See C't article, August 1997.
- Add 'fuzzycase' option, so that case doesn't matter, and '-' and '_' are equivalent (for Unix filenames).
- Add 'v' flag to search command: enter Visual mode, with the matching text as Visual area. (variation on idea from Bertin)
- Searching: "/this//that/" should find "that" after "this".
- Add global search commands: Instead of wrapping at the end of the buffer, they continue in another buffer. Use flag after search pattern:

```
    a   for the next file in the argument list
    f   for file in the buffer list
    w   for file edited in a window.
    e.g. "/pat/f".  Then "n" and "N" work through files too.  "f" flag also for
    ":s/pat/foo/f"???  Then when 'autowrite' and 'hidden' are both not set, ask
    before saving files: "Save modified buffer "/path/file"? (Yes/Hide/No
    Save-all/hide-All/Quit) ".
-   ":s/pat/foo/3": find 3rd match of "pat", like sed. (Thomas Koehler)
7   When searching with 'n' give message when getting back where the search
    first started.  Remember start of search in '/ mark.
7   Add option that scrolls screen to put cursor in middle of screen after
    search always/when off-screen/never.  And after a ":tag" command.  Maybe
    specify how many lines below the screen causes a redraw with the cursor in
    the middle (default would be half a screen, zero means always).
6   Support multiple search buffers, so macros can be made without side
    effects.
7   From xvim: Allow a newline in search patterns (also for :s, can delete
    newline).  Add BOW, EOW, NEWL, NLORANY, NLBUTANY, magic 'n' and 'r', etc.
    [not in xvim:] Add option to switch on matches crossing ONE line boundary.
7   Add ":iselect", a combination of ":ilist" and ":tselect". (Aaron) (Zellner)
    Also ":dselect".


Undo:
9   ":gundo" command: global undo.  Undoes changes spread over multiple files
    in the order they were made.  Also ":gredo".  Both with a count.  Useful
    when tests fail after making changes and you forgot in which files.
9   After undo/redo, in the message show whether the buffer is modified or
    not.
8   Search for pattern in undo tree, showing when it happened and the text
    state, so that you can jump to it.
8   Undo tree: visually show the tree somehow (Damian Conway)
    Show only the leaves, indicating how many changed from the branch and the
    timestamp?
    Put branch with most recent change on the left, older changes get more
    indent?
-   Make it possible to undo all the commands from a mapping, including a
    trailing unfinished command, e.g. for ":map K iX^[r".
-   When accidentally hitting "R" instead of Ctrl-R, further Ctrl-R is not
    possible, even when typing <Esc> immediately. (Grahn)  Also for "i", "a",
    etc.  Postpone saving for undo until something is really inserted?
8   When Inserting a lot of text, it can only be undone as a whole.  Make undo
    sync points at every line or word.  Could recognize the start of a new
    word (white space and then non-white space) and backspacing.
    Can already use CTRL-G u, but that requires remapping a lot of things.
8   Make undo more memory-efficient: Compare text before and after change,
    only remember the lines that really changed.
7   Add undo for a range of lines.  Can change these back to a previous
    version without changing the rest of the file.  Stop doing this when a
    change includes only some of these lines and changes the line count.  Need
    to store these undo actions as a separate change that can be undone.
-   For u_save() include the column number. This can be used to set '[ and '].
    And in the future the undo can be made more efficient (Webb).
-   In out-of-memory situations: Free allocated space in undo, and reduce the
```

    number of undo levels (with confirmation).
-   Instead of [+], give the number of changes since the last write: [+123].
    When undoing to before the last write, change this to a negative number:
    [-99].
-   With undo with simple line delete/insert: optimize screen updating.
-   When executing macro's: Save each line for undo only once.
-   When doing a global substitute, causing almost all lines to be changed,
    undo info becomes very big. Put undo info in swap file??

Buffer list:
7   Command to execute a command in another buffer: ":inbuf {bufname} {cmd}".
    Also for other windows: ":inwin {winnr} {cmd}". How to make sure that
    this works properly for all commands, and still be able to return to the
    current buffer/window? E.g.: ":inbuf xxx only".
8   Add File.{recent_files} menu entries: Recently edited files.
    Ron Aaron has a plugin for this: mru.vim.
8   Unix: Check all uses of fnamecmp() and fnamencmp() if they should check
    inode too.
7   Add another number for a buffer, which is visible for the user. When
    creating a new buffer, use the lowest number not in use (or the highest
    number in use plus one?).
7   Offer some buffer selection from the command line? Like using ":ls" and
    asking for a buffer number. (Zachmann)
-   When starting to edit a file that is already in the buffer list, use the
    file name argument for the new short file name. (Webb)
-   Add an option to make ":bnext" and ":bprev" wrap around the end of the
    buffer list. Also for ":next" and ":prev"?
7   Add argument to ":ls" which is a pattern for buffers to list.
    E.g. ":ls *.c". (Thompson)
7   Add expansion of buffer names, so that "*.c" is expanded to all buffer
    names. Needed for ":bdel *.c", ":bunload *.c", etc.
8   Support for <afile> where a buffer name is expected.
7   Add an option to mostly use slashes in file names. Separately for
    internal use and for when executing an external program?
8   Some file systems are case-sensitive, some are not. Besides
    'wildignorecase' there might be more parts inside
    CASE_INSENSITIVE_FILENAME that are useful on Unix.

Swap (.swp) files:
8   If writing to the swap file fails, should try to open one in another
    directory from 'dir'. Useful in case the file system is full and when
    there are short file name problems.
8   Also use the code to try using a short file name for the backup and swap
    file for the Win32 and Dos 32 bit versions.
8   When a file is edited by root, add $LOGNAME to know who did su.
8   When the edited file is a symlink, try to put the swap file in the same
    dir as the actual file. Adjust FullName(). Avoids editing the same file
    twice (e.g. when using quickfix). Also try to make the name of the backup
    file the same as the actual file?
    Use the code for resolve()?
7   When using 64 bit inode numbers, also store the top 32 bits. Add another
    field for this, using part of bo_fname[], to keep it compatible.

7 When editing a file on removable media, should put swap file somewhere
  else. Use something like 'r' flag in 'viminfo'. 'diravoid'?
  Also: Be able to specify minimum disk space, skip directory when not
  enough room.
7 Add a configure check for which directory should be used: /tmp, /var/tmp
  or /var/preserve.
- Add an option to create a swap file only when making the first change to
  the buffer. (Liang) Or only when the buffer is not read-only.
- Add option to set "umask" for backup files and swap files (Antwerpen).
  'backupumask' and 'swapumask'? Or 'umaskbackup' and 'umaskswap'?
- When editing a readonly file, don't use a swap file but read parts from the
  original file. Also do this when the file is huge (>'maxmem'). We do
  need to load the file once to count the number of lines? Perhaps keep a
  cached list of which line is where.

Viminfo:
7 Can probably remove the code that checks for a writable viminfo file,
  because we now do the chown() for root, and others can't overwrite someone
  else's viminfo file.
8 When there is no .viminfo file and someone does "su", runs Vim, a
  root-owned .viminfo file is created. Is there a good way to avoid this?
  Perhaps check the owner of the directory. Only when root?
8 Add argument to keep the list of buffers when Vim is started with a file
  name. (Schild)
8 Keep the last used directory of the file browser (File/Open menu).
8 Remember the last used register for "@@".
8 Remember the redo buffer, so that "." works after restarting.
8 Remember a list of last accessed files. To be used in the
  "File.Open Recent" menu. Default is to remember 10 files or so.
  Also remember which files have been read and written. How to display
  this?
7 Also store the ". register (last inserted text).
7 Make it possible to store buffer names in viminfo file relative to some
  directory, to make them portable over a network. (Aaron)
6 Store a snapshot of the currently opened windows. So that when quitting
  Vim, and then starting again (without a file name argument), you see the
  same files in the windows. Use ":mksession" code?
- Make marks present in .viminfo usable as file marks: Display a list of
  "last visited files" and select one to jump to.

Modelines:
8 Before trying to execute a modeline, check that it looks like one (valid
  option names). If it's very wrong, silently ignore it.
  Ignore a line that starts with "Subject: ".
- Add an option to whitelist options that are allowed in a modeline. This
  would allow careful users to use modelines, e.g., only allowing
  'shiftwidth'.
- Add an option to let modelines only set local options, not global ones
  such as 'encoding'.
- When an option value is coming from a modeline, do not carry it over to
  another edited file? Would need to remember the value from before the
  modeline setting.

```
-   Allow setting a variable from a modeline?  Only allow using fixed strings,
    no function calls, to avoid a security problem.
-   Allow ":doauto BufRead x.cpp" in modelines, to execute autocommands for
    .cpp files.
-   Support the "abbreviate" command in modelines (Kearns).  Careful for
    characters after <Esc>, that is a security leak.
-   Add option setting to ask user if he wants to have the modelines executed
    or not.  Same for .exrc in local dir.


Sessions:
8   DOS/Windows: ":mksession" generates a "cd" command where "aa\#bb" means
    directory "#bb" in "aa", but it's used as "aa#bb". (Ronald Hoellwarth)
7   When there is a "help.txt" window in a session file, restoring that
    session will not get the "LOCAL ADDITIONS" back.
8   With ":mksession" always store the 'sessionoptions' option, even when
    "options" isn't in it. (St-Amant)
8   When using ":mksession", also store a command to reset all options to
    their default value, before setting the options that are not at their
    default value.
7   With ":mksession" also store the tag stack and jump history. (Michal
    Malecki)
7   Persistent variables: "p:var"; stored in viminfo file and sessions files.


Options:
7   ":with option=value | command": temporarily set an option value and
    restore it after the command has executed.
8   Make "old" number options that really give a number of effects into string
    options that are a comma separated list.  The old number values should
    also be supported.
8   Add commands to save and restore an option, which also preserves the flag
    that marks if the option was set.  Useful to keep the effect of setting
    'compatible' after ":syntax on" has been used.
7   There is 'titleold', why is there no 'iconold'? (Chazelas)
7   Make 'scrolloff' a global-local option, so that it can be different in the
    quickfix window, for example. (Gary Holloway)
    Also do 'sidescrolloff'.


External commands:
8   When filtering text, redirect stderr so that it can't mess up the screen
    and Vim doesn't need to redraw it.  Also for ":r !cmd".
4   Set separate shell for ":sh", piping "range!filter", reading text "r !ls"
    and writing text "w !wc". (Deutsche)  Allow arguments for fast start (e.g.
    -f).
4   Allow direct execution, without using a shell.
4   Run an external command in the background.  But how about I/O in the GUI?
    Careful: don't turn Vim into a shell!
4   Add feature to disable using a shell or external commands.


Multiple Windows:
7   "vim -oO file ..." use both horizontal and vertical splits.
```

8 Add CTRL-W T: go to the top window in the column of the current window.
   And CTRL-W B: go to bottom window.
7 Use CTRL-W <Tab>, like alt-tab, to switch between buffers. Repeat <Tab>
   to select another buffer (only loaded ones?), <BS> to go back, <Enter> to
   select buffer, <Esc> to go back to original buffer.
7 Make it possible to edit a new buffer in the preview window. A script can
   then fill it with something. ":popen"?
7 Add a 'tool' window: behaves like a preview window but there can be
   several. Don't count it in only_one_window(). (Alexei Alexandrov)
6 Add an option to resize the shell when splitting and/or closing a window.
   ":vsp" would make the shell wider by as many columns as needed for the new
   window. Specify a maximum size (or use the screen size). ":close" would
   shrink the shell by as many columns as come available. (Demirel)
7 When starting Vim several times, instantiate a Vim server, that allows
   communication between the different Vims. Feels like one Vim running with
   multiple top-level windows. Esp. useful when Vim is started from an IDE
   too. Requires some form of inter process communication.
- Support a connection to an external viewer. Could call the viewer
   automatically after some seconds of non-activity, or with a command.
   Allow some way of reporting scrolling and cursor positioning in the viewer
   to Vim, so that the link between the viewed and edited text can be made.

Marks:
8 Add ten marks for last changed files: ':0, ':1, etc. One mark per file.
8 When cursor is first moved because of scrolling, set a mark at this
   position. (Rimon Barr) Use '-.
8 Add a command to jump to a mark and make the motion inclusive. g'm and g`m?
8 The '" mark is set to the first line, even when doing ":next" a few times.
   Only set the '" mark when the cursor was really moved in a file.
8 Make `` and '', which would position the new cursor position in the middle
   of the window, restore the old topline (or relative position) from when
   the mark was set.
7 Make a list of file marks in a separate window. For listing all buffers,
   matching tags, errors, etc. Normal commands to move around. Add commands
   to jump to the mark (in current window or new window). Start it with
   ":browse marks"?
6 Add a menu that lists the Marks like ":marks". (Amerige)
7 For ":jumps", ":tags" and ":marks", for not loaded buffers, remember the
   text at the mark. Highlight the column with the mark.
7 Highlight each mark in some way (With "Mark" highlight group).
   Or display marks in a separate column, like 'number' does.
7 Use d"m to delete rectangular area from cursor to mark m (like Vile's \m
   command).
7 Try to keep marks in the same position when:
   - replacing with a line break, like in ":s/pat/^M/", move marks after the
     line break column to the next line. (Acevedo)
   - inserting/deleting characters in a line.
5 Include marks for start/end of the current word and section. Useful in
   mappings.
6 Add "unnamed mark" feature: Like marks for the ":g" command, but place and
   unplace them with commands before doing something with the lines.
   Highlight the marked lines somehow.

Digraphs:
7 Make "ga" show the keymap for a character, if it exists.
  Also show the code of the character after conversion to 'fileencoding'.
- Use digraph table to tell Vim about the collating sequence of special
  characters?
8 Add command to remove one or more (all) digraphs. (Brown)
7 Support different sets of digraphs (depending on the character set?). At
  least Latin1/Unicode, Latin-2, MS-DOS (esp. for Win32).

Writing files:
- In vim_rename(), should lock "from" file when deleting "to" file for
  systems other than Amiga. Avoids problems with unexpected longname to
  shortname conversion.
8 write mch_isdevice() for Amiga, Mac, VMS, etc.
8 When appending to a file, Vim should also make a backup and a 'patchmode'
  file.
8 'backupskip' doesn't write a backup file at all, a bit dangerous for some
  applications. Add 'backupelsewhere' to write a backup file in another
  directory? Or add a flag to 'backupdir'?
6 Add an option to write a new, numbered, backup file each time. Like
  'patchmode', e.g., 'backupmode'.
6 Make it possible to write 'patchmode' files to a different directory.
  E.g., ":set patchmode=~/backups/*.orig". (Thomas)
6 Add an option to prepend something to the backup file name. E.g., "#".
  Or maybe allow a function to modify the backup file name?
8 Only make a backup when overwriting a file for the first time. Avoids
  losing the original when writing twice. (Slootman)
7 On non-Unix machines, also overwrite the original file in some situations
  (file system full, it's a link on an NFS partition).
7 When editing a file, check that it has been change outside of Vim more
  often, not only when writing over it. E.g., at the time the swap file is
  flushed. Or every ten seconds or so (use the time of day, check it before
  waiting for a character to be typed).
8 When a file was changed since editing started, show this in the status
  line of the window, like "[time]".
  Make it easier to reload all outdated files that don't have changes.
  Automatic and/or with a command.

Substitute:
8 Substitute with hex/unicode number "\%xff" and "\%uabcd". Just like
  "\%uabcd" in search pattern.
8 Make it easier to replace in all files in the argument list. E.g.:
  ":argsub/oldword/newword/". Works like ":argdo %s/oldword/newword/g|w".
- :s///p prints the line after a substitution.
- With :s///c replace \&, ~, etc. when showing the replacement pattern.
8 With :s///c allow scrolling horizontally when 'nowrap' is effective.
  Also allow a count before the scrolling keys.
- Add number option to ":s//2": replace second occurrence of string? Or:
  :s///N substitutes N times.
- Add answers to ":substitute" with 'c' flag, used in a ":global", e.g.:
  ":g/pat1/s/pat2/pat3/cg": 'A' do all remaining replacements, 'Q' don't do

    any replacements, 'u' undo last substitution.
7   Substitute in a block of text. Use {line}.{column} notation in an Ex
    range, e.g.: ":1.3,$.5s" means to substitute from line 1 column 3 to the
    last line column 5.
5   Add commands to bookmark lines, display bookmarks, remove bookmarks,
    operate on lines with bookmarks, etc. Like ":global" but with the
    possibility to keep the bookmarks and use them with several commands.
    (Stanislav Sitar)

Mouse support:
8   Add 'o' flag to 'mouse'?
7   Be able to set a 'mouseshape' for the popup menu.
8   Add 'mouse' flag, which sets a behavior like Visual mode, but automatic
    yanking at the button-up event. Or like Select mode, but typing gets you
    out of Select mode, instead of replacing the text. (Bhaskar)
-   Implement mouse support for the Amiga console.
-   Using right mouse button to extend a blockwise selection should attach to
    the nearest corner of the rectangle (four possible corners).
-   Precede mouse click by a number to simulate double clicks?!?
-   When mouse click after 'r' command, get character that was pointed to.

Argument list:
6   Add command to put all filenames from the tag files in the argument list.
    When given an argument, only use the files where that argument matches
    (like `grep -l ident`) and jump to the first match.
6   Add command to form an args list from all the buffers?

Registers:
8   Don't display empty registers with ":display". (Etienne)
8   Add put command that overwrites existing text. Should also work for
    blocks. Useful to move text around in a table. Works like using "R ^R r"
    for every line.
6   When yanking into the unnamed registers several times, somehow make the
    previous contents also available (like it's done for deleting). What
    register names to use? g"1, g"2, etc.?
-   When appending to a register, also report the total resulting number of
    lines. Or just say "99 more lines yanked", add the "more".
-   When inserting a register in Insert mode with CTRL-R, don't insert comment
    leader when line wraps?
-   The ":@r" commands should take a range and execute the register for each
    line in the range.
-   Add "P" command to insert contents of unnamed register, move selected text
        to position of previous deleted (to swap foo and bar in " + foo")
8   Should be able to yank and delete into the "/ register.
    How to take care of the flags (offset, magic)?

Debug mode:
8   Add breakpoints for setting an option
8   Add breakpoints for assigning to a variable.
7   Store the history from debug mode in viminfo.

7   Make the debug mode history available with histget() et al.

Various improvements:
7   Add plugins for formatting? Should be able to make a choice depending on
    the language of a file (English/Korean/Japanese/etc.).
    Setting the 'langformat' option to "chinese" would load the
    "format/chinese.vim" plugin.
    The plugin would set 'formatexpr' and define the function being called.
    Edward L. Fox explains how it should be done for most Asian languages.
    (2005 Nov 24)
    Alternative: patch for utf-8 line breaking. (Yongwei Wu, 2008 Feb 23)
7   [t to move to previous xml/html tag (like "vatov"),]t to move to next
    ("vatv").
7   [< to move to previous xml/html tag, e.g., previous <li>.]< to move to
    next <li>,]< to next , [< to previous .
8   Add ":rename" command: rename the file of the current buffer and rename
    the buffer. Buffer may be modified.
7   Instead of filtering errors with a shell script it should be possible to
    do this with Vim script. A function that filters the raw text that comes
    from the 'makeprg'?
-   Add %b to 'errorformat': buffer number. (Yegappan Lakshmanan / Suresh
    Govindachar)
7   Add a command that goes back to the position from before jumping to the
    first quickfix location. ":cbefore"?
7   Allow a window not to have a statusline. Makes it possible to use a
    window as a buffer-tab selection.
8   Allow non-active windows to have a different statusline. (Yakov Lerner)
7   Add an invisible buffer which can be edited. For use in scripts that want
    to manipulate text without changing the window layout.
8   Add a command to revert to the saved version of file; undo or redo until
    all changes are gone.
6   "vim -q -" should read the list of errors from stdin. (Gautam Mudunuri)
8   Add "--remote-fail": When contacting the server fails, exit Vim.
    Add "--remote-self": When contacting the server fails, do it in this Vim.
    Overrules the default of "--remote-send" to fail and "--remote" to do it
    in this Vim.
8   When Vim was started without a server, make it possible to start one, as
    if the "--servername" argument was given. ":startserver <name>"?
8   No address range can be used before the command modifiers. This makes
    them difficult to use in a menu for Visual mode. Accept the range and
    have it apply to the following command.
8   Add the possibility to set 'fileformats' to force a format and strip other
    CR characters. For example, for "dos" files remove CR characters at the
    end of the line, so that a file with mixed line endings is cleaned up.
    To just not display the CR characters: Add a flag to 'display'?
7   Some compilers give error messages in which the file name does not have a
    path. Be able to specify that 'path' is used for these files.
7   Xterm sends <Esc>O3F for <M-End>. Similarly for other <M-Home>, <M-Left>,
    etc. Combinations of Alt, Ctrl and Shift are also possible. Recognize
    these to avoid inserting the raw byte sequence, handle like the key
    without modifier (unless mapped).
6   Add "gG": like what "gj" is to "j": go to the N'th window line.
8   Add command like ":normal" that accepts <Key> notation like ":map".

```
9   Support ACLs on more systems.
7   Add ModeMsgVisual, ModeMsgInsert, etc. so that each mode message can be
    highlighted differently.
7   Add a message area for the user.  Set some option to reserve space (above
    the command line?).  Use an ":echouser" command to display the message
    (truncated to fit in the space).
7   Add %s to 'keywordprg': replace with word under the cursor. (Zellner)
8   Support printing on Unix.  Can use "lpansi.c" as an example. (Bookout)
8   Add put command that replaces the text under it.  Esp. for blockwise
    Visual mode.
7   Enhance termresponse stuff: Add t_CV(?): pattern of term response, use
    regexp: "\e\[[>?][0-9;]*c", but only check just after sending t_RV.
7   Add "g|" command: move to N'th column from the left margin (after wrapping
    and applying 'leftcol').  Works as "|" like what "g0" is to "0".
7   Support setting 'equalprg' to a user function name.
7   Highlight the characters after the end-of-line differently.
7   When 'whichwrap' contains "l", "$dl" should join lines?
8   Add an argument to configure to use $CFLAGS and not modify it? (Mooney)
8   Enabling features is a mix of configure arguments and defines in
    feature.h.  How to make this consistent?  Feature.h is required for
    non-unix systems.  Perhaps let configure define CONF_XXX, and use #ifdef
    CONF_XXX in feature.h?  Then what should min-features and max-features do?
8   Add "g^E" and "g^Y", to scroll a screen-full line up and down.
8   Add ":confirm" handling in open_exfile(), for when file already exists.
8   When quitting with changed files, make the dialog list the changed file
    and allow "write all", "discard all", "write some".  The last one would
    then ask "write" or "discard" for each changed file.  Patch in HierAssist
    does something like this. (Shah)
7   Use growarray for replace stack.
7   Have a look at viH (Hellenic or Greek version of Vim).  But a solution
    outside of Vim might be satisfactory (Haritsis).
3   Make "2d%" work like "d%d%" instead of "d2%"?
7   "g CTRL-O" jumps back to last used buffer.  Skip CTRL-O jumps in the same
    buffer.  Make jumplist remember the last ten accessed buffers?
7   Make it possible to set the size of the jumplist (also to a smaller number
    than the default). (Nikolai Weibull)
-   Add code to disable the CAPS key when going from Insert to Normal mode.
-   Set date/protection/etc. of the patchfile the same as the original file.
-   Use growarray for termcodes[] in term.c
-   Add <window-99>, like <cword> but use filename of 99'th window.
7   Add a way to change an operator to always work characterwise-inclusive
    (like "v" makes the operator characterwise-exclusive).  "x" could be used.
-   Make a set of operations on list of names: expand wildcards, replace home
    dir, append a string, delete a string, etc.
-   Remove using mktemp() and use tmpname() only?  Ctags does this.
-   When replacing environment variables, and there is one that is not set,
    turn it into an empty string?  Only when expanding options? (Hiebert)
-   Option to set command to be executed instead of producing a beep (e.g. to
    call "play newbeep.au").
-   Add option to show the current function name in the status line.  More or
    less what you find with "[[k", like how 'cindent' recognizes a function.
    (Bhatt).
-   "[r" and "]r": like "p" and "P", but replace instead of insert (esp. for
    blockwise registers).
```

```
-   Add 'timecheck' option, on by default.  Makes it possible to switch off the
    timestamp warning and question. (Dodt).
-   Add an option to set the time after which Vim should check the timestamps
    of the files.  Only check when an event occurs (e.g., character typed,
    mouse moved).  Useful for non-GUI versions where keyboard focus isn't
    noticeable.
-   Make 'smartcase' work even though 'ic' isn't set (Webb).
7   When formatting text, allow to break the line at a number of characters.
    Use an option for this: 'breakchars'?  Useful for formatting Fortran code.
-   Add flag to 'formatoptions' to be able to format book-style paragraphs
    (first line of paragraph has larger indent, no empty lines between
    paragraphs).  Complements the '2' flag.  Use '>' flag when larger indent
    starts a new paragraph, use '<' flag when smaller indent starts a new
    paragraph.  Both start a new paragraph on any indent change.
8   The 'a' flag in 'formatoptions' is too dangerous.  In some way only do
    auto-formatting in specific regions, e.g. defined by syntax highlighting.
8   Allow using a trailing space to signal a paragraph that continues on the
    next line (MIME text/plain; format=flowed, RFC 2646).  Can be used for
    continuous formatting.  Could use 'autoformat' option, which specifies a
    regexp which triggers auto-formatting (for one line).
    ":set autoformat=\\s$".
-   Be able to redefine where a sentence stops.  Use a regexp pattern?
-   Support multi-byte characters for sentences.  Example from Ben Peterson.
7   Add command "g)" to go to the end of a sentence, "g(" to go back to the
    end of a sentence. (Servatius Brandt)
-   Be able to redefine where a paragraph starts.  For "[[" where the '{' is
    not in column 1.
6   Add ":cdprev": go back to the previous directory.  Need to remember a
    stack of previous directories.  We also need ":cdnext".
7   Should ":cd" for MS-DOS go to $HOME, when it's defined?
-   Make "gq<CR>" work on the last line in the file.  Maybe for every operator?
-   Add more redirecting of Ex commands:
        :redir #>  bufname
        :redir #>> bufname   (append)
-   Give error message when starting :redir: twice or using END when no
    redirection was active.
-   Setting of options, specifically for a buffer or window, with
    ":set window.option" or ":set buffer.option=val".  Or use ":buffer.set".
    Also: "buffer.map <F1> quit".
6   Would it be possible to change the color of the cursor in the Win32
    console?  (Klaus Hast)
-   Add :delcr command:

                                :delcr
     :[range]delcr[!]   Check [range] lines (default: whole buffer) for lines
                        ending in <CR>.  If all lines end in <CR>, or [!] is
                        used, remove the <CR> at the end of lines in [range].
                        A CTRL-Z at the end of the file is removed.  If
                        [range] is omitted, or it is the whole file, and all
                        lines end in <CR> 'textmode' is set.  {not in Vi}
-   Should integrate addstar() and file_pat_to_reg_pat().
-   When working over a serial line with 7 bit characters, remove meta
    characters from 'isprint'.
-   Use fchdir() in init_homedir(), like in FullName().
-   In win_update(), when the GUI is active, always use the scrolling area.
```

    Avoid that the last status line is deleted and needs to be redrawn.
-   That "cTx" fails when the cursor is just after 'x' is Vi compatible, but
    may not be what you expect. Add a flag in 'cpoptions' for this? More
    general: Add an option to allow "c" to work with a null motion.
-   Give better error messages by using errno (strerror()).
-   Give "Usage:" error message when command used with wrong arguments (like
    Nvi).
-   Make 'restorescreen' option also work for xterm (and others), replaces the
    SAVE_XTERM_SCREEN define.
7   Support for ":winpos" In xterm: report the current window position.
-   Give warning message when using ":set t_xx=asdf" for a termcap code that
    Vim doesn't know about. Add flag in 'shortmess'?
6   Add ":che <file>", list all the include paths which lead to this file.
-   For a commandline that has several commands (:s, :d, etc.) summarize the
    changes all together instead of for each command (e.g. for the rot13
    macro).
-   Add command like "[I" that also shows the tree of included files.
-   ":set sm^L" results in ":set s", because short names of options are also
    expanded. Is there a better way to do this?
-   Add ":@!" command, to ":@" like what ":source!" is to ":source".
8   Add ":@:!": repeat last command with forceit set.
-   Add 't_normal': Used whenever t_me, t_se, t_ue or t_Zr is empty.
-   ":cab map test ^V| je", ":cunab map" doesn't work. This is vi compatible!
-   CTRL-W CTRL-E and CTRL-W CTRL-Y should move the current window up or down
    if it is not the first or last window.
-   Include-file-search commands should look in the loaded buffer of a file (if
    there is one) instead of the file itself.
7   Change 'nrformats' to include the leader for each format. Example:
        nrformats=hex:$,binary:b,octal:0
    Add setting of 'nrformats' to syntax files.
-   'path' can become very long, don't use NameBuff for expansion.
-   When unhiding a hidden buffer, put the same line at top of the window as
    the one before hiding it. Or: keep the same relative cursor position (so
    many percent down the windows).
-   Make it possible for the 'showbreak' to be displayed at the end of the
    line. Use a comma to separate the part at the end and the start of the
    line? Highlight the linebreak characters, add flag in 'highlight'.
    Make 'showbreak' local to a window.
-   Some string options should be expanded if they have wildcards, e.g.
    'dictionary' when it is "*.h".
-   Use a specific type for number and boolean options, making it possible to
    change it for specific machines (e.g. when a long is 64 bit).
-   Add option for <Insert> in replace mode going to normal mode. (Nugent)
-   Add a next/previous possibility to "[^I" and friends.
-   Add possibility to change the HOME directory. Use the directory from the
    passwd file? (Antwerpen)
8   Add commands to push and pop all or individual options. ":setpush tw",
    ":setpop tw", ":setpush all". Maybe pushing/popping all options is
    sufficient. ":setflush" resets the option stack?
    How to handle an aborted mapping? Remember position in tag stack when
    mapping starts, restore it when an error aborts the mapping?
-   Change ":fixdel" into option 'fixdel', t_del will be adjusted each time
    t_bs is set? (Webb)
-   "gc": goto character, move absolute character positions forward, also

counting newlines. "gC" goes backwards (Weigert).
- When doing CTRL-^, redraw buffer with the same topline. (Demirel) Store cursor row and window height to redraw cursor at same percentage of window (Webb).
- Besides remembering the last used line number of a file, also remember the column. Use it with CTRL-^ et. al.
- Check for non-digits when setting a number option (careful when entering hex codes like 0xff).
- Add option to make "." redo the "@r" command, instead of the last command executed by it. Also to make "." redo the whole mapping. Basically: redo the last TYPED command.
- Support URL links for ^X^F in Insert mode, like for "gf".
- Support %name% expansion for "gf" on Windows.
- Make "gf" work on "file://c:/path/name". "file:/c:/" and "file:///c:/" should also work?
- Add 'urlpath', used like 'path' for when "gf" used on a URL?
8 When using "gf" on an absolute file name, while editing a remote file (starts with scp:// or http://) should prepend the method and machine name.
- When finding a URL or file name, and it doesn't exist, try removing a trailing '.'.
- Add ":path" command modifier. Should work for every command that takes a file name argument, to search for the file name in 'path'. Use find_file_in_path().
- Highlight control characters on the screen: Shows the difference between CTRL-X and "^" followed by "X" (Colon).
- Integrate parsing of cmdline command and parsing for expansion.
- Create a program that can translate a .swp file from any machine into a form usable by Vim on the current machine.
- Add ":noro" command: Reset 'ro' flag for all buffers, except ones that have a readonly file. ":noro!" will reset all 'ro' flags.
- Add a variant of CTRL-V that stops interpretation of more than one character. For entering mappings on the command line where a key contains several special characters, e.g. a trailing newline.
- Make '2' option in 'formatoptions' also work inside comments.
- Add 's' flag to 'formatoptions': Do not break when inside a string. (Dodt)
- When window size changed (with the mouse) and made too small, set it back to the minimal size.
- Add "]>" and "[<", shift comment at end of line (command; /* comment */).
- Should not call cursorcmd() for each vgetc() in getcmdline().
- ":split file1 file2" adds two more windows (Webb).
- Don't give message "Incomplete last line" when editing binary file.
- Add ":a", ":i" for preloading of named buffers.
- When entering text, keep other windows on same buffer updated (when a line entered)?
- Check out how screen does output optimizing. Apparently this is possible as an output filter.
- In dosub() regexec is called twice for the same line. Try to avoid this.
- Window updating from memline.c: insert/delete/replace line.
- Optimize ml_append() for speed, esp. for reading a file.
- V..c should keep indent when 'ai' is set, just like [count]cc.
- Updatescript() can be done faster with a string instead of a char.
- Screen updating is inefficient with CTRL-F and CTRL-B when there are long lines.

- Uppercase characters in Ex commands can be made lowercase?
8 Add option to show characters in text not as "|A" but as decimal ("^129"), hex ("\x81") or octal ("\201") or meta (M-x). Nvi has the 'octal' option to switch from hex to octal. Vile can show unprintable characters in hex or in octal.
7 Tighter integration with xxd to edit binary files. Make it more easy/obvious to use. Command line argument?
- How does vi detect whether a filter has messed up the screen? Check source. After ":w !command" a wait_return?
- Improve screen updating code for doput() (use s_ins()).
- With 'p' command on last line: scroll screen up (also for terminals without insert line command).
- Use insert/delete char when terminal supports it.
- Optimize screen redraw for slow terminals.
- Optimize "dw" for long row of spaces (say, 30000).
- Add "-d null" for editing from a script file without displaying.
- In Insert mode: Remember the characters that were removed with backspace and re-insert them one at a time with <key1>, all together with <key2>.
- Amiga: Add possibility to set a keymap. The code in amiga.c does not work yet.
- Implement 'redraw' option.
- Add special code to 'sections' option to define something else but '{' or '}' as the start of a section (e.g. one shiftwidth to the right).
7 Allow using Vim in a pipe: "ls | vim -u xxx.vim - | yyy". Only needs implementing ":w" to stdout in the buffer that was read from stdin. Perhaps writing to stdout will work, since stderr is used for the terminal I/O.
8 Allow opening an unnamed buffer with ":e !cmd" and ":sp !cmd". Vile can do it.
- Add commands like]] and [[that do not include the line jumped to.
- When :unab without matching "from" part and several matching "to" parts, delete the entry that was used last, instead of the first in the list.
- Add text justification option.
- Set boolean options on/off with ":set paste=off", ":set paste=on".
- After "inv"ing an option show the value: ":set invpaste" gives "paste is off".
- Check handling of CTRL-V and '\' for ":" commands that do not have TRLBAR.
- When a file cannot be opened but does exist, give error message.
- Amiga: When 'r' protection bit is not set, file can still be opened but gives read errors. Check protection before opening.
- When writing check for file exists but no permission, "Permission denied".
- If file does not exist, check if directory exists.
- Settings edit mode: make file with ":set opt=xx", edit it, parse it as ex commands.
- ":set -w all": list one option per line.
- Amiga: test for 'w' flag when reading a file.
- :table command (Webb)
- Add new operator: clear, make area white (replace with spaces): "g ".
- Add command to ":read" a file at a certain column (blockwise read?).
- Add sort of replace mode where case is taken from the old text (Goldfarb).
- Allow multiple arguments for ":read", read all the files.
- Support for tabs in specific columns: ":set tabcol=8,20,34,56" (Demirel).
- Add 'searchdir' option: Directories to search for file name being edited (Demirel).

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-   Modifier for the put command: Change to linewise, charwise, blockwise, etc.
-   Add commands for saving and restoring options ":set save" "set restore",
    for use in macro's and the like.
-   Keep output from listings in a window, so you can have a look at it while
    working in another window.  Put cmdline in a separate window?
-   Add possibility to put output of Ex commands in a buffer or file, e.g. for
    ":set all".  ":r :set all"?
-   When the 'equalalways' option is set, creating a new window should not
    result in windows to become bigger.  Deleting a window should not result in
    a window to become smaller (Webb).
-   When resizing the whole Vim window, the windows inside should be resized
    proportionally (Webb).
-   Include options directly in option table, no indirect pointers.  Use
    mkopttab to make option table?
-   When doing ":w dir", where "dir" is a directory name, write the current
    file into that directory, with the current file name (without the path)?
-   Support for 'dictionary's that are sorted, makes access a lot faster
    (Haritsis).
-   Add "^Vrx" on the command line, replace with contents of register x.  Used
    instead of CTRL-R to make repeating possible. (Marinichev)
-   Add "^Vb" on the command line, replace with word before or under the
    cursor?
-   Support mapping for replace mode and "r" command (Vi doesn't do this)?
8   Sorting of filenames for completion is wrong on systems that ignore
    case of filenames.  Add 'ignorefncase' option.  When set, case in
    filenames is ignored for sorting them. Patch by Mike Williams:
    ~/vim/patches/ignorefncase.  Also change what matches?  Or use another
    option name.
8   Should be able to compile Vim in another directory, with $(srcdir) set to
    where the sources are. Add $(srcdir) in the Makefile in a lot of places.
    (Netherton)
6   Make it configurable when "J" inserts a space or not.  Should not add a
    space after "(", for example.
5   When inserting spaces after the end-of-line for 'virtualedit', use tabs
    when the user wants this (e.g., add a "tab" field to 'virtualedit').
    (Servatius Brandt)


From Elvis:
-   Use "instman.sh" to install manpages?
-   Add ":alias" command.
-   Search patterns:
      \@        match word under cursor.
    but do:
      \@w       match the word under the cursor?
      \@W       match the WORD under the cursor?
8   ":window" command:
    :win +      next window (up)
    :win ++     idem, wrapping
    :win -      previous window (down)
    :win --     idem, wrapping
    :win nr     to window number "nr"
    :win name   to window editing buffer "name"
7   ":cc" compiles a single file (default: current one).  'ccprg'   option is
```

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    program to use with ":cc".  Use ":compile" instead of ":cc"?


From xvi:
-   CTRL-_ : swap 8th bit of character.
-   Add egrep-like regex type, like xvi (Ned Konz) or Perl (Emmanuel Mogenet)


From vile:
-   When horizontal scrolling, use '>' for lines continuing right of a window.
-   Support putting .swp files in /tmp: Command in rc.local to move .swp files
    from /tmp to some directory before deleting files.


Far future and "big" extensions:
-   Instead of using a Makefile and autoconf, use a simple shell script to
    find the C compiler and do everything with C code.  Translate something
    like an Aap recipe and configure.ac to C.  Avoids depending on Python,
    thus will work everywhere.  With batch file to find the C compiler it
    would also work on MS-Windows.
-   Make it easy to setup Vim for groups of users: novice vi users, novice
    Vim users, C programmers, xterm users, GUI users,...
-   Change layout of blocks in swap file: Text at the start, with '\n' in
    between lines (just load the file without changes, except for Mac).
    Indexes for lines are from the end of the block backwards.  It's the
    current layout mirrored.
-   Make it possible to edit a register, in a window, like a buffer.
-   Add stuff to syntax highlighting to change the text (upper-case keywords,
    set indent, define other highlighting, etc.).
-   Mode to keep C-code formatted all the time (sort of on-line indent).
-   Several top-level windows in one Vim session.  Be able to use a different
    font in each top-level window.
-   Allow editing above start and below end of buffer (flag in 'virtualedit').
-   Smart cut/paste: recognize words and adjust spaces before/after them.
-   Add open mode, use it when terminal has no cursor positioning.
-   Special "drawing mode": a line is drawn where the cursor is moved to.
    Backspace deletes along the line (from jvim).
-   Support for underlining (underscore-BS-char), bold (char-BS-char) and other
    standout modes switched on/off with , 'overstrike' option (Reiter).
-   Add vertical mode (Paul Jury, Demirel): "5vdw" deletes a word in five
    lines, "3vitextESC" will insert "text" in three lines, etc..
4   Recognize l, #, p as 'flags' to EX commands:
    :g/RE/#l shall print lines with line numbers and in list format.
    :g/RE/dp shall print lines that are deleted.
    POSIX: Commands where flags shall apply to all lines written: list,
    number, open, print, substitute, visual, &, z.  For other commands, flags
    shall apply to the current line after the command completes.  Examples:
    :7,10j #l Join the lines 7-10 and print the result in list
-   Allow two or more users to edit the same file at the same time.  Changes
    are reflected in each Vim immediately.  Could work with local files but
    also over the internet.  See http://www.codingmonkeys.de/subethaedit/.

vim:tw=78:sw=4:sts=4:ts=8:ft=help:norl:
vim: set fo+=n :
```

develop.txt For Vim version 8.1. Last change: 2018 May 02

VIM REFERENCE MANUAL by Bram Moolenaar

Development of Vim. development

This text is important for those who want to be involved in further developing Vim.

See the file README.txt in the "src" directory for an overview of the source code.

Vim is open source software. Everybody is encouraged to contribute to help improving Vim. For sending patches a unified diff "diff -u" is preferred.
You can create a pull request on github, but it's not required.
Also see http://vim.wikia.com/wiki/How_to_make_and_submit_a_patch.

==
1. Design goals design-goals

Most important things come first (roughly).

Note that quite a few items are contradicting. This is intentional. A balance must be found between them.

VIM IS... VI COMPATIBLE design-compatible

First of all, it should be possible to use Vim as a drop-in replacement for Vi. When the user wants to, he can use Vim in compatible mode and hardly notice any difference with the original Vi.

Exceptions:
- We don't reproduce obvious Vi bugs in Vim.
- There are different versions of Vi. I am using Version 3.7 (6/7/85) as a reference. But support for other versions is also included when possible. The Vi part of POSIX is not considered a definitive source.
- Vim adds new commands, you cannot rely on some command to fail because it didn't exist in Vi.
- Vim will have a lot of features that Vi doesn't have. Going back from Vim to Vi will be a problem, this cannot be avoided.
- Some things are hardly ever used (open mode, sending an e-mail when crashing, etc.). Those will only be included when someone has a good reason why it should be included and it's not too much work.
- For some items it is debatable whether Vi compatibility should be maintained. There will be an option flag for these.

VIM IS... IMPROVED design-improved

The IMproved bits of Vim should make it a better Vi, without becoming a
completely different editor. Extensions are done with a "Vi spirit".
- Use the keyboard as much as feasible. The mouse requires a third hand,
  which we don't have. Many terminals don't have a mouse.
- When the mouse is used anyway, avoid the need to switch back to the
  keyboard. Avoid mixing mouse and keyboard handling.
- Add commands and options in a consistent way. Otherwise people will have a
  hard time finding and remembering them. Keep in mind that more commands and
  options will be added later.
- A feature that people do not know about is a useless feature. Don't add
  obscure features, or at least add hints in documentation that they exist.
- Minimize using CTRL and other modifiers, they are more difficult to type.
- There are many first-time and inexperienced Vim users. Make it easy for
  them to start using Vim and learn more over time.
- There is no limit to the features that can be added. Selecting new features
  is one based on (1) what users ask for, (2) how much effort it takes to
  implement and (3) someone actually implementing it.

VIM IS... MULTI PLATFORM design-multi-platform

Vim tries to help as many users on as many platforms as possible.
- Support many kinds of terminals. The minimal demands are cursor positioning
  and clear-screen. Commands should only use key strokes that most keyboards
  have. Support all the keys on the keyboard for mapping.
- Support many platforms. A condition is that there is someone willing to do
  Vim development on that platform, and it doesn't mean messing up the code.
- Support many compilers and libraries. Not everybody is able or allowed to
  install another compiler or GUI library.
- People switch from one platform to another, and from GUI to terminal
  version. Features should be present in all versions, or at least in as many
  as possible with a reasonable effort. Try to avoid that users must switch
  between platforms to accomplish their work efficiently.
- That a feature is not possible on some platforms, or only possible on one
  platform, does not mean it cannot be implemented. [This intentionally
  contradicts the previous item, these two must be balanced.]

VIM IS... WELL DOCUMENTED design-documented

- A feature that isn't documented is a useless feature. A patch for a new
  feature must include the documentation.
- Documentation should be comprehensive and understandable. Using examples is
  recommended.
- Don't make the text unnecessarily long. Less documentation means that an
  item is easier to find.

VIM IS... HIGH SPEED AND SMALL IN SIZE design-speed-size

Using Vim must not be a big attack on system resources. Keep it small and

fast.
- Computers are becoming faster and bigger each year. Vim can grow too, but
  no faster than computers are growing. Keep Vim usable on older systems.
- Many users start Vim from a shell very often. Startup time must be short.
- Commands must work efficiently. The time they consume must be as small as
  possible. Useful commands may take longer.
- Don't forget that some people use Vim over a slow connection. Minimize the
  communication overhead.
- Items that add considerably to the size and are not used by many people
  should be a feature that can be disabled.
- Vim is a component among other components. Don't turn it into a massive
  application, but have it work well together with other programs.

VIM IS... MAINTAINABLE   design-maintain

- The source code should not become a mess. It should be reliable code.
- Use the same layout in all files to make it easy to read coding-style .
- Use comments in a useful way! Quoting the function name and argument names
  is NOT useful. Do explain what they are for.
- Porting to another platform should be made easy, without having to change
  too much platform-independent code.
- Use the object-oriented spirit: Put data and code together. Minimize the
  knowledge spread to other parts of the code.

VIM IS... FLEXIBLE   design-flexible

Vim should make it easy for users to work in their preferred styles rather
than coercing its users into particular patterns of work. This can be for
items with a large impact (e.g., the 'compatible' option) or for details. The
defaults are carefully chosen such that most users will enjoy using Vim as it
is. Commands and options can be used to adjust Vim to the desire of the user
and its environment.

VIM IS... NOT   design-not

- Vim is not a shell or an Operating System. It does provide a terminal
  window, in which you can run a shell or debugger. E.g. to be able to do
  this over an ssh connection. But if you don't need a text editor with that
  it is out of scope (use something like screen or tmux instead).
  A satirical way to say this: "Unlike Emacs, Vim does not attempt to include
  everything but the kitchen sink, but some people say that you can clean one
  with it. ;-)"
  To use Vim with gdb see: http://www.agide.org and http://clewn.sf.net.
- Vim is not a fancy GUI editor that tries to look nice at the cost of
  being less consistent over all platforms. But functional GUI features are
  welcomed.

==
2. Coding style   coding-style

These are the rules to use when making changes to the Vim source code. Please

stick to these rules, to keep the sources readable and maintainable.

This list is not complete. Look in the source code for more examples.

MAKING CHANGES style-changes

The basic steps to make changes to the code:
1. Get the code from github. That makes it easier to keep your changed
   version in sync with the main code base (it may be a while before your
   changes will be included). You do need to spend some time learning git,
   it's not the most user friendly tool.
2. Adjust the documentation. Doing this first gives you an impression of how
   your changes affect the user.
3. Make the source code changes.
4. Check ../doc/todo.txt if the change affects any listed item.
5. Make a patch with "git diff". You can also create a pull request on
   github, but it's the diff that matters.
6. Make a note about what changed, preferably mentioning the problem and the
   solution. Send an email to the vim-dev maillist with an explanation and
   include the diff. Or create a pull request on github.

C COMPILER style-compiler ANSI-C C89 C99

The minimal C compiler version supported is C89, also known as ANSI C.
Later standards, such as C99, are not widely supported, or at least not 100%
supported. Therefore we use only some of the C99 features and disallow some
(at least for now).

Please don't make changes everywhere to use the C99 features, it causes merge
problems for existing patches. Only use them for new and changed code.

Comments

Traditionally Vim uses /* comments */. We intend to keep it that way,
especially for file and function headers. For new code or lines of code that
change, it is allowed to use // comments. Especially when it comes after
code:

```
        int some_var;  // single line comment useful here
```

Enums

The last item in an enum may have a trailing comma. C89 didn't allow this.

Types

"long long" is allowed and can be expected to be 64 bits. Use %lld in printf
formats. Also "long long unsigned" with %llu.

Not to be used

These C99 features are not to be used, because not enough compilers support
them:

- Declaration after Statements (MSVC 2012 does not support it). All
  declarations need to be at the start of the block.
- Variable length arrays (even in C11 this is an optional feature).
- _Bool and _Complex types.
- "inline" (it's hardly ever needed, let the optimizer do its work)
- flexible array members: Not supported by HP-UX C compiler (John Marriott)

USE OF COMMON FUNCTIONS style-functions

Some functions that are common to use, have a special Vim version. Always
consider using the Vim version, because they were introduced with a reason.

NORMAL NAME	VIM NAME	DIFFERENCE OF VIM VERSION
free()	vim_free()	Checks for freeing NULL
malloc()	alloc()	Checks for out of memory situation
malloc()	lalloc()	Like alloc(), but has long argument
strcpy()	STRCPY()	Includes cast to (char *), for char_u * args
strchr()	vim_strchr()	Accepts special characters
strrchr()	vim_strrchr()	Accepts special characters
isspace()	vim_isspace()	Can handle characters > 128
iswhite()	vim_iswhite()	Only TRUE for tab and space
memcpy()	mch_memmove()	Handles overlapped copies
bcopy()	mch_memmove()	Handles overlapped copies
memset()	vim_memset()	Uniform for all systems

NAMES style-names

Function names can not be more than 31 characters long (because of VMS).

Don't use "delete" or "this" as a variable name, C++ doesn't like it.

Because of the requirement that Vim runs on as many systems as possible, we
need to avoid using names that are already defined by the system. This is a
list of names that are known to cause trouble. The name is given as a regexp
pattern.

is.*()	POSIX, ctype.h
to.*()	POSIX, ctype.h
d_.*	POSIX, dirent.h
l_.*	POSIX, fcntl.h
gr_.*	POSIX, grp.h
pw_.*	POSIX, pwd.h
sa_.*	POSIX, signal.h
mem.*	POSIX, string.h
str.*	POSIX, string.h
wcs.*	POSIX, string.h
st_.*	POSIX, stat.h
tms_.*	POSIX, times.h
tm_.*	POSIX, time.h
c_.*	POSIX, termios.h
MAX.*	POSIX, limits.h

```
__.*            POSIX, system
_[A-Z].*        POSIX, system
E[A-Z0-9]*      POSIX, errno.h

.*_t            POSIX, for typedefs.  Use .*_T instead.

wait            don't use as argument to a function, conflicts with types.h
index           shadows global declaration
time            shadows global declaration
new             C++ reserved keyword
try             Borland C++ doesn't like it to be used as a variable.

clear           Mac curses.h
echo            Mac curses.h
instr           Mac curses.h
meta            Mac curses.h
newwin          Mac curses.h
nl              Mac curses.h
overwrite       Mac curses.h
refresh         Mac curses.h
scroll          Mac curses.h
typeahead       Mac curses.h

basename()      GNU string function
dirname()       GNU string function
get_env_value() Linux system function
```

VARIOUS style-various

```
Typedef'ed names should end in "_T":
    typedef int some_T;
Define'ed names should be uppercase:
    #define SOME_THING
Features always start with "FEAT_":
    #define FEAT_FOO

Don't use '\"', some compilers can't handle it.  '"' works fine.

Don't use:
    #if HAVE_SOME
Some compilers can't handle that and complain that "HAVE_SOME" is not defined.
Use
    #ifdef HAVE_SOME
or
    #if defined(HAVE_SOME)
```

STYLE style-examples

```
General rule: One statement per line.

Wrong:      if (cond) a = 1;
```

```
OK:         if (cond)
                a = 1;

Wrong:      while (cond);

OK:         while (cond)
                ;

Wrong:      do a = 1; while (cond);

OK:         do
                a = 1;
            while (cond);

Wrong:      if (cond) {
               cmd;
               cmd;
            } else {
               cmd;
               cmd;
            }

OK:         if (cond)
            {
               cmd;
               cmd;
            }
            else
            {
               cmd;
               cmd;
            }
```

Use ANSI (new style) function declarations with the return type on a separate indented line.

```
Wrong:  int function_name(int arg1, int arg2)

OK:     /*
         * Explanation of what this function is used for.
         *
         * Return value explanation.
         */
            int
        function_name(
            int         arg1,           /* short comment about arg1 */
            int         arg2)           /* short comment about arg2 */
        {
            int         local;          /* comment about local */

            local = arg1 * arg2;
```

SPACES AND PUNCTUATION style-spaces

No space between a function name and the bracket:

```
Wrong:  func (arg);
OK:     func(arg);
```

Do use a space after if, while, switch, etc.

```
Wrong:  if(arg)         for(;;)
OK:     if (arg)        for (;;)
```

Use a space after a comma and semicolon:

```
Wrong:  func(arg1,arg2);        for (i = 0;i < 2;++i)
OK:     func(arg1, arg2);       for (i = 0; i < 2; ++i)
```

Use a space before and after '=', '+', '/', etc.

```
Wrong:  var=a*5;
OK:     var = a * 5;
```

In general: Use empty lines to group lines of code together. Put a comment just above the group of lines. This makes it easier to quickly see what is being done.

```
OK:     /* Prepare for building the table. */
        get_first_item();
        table_idx = 0;

        /* Build the table */
        while (has_item())
            table[table_idx++] = next_item();

        /* Finish up. */
        cleanup_items();
        generate_hash(table);
```

==========

3. Design decisions design-decisions

Folding

Several forms of folding should be possible for the same buffer. For example, have one window that shows the text with function bodies folded, another window that shows a function body.

Folding is a way to display the text. It should not change the text itself. Therefore the folding has been implemented as a filter between the text stored in a buffer (buffer lines) and the text displayed in a window (logical lines).

Naming the window

The word "window" is commonly used for several things: A window on the screen,
the xterm window, a window inside Vim to view a buffer.
To avoid confusion, other items that are sometimes called window have been
given another name. Here is an overview of the related items:

screen	The whole display. For the GUI it's something like 1024x768 pixels. The Vim shell can use the whole screen or part of it.
shell	The Vim application. This can cover the whole screen (e.g., when running in a console) or part of it (xterm or GUI).
window	View on a buffer. There can be several windows in Vim, together with the command line, menubar, toolbar, etc. they fit in the shell.

Spell checking develop-spell

When spell checking was going to be added to Vim a survey was done over the
available spell checking libraries and programs. Unfortunately, the result
was that none of them provided sufficient capabilities to be used as the spell
checking engine in Vim, for various reasons:

- Missing support for multi-byte encodings. At least UTF-8 must be supported,
  so that more than one language can be used in the same file.
  Doing on-the-fly conversion is not always possible (would require iconv
  support).
- For the programs and libraries: Using them as-is would require installing
  them separately from Vim. That's mostly not impossible, but a drawback.
- Performance: A few tests showed that it's possible to check spelling on the
  fly (while redrawing), just like syntax highlighting. But the mechanisms
  used by other code are much slower. Myspell uses a hashtable, for example.
  The affix compression that most spell checkers use makes it slower too.
- For using an external program like aspell a communication mechanism would
  have to be setup. That's complicated to do in a portable way (Unix-only
  would be relatively simple, but that's not good enough). And performance
  will become a problem (lots of process switching involved).
- Missing support for words with non-word characters, such as "Etten-Leur" and
  "et al.", would require marking the pieces of them OK, lowering the
  reliability.
- Missing support for regions or dialects. Makes it difficult to accept
  all English words and highlight non-Canadian words differently.
- Missing support for rare words. Many words are correct but hardly ever used
  and could be a misspelled often-used word.
- For making suggestions the speed is less important and requiring to install
  another program or library would be acceptable. But the word lists probably
  differ, the suggestions may be wrong words.

Spelling suggestions develop-spell-suggestions

For making suggestions there are two basic mechanisms:
1. Try changing the bad word a little bit and check for a match with a good
   word. Or go through the list of good words, change them a little bit and
   check for a match with the bad word. The changes are deleting a character,
   inserting a character, swapping two characters, etc.

2. Perform soundfolding on both the bad word and the good words and then find
   matches, possibly with a few changes like with the first mechanism.

The first is good for finding typing mistakes. After experimenting with hashtables and looking at solutions from other spell checkers the conclusion was that a trie (a kind of tree structure) is ideal for this. Both for reducing memory use and being able to try sensible changes. For example, when inserting a character only characters that lead to good words need to be tried. Other mechanisms (with hashtables) need to try all possible letters at every position in the word. Also, a hashtable has the requirement that word boundaries are identified separately, while a trie does not require this. That makes the mechanism a lot simpler.

Soundfolding is useful when someone knows how the words sounds but doesn't know how it is spelled. For example, the word "dictionary" might be written as "daktonerie". The number of changes that the first method would need to try is very big, it's hard to find the good word that way. After soundfolding the words become "tktnr" and "tkxnry", these differ by only two letters.

To find words by their soundfolded equivalent (soundalike word) we need a list of all soundfolded words. A few experiments have been done to find out what the best method is. Alternatives:
1. Do the sound folding on the fly when looking for suggestions. This means
   walking through the trie of good words, soundfolding each word and
   checking how different it is from the bad word. This is very efficient for
   memory use, but takes a long time. On a fast PC it takes a couple of
   seconds for English, which can be acceptable for interactive use. But for
   some languages it takes more than ten seconds (e.g., German, Catalan),
   which is unacceptable slow. For batch processing (automatic corrections)
   it's too slow for all languages.
2. Use a trie for the soundfolded words, so that searching can be done just
   like how it works without soundfolding. This requires remembering a list
   of good words for each soundfolded word. This makes finding matches very
   fast but requires quite a lot of memory, in the order of 1 to 10 Mbyte.
   For some languages more than the original word list.
3. Like the second alternative, but reduce the amount of memory by using affix
   compression and store only the soundfolded basic word. This is what Aspell
   does. Disadvantage is that affixes need to be stripped from the bad word
   before soundfolding it, which means that mistakes at the start and/or end
   of the word will cause the mechanism to fail. Also, this becomes slow when
   the bad word is quite different from the good word.

The choice made is to use the second mechanism and use a separate file. This way a user with sufficient memory can get very good suggestions while a user who is short of memory or just wants the spell checking and no suggestions doesn't use so much memory.

Word frequency

For sorting suggestions it helps to know which words are common. In theory we could store a word frequency with the word in the dictionary. However, this requires storing a count per word. That degrades word tree compression a lot. And maintaining the word frequency for all languages will be a heavy task.

Also, it would be nice to prefer words that are already in the text. This way the words that appear in the specific text are preferred for suggestions.

What has been implemented is to count words that have been seen during displaying. A hashtable is used to quickly find the word count. The count is initialized from words listed in COMMON items in the affix file, so that it also works when starting a new file.

This isn't ideal, because the longer Vim is running the higher the counts become. But in practice it is a noticeable improvement over not using the word count.

==
4. Assumptions design-assumptions

Size of variables:
char   8 bit signed
char_u   8 bit unsigned
int   32 or 64 bit signed (16 might be possible with limited features)
unsigned   32 or 64 bit unsigned (16 as with ints)
long   32 or 64 bit signed, can hold a pointer

Note that some compilers cannot handle long lines or strings. The C89 standard specifies a limit of 509 characters.

 vim:tw=78:ts=8:noet:ft=help:norl:

debug.txt For Vim version 8.1. Last change: 2017 Jul 15

VIM REFERENCE MANUAL by Bram Moolenaar

Debugging Vim debug-vim

This is for debugging Vim itself, when it doesn't work properly.
For debugging Vim scripts, functions, etc. see debug-scripts

==

1. Location of a crash, using gcc and gdb debug-gcc gdb

When Vim crashes in one of the test files, and you are using gcc for
compilation, here is what you can do to find out exactly where Vim crashes.
This also applies when using the MingW tools.

1. Compile Vim with the "-g" option (there is a line in the src/Makefile for
   this, which you can uncomment). Also make sure "strip" is disabled (do not
   install it, or use the line "STRIP = /bin/true").

2. Execute these commands (replace "11" with the test that fails):
        cd testdir
        gdb ../vim
        run -u unix.vim -U NONE -s dotest.in test11.in

3. Check where Vim crashes, gdb should give a message for this.

4. Get a stack trace from gdb with this command:
        where
  You can check out different places in the stack trace with:
        frame 3
  Replace "3" with one of the numbers in the stack trace.

==

2. Locating memory leaks debug-leaks valgrind

If you suspect Vim is leaking memory and you are using Linux, the valgrind
tool is very useful to pinpoint memory leaks.

First of all, build Vim with EXITFREE defined. Search for this in MAKEFILE
and uncomment the line.

Use this command to start Vim:

        valgrind --log-file=valgrind.log --leak-check=full ./vim

Note: Vim will run much slower. If your .vimrc is big or you have several plugins you need to be patient for startup, or run with the "--clean" argument.

There are often a few leaks from libraries, such as getpwuid() and XtVaAppCreateShell(). Those are unavoidable. The number of bytes should be very small a Kbyte or less.

==

3. Windows Bug Reporting debug-win32

If the Windows version of Vim crashes in a reproducible manner, you can take some steps to provide a useful bug report.

3.1 GENERIC

You must obtain the debugger symbols (PDB) file for your executable: gvim.pdb for gvim.exe, or vim.pdb for vim.exe. The PDB should be available from the same place that you obtained the executable. Be sure to use the PDB that matches the EXE (same date).

If you built the executable yourself with the Microsoft Visual C++ compiler, then the PDB was built with the EXE.

Alternatively, if you have the source files, you can import Make_ivc.mak into Visual Studio as a workspace. Then select a debug configuration, build and you can do all kinds of debugging (set breakpoints, watch variables, etc.).

If you have Visual Studio, use that instead of the VC Toolkit and WinDbg.

For other compilers, you should always use the corresponding debugger: TD for a Vim executable compiled with the Borland compiler; gdb (see above debug-gcc) for the Cygwin and MinGW compilers.

3.2 Debugging Vim crashes with Visual Studio 2005/Visual C++ 2005 Express debug-vs2005

First launch vim.exe or gvim.exe and then launch Visual Studio. (If you don't have Visual Studio, follow the instructions at get-ms-debuggers to obtain a free copy of Visual C++ 2005 Express Edition.)

On the Tools menu, click Attach to Process. Choose the Vim process.

In Vim, reproduce the crash. A dialog will appear in Visual Studio, telling you about the unhandled exception in the Vim process. Click Break to break into the process.

Visual Studio will pop up another dialog, telling you that no symbols are loaded and that the source code cannot be displayed. Click OK.

Several windows will open. Right-click in the Call Stack window. Choose Load

Symbols. The Find Symbols dialog will open, looking for (g)vim.pdb. Navigate to the directory where you have the PDB file and click Open.

At this point, you should have a full call stack with vim function names and line numbers. Double-click one of the lines and the Find Source dialog will appear. Navigate to the directory where the Vim source is (if you have it.)

If you don't know how to debug this any further, follow the instructions at ":help bug-reports". Paste the call stack into the bug report.

If you have a non-free version of Visual Studio, you can save a minidump via the Debug menu and send it with the bug report. A minidump is a small file (<100KB), which contains information about the state of your process. Visual C++ 2005 Express Edition cannot save minidumps and it cannot be installed as a just-in-time debugger. Use WinDbg, debug-windbg , if you need to save minidumps or you want a just-in-time (postmortem) debugger.

debug-windbg

3.3 Debugging Vim crashes with WinDbg

See get-ms-debuggers to obtain a copy of WinDbg.

As with the Visual Studio IDE, you can attach WinDbg to a running Vim process. You can also have your system automatically invoke WinDbg as a postmortem debugger. To set WinDbg as your postmortem debugger, run "windbg -I".

To attach WinDbg to a running Vim process, launch WinDbg. On the File menu, choose Attach to a Process. Select the Vim process and click OK.

At this point, choose Symbol File Path on the File menu, and add the folder containing your Vim PDB to the sympath. If you have Vim source available, use Source File Path on the File menu. You can now open source files in WinDbg and set breakpoints, if you like. Reproduce your crash. WinDbg should open the source file at the point of the crash. Using the View menu, you can examine the call stack, local variables, watch windows, and so on.

If WinDbg is your postmortem debugger, you do not need to attach WinDbg to your Vim process. Simply reproduce the crash and WinDbg will launch automatically. As above, set the Symbol File Path and the Source File Path.

To save a minidump, type the following at the WinDbg command line:

```
.dump vim.dmp
```

debug-minidump

3.4 Opening a Minidump

If you have a minidump file, you can open it in Visual Studio or in WinDbg.

In Visual Studio 2005: on the File menu, choose Open, then Project/Solution. Navigate to the .dmp file and open it. Now press F5 to invoke the debugger. Follow the instructions in debug-vs2005 to set the Symbol File Path.

In WinDbg: choose Open Crash Dump on the File menu. Follow the instructions in debug-windbg to set the Symbol File Path.

get-ms-debuggers

3.5 Obtaining Microsoft Debugging Tools

The Debugging Tools for Windows (including WinDbg) can be downloaded from
    http://www.microsoft.com/whdc/devtools/debugging/default.mspx
This includes the WinDbg debugger.

Visual C++ 2005 Express Edition can be downloaded for free from:
    http://msdn.microsoft.com/vstudio/express/visualC/default.aspx

==
 vim:tw=78:ts=8:noet:ft=help:norl:

uganda.txt For Vim version 8.1. Last change: 2018 May 17

VIM REFERENCE MANUAL by Bram Moolenaar

uganda Uganda copying copyright license

SUMMARY

iccf ICCF

Vim is Charityware. You can use and copy it as much as you like, but you are encouraged to make a donation for needy children in Uganda. Please see kcc below or visit the ICCF web site, available at these URLs:

        http://iccf-holland.org/
        http://www.vim.org/iccf/
        http://www.iccf.nl/

You can also sponsor the development of Vim. Vim sponsors can vote for features. See sponsor . The money goes to Uganda anyway.

The Open Publication License applies to the Vim documentation, see manual-copyright .

=== begin of license ===

VIM LICENSE

I) There are no restrictions on distributing unmodified copies of Vim except
    that they must include this license text. You can also distribute
    unmodified parts of Vim, likewise unrestricted except that they must
    include this license text. You are also allowed to include executables
    that you made from the unmodified Vim sources, plus your own usage
    examples and Vim scripts.

II) It is allowed to distribute a modified (or extended) version of Vim,
    including executables and/or source code, when the following four
    conditions are met:
    1) This license text must be included unmodified.
    2) The modified Vim must be distributed in one of the following five ways:
       a) If you make changes to Vim yourself, you must clearly describe in
          the distribution how to contact you. When the maintainer asks you
          (in any way) for a copy of the modified Vim you distributed, you
          must make your changes, including source code, available to the
          maintainer without fee. The maintainer reserves the right to
          include your changes in the official version of Vim. What the
          maintainer will do with your changes and under what license they
          will be distributed is negotiable. If there has been no negotiation
          then this license, or a later version, also applies to your changes.
          The current maintainer is Bram Moolenaar <Bram@vim.org>. If this
          changes it will be announced in appropriate places (most likely
          vim.sf.net, www.vim.org and/or comp.editors). When it is completely
          impossible to contact the maintainer, the obligation to send him
          your changes ceases. Once the maintainer has confirmed that he has
          received your changes they will not have to be sent again.

b) If you have received a modified Vim that was distributed as
   mentioned under a) you are allowed to further distribute it
   unmodified, as mentioned at I). If you make additional changes the
   text under a) applies to those changes.
c) Provide all the changes, including source code, with every copy of
   the modified Vim you distribute. This may be done in the form of a
   context diff. You can choose what license to use for new code you
   add. The changes and their license must not restrict others from
   making their own changes to the official version of Vim.
d) When you have a modified Vim which includes changes as mentioned
   under c), you can distribute it without the source code for the
   changes if the following three conditions are met:
   - The license that applies to the changes permits you to distribute
     the changes to the Vim maintainer without fee or restriction, and
     permits the Vim maintainer to include the changes in the official
     version of Vim without fee or restriction.
   - You keep the changes for at least three years after last
     distributing the corresponding modified Vim. When the maintainer
     or someone who you distributed the modified Vim to asks you (in
     any way) for the changes within this period, you must make them
     available to him.
   - You clearly describe in the distribution how to contact you. This
     contact information must remain valid for at least three years
     after last distributing the corresponding modified Vim, or as long
     as possible.
e) When the GNU General Public License (GPL) applies to the changes,
   you can distribute the modified Vim under the GNU GPL version 2 or
   any later version.
3) A message must be added, at least in the output of the ":version"
   command and in the intro screen, such that the user of the modified Vim
   is able to see that it was modified. When distributing as mentioned
   under 2)e) adding the message is only required for as far as this does
   not conflict with the license used for the changes.
4) The contact information as required under 2)a) and 2)d) must not be
   removed or changed, except that the person himself can make
   corrections.

III) If you distribute a modified version of Vim, you are encouraged to use
     the Vim license for your changes and make them available to the
     maintainer, including the source code. The preferred way to do this is
     by e-mail or by uploading the files to a server and e-mailing the URL.
     If the number of changes is small (e.g., a modified Makefile) e-mailing a
     context diff will do. The e-mail address to be used is
     <maintainer@vim.org>

IV) It is not allowed to remove this license from the distribution of the Vim
     sources, parts of it or from a modified version. You may use this
     license for previous Vim releases instead of the license that they came
     with, at your option.

=== end of license ===

Note:

- If you are happy with Vim, please express that by reading the rest of this
  file and consider helping needy children in Uganda.

- If you want to support further Vim development consider becoming a
  sponsor . The money goes to Uganda anyway.

- According to Richard Stallman the Vim license is GNU GPL compatible.
  A few minor changes have been made since he checked it, but that should not
  make a difference.

- If you link Vim with a library that goes under the GNU GPL, this limits
  further distribution to the GNU GPL. Also when you didn't actually change
  anything in Vim.

- Once a change is included that goes under the GNU GPL, this forces all
  further changes to also be made under the GNU GPL or a compatible license.

- If you distribute a modified version of Vim, you can include your name and
  contact information with the "--with-modified-by" configure argument or the
  MODIFIED_BY define.

==
Kibaale Children's Centre   kcc   Kibaale   charity

Kibaale Children's Centre (KCC) is located in Kibaale, a small town in the
south of Uganda, near Tanzania, in East Africa. The area is known as Rakai
District. The population is mostly farmers. Although people are poor, there
is enough food. But this district is suffering from AIDS more than any other
part of the world. Some say that it started there. Estimations are that 10
to 30% of the Ugandans are infected with HIV. Because parents die, there are
many orphans. In this district about 60,000 children have lost one or both
parents, out of a population of 350,000. And this is still continuing.

The children need a lot of help. The KCC is working hard to provide the needy
with food, medical care and education. Food and medical care to keep them
healthy now, and education so that they can take care of themselves in the
future. KCC works on a Christian base, but help is given to children of any
religion.

The key to solving the problems in this area is education. This has been
neglected in the past years with president Idi Amin and the following civil
wars. Now that the government is stable again, the children and parents have
to learn how to take care of themselves and how to avoid infections. There is
also help for people who are ill and hungry, but the primary goal is to
prevent people from getting ill and to teach them how to grow healthy food.

Most of the orphans are living in an extended family. An uncle or older
sister is taking care of them. Because these families are big and the income
(if any) is low, a child is lucky if it gets healthy food. Clothes, medical
care and schooling is beyond its reach. To help these needy children, a
sponsorship program was put into place. A child can be financially adopted.
For a few dollars a month KCC sees to it that the child gets indispensable
items, is healthy, goes to school and KCC takes care of anything else that
needs to be done for the child and the family that supports it.

Besides helping the child directly, the environment where the child grows up needs to be improved. KCC helps schools to improve their teaching methods. There is a demonstration school at the centre and teacher trainings are given. Health workers are being trained, hygiene education is carried out and households are stimulated to build a proper latrine. I helped setting up a production site for cement slabs. These are used to build a good latrine. They are sold below cost price.

There is a small clinic at the project, which provides children and their family with medical help. When needed, transport to a hospital is offered. Immunization programs are carried out and help is provided when an epidemic is breaking out (measles and cholera have been a problem).

donate

Summer 1994 to summer 1995 I spent a whole year at the centre, working as a volunteer. I have helped to expand the centre and worked in the area of water and sanitation. I learned that the help that the KCC provides really helps. When I came back to Holland, I wanted to continue supporting KCC. To do this I'm raising funds and organizing the sponsorship program. Please consider one of these possibilities:

1. Sponsor a child in primary school: 17 euro a month (or more).
2. Sponsor a child in secondary school: 25 euro a month (or more).
3. Sponsor the clinic: Any amount a month or quarter
4. A one-time donation

Compared with other organizations that do child sponsorship the amounts are very low. This is because the money goes directly to the centre. Less than 5% is used for administration. This is possible because this is a small organization that works with volunteers. If you would like to sponsor a child, you should have the intention to do this for at least one year.

How do you know that the money will be spent right? First of all you have my personal guarantee as the author of Vim. I trust the people that are working at the centre, I know them personally. Furthermore, the centre has been co-sponsored and inspected by World Vision, Save the Children Fund and is now under the supervision of Pacific Academy Outreach Society. The centre is visited about once a year to check the progress (at our own cost). I have visited the centre myself many times, starting in 1993. The visit reports are on the ICCF web site.

If you have any further questions, send me e-mail: <Bram@vim.org>.

The address of the centre is:

```
                Kibaale Children's Centre
                p.o. box 1658
                Masaka, Uganda, East Africa
```

Sending money: iccf-donations

Check the ICCF web site for the latest information! See iccf for the URL.

USA: The methods mentioned below can be used.

Sending a check to the Nehemiah Group Outreach Society (NGOS) is no longer possible, unfortunately. We are looking for another way to get you an IRS tax receipt.
For sponsoring a child contact KCF in Canada (see below). US checks can be sent to them to lower banking costs.

Canada: Contact Kibaale Children's Fund (KCF) in Surrey, Canada. They take care of the Canadian sponsors for the children in Kibaale. KCF forwards 100% of the money to the project in Uganda. You can send them a one time donation directly. Please send me a note so that I know what has been donated because of Vim. Ask KCF for information about sponsorship.

Kibaale Children's Fund c/o Pacific Academy
10238-168 Street
Surrey, B.C. V4N 1Z4
Canada
Phone: 604-581-5353

If you make a donation to Kibaale Children's Fund (KCF) you will receive a tax receipt which can be submitted with your tax return.

Holland: Transfer to the account of "Stichting ICCF Holland" in Lisse. This will allow for tax deduction if you live in Holland.

Postbank, nr. 4548774
IBAN: NL95 INGB 0004 5487 74

Germany: It is possible to make donations that allow for a tax return. Check the ICCF web site for the latest information:

http://iccf-holland.org/germany.html

World: Use a postal money order. That should be possible from any country, mostly from the post office. Use this name (which is in my passport): "Abraham Moolenaar". Use Euro for the currency if possible.

Europe: Use a bank transfer if possible. Your bank should have a form that you can use for this. See "Others" below for the swift code and IBAN number.
Any other method should work. Ask for information about sponsorship.

Credit Card: You can use PayPal to send money with a Credit card. This is the most widely used Internet based payment system. It's really simple to use. Use this link to find more info:

https://www.paypal.com/en_US/mrb/pal=XAC62PML3GF8Q

The e-mail address for sending the money to is:

Bram@iccf-holland.org

For amounts above 400 Euro ($500) sending a check is preferred.

Others: Transfer to one of these accounts if possible:

Postbank, account 4548774
Swift code: INGB NL 2A
IBAN: NL95 INGB 0004 5487 74

```
                        under the name "stichting ICCF Holland", Lisse
                    If that doesn't work:
                    Rabobank Lisse, account 3765.05.117
                                Swift code: RABO NL 2U
                        under the name "Bram Moolenaar", Lisse
                Otherwise, send a check in euro or US dollars to the address
                below.  Minimal amount: $70 (my bank does not accept smaller
                amounts for foreign check, sorry)

Address to send checks to:
                        Bram Moolenaar
                        Finsterruetihof 1
                        8134 Adliswil
                        Switzerland

This address is expected to be valid for a long time.

 vim:tw=78:ts=8:ft=help:norl:
```

starting.txt For Vim version 8.1. Last change: 2018 May 05

VIM REFERENCE MANUAL by Bram Moolenaar

Starting Vim starting

==========

1. Vim arguments vim-arguments

Most often, Vim is started to edit a single file with the command

```
vim filename
```
-vim

More generally, Vim is started with:

```
vim [option | filename] ..
```

Option arguments and file name arguments can be mixed, and any number of them can be given. However, watch out for options that take an argument.

For compatibility with various Vi versions, see cmdline-arguments .

Exactly one out of the following five items may be used to choose how to start editing:

-file ---

filename One or more file names. The first one will be the current file and read into the buffer. The cursor will be positioned on the first line of the buffer.
To avoid a file name starting with a '-' being interpreted as an option, precede the arglist with "--", e.g.:
```
vim -- -filename
```
All arguments after the "--" will be interpreted as file names, no other options or "+command" argument can follow.
For behavior of quotes on MS-Windows, see win32-quotes .

--

- This argument can mean two things, depending on whether Ex mode is to be used.

Starting in Normal mode:

```
                vim -
                ex -v -
            Start editing a new buffer, which is filled with text
             that is read from stdin.  The commands that would normally be
             read from stdin will now be read from stderr.  Example:
                find . -name "*.c" -print | vim -
            The buffer will not be marked as modified, so that it's easy
             to exit.  Be careful to mark it as modified if you don't want
             to accidentally lose it.  Example:
                ls | view -

             Starting in Ex mode:
                ex -
                vim -e -
                exim -
                vim -E
            Start editing in silent mode.  See  -s-ex .

                                                          -t   -tag
-t {tag}        A tag.  "tag" is looked up in the tags file, the associated
                file becomes the current file, and the associated command is
                executed.  Mostly this is used for C programs, in which case
                "tag" often is a function name.  The effect is that the file
                containing that function becomes the current file and the
                cursor is positioned on the start of the function (see
                 tags ).

                                                          -q   -qf
-q [errorfile]  QuickFix mode.  The file with the name [errorfile] is read
                and the first error is displayed.  See  quickfix .
                If [errorfile] is not given, the 'errorfile' option is used
                for the file name.  See 'errorfile' for the default value.
                {not in Vi}

(nothing)       Without one of the four items above, Vim will start editing a
                new buffer.  It's empty and doesn't have a file name.


The startup mode can be changed by using another name instead of "vim", which
is equal to giving options:
ex      vim -e      Start in Ex mode (see  Ex-mode ).                ex
exim    vim -E      Start in improved Ex mode (see  Ex-mode ).       exim
                        (normally not installed)
view    vim -R      Start in read-only mode (see  -R ).              view
gvim    vim -g      Start the GUI (see  gui ).                       gvim
gex     vim -eg     Start the GUI in Ex mode.                      gex
gview   vim -Rg     Start the GUI in read-only mode.               gview
rvim    vim -Z      Like "vim", but in restricted mode (see  -Z )    rvim
rview   vim -RZ     Like "view", but in restricted mode.           rview
rgvim   vim -gZ     Like "gvim", but in restricted mode.           rgvim
rgview  vim -RgZ    Like "gview", but in restricted mode.          rgview
evim    vim -y      Easy Vim: set 'insertmode' (see  -y )            evim
eview   vim -yR     Like "evim" in read-only mode                  eview
vimdiff vim -d      Start in diff mode  diff-mode
```

gvimdiff vim -gd   Start in diff mode diff-mode

Additional characters may follow, they are ignored. For example, you can have "gvim-5" to start the GUI. You must have an executable by that name then, of course.

On Unix, you would normally have one executable called Vim, and links from the different startup-names to that executable. If your system does not support links and you do not want to have several copies of the executable, you could use an alias instead. For example:

```
alias view   vim -R
alias gvim   vim -g
```

startup-options

The option arguments may be given in any order. Single-letter options can be combined after one dash. There can be no option arguments after the "--" argument.

On VMS all option arguments are assumed to be lowercase, unless preceded with a slash. Thus "-R" means recovery and "-/R" readonly.

--help -h --help -?

-?

-h Give usage (help) message and exit. {not in Vi}
See info-message about capturing the text.

--version

--version Print version information and exit. Same output as for :version command. {not in Vi}
See info-message about capturing the text.

--noplugin

--noplugin Skip loading plugins. Resets the 'loadplugins' option.
{not in Vi}
Note that the -u argument may also disable loading plugins:

argument	load: vimrc files	plugins	defaults.vim
(nothing)	yes	yes	yes
-u NONE	no	no	no
-u DEFAULTS	no	no	yes
-u NORC	no	yes	no
--noplugin	yes	no	yes

--startuptime {fname} --startuptime

During startup write timing messages to the file {fname}.
This can be used to find out where time is spent while loading your .vimrc, plugins and opening the first file.
When {fname} already exists new messages are appended.
(Only available when compiled with the +startuptime feature).

--literal

--literal Take file names literally, don't expand wildcards. Not needed for Unix, because Vim always takes file names literally (the shell expands wildcards).

Applies to all the names, also the ones that come before this argument.

-+

+[num] The cursor will be positioned on line "num" for the first file being edited. If "num" is missing, the cursor will be positioned on the last line.

-+/

+/{pat} The cursor will be positioned on the first line containing "pat" in the first file being edited (see pattern for the available search patterns). The search starts at the cursor position, which can be the first line or the cursor position last used from viminfo . To force a search from the first line use "+1 +/pat".

+{command} -+c -c

-c {command} {command} will be executed after the first file has been read (and after autocommands and modelines for that file have been processed). "command" is interpreted as an Ex command. If the "command" contains spaces, it must be enclosed in double quotes (this depends on the shell that is used). Example:

```
vim "+set si" main.c
vim "+find stdio.h"
vim -c "set ff=dos" -c wq mine.mak
```

Note: You can use up to 10 "+" or "-c" arguments in a Vim command. They are executed in the order given. A "-S" argument counts as a "-c" argument as well. {Vi only allows one command}

--cmd {command} --cmd

{command} will be executed before processing any vimrc file. Otherwise it acts like -c {command}. You can use up to 10 of these commands, independently from "-c" commands. {not in Vi}

-S

-S {file} The {file} will be sourced after the first file has been read. This is an easy way to do the equivalent of:

```
-c "source {file}"
```

It can be mixed with "-c" arguments and repeated like "-c". The limit of 10 "-c" arguments applies here as well. {file} cannot start with a "-". {not in Vi}

-S Works like "-S Session.vim". Only when used as the last argument or when another "-" option follows.

-r

-r Recovery mode. Without a file name argument, a list of existing swap files is given. With a file name, a swap file is read to recover a crashed editing session. See

crash-recovery .

-L

-L Same as -r. {only in some versions of Vi: "List recoverable edit sessions"}

-R

-R Readonly mode. The 'readonly' option will be set for all the files being edited. You can still edit the buffer, but will be prevented from accidentally overwriting a file. If you forgot that you are in View mode and did make some changes, you can overwrite a file by adding an exclamation mark to the Ex command, as in ":w!". The 'readonly' option can be reset with ":set noro" (see the options chapter, options). Subsequent edits will not be done in readonly mode. Calling the executable "view" has the same effect as the -R argument. The 'updatecount' option will be set to 10000, meaning that the swap file will not be updated automatically very often. See -M for disallowing modifications.

-m

-m Modifications not allowed to be written. The 'write' option will be reset, so that writing files is disabled. However, the 'write' option can be set to enable writing again. {not in Vi}

-M

-M Modifications not allowed. The 'modifiable' option will be reset, so that changes are not allowed. The 'write' option will be reset, so that writing files is disabled. However, the 'modifiable' and 'write' options can be set to enable changes and writing. {not in Vi}

-Z restricted-mode E145

-Z Restricted mode. All commands that make use of an external shell are disabled. This includes suspending with CTRL-Z, ":sh", filtering, the system() function, backtick expansion, delete(), rename(), mkdir(), writefile(), libcall(), job_start(), etc. {not in Vi}

-g

-g Start Vim in GUI mode. See gui . For the opposite see -v . {not in Vi}

-v

-v Start Ex in Vi mode. Only makes a difference when the executable is called "ex" or "gvim". For gvim the GUI is not started if possible.

-e

-e Start Vim in Ex mode Q . Only makes a difference when the executable is not called "ex".

-E

-E Start Vim in improved Ex mode gQ . Only makes a difference when the executable is not called "exim". {not in Vi}

-s-ex

-s Silent or batch mode. Only when Vim was started as "ex" or when preceded with the "-e" argument. Otherwise see -s , which does take an argument while this use of "-s" doesn't. To be used when Vim is used to execute Ex commands from a file instead of a terminal. Switches off most prompts and informative messages. Also warnings and error messages. The output of these commands is displayed (to stdout):

```
:print
:list
:number
:set      to display option values.
```

When 'verbose' is non-zero messages are printed (for debugging, to stderr). 'term' and $TERM are not used. If Vim appears to be stuck try typing "qa!<Enter>". You don't get a prompt thus you can't see Vim is waiting for you to type something. Initializations are skipped (except the ones given with the "-u" argument). Example:

```
vim -e -s  < thefilter  thefile
```

-b

-b Binary mode. File I/O will only recognize <NL> to separate lines. The 'expandtab' option will be reset. The 'textwidth' option is set to 0. 'modeline' is reset. The 'binary' option is set. This is done after reading the vimrc/exrc files but before reading any file in the arglist. See also edit-binary . {not in Vi}

-l

-l Lisp mode. Sets the 'lisp' and 'showmatch' options on.

-A

-A Arabic mode. Sets the 'arabic' option on. (Only when compiled with the +arabic features (which include +rightleft), otherwise Vim gives an error message and exits.) {not in Vi}

-F

-F Farsi mode. Sets the 'fkmap' and 'rightleft' options on. (Only when compiled with +rightleft and +farsi features, otherwise Vim gives an error message and exits.) {not in Vi}

-H

-H Hebrew mode. Sets the 'hkmap' and 'rightleft' options on. (Only when compiled with the +rightleft feature, otherwise

Vim gives an error message and exits.) {not in Vi}

-V verbose

-V[N] Verbose. Sets the 'verbose' option to [N] (default: 10). Messages will be given for each file that is ":source"d and for reading or writing a viminfo file. Can be used to find out what is happening upon startup and exit. {not in Vi}
Example:
```
vim -V8 foobar
```

-V[N]{filename}
Like -V and set 'verbosefile' to {filename}. The result is that messages are not displayed but written to the file {filename}. {filename} must not start with a digit.
Example:
```
vim -V20vimlog foobar
```

-D

-D Debugging. Go to debugging mode when executing the first command from a script. debug-mode
{not available when compiled without the |+eval| feature}
{not in Vi}

-C

-C Compatible mode. Sets the 'compatible' option. You can use this to get 'compatible', even though a .vimrc file exists. Keep in mind that the command ":set nocompatible" in some plugin or startup script overrules this, so you may end up with 'nocompatible' anyway. To find out, use:
```
:verbose set compatible?
```
Several plugins won't work with 'compatible' set. You may want to set it after startup this way:
```
vim "+set cp" filename
```
Also see compatible-default . {not in Vi}

-N

-N Not compatible mode. Resets the 'compatible' option. You can use this to get 'nocompatible', when there is no .vimrc file or when using "-u NONE".
Also see compatible-default . {not in Vi}

-y easy

-y Easy mode. Implied for evim and eview . Starts with 'insertmode' set and behaves like a click-and-type editor. This sources the script $VIMRUNTIME/evim.vim. Mappings are set up to work like most click-and-type editors, see evim-keys . The GUI is started when available.
{not in Vi}

-n

-n No swap file will be used. Recovery after a crash will be impossible. Handy if you want to view or edit a file on a very slow medium (e.g., a floppy).
Can also be done with ":set updatecount=0". You can switch it

on again by setting the 'updatecount' option to some value,
e.g., ":set uc=100".
NOTE: Don't combine -n with -b, making -nb, because that has a
different meaning: -nb .
'updatecount' is set to 0 AFTER executing commands from a
vimrc file, but before the GUI initializations. Thus it
overrides a setting for 'updatecount' in a vimrc file, but not
in a gvimrc file. See startup .
When you want to reduce accesses to the disk (e.g., for a
laptop), don't use "-n", but set 'updatetime' and
'updatecount' to very big numbers, and type ":preserve" when
you want to save your work. This way you keep the possibility
for crash recovery.
{not in Vi}

-o

-o[N] Open N windows, split horizontally. If [N] is not given,
one window is opened for every file given as argument. If
there is not enough room, only the first few files get a
window. If there are more windows than arguments, the last
few windows will be editing an empty file.
{not in Vi}

-O

-O[N] Open N windows, split vertically. Otherwise it's like -o.
If both the -o and the -O option are given, the last one on
the command line determines how the windows will be split.
{not in Vi}

-p

-p[N] Open N tab pages. If [N] is not given, one tab page is opened
for every file given as argument. The maximum is set with
'tabpagemax' pages (default 10). If there are more tab pages
than arguments, the last few tab pages will be editing an
empty file. Also see tabpage .
{not in Vi}

-T

-T {terminal} Set the terminal type to "terminal". This influences the
codes that Vim will send to your terminal. This is normally
not needed, because Vim will be able to find out what type
of terminal you are using. (See terminal-info .) {not in Vi}

--not-a-term

--not-a-term Tells Vim that the user knows that the input and/or output is
not connected to a terminal. This will avoid the warning and
the two second delay that would happen.
Also avoids the "Reading from stdin..." message.
{not in Vi}

--ttyfail

--ttyfail When the stdin or stdout is not a terminal (tty) then exit
right away.

-d

-d Start in diff mode, like vimdiff .
{not in Vi} {not available when compiled without the +diff
feature}

-d {device} Only on the Amiga and when not compiled with the +diff
feature. Works like "-dev".

-dev

-dev {device} Only on the Amiga: The {device} is opened to be used for
editing.
Normally you would use this to set the window position and
size: "-d con:x/y/width/height", e.g.,
"-d con:30/10/600/150". But you can also use it to start
editing on another device, e.g., AUX:. {not in Vi}

-f

-f GUI: Do not disconnect from the program that started Vim.
'f' stands for "foreground". If omitted, the GUI forks a new
process and exits the current one. "-f" should be used when
gvim is started by a program that will wait for the edit
session to finish (e.g., mail or readnews). If you want gvim
never to fork, include 'f' in 'guioptions' in your gvimrc .
Careful: You can use "-gf" to start the GUI in the foreground,
but "-fg" is used to specify the foreground color. gui-fork

Amiga: Do not restart Vim to open a new window. This
option should be used when Vim is started by a program that
will wait for the edit session to finish (e.g., mail or
readnews). See amiga-window .

MS-Windows: This option is not supported. However, when
running Vim with an installed vim.bat or gvim.bat file it
works.
{not in Vi}

--nofork

--nofork GUI: Do not fork. Same as -f .

-u E282

-u {vimrc} The file {vimrc} is read for initializations. Most other
initializations are skipped; see initialization .

This can be used to start Vim in a special mode, with special
mappings and settings. A shell alias can be used to make
this easy to use. For example:

```
alias vimc vim -u ~/.c_vimrc !*
```

Also consider using autocommands; see autocommand .

When {vimrc} is equal to "NONE" (all uppercase), all
initializations from files and environment variables are
skipped, including reading the gvimrc file when the GUI
starts. Loading plugins is also skipped.

When {vimrc} is equal to "NORC" (all uppercase), this has the
same effect as "NONE", but loading plugins is not skipped.

When {vimrc} is equal to "DEFAULTS" (all uppercase), this has
the same effect as "NONE", but the defaults.vim script is
loaded, which will also set 'nocompatible'.

Using the "-u" argument with another argument than DEFAULTS
has the side effect that the 'compatible' option will be on by
default. This can have unexpected effects. See
 'compatible' .
{not in Vi}

                                                -U E230
-U {gvimrc}   The file {gvimrc} is read for initializations when the GUI
starts. Other GUI initializations are skipped. When {gvimrc}
is equal to "NONE", no file is read for GUI initializations at
all. gui-init
Exception: Reading the system-wide menu file is always done.
{not in Vi}

                                                -i
-i {viminfo}   The file "viminfo" is used instead of the default viminfo
file. If the name "NONE" is used (all uppercase), no viminfo
file is read or written, even if 'viminfo' is set or when
":rv" or ":wv" are used. See also viminfo-file .
{not in Vi}

                                                --clean
--clean   Similar to "-u DEFAULTS -U NONE -i NONE":
- initializations from files and environment variables is
  skipped
-'runtimepath'and 'packpath' are set to exclude home
  directory entries (does not happen with -u DEFAULTS).
- the defaults.vim script is loaded, which implies
  'nocompatible': use Vim defaults
- no gvimrc script is loaded
- no viminfo file is read or written
- the home directory is excluded from 'runtimepath'
                                                -x
-x   Use encryption to read/write files. Will prompt for a key,
which is then stored in the 'key' option. All writes will
then use this key to encrypt the text. The '-x' argument is
not needed when reading a file, because there is a check if
the file that is being read has been encrypted, and Vim asks
for a key automatically. encryption

                                                -X
-X   Do not try connecting to the X server to get the current
window title and copy/paste using the X clipboard. This
avoids a long startup time when running Vim in a terminal
emulator and the connection to the X server is slow.
See --startuptime to find out if affects you.
Only makes a difference on Unix or VMS, when compiled with the
 +X11 feature. Otherwise it's ignored.
To disable the connection only for specific terminals, see the

'clipboard' option.
When the X11 Session Management Protocol (XSMP) handler has been built in, the -X option also disables that connection as it, too, may have undesirable delays.
When the connection is desired later anyway (e.g., for client-server messages), call the serverlist() function. This does not enable the XSMP handler though.
{not in Vi}

-s

-s {scriptin} The script file "scriptin" is read. The characters in the file are interpreted as if you had typed them. The same can be done with the command ":source! {scriptin}". If the end of the file is reached before the editor exits, further characters are read from the keyboard. Only works when not started in Ex mode, see -s-ex . See also complex-repeat .
{not in Vi}

-w_nr

-w {number}
-w{number} Set the 'window' option to {number}.

-w

-w {scriptout} All the characters that you type are recorded in the file "scriptout", until you exit Vim. This is useful if you want to create a script file to be used with "vim -s" or ":source!". When the "scriptout" file already exists, new characters are appended. See also complex-repeat .
{scriptout} cannot start with a digit.
{not in Vi}

-W

-W {scriptout} Like -w, but do not append, overwrite an existing file.
{not in Vi}

--remote [+{cmd}] {file} ...
Open the {file} in another Vim that functions as a server.
Any non-file arguments must come before this.
See --remote . {not in Vi}

--remote-silent [+{cmd}] {file} ...
Like --remote, but don't complain if there is no server.
See --remote-silent . {not in Vi}

--remote-wait [+{cmd}] {file} ...
Like --remote, but wait for the server to finish editing the file(s).
See --remote-wait . {not in Vi}

--remote-wait-silent [+{cmd}] {file} ...
Like --remote-wait, but don't complain if there is no server.
See --remote-wait-silent . {not in Vi}

--servername {name}

Specify the name of the Vim server to send to or to become.
See --servername . {not in Vi}

--remote-send {keys}
Send {keys} to a Vim server and exit.
See --remote-send . {not in Vi}

--remote-expr {expr}
Evaluate {expr} in another Vim that functions as a server.
The result is printed on stdout.
See --remote-expr . {not in Vi}

--serverlist Output a list of Vim server names and exit. See
--serverlist . {not in Vi}

--socketid {id} --socketid
GTK+ GUI Vim only. Make gvim try to use GtkPlug mechanism, so
that it runs inside another window. See gui-gtk-socketid
for details. {not in Vi}

--windowid {id} --windowid
Win32 GUI Vim only. Make gvim try to use the window {id} as a
parent, so that it runs inside that window. See
gui-w32-windowid for details. {not in Vi}

--echo-wid --echo-wid
GTK+ GUI Vim only. Make gvim echo the Window ID on stdout,
which can be used to run gvim in a kpart widget. The format
of the output is:
WID: 12345\n
{not in Vi}

--role {role} --role
GTK+ 2 GUI only. Set the role of the main window to {role}.
The window role can be used by a window manager to uniquely
identify a window, in order to restore window placement and
such. The --role argument is passed automatically when
restoring the session on login. See gui-gnome-session
{not in Vi}

-P {parent-title} -P MDI E671 E672
Win32 only: Specify the title of the parent application. When
possible, Vim will run in an MDI window inside the
application.
{parent-title} must appear in the window title of the parent
application. Make sure that it is specific enough.
Note that the implementation is still primitive. It won't
work with all applications and the menu doesn't work.

-nb -nb
-nb={fname}
-nb:{hostname}:{addr}:{password}
Attempt connecting to Netbeans and become an editor server for
it. The second form specifies a file to read connection info

from. The third form specifies the hostname, address and
password for connecting to Netbeans. netbeans-run
{only available when compiled with the +netbeans_intg
feature; if not then -nb will make Vim exit}

If the executable is called "view", Vim will start in Readonly mode. This is useful if you can make a hard or symbolic link from "view" to "vim". Starting in Readonly mode can also be done with "vim -R".

If the executable is called "ex", Vim will start in "Ex" mode. This means it will accept only ":" commands. But when the "-v" argument is given, Vim will start in Normal mode anyway.

Additional arguments are available on unix like systems when compiled with X11 GUI support. See gui-resources .

==
2. Vim on the Amiga starting-amiga

Starting Vim from the Workbench workbench

Vim can be started from the Workbench by clicking on its icon twice. It will then start with an empty buffer.

Vim can be started to edit one or more files by using a "Project" icon. The "Default Tool" of the icon must be the full pathname of the Vim executable. The name of the ".info" file must be the same as the name of the text file. By clicking on this icon twice, Vim will be started with the file name as current file name, which will be read into the buffer (if it exists). You can edit multiple files by pressing the shift key while clicking on icons, and clicking twice on the last one. The "Default Tool" for all these icons must be the same.

It is not possible to give arguments to Vim, other than file names, from the workbench.

Vim window amiga-window

Vim will run in the CLI window where it was started. If Vim was started with the "run" or "runback" command, or if Vim was started from the workbench, it will open a window of its own.

Technical detail:
        To open the new window a little trick is used. As soon as Vim recognizes that it does not run in a normal CLI window, it will create a script file in "t:". This script file contains the same command as the one Vim was started with, and an "endcli" command. This script file is then executed with a "newcli" command (the "c:run" and "c:newcli" commands are required for this to work). The script file will hang around until reboot, or until you delete it. This method is required to get the ":sh" and ":!" commands to work correctly. But when Vim was started with the -f option (foreground

mode), this method is not used. The reason for this is that
when a program starts Vim with the -f option it will wait for Vim to
exit. With the script trick, the calling program does not know when
Vim exits. The -f option can be used when Vim is started by a mail
program which also waits for the edit session to finish. As a
consequence, the ":sh" and ":!" commands are not available when the
-f option is used.

Vim will automatically recognize the window size and react to window
resizing. Under Amiga DOS 1.3, it is advised to use the fastfonts program,
"FF", to speed up display redrawing.

==
3. Running eVim evim-keys

EVim runs Vim as click-and-type editor. This is very unlike the original Vi
idea. But it helps for people that don't use Vim often enough to learn the
commands. Hopefully they will find out that learning to use Normal mode
commands will make their editing much more effective.

In Evim these options are changed from their default value:

```
:set nocompatible       Use Vim improvements
:set insertmode         Remain in Insert mode most of the time
:set hidden             Keep invisible buffers loaded
:set backup             Keep backup files (not for VMS)
:set backspace=2        Backspace over everything
:set autoindent         auto-indent new lines
:set history=50         keep 50 lines of Ex commands
:set ruler              show the cursor position
:set incsearch          show matches halfway typing a pattern
:set mouse=a            use the mouse in all modes
:set hlsearch           highlight all matches for a search pattern
:set whichwrap+=<,>,[,]  <Left> and <Right> wrap around line breaks
:set guioptions-=a      non-Unix only: don't do auto-select
```

Key mappings:

```
<Down>          moves by screen lines rather than file lines
<Up>            idem
Q               does "gq", formatting, instead of Ex mode
<BS>            in Visual mode: deletes the selection
CTRL-X          in Visual mode: Cut to clipboard
<S-Del>         idem
CTRL-C          in Visual mode: Copy to clipboard
<C-Insert>      idem
CTRL-V          Pastes from the clipboard (in any mode)
<S-Insert>      idem
CTRL-Q          do what CTRL-V used to do
CTRL-Z          undo
CTRL-Y          redo
<M-Space>       system menu
CTRL-A          select all
<C-Tab>         next window, CTRL-W w
<C-F4>          close window, CTRL-W c
```

Additionally:
- ":behave mswin" is used :behave
- syntax highlighting is enabled
- filetype detection is enabled, filetype plugins and indenting is enabled
- in a text file 'textwidth' is set to 78

One hint: If you want to go to Normal mode to be able to type a sequence of commands, use CTRL-L. i_CTRL-L

==
4. Initialization   initialization   startup

This section is about the non-GUI version of Vim. See gui-fork for additional initialization when starting the GUI.

At startup, Vim checks environment variables and files and sets values accordingly. Vim proceeds in this order:

1. Set the 'shell' and 'term' option   SHELL   COMSPEC   TERM
        The environment variable SHELL, if it exists, is used to set the
        'shell' option. On MS-DOS and Win32, the COMSPEC variable is used
        if SHELL is not set.
        The environment variable TERM, if it exists, is used to set the 'term'
        option. However, 'term' will change later when starting the GUI (step
        8 below).

2. Process the arguments
        The options and file names from the command that start Vim are
        inspected. Buffers are created for all files (but not loaded yet).
        The -V argument can be used to display or log what happens next,
        useful for debugging the initializations.

3. Execute Ex commands, from environment variables and/or files
        An environment variable is read as one Ex command line, where multiple
        commands must be separated with '|' or "<NL>".
                                                                  vimrc   exrc
        A file that contains initialization commands is called a "vimrc" file.
        Each line in a vimrc file is executed as an Ex command line. It is
        sometimes also referred to as "exrc" file. They are the same type of
        file, but "exrc" is what Vi always used, "vimrc" is a Vim specific
        name. Also see vimrc-intro .

        Places for your personal initializations:
                Unix $HOME/.vimrc or $HOME/.vim/vimrc
                OS/2 $HOME/.vimrc, $HOME/vimfiles/vimrc
                                or $VIM/.vimrc (or _vimrc)
                MS-Windows $HOME/_vimrc, $HOME/vimfiles/vimrc
                                or $VIM/_vimrc
                Amiga   s:.vimrc, home:.vimrc, home:vimfiles:vimrc
                                or $VIM/.vimrc

        The files are searched in the order specified above and only the first
        one that is found is read.

RECOMMENDATION: Put all your Vim configuration stuff in the
$HOME/.vim/ directory ($HOME/vimfiles/ for MS-Windows). That makes it
easy to copy it to another system.

If Vim was started with "-u filename", the file "filename" is used.
All following initializations until 4. are skipped. $MYVIMRC is not
set.
"vim -u NORC" can be used to skip these initializations without
reading a file. "vim -u NONE" also skips loading plugins. -u

If Vim was started in Ex mode with the "-s" argument, all following
initializations until 4. are skipped. Only the "-u" option is
interpreted.

evim.vim

a. If vim was started as evim or eview or with the -y argument, the
script $VIMRUNTIME/evim.vim will be loaded.

system-vimrc

b. For Unix, MS-DOS, MS-Windows, OS/2, VMS, Macintosh, RISC-OS and Amiga
the system vimrc file is read for initializations. The path of this
file is shown with the ":version" command. Mostly it's "$VIM/vimrc".
Note that this file is ALWAYS read in 'compatible' mode, since the
automatic resetting of 'compatible' is only done later. Add a ":set
nocp" command if you like.
For the Macintosh the $VIMRUNTIME/macmap.vim is read.

VIMINIT .vimrc _vimrc EXINIT .exrc _exrc $MYVIMRC

c. Five places are searched for initializations. The first that exists
is used, the others are ignored. The $MYVIMRC environment variable is
set to the file that was first found, unless $MYVIMRC was already set
and when using VIMINIT.
I The environment variable VIMINIT (see also compatible-default) (*)
The value of $VIMINIT is used as an Ex command line.
II The user vimrc file(s):
"$HOME/.vimrc" (for Unix and OS/2) (*)
"$HOME/.vim/vimrc" (for Unix and OS/2) (*)
"s:.vimrc" (for Amiga) (*)
"home:.vimrc" (for Amiga) (*)
"home:vimfiles:vimrc" (for Amiga) (*)
"$VIM/.vimrc" (for OS/2 and Amiga) (*)
"$HOME/_vimrc" (for MS-DOS and Win32) (*)
"$HOME/vimfiles/vimrc" (for MS-DOS and Win32) (*)
"$VIM/_vimrc" (for MS-DOS and Win32) (*)
Note: For Unix, OS/2 and Amiga, when ".vimrc" does not exist,
"_vimrc" is also tried, in case an MS-DOS compatible file
system is used. For MS-DOS and Win32 ".vimrc" is checked
after "_vimrc", in case long file names are used.
Note: For MS-DOS and Win32, "$HOME" is checked first. If no
"_vimrc" or ".vimrc" is found there, "$VIM" is tried.
See $VIM for when $VIM is not set.
III The environment variable EXINIT.
The value of $EXINIT is used as an Ex command line.
IV The user exrc file(s). Same as for the user vimrc file, but with
"vimrc" replaced by "exrc". But only one of ".exrc" and "_exrc" is

used, depending on the system. And without the (*)!
V The default vimrc file, $VIMRUNTIME/defaults.vim. This sets up options values and has "syntax on" and "filetype on" commands, which is what most new users will want. See defaults.vim .

d. If the 'exrc' option is on (which is NOT the default), the current directory is searched for three files. The first that exists is used, the others are ignored.
- The file ".vimrc" (for Unix, Amiga and OS/2) (*)
"_vimrc" (for MS-DOS and Win32) (*)
- The file "_vimrc" (for Unix, Amiga and OS/2) (*)
".vimrc" (for MS-DOS and Win32) (*)
- The file ".exrc" (for Unix, Amiga and OS/2)
"_exrc" (for MS-DOS and Win32)

(*) Using this file or environment variable will cause 'compatible' to be off by default. See compatible-default .

Note: When using the mzscheme interface, it is initialized after loading the vimrc file. Changing 'mzschemedll' later has no effect.

4. Load the plugin scripts. load-plugins
This does the same as the command:
:runtime! plugin/**/*.vim
The result is that all directories in the 'runtimepath' option will be searched for the "plugin" sub-directory and all files ending in ".vim" will be sourced (in alphabetical order per directory), also in subdirectories.
However, directories in 'runtimepath' ending in "after" are skipped here and only loaded after packages, see below.
Loading plugins won't be done when:
- The 'loadplugins' option was reset in a vimrc file.
- The --noplugin command line argument is used.
- The --clean command line argument is used.
- The "-u NONE" command line argument is used -u .
- When Vim was compiled without the +eval feature.
Note that using "-c 'set noloadplugins'" doesn't work, because the commands from the command line have not been executed yet. You can use "--cmd 'set noloadplugins'" or "--cmd 'set loadplugins'" --cmd .

Packages are loaded. These are plugins, as above, but found in the "start" directory of each entry in 'packpath'. Every plugin directory found is added in 'runtimepath' and then the plugins are sourced. See packages .

The plugins scripts are loaded, as above, but now only the directories ending in "after" are used. Note that 'runtimepath' will have changed if packages have been found, but that should not add a directory ending in "after".

5. Set 'shellpipe' and 'shellredir'
The 'shellpipe' and 'shellredir' options are set according to the value of the 'shell' option, unless they have been set before.
This means that Vim will figure out the values of 'shellpipe' and

'shellredir' for you, unless you have set them yourself.

6. Set 'updatecount' to zero, if "-n" command argument used

7. Set binary options
   If the "-b" flag was given to Vim, the options for binary editing will
   be set now. See -b .

8. Perform GUI initializations
   Only when starting "gvim", the GUI initializations will be done. See
    gui-init .

9. Read the viminfo file
   If the 'viminfo' option is not empty, the viminfo file is read. See
    viminfo-file .

10. Read the quickfix file
   If the "-q" flag was given to Vim, the quickfix file is read. If this
   fails, Vim exits.

11. Open all windows
   When the -o flag was given, windows will be opened (but not
   displayed yet).
   When the -p flag was given, tab pages will be created (but not
   displayed yet).
   When switching screens, it happens now. Redrawing starts.
   If the "-q" flag was given to Vim, the first error is jumped to.
   Buffers for all windows will be loaded.

12. Execute startup commands
   If a "-t" flag was given to Vim, the tag is jumped to.
   The commands given with the -c and +cmd arguments are executed.
   If the 'insertmode' option is set, Insert mode is entered.
   The starting flag is reset, has("vim_starting") will now return zero.
   The v:vim_did_enter variable is set to 1.
   The VimEnter autocommands are executed.

The $MYVIMRC or $MYGVIMRC file will be set to the first found vimrc and/or
gvimrc file.

Some hints on using initializations

Standard setup:
Create a vimrc file to set the default settings and mappings for all your edit
sessions. Put it in a place so that it will be found by 3b:
```
   ~/.vimrc        (Unix and OS/2)
   s:.vimrc        (Amiga)
   $VIM\_vimrc     (MS-DOS and Win32)
```
Note that creating a vimrc file will cause the 'compatible' option to be off
by default. See compatible-default .

Local setup:
Put all commands that you need for editing a specific directory only into a

vimrc file and place it in that directory under the name ".vimrc" ("_vimrc" for MS-DOS and Win32). NOTE: To make Vim look for these special files you have to turn on the option 'exrc'. See trojan-horse too.

System setup:
This only applies if you are managing a Unix system with several users and want to set the defaults for all users. Create a vimrc file with commands for default settings and mappings and put it in the place that is given with the ":version" command.

Saving the current state of Vim to a file

Whenever you have changed values of options or when you have created a mapping, then you may want to save them in a vimrc file for later use. See save-settings about saving the current state of settings to a file.

Avoiding setup problems for Vi users

Vi uses the variable EXINIT and the file "~/.exrc". So if you do not want to interfere with Vi, then use the variable VIMINIT and the file "vimrc" instead.

Amiga environment variables

On the Amiga, two types of environment variables exist. The ones set with the DOS 1.3 (or later) setenv command are recognized. See the AmigaDos 1.3 manual. The environment variables set with the old Manx Set command (before version 5.0) are not recognized.

MS-DOS line separators

On MS-DOS-like systems (MS-DOS itself, Win32, and OS/2), Vim assumes that all the vimrc files have <CR> <NL> pairs as line separators. This will give problems if you have a file with only <NL>s and have a line like ":map xx yy^M". The trailing ^M will be ignored.

Vi compatible default value

compatible-default

When Vim starts, the 'compatible' option is on. This will be used when Vim starts its initializations. But as soon as:
- a user vimrc file is found, or
- a vimrc file in the current directory is found, or
- the "VIMINIT" environment variable is set, or
- the "-N" command line argument is given, or
- the "--clean" command line argument is given, or
- the defaults.vim script is loaded, or
- a gvimrc file was found,

then the option will be set to 'nocompatible'.

Note that this does NOT happen when a system-wide vimrc file was found.

This has the side effect of setting or resetting other options (see 'compatible'). But only the options that have not been set or reset will be changed. This has the same effect like the value of 'compatible' had this value when starting Vim.

'compatible' is NOT reset, and defaults.vim is not loaded:
- when Vim was started with the -u command line argument, especially with "-u NONE", or
- when started with the -C command line argument, or
- when the name of the executable ends in "ex". (This has been done to make Vim behave like "ex", when it is started as "ex")

But there is a side effect of setting or resetting 'compatible' at the moment a .vimrc file is found: Mappings are interpreted the moment they are encountered. This makes a difference when using things like "<CR>". If the mappings depend on a certain value of 'compatible', set or reset it before giving the mapping.

Defaults without a .vimrc file

defaults.vim

If Vim is started normally and no user vimrc file is found, the $VIMRUNTIME/defaults.vim script is loaded. This will set 'compatible' off, switch on syntax highlighting and a few more things. See the script for details. NOTE: this is done since Vim 8.0, not in Vim 7.4. (it was added in patch 7.4.2111 to be exact).

This should work well for new Vim users. If you create your own .vimrc, it is recommended to add these lines somewhere near the top:

```
unlet! skip_defaults_vim
source $VIMRUNTIME/defaults.vim
```

Then Vim works like before you had a .vimrc. Copying $VIMRUNTIME/vimrc_example is way to do this. Alternatively, you can copy defaults.vim to your .vimrc and modify it (but then you won't get updates when it changes).

If you don't like some of the defaults, you can still source defaults.vim and revert individual settings. See the defaults.vim file for hints on how to revert each item.

skip_defaults_vim

If you use a system-wide vimrc and don't want defaults.vim to change settings, set the "skip_defaults_vim" variable. If this was set and you want to load defaults.vim from your .vimrc, first unlet skip_defaults_vim, as in the example above.

Avoiding trojan horses

trojan-horse

While reading the "vimrc" or the "exrc" file in the current directory, some commands can be disabled for security reasons by setting the 'secure' option. This is always done when executing the command from a tags file. Otherwise it would be possible that you accidentally use a vimrc or tags file that somebody else created and contains nasty commands. The disabled commands are the ones that start a shell, the ones that write to a file, and ":autocmd". The ":map"

commands are echoed, so you can see which keys are being mapped.
	If you want Vim to execute all commands in a local vimrc file, you can reset the 'secure' option in the EXINIT or VIMINIT environment variable or in the global "exrc" or "vimrc" file. This is not possible in "vimrc" or "exrc" in the current directory, for obvious reasons.
	On Unix systems, this only happens if you are not the owner of the vimrc file. Warning: If you unpack an archive that contains a vimrc or exrc file, it will be owned by you. You won't have the security protection. Check the vimrc file before you start Vim in that directory, or reset the 'exrc' option. Some Unix systems allow a user to do "chown" on a file. This makes it possible for another user to create a nasty vimrc and make you the owner. Be careful!
	When using tag search commands, executing the search command (the last part of the line in the tags file) is always done in secure mode. This works just like executing a command from a vimrc/exrc in the current directory.

If Vim startup is slow

slow-start

If Vim takes a long time to start up, use the --startuptime argument to find out what happens. There are a few common causes:
- If the Unix version was compiled with the GUI and/or X11 (check the output of ":version" for "+GUI" and "+X11"), it may need to load shared libraries and connect to the X11 server. Try compiling a version with GUI and X11 disabled. This also should make the executable smaller.
  Use the -X command line argument to avoid connecting to the X server when running in a terminal.
- If you have "viminfo" enabled, the loading of the viminfo file may take a while. You can find out if this is the problem by disabling viminfo for a moment (use the Vim argument "-i NONE", -i). Try reducing the number of lines stored in a register with ":set viminfo='20,<50,s10". viminfo-file .

Intro message

:intro

When Vim starts without a file name, an introductory message is displayed (for those who don't know what Vim is). It is removed as soon as the display is redrawn in any way. To see the message again, use the ":intro" command (if there is not enough room, you will see only part of it).
	To avoid the intro message on startup, add the 'I' flag to 'shortmess'.

info-message

The --help and --version arguments cause Vim to print a message and then exit. Normally the message is sent to stdout, thus can be redirected to a file with:

```
vim --help >file
```

From inside Vim:

```
:read !vim --help
```

When using gvim, it detects that it might have been started from the desktop, without a terminal to show messages on. This is detected when both stdout and

stderr are not a tty. This breaks the ":read" command, as used in the example above. To make it work again, set 'shellredir' to ">" instead of the default ">&":

```
:set shellredir=>
:read !gvim --help
```

This still won't work for systems where gvim does not use stdout at all though.

==
5. $VIM and $VIMRUNTIME

$VIM

The environment variable "$VIM" is used to locate various user files for Vim, such as the user startup script ".vimrc". This depends on the system, see startup .

To avoid the need for every user to set the $VIM environment variable, Vim will try to get the value for $VIM in this order:
1. The value defined by the $VIM environment variable. You can use this to make Vim look in a specific directory for its support files. Example:
```
setenv VIM /home/paul/vim
```
2. The path from 'helpfile' is used, unless it contains some environment variable too (the default is "$VIMRUNTIME/doc/help.txt": chicken-egg problem). The file name ("help.txt" or any other) is removed. Then trailing directory names are removed, in this order: "doc", "runtime" and "vim{version}" (e.g., "vim54").
3. For MSDOS, Win32 and OS/2 Vim tries to use the directory name of the executable. If it ends in "/src", this is removed. This is useful if you unpacked the .zip file in some directory, and adjusted the search path to find the vim executable. Trailing directory names are removed, in this order: "runtime" and "vim{version}" (e.g., "vim54").
4. For Unix the compile-time defined installation directory is used (see the output of ":version").

Once Vim has done this once, it will set the $VIM environment variable. To change it later, use a ":let" command like this:
```
:let $VIM = "/home/paul/vim/"
```

$VIMRUNTIME

The environment variable "$VIMRUNTIME" is used to locate various support files, such as the on-line documentation and files used for syntax highlighting. For example, the main help file is normally "$VIMRUNTIME/doc/help.txt".
You don't normally set $VIMRUNTIME yourself, but let Vim figure it out. This is the order used to find the value of $VIMRUNTIME:
1. If the environment variable $VIMRUNTIME is set, it is used. You can use this when the runtime files are in an unusual location.
2. If "$VIM/vim{version}" exists, it is used. {version} is the version number of Vim, without any '-' or '.'. For example: "$VIM/vim54". This is the normal value for $VIMRUNTIME.
3. If "$VIM/runtime" exists, it is used.
4. The value of $VIM is used. This is for backwards compatibility with older versions.

5. When the 'helpfile' option is set and doesn't contain a '$', its value is
   used, with "doc/help.txt" removed from the end.

For Unix, when there is a compiled-in default for $VIMRUNTIME (check the
output of ":version"), steps 2, 3 and 4 are skipped, and the compiled-in
default is used after step 5. This means that the compiled-in default
overrules the value of $VIM. This is useful if $VIM is "/etc" and the runtime
files are in "/usr/share/vim/vim54".

Once Vim has done this once, it will set the $VIMRUNTIME environment variable.
To change it later, use a ":let" command like this:

```
:let $VIMRUNTIME = "/home/piet/vim/vim54"
```

In case you need the value of $VIMRUNTIME in a shell (e.g., for a script that
greps in the help files) you might be able to use this:

```
VIMRUNTIME=`vim -e -T dumb --cmd 'exe "set t_cm=\<C-M>"|echo $VIMRUNTIME|quit' | t
```

==
6. Suspending   suspend

                                        iconize iconise CTRL-Z v_CTRL-Z
CTRL-Z   Suspend Vim, like ":stop".
                        Works in Normal and in Visual mode. In Insert and
                        Command-line mode, the CTRL-Z is inserted as a normal
                        character. In Visual mode Vim goes back to Normal
                        mode.
                        Note: if CTRL-Z undoes a change see mswin.vim .

:sus[pend][!]   or   :sus :suspend :st :stop
:st[op][!]   Suspend Vim.
                        If the '!' is not given and 'autowrite' is set, every
                        buffer with changes and a file name is written out.
                        If the '!' is given or 'autowrite' is not set, changed
                        buffers are not written, don't forget to bring Vim
                        back to the foreground later!

In the GUI, suspending is implemented as iconising gvim. In Windows 95/NT,
gvim is minimized.

On many Unix systems, it is possible to suspend Vim with CTRL-Z. This is only
possible in Normal and Visual mode (see next chapter, vim-modes). Vim will
continue if you make it the foreground job again. On other systems, CTRL-Z
will start a new shell. This is the same as the ":sh" command. Vim will
continue if you exit from the shell.

In X-windows the selection is disowned when Vim suspends. this means you
can't paste it in another application (since Vim is going to sleep an attempt
to get the selection would make the program hang).

==
7. Exiting   exiting

There are several ways to exit Vim:
- Close the last window with `:quit`. Only when there are no changes.
- Close the last window with `:quit!`. Also when there are changes.
- Close all windows with `:qall`. Only when there are no changes.
- Close all windows with `:qall!`. Also when there are changes.
- Use `:cquit`. Also when there are changes.

When using `:cquit` or when there was an error message Vim exits with exit code 1. Errors can be avoided by using `:silent!` or with `:catch`.

==
8. Saving settings   save-settings

Mostly you will edit your vimrc files manually. This gives you the greatest flexibility. There are a few commands to generate a vimrc file automatically. You can use these files as they are, or copy/paste lines to include in another vimrc file.

                                                          :mk :mkexrc
:mk[exrc] [file]   Write current key mappings and changed options to [file] (default ".exrc" in the current directory), unless it already exists. {not in Vi}

:mk[exrc]! [file]   Always write current key mappings and changed options to [file] (default ".exrc" in the current directory). {not in Vi}

                                                          :mkv :mkvimrc
:mkv[imrc][!] [file]   Like ":mkexrc", but the default is ".vimrc" in the current directory. The ":version" command is also written to the file. {not in Vi}

These commands will write ":map" and ":set" commands to a file, in such a way that when these commands are executed, the current key mappings and options will be set to the same values. The options 'columns', 'endofline', 'fileformat', 'key', 'lines', 'modified', 'scroll', 'term', 'textmode', 'ttyfast' and 'ttymouse' are not included, because these are terminal or file dependent. Note that the options 'binary', 'paste' and 'readonly' are included, this might not always be what you want.

When special keys are used in mappings, The 'cpoptions' option will be temporarily set to its Vim default, to avoid the mappings to be misinterpreted. This makes the file incompatible with Vi, but makes sure it can be used with different terminals.

Only global mappings are stored, not mappings local to a buffer.

A common method is to use a default ".vimrc" file, make some modifications with ":map" and ":set" commands and write the modified file. First read the default ".vimrc" in with a command like ":source ~piet/.vimrc.Cprogs", change the settings and then save them in the current directory with ":mkvimrc!". If you want to make this file your default .vimrc, move it to your home directory (on Unix), s: (Amiga) or $VIM directory (MS-DOS). You could also use autocommands autocommand and/or modelines modeline .

vimrc-option-example
If you only want to add a single option setting to your vimrc, you can use these steps:
1. Edit your vimrc file with Vim.
2. Play with the option until it's right. E.g., try out different values for 'guifont'.
3. Append a line to set the value of the option, using the expression register '=' to enter the value. E.g., for the 'guifont' option:
   o:set guifont=<C-R>=&guifont<CR><Esc>
  [<C-R> is a CTRL-R, <CR> is a return, <Esc> is the escape key]
   You need to escape special characters, esp. spaces.

Note that when you create a .vimrc file, this can influence the 'compatible' option, which has several side effects. See 'compatible' .
":mkvimrc", ":mkexrc" and ":mksession" write the command to set or reset the 'compatible' option to the output file first, because of these side effects.

==
9. Views and Sessions views-sessions

This is introduced in sections 21.4 and 21.5 of the user manual.

View view-file
A View is a collection of settings that apply to one window. You can save a View and when you restore it later, the text is displayed in the same way. The options and mappings in this window will also be restored, so that you can continue editing like when the View was saved.

Session session-file
A Session keeps the Views for all windows, plus the global settings. You can save a Session and when you restore it later the window layout looks the same. You can use a Session to quickly switch between different projects, automatically loading the files you were last working on in that project.

Views and Sessions are a nice addition to viminfo-files, which are used to remember information for all Views and Sessions together viminfo-file .

You can quickly start editing with a previously saved View or Session with the -S argument:
        vim -S Session.vim

All this is {not in Vi} and {not available when compiled without the +mksession feature}.

:mks :mksession
:mks[ession][!] [file] Write a Vim script that restores the current editing
                       session.
                       When [!] is included an existing file is overwritten.
                       When [file] is omitted "Session.vim" is used.

The output of ":mksession" is like ":mkvimrc", but additional commands are added to the file. Which ones depends on the 'sessionoptions' option. The resulting file, when executed with a ":source" command:

1. Restores global mappings and options, if 'sessionoptions' contains
   "options". Script-local mappings will not be written.
2. Restores global variables that start with an uppercase letter and contain
   at least one lowercase letter, if 'sessionoptions' contains "globals".
3. Unloads all currently loaded buffers.
4. Restores the current directory if 'sessionoptions' contains "curdir", or
   sets the current directory to where the Session file is if 'sessionoptions'
   contains "sesdir".
5. Restores GUI Vim window position, if 'sessionoptions' contains "winpos".
6. Restores screen size, if 'sessionoptions' contains "resize".
7. Reloads the buffer list, with the last cursor positions. If
   'sessionoptions' contains "buffers" then all buffers are restored,
   including hidden and unloaded buffers. Otherwise only buffers in windows
   are restored.
8. Restores all windows with the same layout. If 'sessionoptions' contains
   "help", help windows are restored. If 'sessionoptions' contains "blank",
   windows editing a buffer without a name will be restored.
   If 'sessionoptions' contains "winsize" and no (help/blank) windows were
   left out, the window sizes are restored (relative to the screen size).
   Otherwise, the windows are just given sensible sizes.
9. Restores the Views for all the windows, as with :mkview . But
   'sessionoptions' is used instead of 'viewoptions'.
10. If a file exists with the same name as the Session file, but ending in
    "x.vim" (for eXtra), executes that as well. You can use *x.vim files to
    specify additional settings and actions associated with a given Session,
    such as creating menu items in the GUI version.

After restoring the Session, the full filename of your current Session is
available in the internal variable "v:this_session" this_session-variable .
An example mapping:
  :nmap <F2> :wa<Bar>exe "mksession! " . v:this_session<CR>:so ~/sessions/
This saves the current Session, and starts off the command to load another.

A session includes all tab pages, unless "tabpages" was removed from
'sessionoptions'. tab-page

The SessionLoadPost autocmd event is triggered after a session file is
loaded/sourced.

                                                        SessionLoad-variable
While the session file is loading the SessionLoad global variable is set to 1.
Plugins can use this to postpone some work until the SessionLoadPost event is
triggered.

                                                        :mkvie :mkview
:mkvie[w][!] [file]   Write a Vim script that restores the contents of the
                        current window.
                        When [!] is included an existing file is overwritten.
                        When [file] is omitted or is a number from 1 to 9, a
                        name is generated and 'viewdir' prepended. When the
                        last path part of 'viewdir' does not exist, this
                        directory is created. E.g., when 'viewdir' is
                        "$VIM/vimfiles/view" then "view" is created in
                        "$VIM/vimfiles".
                        An existing file is always overwritten then. Use

:loadview to load this view again.
When [file] is the name of a file ('viewdir' is not used), a command to edit the file is added to the generated file.

The output of ":mkview" contains these items:
1. The argument list used in the window. When the global argument list is used it is reset to the global list.
   The index in the argument list is also restored.
2. The file being edited in the window. If there is no file, the window is made empty.
3. Restore mappings, abbreviations and options local to the window if 'viewoptions' contains "options" or "localoptions". For the options it restores only values that are local to the current buffer and values local to the window.
   When storing the view as part of a session and "options" is in 'sessionoptions', global values for local options will be stored too.
4. Restore folds when using manual folding and 'viewoptions' contains "folds". Restore manually opened and closed folds.
5. The scroll position and the cursor position in the file. Doesn't work very well when there are closed folds.
6. The local current directory, if it is different from the global current directory and 'viewoptions' contains "curdir".

Note that Views and Sessions are not perfect:
- They don't restore everything. For example, defined functions, autocommands and ":syntax on" are not included. Things like register contents and command line history are in viminfo, not in Sessions or Views.
- Global option values are only set when they differ from the default value. When the current value is not the default value, loading a Session will not set it back to the default value. Local options will be set back to the default value though.
- Existing mappings will be overwritten without warning. An existing mapping may cause an error for ambiguity.
- When storing manual folds and when storing manually opened/closed folds, changes in the file between saving and loading the view will mess it up.
- The Vim script is not very efficient. But still faster than typing the commands yourself!

:lo :loadview
:lo[adview] [nr] Load the view for the current file. When [nr] is omitted, the view stored with ":mkview" is loaded.
When [nr] is specified, the view stored with ":mkview [nr]" is loaded.

The combination of ":mkview" and ":loadview" can be used to store up to ten different views of a file. These are remembered in the directory specified with the 'viewdir' option. The views are stored using the file name. If a file is renamed or accessed through a (symbolic) link the view will not be found.

You might want to clean up your 'viewdir' directory now and then.

To automatically save and restore views for *.c files:

```
	au BufWinLeave *.c mkview
	au BufWinEnter *.c silent loadview
```

==========

10. The viminfo file

viminfo viminfo-file E136 E575 E576 E577

If you exit Vim and later start it again, you would normally lose a lot of information. The viminfo file can be used to remember that information, which enables you to continue where you left off.

This is introduced in section 21.3 of the user manual.

The viminfo file is used to store:
- The command line history.
- The search string history.
- The input-line history.
- Contents of non-empty registers.
- Marks for several files.
- File marks, pointing to locations in files.
- Last search/substitute pattern (for 'n' and '&').
- The buffer list.
- Global variables.

The viminfo file is not supported when the +viminfo feature has been disabled at compile time.

You could also use a Session file. The difference is that the viminfo file does not depend on what you are working on. There normally is only one viminfo file. Session files are used to save the state of a specific editing Session. You could have several Session files, one for each project you are working on. Viminfo and Session files together can be used to effectively enter Vim and directly start working in your desired setup. session-file

viminfo-read

When Vim is started and the 'viminfo' option is non-empty, the contents of the viminfo file are read and the info can be used in the appropriate places. The v:oldfiles variable is filled. The marks are not read in at startup (but file marks are). See initialization for how to set the 'viminfo' option upon startup.

viminfo-write

When Vim exits and 'viminfo' is non-empty, the info is stored in the viminfo file (it's actually merged with the existing one, if one exists). The 'viminfo' option is a string containing information about what info should be stored, and contains limits on how much should be stored (see 'viminfo').

Merging happens in two ways. Most items that have been changed or set in the current Vim session are stored, and what was not changed is filled from what is currently in the viminfo file. For example:
- Vim session A reads the viminfo, which contains variable START.
- Vim session B does the same
- Vim session A sets the variables AAA and BOTH and exits
- Vim session B sets the variables BBB and BOTH and exits

Now the viminfo will have:

```
   START - it was in the viminfo and wasn't changed in session A or B
   AAA   - value from session A, session B kept it
   BBB   - value from session B
   BOTH  - value from session B, value from session A is lost
```

viminfo-timestamp

For some items a timestamp is used to keep the last changed version. Here it doesn't matter in which sequence Vim sessions exit, the newest item(s) are always kept. This is used for:
- The command line history.
- The search string history.
- The input-line history.
- Contents of non-empty registers.
- The jump list
- File marks

The timestamp feature was added before Vim 8.0. Older versions of Vim, starting with 7.4.1131, will keep the items with timestamp, but not use them. Thus when using both an older and a newer version of Vim the most recent data will be kept.

Notes for Unix:
- The file protection for the viminfo file will be set to prevent other users from being able to read it, because it may contain any text or commands that you have worked with.
- If you want to share the viminfo file with other users (e.g. when you "su" to another user), you can make the file writable for the group or everybody. Vim will preserve this when replacing the viminfo file. Be careful, don't allow just anybody to read and write your viminfo file!
- Vim will not overwrite a viminfo file that is not writable by the current "real" user. This helps for when you did "su" to become root, but your $HOME is still set to a normal user's home directory. Otherwise Vim would create a viminfo file owned by root that nobody else can read.
- The viminfo file cannot be a symbolic link. This is to avoid security issues.

Marks are stored for each file separately. When a file is read and 'viminfo' is non-empty, the marks for that file are read from the viminfo file. NOTE: The marks are only written when exiting Vim, which is fine because marks are remembered for all the files you have opened in the current editing session, unless ":bdel" is used. If you want to save the marks for a file that you are about to abandon with ":bdel", use ":wv". The '[' and ']' marks are not stored, but the '"' mark is. The '"' mark is very useful for jumping to the cursor position when the file was last exited. No marks are saved for files that start with any string given with the "r" flag in 'viminfo'. This can be used to avoid saving marks for files on removable media (for MS-DOS you would use "ra:,rb:", for Amiga "rdf0:,rdf1:,rdf2:").
The v:oldfiles variable is filled with the file names that the viminfo file has marks for.

viminfo-file-marks

Uppercase marks ('A to 'Z) are stored when writing the viminfo file. The numbered marks ('0 to '9) are a bit special. When the viminfo file is written (when exiting or with the ":wviminfo" command), '0 is set to the current cursor position and file. The old '0 is moved to '1, '1 to '2, etc. This

resembles what happens with the "1 to "9 delete registers. If the current cursor position is already present in '0 to '9, it is moved to '0, to avoid having the same position twice. The result is that with "'0", you can jump back to the file and line where you exited Vim. To do that right away, try using this command:

```
vim -c "normal '0"
```

In a csh compatible shell you could make an alias for it:

```
alias lvim vim -c '"'normal "'"0'"'
```

For a bash-like shell:

```
alias lvim='vim -c "normal '\''0"'
```

Use the "r" flag in 'viminfo' to specify for which files no marks should be remembered.

VIMINFO FILE NAME viminfo-file-name

- The default name of the viminfo file is "$HOME/.viminfo" for Unix and OS/2, "s:.viminfo" for Amiga, "$HOME_viminfo" for MS-DOS and Win32. For the last two, when $HOME is not set, "$VIM_viminfo" is used. When $VIM is also not set, "c:_viminfo" is used. For OS/2 "$VIM/.viminfo" is used when $HOME is not set and $VIM is set.
- The 'n' flag in the 'viminfo' option can be used to specify another viminfo file name 'viminfo' .
- The "-i" Vim argument can be used to set another file name, -i . When the file name given is "NONE" (all uppercase), no viminfo file is ever read or written. Also not for the commands below!
- The 'viminfofile' option can be used like the "-i" argument. In fact, the value form the "-i" argument is stored in the 'viminfofile' option.
- For the commands below, another file name can be given, overriding the default and the name given with 'viminfo' or "-i" (unless it's NONE).

CHARACTER ENCODING viminfo-encoding

The text in the viminfo file is encoded as specified with the 'encoding' option. Normally you will always work with the same 'encoding' value, and this works just fine. However, if you read the viminfo file with another value for 'encoding' than what it was written with, some of the text (non-ASCII characters) may be invalid. If this is unacceptable, add the 'c' flag to the 'viminfo' option:

```
:set viminfo+=c
```

Vim will then attempt to convert the text in the viminfo file from the 'encoding' value it was written with to the current 'encoding' value. This requires Vim to be compiled with the +iconv feature. Filenames are not converted.

MANUALLY READING AND WRITING viminfo-read-write

Two commands can be used to read and write the viminfo file manually. This can be used to exchange registers between two running Vim programs: First type ":wv" in one and then ":rv" in the other. Note that if the register already contained something, then ":rv!" would be required. Also note however that this means everything will be overwritten with information from the first Vim, including the command line history, etc.

The viminfo file itself can be edited by hand too, although we suggest you start with an existing one to get the format right. It is reasonably self-explanatory once you're in there. This can be useful in order to create a second file, say "~/.my_viminfo" which could contain certain settings that you always want when you first start Vim. For example, you can preload registers with particular data, or put certain commands in the command line history. A line in your .vimrc file like

```
:rviminfo! ~/.my_viminfo
```

can be used to load this information. You could even have different viminfos for different types of files (e.g., C code) and load them based on the file name, using the ":autocmd" command (see :autocmd).

viminfo-errors

When Vim detects an error while reading a viminfo file, it will not overwrite that file. If there are more than 10 errors, Vim stops reading the viminfo file. This was done to avoid accidentally destroying a file when the file name of the viminfo file is wrong. This could happen when accidentally typing "vim -i file" when you wanted "vim -R file" (yes, somebody accidentally did that!). If you want to overwrite a viminfo file with an error in it, you will either have to fix the error, or delete the file (while Vim is running, so most of the information will be restored).

:rv :rviminfo E195

:rv[iminfo][!] [file] Read from viminfo file [file] (default: see above). If [!] is given, then any information that is already set (registers, marks, v:oldfiles , etc.) will be overwritten {not in Vi}

:wv :wviminfo E137 E138 E574 E886 E929

:wv[iminfo][!] [file] Write to viminfo file [file] (default: see above). The information in the file is first read in to make a merge between old and new info. When [!] is used, the old information is not read first, only the internal info is written. If 'viminfo' is empty, marks for up to 100 files will be written.
When you get error "E929: Too many viminfo temp files" check that no old temp files were left behind (e.g. ~/.viminf*) and that you can write in the directory of the .viminfo file.
{not in Vi}

:ol :oldfiles

:ol[dfiles] List the files that have marks stored in the viminfo file. This list is read on startup and only changes afterwards with `:rviminfo!`. Also see v:oldfiles . The number can be used with c_#< .

The output can be filtered with :filter , e.g.:
filter /\.vim/ oldfiles
The filtering happens on the file name.
{not in Vi, only when compiled with the +eval feature}

:bro[wse] ol[dfiles][!]
List file names as with :oldfiles , and then prompt for a number. When the number is valid that file from the list is edited.
If you get the press-enter prompt you can press "q" and still get the prompt to enter a file number.
Use ! to abandon a modified buffer. abandon
{not when compiled with tiny or small features}

vim:tw=78:ts=8:noet:ft=help:norl:

editing.txt For Vim version 8.1. Last change: 2018 Mar 29

VIM REFERENCE MANUAL by Bram Moolenaar

Editing files edit-files

==========

1. Introduction edit-intro

Editing a file with Vim means:

1. reading the file into a buffer
2. changing the buffer with editor commands
3. writing the buffer into a file

current-file

As long as you don't write the buffer, the original file remains unchanged.
If you start editing a file (read a file into the buffer), the file name is
remembered as the "current file name". This is also known as the name of the
current buffer. It can be used with "%" on the command line :_% .

alternate-file

If there already was a current file name, then that one becomes the alternate
file name. It can be used with "#" on the command line :_# and you can use
the CTRL-^ command to toggle between the current and the alternate file.
However, the alternate file name is not changed when :keepalt is used.
An alternate file name is remembered for each window.

:keepalt :keepa

:keepalt {cmd} Execute {cmd} while keeping the current alternate file
name. Note that commands invoked indirectly (e.g.,
with a function) may still set the alternate file
name. {not in Vi}

All file names are remembered in the buffer list. When you enter a file name,
for editing (e.g., with ":e filename") or writing (e.g., with ":w filename"),
the file name is added to the list. You can use the buffer list to remember
which files you edited and to quickly switch from one file to another (e.g.,
to copy text) with the CTRL-^ command. First type the number of the file
and then hit CTRL-^. {Vi: only one alternate file name is remembered}

CTRL-G or CTRL-G :f :fi :file

:f[ile] Prints the current file name (as typed, unless ":cd" was used), the cursor position (unless the 'ruler' option is set), and the file status (readonly, modified, read errors, new file). See the 'shortmess' option about how to make this message shorter. {Vi does not include column number}

:f[ile]! like :file , but don't truncate the name even when 'shortmess' indicates this.

{count}CTRL-G Like CTRL-G, but prints the current file name with full path. If the count is higher than 1 the current buffer number is also given. {not in Vi}

g_CTRL-G word-count byte-count

g CTRL-G Prints the current position of the cursor in five ways: Column, Line, Word, Character and Byte. If the number of Characters and Bytes is the same then the Character position is omitted.
If there are characters in the line that take more than one position on the screen (<Tab> or special character), both the "real" column and the screen column are shown, separated with a dash.
Also see the 'ruler' option and the wordcount() function.
{not in Vi}

v_g_CTRL-G

{Visual}g CTRL-G Similar to "g CTRL-G", but Word, Character, Line, and Byte counts for the visually selected region are displayed.
In Blockwise mode, Column count is also shown. (For {Visual} see Visual-mode .)
{not in VI}

:file_f

:f[ile][!] {name} Sets the current file name to {name}. The optional ! avoids truncating the message, as with :file .
If the buffer did have a name, that name becomes the alternate-file name. An unlisted buffer is created to hold the old name.

:0file

:0f[ile][!] Remove the name of the current buffer. The optional ! avoids truncating the message, as with :file . {not in Vi}

:buffers
:files
:ls List all the currently known file names. See 'windows.txt' :files :buffers :ls . {not in Vi}

Vim will remember the full path name of a file name that you enter. In most cases when the file name is displayed only the name you typed is shown, but the full path name is being used if you used the ":cd" command :cd .

home-replace
If the environment variable $HOME is set, and the file name starts with that string, it is often displayed with HOME replaced with "~". This was done to keep file names short. When reading or writing files the full name is still used, the "~" is only used when displaying file names. When replacing the file name would result in just "~", "~/" is used instead (to avoid confusion between options set to $HOME with 'backupext' set to "~").

When writing the buffer, the default is to use the current file name. Thus when you give the "ZZ" or ":wq" command, the original file will be overwritten. If you do not want this, the buffer can be written into another file by giving a file name argument to the ":write" command. For example:

```
vim testfile
[change the buffer with editor commands]
:w newfile
:q
```

This will create a file "newfile", that is a modified copy of "testfile". The file "testfile" will remain unchanged. Anyway, if the 'backup' option is set, Vim renames or copies the original file before it will be overwritten. You can use this file if you discover that you need the original file. See also the 'patchmode' option. The name of the backup file is normally the same as the original file with 'backupext' appended. The default "~" is a bit strange to avoid accidentally overwriting existing files. If you prefer ".bak" change the 'backupext' option. Extra dots are replaced with '_' on MS-DOS machines, when Vim has detected that an MS-DOS-like filesystem is being used (e.g., messydos or crossdos) or when the 'shortname' option is on. The backup file can be placed in another directory by setting 'backupdir'.

auto-shortname
Technical: On the Amiga you can use 30 characters for a file name. But on an MS-DOS-compatible filesystem only 8 plus 3 characters are available. Vim tries to detect the type of filesystem when it is creating the .swp file. If an MS-DOS-like filesystem is suspected, a flag is set that has the same effect as setting the 'shortname' option. This flag will be reset as soon as you start editing a new file. The flag will be used when making the file name for the ".swp" and ".~" files for the current file. But when you are editing a file in a normal filesystem and write to an MS-DOS-like filesystem the flag will not have been set. In that case the creation of the ".~" file may fail and you will get an error message. Use the 'shortname' option in this case.

When you started editing without giving a file name, "No File" is displayed in messages. If the ":write" command is used with a file name argument, the file name for the current file is set to that file name. This only happens when the 'F' flag is included in 'cpoptions' (by default it is included) cpo-F . This is useful when entering text in an empty buffer and then writing it to a

file. If 'cpoptions' contains the 'f' flag (by default it is NOT included)
 cpo-f the file name is set for the ":read file" command. This is useful
when starting Vim without an argument and then doing ":read file" to start
editing a file.
When the file name was set and 'filetype' is empty the filetype detection
autocommands will be triggered.
                                                        not-edited
Because the file name was set without really starting to edit that file, you
are protected from overwriting that file. This is done by setting the
"notedited" flag. You can see if this flag is set with the CTRL-G or ":file"
command. It will include "[Not edited]" when the "notedited" flag is set.
When writing the buffer to the current file name (with ":w!"), the "notedited"
flag is reset.

                                                        abandon
Vim remembers whether you have changed the buffer. You are protected from
losing the changes you made. If you try to quit without writing, or want to
start editing another file, Vim will refuse this. In order to overrule this
protection, add a '!' to the command. The changes will then be lost. For
example: ":q" will not work if the buffer was changed, but ":q!" will. To see
whether the buffer was changed use the "CTRL-G" command. The message includes
the string "[Modified]" if the buffer has been changed, or "+" if the 'm' flag
is in 'shortmess'.

If you want to automatically save the changes without asking, switch on the
'autowriteall' option. 'autowrite' is the associated Vi-compatible option
that does not work for all commands.

If you want to keep the changed buffer without saving it, switch on the
'hidden' option. See hidden-buffer . Some commands work like this even when
'hidden' is not set, check the help for the command.

==
2. Editing a file   edit-a-file

                                                        :e :edit reload
:e[dit] [++opt] [+cmd] Edit the current file. This is useful to re-edit the
                        current file, when it has been changed outside of Vim.
                        This fails when changes have been made to the current
                        buffer and 'autowriteall' isn't set or the file can't
                        be written.
                        Also see ++opt and +cmd .
                        {Vi: no ++opt}

                                                        :edit! discard
:e[dit]! [++opt] [+cmd]
                        Edit the current file always. Discard any changes to
                        the current buffer. This is useful if you want to
                        start all over again.
                        Also see ++opt and +cmd .
                        {Vi: no ++opt}

                                                        :edit_f
:e[dit] [++opt] [+cmd] {file}

Edit {file}.
This fails when changes have been made to the current buffer, unless 'hidden' is set or 'autowriteall' is set and the file can be written.
Also see ++opt and +cmd .
{Vi: no ++opt}

:edit!_f

:e[dit]! [++opt] [+cmd] {file}
Edit {file} always. Discard any changes to the current buffer.
Also see ++opt and +cmd .
{Vi: no ++opt}

:e[dit] [++opt] [+cmd] #[count]
Edit the [count]th buffer (as shown by :files).
This command does the same as [count] CTRL-^. But ":e #" doesn't work if the alternate buffer doesn't have a file name, while CTRL-^ still works then.
Also see ++opt and +cmd .
{Vi: no ++opt}

:ene :enew

:ene[w]
Edit a new, unnamed buffer. This fails when changes have been made to the current buffer, unless 'hidden' is set or 'autowriteall' is set and the file can be written.
If 'fileformats' is not empty, the first format given will be used for the new buffer. If 'fileformats' is empty, the 'fileformat' of the current buffer is used.
{not in Vi}

:ene! :enew!

:ene[w]!
Edit a new, unnamed buffer. Discard any changes to the current buffer.
Set 'fileformat' like :enew .
{not in Vi}

:fin :find

:fin[d][!] [++opt] [+cmd] {file}
Find {file} in 'path' and then :edit it.
{not in Vi} {not available when the +file_in_path feature was disabled at compile time}

:{count}fin[d][!] [++opt] [+cmd] {file}
Just like ":find", but use the {count} match in 'path'. Thus ":2find file" will find the second "file" found in 'path'. When there are fewer matches for the file in 'path' than asked for, you get an error message.

:ex

:ex [++opt] [+cmd] [file]
Same as :edit .

:vi[sual][!] [++opt] [+cmd] [file] :vi :visual
When used in Ex mode: Leave Ex-mode , go back to Normal mode. Otherwise same as :edit .

:vie[w][!] [++opt] [+cmd] file :vie :view
When used in Ex mode: Leave Ex-mode , go back to Normal mode. Otherwise same as :edit , but set 'readonly' option for this buffer. {not in Vi}

CTRL-^ CTRL-^ CTRL-6
Edit the alternate file. Mostly the alternate file is the previously edited file. This is a quick way to toggle between two files. It is equivalent to ":e #", except that it also works when there is no file name.

If the 'autowrite' or 'autowriteall' option is on and the buffer was changed, write it.
Mostly the ^ character is positioned on the 6 key, pressing CTRL and 6 then gets you what we call CTRL-^. But on some non-US keyboards CTRL-^ is produced in another way.

{count}CTRL-^
Edit [count]th file in the buffer list (equivalent to ":e #[count]"). This is a quick way to switch between files.
See CTRL-^ above for further details.
{not in Vi}

[count]]f]f [f
[count][f
Same as "gf". Deprecated.

[count]gf gf E446 E447
Edit the file whose name is under or after the cursor. Mnemonic: "goto file".
Uses the 'isfname' option to find out which characters are supposed to be in a file name. Trailing punctuation characters ".,:;!" are ignored. Escaped spaces "\ " are reduced to a single space.
Uses the 'path' option as a list of directory names to look for the file. See the 'path' option for details about relative directories and wildcards.
Uses the 'suffixesadd' option to check for file names with a suffix added.
If the file can't be found, 'includeexpr' is used to modify the name and another attempt is done.
If a [count] is given, the count'th file that is found in the 'path' is edited.
This command fails if Vim refuses to abandon the current file.
If you want to edit the file in a new window use CTRL-W_CTRL-F .

If you do want to edit a new file, use:
		:e <cfile>
To make gf always work like that:
		:map gf :e <cfile><CR>
If the name is a hypertext link, that looks like
"type://machine/path", you need the netrw plugin.
For Unix the '~' character is expanded, like in
"~user/file". Environment variables are expanded too
expand-env .
{not in Vi}
{not available when the +file_in_path feature was
disabled at compile time}

v_gf
{Visual}[count]gf	Same as "gf", but the highlighted text is used as the
name of the file to edit. 'isfname' is ignored.
Leading blanks are skipped, otherwise all blanks and
special characters are included in the file name.
(For {Visual} see Visual-mode .)
{not in VI}

gF
[count]gF		Same as "gf", except if a number follows the file
name, then the cursor is positioned on that line in
the file. The file name and the number must be
separated by a non-filename (see 'isfname') and
non-numeric character. White space between the
filename, the separator and the number are ignored.
Examples:
		eval.c:10
		eval.c @ 20
		eval.c (30)
		eval.c 40

v_gF
{Visual}[count]gF	Same as "v_gf".

These commands are used to start editing a single file. This means that the file is read into the buffer and the current file name is set. The file that is opened depends on the current directory, see :cd .

See read-messages for an explanation of the message that is given after the file has been read.

You can use the ":e!" command if you messed up the buffer and want to start all over again. The ":e" command is only useful if you have changed the current file name.

:filename {file}
Besides the things mentioned here, more special items for where a filename is expected are mentioned at cmdline-special .

Note for systems other than Unix: When using a command that accepts a single file name (like ":edit file") spaces in the file name are allowed, but

trailing spaces are ignored. This is useful on systems that regularly embed spaces in file names (like MS-Windows and the Amiga). Example: The command ":e   Long File Name " will edit the file "Long File Name". When using a command that accepts more than one file name (like ":next file1 file2") embedded spaces must be escaped with a backslash.

                                                    wildcard   wildcards
Wildcards in {file} are expanded, but as with file completion, 'wildignore' and 'suffixes' apply. Which wildcards are supported depends on the system. These are the common ones:

```
        ?       matches one character
        *       matches anything, including nothing
        **      matches anything, including nothing, recurses into directories
        [abc]   match 'a', 'b' or 'c'
```

To avoid the special meaning of the wildcards prepend a backslash. However, on MS-Windows the backslash is a path separator and "path\[abc]" is still seen as a wildcard when "[" is in the 'isfname' option. A simple way to avoid this is to use "path\[[]abc]", this matches the file "path\[abc]".

                                                starstar-wildcard
Expanding "**" is possible on Unix, Win32, Mac OS/X and a few other systems. This allows searching a directory tree. This goes up to 100 directories deep. Note there are some commands where this works slightly differently, see file-searching .
Example:

```
        :n **/*.txt
```

Finds files:

```
        aaa.txt
        subdir/bbb.txt
        a/b/c/d/ccc.txt
```

When non-wildcard characters are used right before or after "**" these are only matched in the top directory. They are not used for directories further down in the tree. For example:

```
        :n /usr/inc**/types.h
```

Finds files:

```
        /usr/include/types.h
        /usr/include/sys/types.h
        /usr/inc/old/types.h
```

Note that the path with "/sys" is included because it does not need to match "/inc". Thus it's like matching "/usr/inc*/*/*...", not "/usr/inc*/inc*/inc*".

                                                backtick-expansion   `-expansion
On Unix and a few other systems you can also use backticks for the file name argument, for example:

```
        :next `find . -name ver\\*.c -print`
        :view `ls -t *.patch  \| head -n1`
```

Vim will run the command in backticks using the 'shell' and use the standard output as argument for the given Vim command (error messages from the shell command will be discarded).
To see what shell command Vim is running, set the 'verbose' option to 4. When the shell command returns a non-zero exit code, an error message will be displayed and the Vim command will be aborted. To avoid this make the shell

always return zero like so:
	:next `find . -name ver\\*.c -print \|\| true`

The backslashes before the star are required to prevent the shell from
expanding "ver*.c" prior to execution of the find program. The backslash
before the shell pipe symbol "|" prevents Vim from parsing it as command
termination.
This also works for most other systems, with the restriction that the
backticks must be around the whole item. It is not possible to have text
directly before the first or just after the last backtick.

`=
You can have the backticks expanded as a Vim expression, instead of as an
external command, by putting an equal sign right after the first backtick,
e.g.:
	:e `=tempname()`
The expression can contain just about anything, thus this can also be used to
avoid the special meaning of '"', '|', '%' and '#'. However, 'wildignore'
does apply like to other wildcards.

Environment variables in the expression are expanded when evaluating the
expression, thus this works:
	:e `=$HOME . '/.vimrc'`
This does not work, $HOME is inside a string and used literally:
	:e `='$HOME' . '/.vimrc'`

If the expression returns a string then names are to be separated with line
breaks. When the result is a List then each item is used as a name. Line
breaks also separate names.
Note that such expressions are only supported in places where a filename is
expected as an argument to an Ex-command.

++opt	[++opt]
The [++opt] argument can be used to force the value of 'fileformat',
'fileencoding' or 'binary' to a value for one command, and to specify the
behavior for bad characters. The form is:
	++{optname}
Or:
	++{optname}={value}

Where {optname} is one of:	++ff	++enc	++bin	++nobin	++edit
    ff   or fileformat   overrides 'fileformat'
    enc   or encoding   overrides 'fileencoding'
    bin   or binary   sets 'binary'
    nobin or nobinary   resets 'binary'
    bad   specifies behavior for bad characters
    edit   for :read only: keep option values as if editing
                            a file

{value} cannot contain white space. It can be any valid value for these
options. Examples:
	:e ++ff=unix
This edits the same file again with 'fileformat' set to "unix".

```
        :w ++enc=latin1 newfile
```
This writes the current buffer to "newfile" in latin1 format.

There may be several ++opt arguments, separated by white space. They must all appear before any +cmd argument.

++bad

The argument of "++bad=" specifies what happens with characters that can't be converted and illegal bytes. It can be one of three things:

++bad=X	A single-byte character that replaces each bad character.
++bad=keep	Keep bad characters without conversion. Note that this may result in illegal bytes in your text!
++bad=drop	Remove the bad characters.

The default is like "++bad=?": Replace each bad character with a question mark. In some places an inverted question mark is used (0xBF).

Note that not all commands use the ++bad argument, even though they do not give an error when you add it. E.g. :write .

Note that when reading, the 'fileformat' and 'fileencoding' options will be set to the used format. When writing this doesn't happen, thus a next write will use the old value of the option. Same for the 'binary' option.

+cmd [+cmd]

The [+cmd] argument can be used to position the cursor in the newly opened file, or execute any other command:

+	Start at the last line.
+{num}	Start at line {num}.
+/{pat}	Start at first line containing {pat}.
+{command}	Execute {command} after opening the new file. {command} is any Ex command.

To include a white space in the {pat} or {command}, precede it with a backslash. Double the number of backslashes.

```
        :edit  +/The\ book           file
        :edit  +/dir\ dirname\\      file
        :edit  +set\ dir=c:\\\\temp  file
```
Note that in the last example the number of backslashes is halved twice: Once for the "+cmd" argument and once for the ":set" command.

file-formats

The 'fileformat' option sets the <EOL> style for a file:

'fileformat'	characters	name	
"dos"	<CR><NL> or <NL>	DOS format	DOS-format
"unix"	<NL>	Unix format	Unix-format
"mac"	<CR>	Mac format	Mac-format

Previously 'textmode' was used. It is obsolete now.

When reading a file, the mentioned characters are interpreted as the <EOL>. In DOS format (default for MS-DOS, OS/2 and Win32), <CR><NL> and <NL> are both interpreted as the <EOL>. Note that when writing the file in DOS format, <CR> characters will be added for each single <NL>. Also see file-read .

When writing a file, the mentioned characters are used for <EOL>. For DOS format <CR><NL> is used. Also see DOS-format-write .

You can read a file in DOS format and write it in Unix format. This will replace all <CR><NL> pairs by <NL> (assuming 'fileformats' includes "dos"):

```
:e file
:set fileformat=unix
:w
```

If you read a file in Unix format and write with DOS format, all <NL> characters will be replaced with <CR><NL> (assuming 'fileformats' includes "unix"):

```
:e file
:set fileformat=dos
:w
```

If you start editing a new file and the 'fileformats' option is not empty (which is the default), Vim will try to detect whether the lines in the file are separated by the specified formats. When set to "unix,dos", Vim will check for lines with a single <NL> (as used on Unix and Amiga) or by a <CR> <NL> pair (MS-DOS). Only when ALL lines end in <CR><NL>, 'fileformat' is set to "dos", otherwise it is set to "unix". When 'fileformats' includes "mac", and no <NL> characters are found in the file, 'fileformat' is set to "mac".

If the 'fileformat' option is set to "dos" on non-MS-DOS systems the message "[dos format]" is shown to remind you that something unusual is happening. On MS-DOS systems you get the message "[unix format]" if 'fileformat' is set to "unix". On all systems but the Macintosh you get the message "[mac format]" if 'fileformat' is set to "mac".

If the 'fileformats' option is empty and DOS format is used, but while reading a file some lines did not end in <CR><NL>, "[CR missing]" will be included in the file message.
If the 'fileformats' option is empty and Mac format is used, but while reading a file a <NL> was found, "[NL missing]" will be included in the file message.

If the new file does not exist, the 'fileformat' of the current buffer is used when 'fileformats' is empty. Otherwise the first format from 'fileformats' is used for the new file.

Before editing binary, executable or Vim script files you should set the 'binary' option. A simple way to do this is by starting Vim with the "-b" option. This will avoid the use of 'fileformat'. Without this you risk that single <NL> characters are unexpectedly replaced with <CR><NL>.

You can encrypt files that are written by setting the 'key' option. This provides some security against others reading your files. encryption

==
3. The argument list   argument-list arglist

If you give more than one file name when starting Vim, this list is remembered as the argument list. You can jump to each file in this list.

Do not confuse this with the buffer list, which you can see with the :buffers command. The argument list was already present in Vi, the buffer list is new in Vim. Every file name in the argument list will also be present in the buffer list (unless it was deleted with :bdel or :bwipe). But it's common that names in the buffer list are not in the argument list.

This subject is introduced in section 07.2 of the user manual.

There is one global argument list, which is used for all windows by default. It is possible to create a new argument list local to a window, see :arglocal .

You can use the argument list with the following commands, and with the expression functions argc() and argv() . These all work on the argument list of the current window.

:ar :args

:ar[gs] Print the argument list, with the current file in square brackets.

:ar[gs] [++opt] [+cmd] {arglist} :args_f

Define {arglist} as the new argument list and edit the first one. This fails when changes have been made and Vim does not want to abandon the current buffer. Also see ++opt and +cmd . {Vi: no ++opt}

:ar[gs]! [++opt] [+cmd] {arglist} :args_f!

Define {arglist} as the new argument list and edit the first one. Discard any changes to the current buffer. Also see ++opt and +cmd . {Vi: no ++opt}

:[count]arge[dit][!] [++opt] [+cmd] {name} .. :arge :argedit

Add {name}s to the argument list and edit it. When {name} already exists in the argument list, this entry is edited. This is like using :argadd and then :edit . Spaces in filenames have to be escaped with "\". [count] is used like with :argadd . If the current file cannot be abandon ed {name}s will still be added to the argument list, but won't be edited. No check for duplicates is done. Also see ++opt and +cmd . {not in Vi}

:[count]arga[dd] {name} .. :arga :argadd E479

:[count]arga[dd]

Add the {name}s to the argument list. When {name} is omitted add the current buffer name to the argument list. If [count] is omitted, the {name}s are added just after the current entry in the argument list.

Otherwise they are added after the [count]'th file.
If the argument list is "a b c", and "b" is the
current argument, then these commands result in:

command	new argument list
:argadd x	a b x c
:0argadd x	x a b c
:1argadd x	a x b c
:$argadd x	a b c x

And after the last one:

:+2argadd y	a b c x y

There is no check for duplicates, it is possible to
add a file to the argument list twice.
The currently edited file is not changed.
{not in Vi}
Note: you can also use this method:

```
:args ## x
```

This will add the "x" item and sort the new list.

:argd[elete] {pattern} .. :argd :argdelete E480

Delete files from the argument list that match the
{pattern}s. {pattern} is used like a file pattern,
see file-pattern . "%" can be used to delete the
current entry.
This command keeps the currently edited file, also
when it's deleted from the argument list.
Example:

```
:argdel *.obj
```

{not in Vi}

:[range]argd[elete]

Delete the {range} files from the argument list.
Example:

```
:10,$argdel
```

Deletes arguments 10 and further, keeping 1-9.

```
:$argd
```

Deletes just the last one.

```
:argd
:.argd
```

Deletes the current argument.

```
:%argd
```

Removes all the files from the arglist.
When the last number in the range is too high, up to
the last argument is deleted.
{not in Vi}

:argu :argument

:[count]argu[ment] [count] [++opt] [+cmd]

Edit file [count] in the argument list. When [count]
is omitted the current entry is used. This fails
when changes have been made and Vim does not want to
 abandon the current buffer.
Also see ++opt and +cmd .
{not in Vi}

:[count]argu[ment]! [count] [++opt] [+cmd]

Edit file [count] in the argument list, discard any changes to the current buffer. When [count] is omitted the current entry is used.
Also see ++opt and +cmd .
{not in Vi}

:[count]n[ext] [++opt] [+cmd] :n :ne :next E165 E163
Edit [count] next file. This fails when changes have been made and Vim does not want to abandon the current buffer. Also see ++opt and +cmd . {Vi: no count or ++opt}.

:[count]n[ext]! [++opt] [+cmd]
Edit [count] next file, discard any changes to the buffer. Also see ++opt and +cmd . {Vi: no count or ++opt}.

:n[ext] [++opt] [+cmd] {arglist} :next_f
Same as :args_f .

:n[ext]! [++opt] [+cmd] {arglist}
Same as :args_f! .

:[count]N[ext] [count] [++opt] [+cmd] :Next :N E164
Edit [count] previous file in argument list. This fails when changes have been made and Vim does not want to abandon the current buffer.
Also see ++opt and +cmd . {Vi: no count or ++opt}.

:[count]N[ext]! [count] [++opt] [+cmd]
Edit [count] previous file in argument list. Discard any changes to the buffer. Also see ++opt and +cmd . {Vi: no count or ++opt}.

:[count]prev[ious] [count] [++opt] [+cmd] :prev :previous
Same as :Next. Also see ++opt and +cmd . {Vi: only in some versions}

:rew :rewind
:rew[ind] [++opt] [+cmd]
Start editing the first file in the argument list. This fails when changes have been made and Vim does not want to abandon the current buffer.
Also see ++opt and +cmd . {Vi: no ++opt}

:rew[ind]! [++opt] [+cmd]
Start editing the first file in the argument list. Discard any changes to the buffer. Also see ++opt and +cmd . {Vi: no ++opt}

:fir :first
:fir[st][!] [++opt] [+cmd]
Other name for ":rewind". {not in Vi}

:la[st] [++opt] [+cmd] :la :last
Start editing the last file in the argument list. This fails when changes have been made and Vim does not want to abandon the current buffer. Also see ++opt and +cmd . {not in Vi}

:la[st]! [++opt] [+cmd]
Start editing the last file in the argument list. Discard any changes to the buffer. Also see ++opt and +cmd . {not in Vi}

:[count]wn[ext] [++opt] :wn :wnext
Write current file and start editing the [count] next file. Also see ++opt and +cmd . {not in Vi}

:[count]wn[ext] [++opt] {file}
Write current file to {file} and start editing the [count] next file, unless {file} already exists and the 'writeany' option is off. Also see ++opt and +cmd . {not in Vi}

:[count]wn[ext]! [++opt] {file}
Write current file to {file} and start editing the [count] next file. Also see ++opt and +cmd . {not in Vi}

:[count]wN[ext][!] [++opt] [file] :wN :wNext
:[count]wp[revious][!] [++opt] [file] :wp :wprevious
Same as :wnext, but go to previous file instead of next. {not in Vi}

The [count] in the commands above defaults to one. For some commands it is possible to use two counts. The last one (rightmost one) is used.

If no [+cmd] argument is present, the cursor is positioned at the last known cursor position for the file. If 'startofline' is set, the cursor will be positioned at the first non-blank in the line, otherwise the last know column is used. If there is no last known cursor position the cursor will be in the first line (the last line in Ex mode).

{arglist}
The wildcards in the argument list are expanded and the file names are sorted. Thus you can use the command "vim *.c" to edit all the C files. From within Vim the command ":n *.c" does the same.

White space is used to separate file names. Put a backslash before a space or tab to include it in a file name. E.g., to edit the single file "foo bar":
```
:next foo\ bar
```

On Unix and a few other systems you can also use backticks, for example:
```
:next `find . -name \\*.c -print`
```
The backslashes before the star are required to prevent "*.c" to be expanded

by the shell before executing the find program.

arglist-position
When there is an argument list you can see which file you are editing in the title of the window (if there is one and 'title' is on) and with the file message you get with the "CTRL-G" command. You will see something like
        (file 4 of 11)
If 'shortmess' contains 'f' it will be
        (4 of 11)
If you are not really editing the file at the current position in the argument list it will be
        (file (4) of 11)
This means that you are position 4 in the argument list, but not editing the fourth file in the argument list. This happens when you do ":e file".

LOCAL ARGUMENT LIST

{not in Vi}

:arglocal
:argl[ocal] Make a local copy of the global argument list. Doesn't start editing another file.

:argl[ocal][!] [++opt] [+cmd] {arglist}
Define a new argument list, which is local to the current window. Works like :args_f otherwise.

:argglobal
:argg[lobal] Use the global argument list for the current window. Doesn't start editing another file.

:argg[lobal][!] [++opt] [+cmd] {arglist}
Use the global argument list for the current window. Define a new global argument list like :args_f . All windows using the global argument list will see this new list.

There can be several argument lists. They can be shared between windows. When they are shared, changing the argument list in one window will also change it in the other window.

When a window is split the new window inherits the argument list from the current window. The two windows then share this list, until one of them uses :arglocal or :argglobal to use another argument list.

USING THE ARGUMENT LIST

:argdo
:[range]argdo[!] {cmd} Execute {cmd} for each file in the argument list or if [range] is specified only for arguments in that range. It works like doing this:
        :rewind

```
                        :{cmd}
                        :next
                        :{cmd}
                        etc.
                    When the current file can't be  abandon ed and the [!]
                     is not present, the command fails.
                     When an error is detected on one file, further files
                     in the argument list will not be visited.
                     The last file in the argument list (or where an error
                     occurred) becomes the current file.
                     {cmd} can contain '|' to concatenate several commands.
                     {cmd} must not change the argument list.
                     Note: While this command is executing, the Syntax
                     autocommand event is disabled by adding it to
                     'eventignore'.  This considerably speeds up editing
                     each file.
                     {not in Vi}
                     Also see  :windo ,  :tabdo ,  :bufdo ,  :cdo ,  :ldo ,
                      :cfdo  and  :lfdo

Example:
        :args *.c
        :argdo set ff=unix | update
This sets the 'fileformat' option to "unix" and writes the file if it is now
changed.  This is done for all *.c files.

Example:
        :args *.[ch]
        :argdo %s/\<my_foo\>/My_Foo/ge | update
This changes the word "my_foo" to "My_Foo" in all *.c and *.h files.  The "e"
flag is used for the ":substitute" command to avoid an error for files where
"my_foo" isn't used.  ":update" writes the file only if changes were made.

==============================================================================
4. Writing                                              writing   save-file

Note: When the 'write' option is off, you are not able to write any file.

                                                          :w   :write
                                        E502   E503   E504   E505
                                        E512   E514   E667   E796   E949
:w[rite] [++opt]        Write the whole buffer to the current file.  This is
                        the normal way to save changes to a file.  It fails
                        when the 'readonly' option is set or when there is
                        another reason why the file can't be written.
                        For ++opt see  ++opt , but only ++bin, ++nobin, ++ff
                        and ++enc are effective.

:w[rite]! [++opt]       Like ":write", but forcefully write when 'readonly' is
                        set or there is another reason why writing was
                        refused.
                        Note: This may change the permission and ownership of
                        the file and break (symbolic) links.  Add the 'W' flag
                        to 'cpoptions' to avoid this.
```

:[range]w[rite][!] [++opt]
                        Write the specified lines to the current file. This
                        is unusual, because the file will not contain all
                        lines in the buffer.

                                                                :w_f   :write_f
:[range]w[rite] [++opt] {file}
                        Write the specified lines to {file}, unless it
                        already exists and the 'writeany' option is off.

                                                                :w!
:[range]w[rite]! [++opt] {file}
                        Write the specified lines to {file}. Overwrite an
                        existing file.

                                                        :w_a   :write_a   E494
:[range]w[rite][!] [++opt] >>
                        Append the specified lines to the current file.

:[range]w[rite][!] [++opt] >> {file}
                        Append the specified lines to {file}. '!' forces the
                        write even if file does not exist.

                                                                :w_c   :write_c
:[range]w[rite] [++opt] !{cmd}
                        Execute {cmd} with [range] lines as standard input
                        (note the space in front of the '!'). {cmd} is
                        executed like with ":!{cmd}", any '!' is replaced with
                        the previous command :! .

The default [range] for the ":w" command is the whole buffer (1,$). If you
write the whole buffer, it is no longer considered changed. When you
write it to a different file with ":w somefile" it depends on the "+" flag in
'cpoptions'. When included, the write command will reset the 'modified' flag,
even though the buffer itself may still be different from its file.

If a file name is given with ":w" it becomes the alternate file. This can be
used, for example, when the write fails and you want to try again later with
":w #". This can be switched off by removing the 'A' flag from the
'cpoptions' option.

Note that the 'fsync' option matters here. If it's set it may make writes
slower (but safer).

                                                                :sav   :saveas
:sav[eas][!] [++opt] {file}
                        Save the current buffer under the name {file} and set
                        the filename of the current buffer to {file}. The
                        previous name is used for the alternate file name.
                        The [!] is needed to overwrite an existing file.
                        When 'filetype' is empty filetype detection is done
                        with the new name, before the file is written.
                        When the write was successful 'readonly' is reset.

{not in Vi}

:up :update

:[range]up[date][!] [++opt] [>>] [file]
Like ":write", but only write when the buffer has been modified. {not in Vi}

WRITING WITH MULTIPLE BUFFERS buffer-write

:wa :wall

:wa[ll] Write all changed buffers. Buffers without a file name cause an error message. Buffers which are readonly are not written. {not in Vi}

:wa[ll]! Write all changed buffers, even the ones that are readonly. Buffers without a file name are not written and cause an error message. {not in Vi}

Vim will warn you if you try to overwrite a file that has been changed elsewhere. See timestamp .

backup E207 E506 E507 E508 E509 E510
If you write to an existing file (but do not append) while the 'backup', 'writebackup' or 'patchmode' option is on, a backup of the original file is made. The file is either copied or renamed (see 'backupcopy'). After the file has been successfully written and when the 'writebackup' option is on and the 'backup' option is off, the backup file is deleted. When the 'patchmode' option is on the backup file may be renamed.

backup-table

'backup'	'writebackup'	action
off	off	no backup made
off	on	backup current file, deleted afterwards (default)
on	off	delete old backup, backup current file
on	on	delete old backup, backup current file

When the 'backupskip' pattern matches with the name of the file which is written, no backup file is made. The values of 'backup' and 'writebackup' are ignored then.

When the 'backup' option is on, an old backup file (with the same name as the new backup file) will be deleted. If 'backup' is not set, but 'writebackup' is set, an existing backup file will not be deleted. The backup file that is made while the file is being written will have a different name.

On some filesystems it's possible that in a crash you lose both the backup and the newly written file (it might be there but contain bogus data). In that case try recovery, because the swap file is synced to disk and might still be there. :recover

The directories given with the 'backupdir' option are used to put the backup file in. (default: same directory as the written file).

Whether the backup is a new file, which is a copy of the original file, or the original file renamed depends on the 'backupcopy' option. See there for an explanation of when the copy is made and when the file is renamed.

If the creation of a backup file fails, the write is not done. If you want to write anyway add a '!' to the command.

write-permissions

When writing a new file the permissions are read-write. For unix the mask is 0666 with additionally umask applied. When writing a file that was read Vim will preserve the permissions, but clear the s-bit.

write-readonly

When the 'cpoptions' option contains 'W', Vim will refuse to overwrite a readonly file. When 'W' is not present, ":w!" will overwrite a readonly file, if the system allows it (the directory must be writable).

write-fail

If the writing of the new file fails, you have to be careful not to lose your changes AND the original file. If there is no backup file and writing the new file failed, you have already lost the original file! DON'T EXIT VIM UNTIL YOU WRITE OUT THE FILE! If a backup was made, it is put back in place of the original file (if possible). If you exit Vim, and lose the changes you made, the original file will mostly still be there. If putting back the original file fails, there will be an error message telling you that you lost the original file.

DOS-format-write

If the 'fileformat' is "dos", <CR> <NL> is used for <EOL>. This is default for MS-DOS, Win32 and OS/2. On other systems the message "[dos format]" is shown to remind you that an unusual <EOL> was used.

Unix-format-write

If the 'fileformat' is "unix", <NL> is used for <EOL>. On MS-DOS, Win32 and OS/2 the message "[unix format]" is shown.

Mac-format-write

If the 'fileformat' is "mac", <CR> is used for <EOL>. On non-Mac systems the message "[mac format]" is shown.

See also file-formats and the 'fileformat' and 'fileformats' options.

ACL

ACL stands for Access Control List. It is an advanced way to control access rights for a file. It is used on new MS-Windows and Unix systems, but only when the filesystem supports it.

Vim attempts to preserve the ACL info when writing a file. The backup file will get the ACL info of the original file.

The ACL info is also used to check if a file is read-only (when opening the file).

read-only-share

When MS-Windows shares a drive on the network it can be marked as read-only. This means that even if the file read-only attribute is absent, and the ACL settings on NT network shared drives allow writing to the file, you can still

not write to the file. Vim on Win32 platforms will detect read-only network drives and will mark the file as read-only. You will not be able to override it with :write .

write-device

When the file name is actually a device name, Vim will not make a backup (that would be impossible). You need to use "!", since the device already exists.
Example for Unix:
```
:w! /dev/lpt0
```
and for MS-DOS or MS-Windows:
```
:w! lpt0
```
For Unix a device is detected when the name doesn't refer to a normal file or a directory. A fifo or named pipe also looks like a device to Vim.
For MS-DOS and MS-Windows the device is detected by its name:
```
AUX
CON
CLOCK$
NUL
PRN
COMn    n=1,2,3... etc
LPTn    n=1,2,3... etc
```
The names can be in upper- or lowercase.

==========

5. Writing and quitting write-quit

:q :quit

:q[uit] Quit the current window. Quit Vim if this is the last window. This fails when changes have been made and Vim refuses to abandon the current buffer, and when the last file in the argument list has not been edited.
If there are other tab pages and quitting the last window in the current tab page the current tab page is closed tab-page .
Triggers the QuitPre autocommand event.
See CTRL-W_q for quitting another window.

:conf[irm] q[uit] Quit, but give prompt when changes have been made, or the last file in the argument list has not been edited. See :confirm and 'confirm'. {not in Vi}

:q[uit]! Quit without writing, also when the current buffer has changes. The buffer is unloaded, also when it has 'hidden' set.
If this is the last window and there is a modified hidden buffer, the current buffer is abandoned and the first changed hidden buffer becomes the current buffer.
Use ":qall!" to exit always.

:cq[uit] Quit always, without writing, and return an error code. See :cq . Used for Manx's QuickFix mode (see quickfix). {not in Vi}

:wq

:wq [++opt] Write the current file and quit. Writing fails when the file is read-only or the buffer does not have a name. Quitting fails when the last file in the argument list has not been edited.

:wq! [++opt] Write the current file and quit. Writing fails when the current buffer does not have a name.

:wq [++opt] {file} Write to {file} and quit. Quitting fails when the last file in the argument list has not been edited.

:wq! [++opt] {file} Write to {file} and quit.

:[range]wq[!] [++opt] [file]
Same as above, but only write the lines in [range].

:x :xit

:[range]x[it][!] [++opt] [file]
Like ":wq", but write only when changes have been made.
When 'hidden' is set and there are more windows, the current buffer becomes hidden, after writing the file.

:exi :exit

:[range]exi[t][!] [++opt] [file]
Same as :xit.

ZZ

ZZ Write current file, if modified, and quit (same as ":x"). (Note: If there are several windows for the current file, the file is written if it was modified and the window is closed).

ZQ

ZQ Quit without checking for changes (same as ":q!"). {not in Vi}

MULTIPLE WINDOWS AND BUFFERS window-exit

:qa :qall

:qa[ll] Exit Vim, unless there are some buffers which have been changed. (Use ":bmod" to go to the next modified buffer). When 'autowriteall' is set all changed buffers will be written, like :wqall . {not in Vi}

:conf[irm] qa[ll]
Exit Vim. Bring up a prompt when some buffers have been changed. See :confirm . {not in Vi}

:qa[ll]! Exit Vim. Any changes to buffers are lost. {not in Vi}
Also see :cquit , it does the same but exits with a non-zero value.

:quita   :quitall
:quita[ll][!]   Same as ":qall". {not in Vi}

:wqa[ll] [++opt]   :wqa   :wqall   :xa   :xall
:xa[ll] Write all changed buffers and exit Vim. If there are buffers
         without a file name, which are readonly or which cannot be
         written for another reason, Vim will not quit. {not in Vi}

:conf[irm] wqa[ll] [++opt]
:conf[irm] xa[ll]
         Write all changed buffers and exit Vim. Bring up a prompt
         when some buffers are readonly or cannot be written for
         another reason. See :confirm . {not in Vi}

:wqa[ll]! [++opt]
:xa[ll]! Write all changed buffers, even the ones that are readonly,
         and exit Vim. If there are buffers without a file name or
         which cannot be written for another reason, or there is a
         terminal with a running job, Vim will not quit.
         {not in Vi}

==
6. Dialogs   edit-dialogs

:confirm   :conf
:conf[irm] {command}   Execute {command}, and use a dialog when an
                        operation has to be confirmed. Can be used on the
                         :q , :qa and :w commands (the latter to override
                        a read-only setting), and any other command that can
                        fail in such a way, such as :only , :buffer ,
                         :bdelete , etc.

Examples:
  :confirm w foo
       Will ask for confirmation when "foo" already exists.
  :confirm q
       Will ask for confirmation when there are changes.
  :confirm qa
       If any modified, unsaved buffers exist, you will be prompted to save
        or abandon each one. There are also choices to "save all" or "abandon
        all".

If you want to always use ":confirm", set the 'confirm' option.

                         :browse   :bro   E338   E614   E615   E616
:bro[wse] {command}   Open a file selection dialog for an argument to
                        {command}. At present this works for :e , :w ,
                         :wall , :wq , :wqall , :x , :xall , :exit ,
                         :view , :sview , :r , :saveas , :sp , :mkexrc ,
                         :mkvimrc , :mksession , :mkview , :split ,
                         :vsplit , :tabe , :tabnew , :cfile , :cgetfile ,
                         :caddfile , :lfile , :lgetfile , :laddfile ,
                         :diffsplit , :diffpatch , :open , :pedit ,

:redir , :source , :update , :visual , :vsplit , and :qall if 'confirm' is set.
{only in Win32, Athena, Motif, GTK and Mac GUI}
When ":browse" is not possible you get an error message. If the +browse feature is missing or the {command} doesn't support browsing, the {command} is executed without a dialog.
":browse set" works like :options .
See also :oldfiles for ":browse oldfiles".

The syntax is best shown via some examples:

```
:browse e $vim/foo
```
Open the browser in the $vim/foo directory, and edit the file chosen.

```
:browse e
```
Open the browser in the directory specified with 'browsedir', and edit the file chosen.

```
:browse w
```
Open the browser in the directory of the current buffer, with the current buffer filename as default, and save the buffer under the filename chosen.

```
:browse w C:/bar
```
Open the browser in the C:/bar directory, with the current buffer filename as default, and save the buffer under the filename chosen.

Also see the 'browsedir' option.
For versions of Vim where browsing is not supported, the command is executed unmodified.

browsefilter

For MS Windows and GTK, you can modify the filters that are used in the browse dialog. By setting the g:browsefilter or b:browsefilter variables, you can change the filters globally or locally to the buffer. The variable is set to a string in the format "{filter label}\t{pattern};{pattern}\n" where {filter label} is the text that appears in the "Files of Type" comboBox, and {pattern} is the pattern which filters the filenames. Several patterns can be given, separated by ';'.

For Motif the same format is used, but only the very first pattern is actually used (Motif only offers one pattern, but you can edit it).

For example, to have only Vim files in the dialog, you could use the following command:

```
let g:browsefilter = "Vim Scripts\t*.vim\nVim Startup Files\t*vimrc\n"
```

You can override the filter setting on a per-buffer basis by setting the b:browsefilter variable. You would most likely set b:browsefilter in a filetype plugin, so that the browse dialog would contain entries related to the type of file you are currently editing. Disadvantage: This makes it difficult to start editing a file of a different type. To overcome this, you may want to add "All Files\t*.*\n" as the final filter, so that the user can still access any desired file.

To avoid setting browsefilter when Vim does not actually support it, you can use has("browsefilter"):

```
if has("browsefilter")
   let g:browsefilter = "whatever"
endif
```

==
7. The current directory current-directory

You may use the :cd and :lcd commands to change to another directory, so you will not have to type that directory name in front of the file names. It also makes a difference for executing external commands, e.g. ":!ls".

Changing directory fails when the current buffer is modified, the '.' flag is present in 'cpoptions' and "!" is not used in the command.

:cd E747 E472

:cd[!] On non-Unix systems: Print the current directory name. On Unix systems: Change the current directory to the home directory. Use :pwd to print the current directory on all systems.

:cd[!] {path} Change the current directory to {path}. If {path} is relative, it is searched for in the directories listed in 'cdpath'. Does not change the meaning of an already opened file, because its full path name is remembered. Files from the arglist may change though! On MS-DOS this also changes the active drive. To change to the directory of the current file:

```
:cd %:h
```

:cd- E186

:cd[!] - Change to the previous current directory (before the previous ":cd {path}" command). {not in Vi}

:chd :chdir

:chd[ir][!] [path] Same as :cd.

:lc :lcd

:lc[d][!] {path} Like :cd, but only set the current directory when the cursor is in the current window. The current directory for other windows is not changed, switching to another window will stop using {path}. {not in Vi}

:lch :lchdir

:lch[dir][!] Same as :lcd. {not in Vi}

:pw :pwd E187

:pw[d] Print the current directory name. {Vi: no pwd} Also see getcwd().

So long as no :lcd command has been used, all windows share the same current directory. Using a command to jump to another window doesn't change anything for the current directory.
When a :lcd command has been used for a window, the specified directory becomes the current directory for that window. Windows where the :lcd command has not been used stick to the global current directory. When jumping to another window the current directory will become the last specified local current directory. If none was specified, the global current directory is used.
When a :cd command is used, the current window will lose his local current directory and will use the global current directory from now on.

After using :cd the full path name will be used for reading and writing files. On some networked file systems this may cause problems. The result of using the full path name is that the file names currently in use will remain referring to the same file. Example: If you have a file a:test and a directory a:vim the commands ":e test" ":cd vim" ":w" will overwrite the file a:test and not write a:vim/test. But if you do ":w test" the file a:vim/test will be written, because you gave a new file name and did not refer to a filename before the ":cd".

==
8. Editing binary files edit-binary

Although Vim was made to edit text files, it is possible to edit binary files. The -b Vim argument (b for binary) makes Vim do file I/O in binary mode, and sets some options for editing binary files ('binary' on, 'textwidth' to 0, 'modeline' off, 'expandtab' off). Setting the 'binary' option has the same effect. Don't forget to do this before reading the file.

There are a few things to remember when editing binary files:
- When editing executable files the number of characters must not change. Use only the "R" or "r" command to change text. Do not delete characters with "x" or by backspacing.
- Set the 'textwidth' option to 0. Otherwise lines will unexpectedly be split in two.
- When there are not many <EOL>s, the lines will become very long. If you want to edit a line that does not fit on the screen reset the 'wrap' option. Horizontal scrolling is used then. If a line becomes too long (more than about 32767 characters on the Amiga, much more on 32-bit systems, see limits) you cannot edit that line. The line will be split when reading the file. It is also possible that you get an "out of memory" error when reading the file.
- Make sure the 'binary' option is set BEFORE loading the file. Otherwise both <CR> <NL> and <NL> are considered to end a line and when the file is written the <NL> will be replaced with <CR> <NL>.
- <Nul> characters are shown on the screen as ^@. You can enter them with "CTRL-V CTRL-@" or "CTRL-V 000" {Vi cannot handle <Nul> characters in the file}
- To insert a <NL> character in the file split a line. When writing the buffer to a file a <NL> will be written for the <EOL>.
- Vim normally appends an <EOL> at the end of the file if there is none. Setting the 'binary' option prevents this. If you want to add the final <EOL>, set the 'endofline' option. You can also read the value of this

option to see if there was an <EOL> for the last line (you cannot see this in the text).

==
9. Encryption   encryption

Vim is able to write files encrypted, and read them back. The encrypted text cannot be read without the right key.
{only available when compiled with the |+cryptv| feature} E833

The text in the swap file and the undo file is also encrypted. E843
However, this is done block-by-block and may reduce the time needed to crack a password. You can disable the swap file, but then a crash will cause you to lose your work. The undo file can be disabled without much disadvantage.

```
:set noundofile
:noswapfile edit secrets
```

Note: The text in memory is not encrypted. A system administrator may be able to see your text while you are editing it. When filtering text with ":!filter" or using ":w !command" the text is also not encrypted, this may reveal it to others. The 'viminfo' file is not encrypted.

You could do this to edit very secret text:

```
:set noundofile viminfo=
:noswapfile edit secrets.txt
```

Keep in mind that without a swap file you risk losing your work in the event of a crash or a power failure.

WARNING: If you make a typo when entering the key and then write the file and exit, the text will be lost!

The normal way to work with encryption, is to use the ":X" command, which will ask you to enter a key. A following write command will use that key to encrypt the file. If you later edit the same file, Vim will ask you to enter a key. If you type the same key as that was used for writing, the text will be readable again. If you use a wrong key, it will be a mess.

                                                              :X
:X   Prompt for an encryption key. The typing is done without showing the actual text, so that someone looking at the display won't see it. The typed key is stored in the 'key' option, which is used to encrypt the file when it is written. The file will remain unchanged until you write it. See also -x .

The value of the 'key' options is used when text is written. When the option is not empty, the written file will be encrypted, using the value as the encryption key. A magic number is prepended, so that Vim can recognize that the file is encrypted.

To disable the encryption, reset the 'key' option to an empty value:

```
:set key=
```

You can use the 'cryptmethod' option to select the type of encryption, use one of these:

```
	:setlocal cm=zip	" weak method, backwards compatible
	:setlocal cm=blowfish	" method with flaws
	:setlocal cm=blowfish2	" medium strong method
```

Do this before writing the file. When reading an encrypted file it will be set automatically to the method used when that file was written. You can change 'cryptmethod' before writing that file to change the method.

To set the default method, used for new files, use this in your vimrc file:

```
	set cm=blowfish2
```

Using "blowfish2" is highly recommended. Only use another method if you must use an older Vim version that does not support it.

The message given for reading and writing a file will show "[crypted]" when using zip, "[blowfish]" when using blowfish, etc.

When writing an undo file, the same key and method will be used for the text in the undo file. persistent-undo .

To test for blowfish support you can use these conditions:

```
	has('crypt-blowfish')
	has('crypt-blowfish2')
```

This works since Vim 7.4.1099 while blowfish support was added earlier. Thus the condition failing doesn't mean blowfish is not supported. You can test for blowfish with:

```
	v:version >= 703
```

And for blowfish2 with:

```
	v:version > 704 || (v:version == 704 && has('patch401'))
```

If you are sure Vim includes patch 7.4.237 a simpler check is:

```
	has('patch-7.4.401')
```

E817 E818 E819 E820

When encryption does not work properly, you would be able to write your text to a file and never be able to read it back. Therefore a test is performed to check if the encryption works as expected. If you get one of these errors don't write the file encrypted! You need to rebuild the Vim binary to fix this.

E831 This is an internal error, "cannot happen". If you can reproduce it, please report to the developers.

When reading a file that has been encrypted and the 'key' option is not empty, it will be used for decryption. If the value is empty, you will be prompted to enter the key. If you don't enter a key, or you enter the wrong key, the file is edited without being decrypted. There is no warning about using the wrong key (this makes brute force methods to find the key more difficult).

If want to start reading a file that uses a different key, set the 'key' option to an empty string, so that Vim will prompt for a new one. Don't use the ":set" command to enter the value, other people can read the command over your shoulder.

Since the value of the 'key' option is supposed to be a secret, its value can

never be viewed. You should not set this option in a vimrc file.

An encrypted file can be recognized by the "file" command, if you add these
lines to "/etc/magic", "/usr/share/misc/magic" or wherever your system has the
"magic" file:

```
0  string  VimCrypt~       Vim encrypted file
>9 string  01      - "zip" cryptmethod
>9 string  02      - "blowfish" cryptmethod
>9 string  03      - "blowfish2" cryptmethod
```

Notes:
- Encryption is not possible when doing conversion with 'charconvert'.
- Text you copy or delete goes to the numbered registers. The registers can
  be saved in the .viminfo file, where they could be read. Change your
  'viminfo' option to be safe.
- Someone can type commands in Vim when you walk away for a moment, he should
  not be able to get the key.
- If you make a typing mistake when entering the key, you might not be able to
  get your text back!
- If you type the key with a ":set key=value" command, it can be kept in the
  history, showing the 'key' value in a viminfo file.
- There is never 100% safety. The encryption in Vim has not been tested for
  robustness.
- The algorithm used for 'cryptmethod' "zip" is breakable. A 4 character key
  in about one hour, a 6 character key in one day (on a Pentium 133 PC). This
  requires that you know some text that must appear in the file. An expert
  can break it for any key. When the text has been decrypted, this also means
  that the key can be revealed, and other files encrypted with the same key
  can be decrypted.
- Pkzip uses the same encryption as 'cryptmethod' "zip", and US Govt has no
  objection to its export. Pkzip's public file APPNOTE.TXT describes this
  algorithm in detail.
- The implementation of 'cryptmethod' "blowfish" has a flaw. It is possible
  to crack the first 64 bytes of a file and in some circumstances more of the
  file. Use of it is not recommended, but it's still the strongest method
  supported by Vim 7.3 and 7.4. The "zip" method is even weaker.
- Vim originates from the Netherlands. That is where the sources come from.
  Thus the encryption code is not exported from the USA.

==
10. Timestamps timestamp timestamps

Vim remembers the modification timestamp, mode and size of a file when you
begin editing it. This is used to avoid that you have two different versions
of the same file (without you knowing this).

After a shell command is run (:!cmd suspend :read! K) timestamps,
file modes and file sizes are compared for all buffers in a window. Vim will
run any associated FileChangedShell autocommands or display a warning for
any files that have changed. In the GUI this happens when Vim regains input
focus.

E321 E462
If you want to automatically reload a file when it has been changed outside of

Vim, set the 'autoread' option. This doesn't work at the moment you write the file though, only when the file wasn't changed inside of Vim.

If you do not want to be asked or automatically reload the file, you can use this:
```
	set buftype=nofile
```

Or, when starting gvim from a shell:
```
	gvim file.log -c "set buftype=nofile"
```

Note that if a FileChangedShell autocommand is defined you will not get a warning message or prompt. The autocommand is expected to handle this.

There is no warning for a directory (e.g., with netrw-browse). But you do get warned if you started editing a new file and it was created as a directory later.

When Vim notices the timestamp of a file has changed, and the file is being edited in a buffer but has not changed, Vim checks if the contents of the file is equal. This is done by reading the file again (into a hidden buffer, which is immediately deleted again) and comparing the text. If the text is equal, you will get no warning.

If you don't get warned often enough you can use the following command.

:checkt :checktime

:checkt[ime]		Check if any buffers were changed outside of Vim.
			This checks and warns you if you would end up with two
			versions of a file.
			If this is called from an autocommand, a ":global"
			command or is not typed the actual check is postponed
			until a moment the side effects (reloading the file)
			would be harmless.
			Each loaded buffer is checked for its associated file
			being changed. If the file was changed Vim will take
			action. If there are no changes in the buffer and
			'autoread' is set, the buffer is reloaded. Otherwise,
			you are offered the choice of reloading the file. If
			the file was deleted you get an error message.
			If the file previously didn't exist you get a warning
			if it exists now.
			Once a file has been checked the timestamp is reset,
			you will not be warned again.

:[N]checkt[ime] {filename}
:[N]checkt[ime] [N]
			Check the timestamp of a specific buffer. The buffer
			may be specified by name, number or with a pattern.

E813 E814

Vim will reload the buffer if you chose to. If a window is visible that contains this buffer, the reloading will happen in the context of this window. Otherwise a special window is used, so that most autocommands will work. You

can't close this window. A few other restrictions apply. Best is to make sure nothing happens outside of the current buffer. E.g., setting window-local options may end up in the wrong window. Splitting the window, doing something there and closing it should be OK (if there are no side effects from other autocommands). Closing unrelated windows and buffers will get you into trouble.

Before writing a file the timestamp is checked. If it has changed, Vim will ask if you really want to overwrite the file:

```
        WARNING: The file has been changed since reading it!!!
        Do you really want to write to it (y/n)?
```

If you hit 'y' Vim will continue writing the file. If you hit 'n' the write is aborted. If you used ":wq" or "ZZ" Vim will not exit, you will get another chance to write the file.

The message would normally mean that somebody has written to the file after the edit session started. This could be another person, in which case you probably want to check if your changes to the file and the changes from the other person should be merged. Write the file under another name and check for differences (the "diff" program can be used for this).

It is also possible that you modified the file yourself, from another edit session or with another command (e.g., a filter command). Then you will know which version of the file you want to keep.

There is one situation where you get the message while there is nothing wrong: On a Win32 system on the day daylight saving time starts. There is something in the Win32 libraries that confuses Vim about the hour time difference. The problem goes away the next day.

==
11. File Searching file-searching

{not available when compiled without the |+path_extra| feature}

The file searching is currently used for the 'path', 'cdpath' and 'tags' options, for finddir() and findfile() . Other commands use wildcards which is slightly different.

There are three different types of searching:

1) Downward search: starstar
   Downward search uses the wildcards '*', '**' and possibly others supported by your operating system. '*' and '**' are handled inside Vim, so they work on all operating systems. Note that "**" only acts as a special wildcard when it is at the start of a name.

   The usage of '*' is quite simple: It matches 0 or more characters. In a search pattern this would be ".*". Note that the "." is not used for file searching.

   '**' is more sophisticated:

```
      - It ONLY matches directories.
      - It matches up to 30 directories deep by default, so you can use it to
        search an entire directory tree
      - The maximum number of levels matched can be given by appending a number
        to '**'.
        Thus '/usr/**2' can match:
                /usr
                /usr/include
                /usr/include/sys
                /usr/include/g++
                /usr/lib
                /usr/lib/X11
                ....
       It does NOT match '/usr/include/g++/std' as this would be three
        levels.
        The allowed number range is 0 ('**0' is removed) to 100
        If the given number is smaller than 0 it defaults to 30, if it's
        bigger than 100 then 100 is used.  The system also has a limit on the
        path length, usually 256 or 1024 bytes.
      - '**' can only be at the end of the path or be followed by a path
        separator or by a number and a path separator.

   You can combine '*' and '**' in any order:
        /usr/**/sys/*
        /usr/*tory/sys/**
        /usr/**2/sys/*

2) Upward search:
   Here you can give a directory and then search the directory tree upward for
   a file.  You could give stop-directories to limit the upward search.  The
   stop-directories are appended to the path (for the 'path' option) or to
   the filename (for the 'tags' option) with a ';'.  If you want several
   stop-directories separate them with ';'.  If you want no stop-directory
   ("search upward till the root directory) just use ';'.
        /usr/include/sys;/usr
   will search in:
           /usr/include/sys
           /usr/include
           /usr

   If you use a relative path the upward search is started in Vim's current
   directory or in the directory of the current file (if the relative path
   starts with './' and 'd' is not included in 'cpoptions').

   If Vim's current path is /u/user_x/work/release and you do
        :set path=include;/u/user_x
  and then search for a file with  gf  the file is searched in:
        /u/user_x/work/release/include
        /u/user_x/work/include
        /u/user_x/include

3) Combined up/downward search:
   If Vim's current path is /u/user_x/work/release and you do
        set path=**;/u/user_x
```

```
 and then search for a file with  gf  the file is searched in:
       /u/user_x/work/release/**
       /u/user_x/work/**
       /u/user_x/**

  BE CAREFUL!  This might consume a lot of time, as the search of
  '/u/user_x/**' includes '/u/user_x/work/**' and
  '/u/user_x/work/release/**'.  So '/u/user_x/work/release/**' is searched
  three times and '/u/user_x/work/**' is searched twice.

  In the above example you might want to set path to:
       :set path=**,/u/user_x/**
 This searches:
       /u/user_x/work/release/**
       /u/user_x/**
  This searches the same directories, but in a different order.

  Note that completion for ":find", ":sfind", and ":tabfind" commands do not
  currently work with 'path' items that contain a URL or use the double star
  with depth limiter (/usr/**2) or upward search (;) notations.

vim:tw=78:ts=8:noet:ft=help:norl:
```

motion.txt For Vim version 8.1. Last change: 2017 Oct 15

VIM REFERENCE MANUAL by Bram Moolenaar

Cursor motions cursor-motions navigation

These commands move the cursor position. If the new position is off of the screen, the screen is scrolled to show the cursor (see also 'scrolljump' and 'scrolloff' options).

General remarks:

If you want to know where you are in the file use the "CTRL-G" command CTRL-G or the "g CTRL-G" command g_CTRL-G . If you set the 'ruler' option, the cursor position is continuously shown in the status line (which slows down Vim a little).

Experienced users prefer the hjkl keys because they are always right under their fingers. Beginners often prefer the arrow keys, because they do not know what the hjkl keys do. The mnemonic value of hjkl is clear from looking at the keyboard. Think of j as an arrow pointing downwards.

The 'virtualedit' option can be set to make it possible to move the cursor to positions where there is no character or halfway a character.

==========

1. Motions and operators operator

The motion commands can be used after an operator command, to have the command operate on the text that was moved over. That is the text between the cursor position before and after the motion. Operators are generally used to delete or change text. The following operators are available:

c	c	change
d	d	delete
y	y	yank into register (does not change the text)
~	~	swap case (only if 'tildeop' is set)
g~	g~	swap case
gu	gu	make lowercase
gU	gU	make uppercase
!	!	filter through an external program
=	=	filter through 'equalprg' or C-indenting if empty

```
gq      gq      text formatting
g?      g?      ROT13 encoding
>       >       shift right
<       <       shift left
zf      zf      define a fold
g@      g@      call function set with the 'operatorfunc' option
```

If the motion includes a count and the operator also had a count before it,
the two counts are multiplied. For example: "2d3w" deletes six words.

After applying the operator the cursor is mostly left at the start of the text
that was operated upon. For example, "yfe" doesn't move the cursor, but "yFe"
moves the cursor leftwards to the "e" where the yank started.

linewise characterwise

The operator either affects whole lines, or the characters between the start
and end position. Generally, motions that move between lines affect lines
(are linewise), and motions that move within a line affect characters (are
characterwise). However, there are some exceptions.

exclusive inclusive

A character motion is either inclusive or exclusive. When inclusive, the
start and end position of the motion are included in the operation. When
exclusive, the last character towards the end of the buffer is not included.
Linewise motions always include the start and end position.

Which motions are linewise, inclusive or exclusive is mentioned with the
command. There are however, two general exceptions:

1. If the motion is exclusive and the end of the motion is in column 1, the
   end of the motion is moved to the end of the previous line and the motion
   becomes inclusive. Example: "}" moves to the first line after a paragraph,
   but "d}" will not include that line.

   exclusive-linewise

2. If the motion is exclusive, the end of the motion is in column 1 and the
   start of the motion was at or before the first non-blank in the line, the
   motion becomes linewise. Example: If a paragraph begins with some blanks
   and you do "d}" while standing on the first non-blank, all the lines of
   the paragraph are deleted, including the blanks. If you do a put now, the
   deleted lines will be inserted below the cursor position.

Note that when the operator is pending (the operator command is typed, but the
motion isn't yet), a special set of mappings can be used. See :omap .

Instead of first giving the operator and then a motion you can use Visual
mode: mark the start of the text with "v", move the cursor to the end of the
text that is to be affected and then hit the operator. The text between the
start and the cursor position is highlighted, so you can see what text will
be operated upon. This allows much more freedom, but requires more key
strokes and has limited redo functionality. See the chapter on Visual mode
Visual-mode .

You can use a ":" command for a motion. For example "d:call FindEnd()".
But this can't be repeated with "." if the command is more than one line.
This can be repeated:

```
        d:call search("f")<CR>
This cannot be repeated:
        d:if 1<CR>
           call search("f")<CR>
        endif<CR>
Note that when using ":" any motion becomes characterwise exclusive.
```

FORCING A MOTION TO BE LINEWISE, CHARACTERWISE OR BLOCKWISE

When a motion is not of the type you would like to use, you can force another type by using "v", "V" or CTRL-V just after the operator.
Example:

```
        dj
```

deletes two lines

```
        dvj
```

deletes from the cursor position until the character below the cursor

```
        d<C-V>j
```

deletes the character under the cursor and the character below the cursor.

Be careful with forcing a linewise movement to be used characterwise or blockwise, the column may not always be defined.

		o_v
v	When used after an operator, before the motion command: Force the operator to work characterwise, also when the motion is linewise. If the motion was linewise, it will become exclusive . If the motion already was characterwise, toggle inclusive/exclusive. This can be used to make an exclusive motion inclusive and an inclusive motion exclusive.	
		o_V
V	When used after an operator, before the motion command: Force the operator to work linewise, also when the motion is characterwise.	
		o_CTRL-V
CTRL-V	When used after an operator, before the motion command: Force the operator to work blockwise. This works like Visual block mode selection, with the corners defined by the cursor position before and after the motion.	

==========

2. Left-right motions left-right-motions

These commands move the cursor to the specified column in the current line. They stop at the first column and at the end of the line, except "$", which may move to one of the next lines. See 'whichwrap' option to make some of the commands move across line boundaries.

h	or	h
<Left>	or	<Left>
CTRL-H	or	CTRL-H <BS>

<BS> [count] characters to the left. exclusive motion.
Note: If you prefer <BS> to delete a character, use
the mapping:
        :map CTRL-V<BS> X
(to enter "CTRL-V<BS>" type the CTRL-V key, followed
by the <BS> key)
See :fixdel if the <BS> key does not do what you
want.

l or l
<Right> or <Right> <Space>
<Space> [count] characters to the right. exclusive motion.
See the 'whichwrap' option for adjusting the behavior
at end of line

0 To the first character of the line. exclusive
motion.

<Home> <kHome>
<Home> To the first character of the line. exclusive
motion. When moving up or down next, stay in same
TEXT column (if possible). Most other commands stay
in the same SCREEN column. <Home> works like "1|",
which differs from "0" when the line starts with a
<Tab>. {not in Vi}

^ To the first non-blank character of the line.
 exclusive motion.

$ <End> <kEnd>
$ or <End> To the end of the line. When a count is given also go
[count - 1] lines downward. inclusive motion.
In Visual mode the cursor goes to just after the last
character in the line.
When 'virtualedit' is active, "$" may move the cursor
back from past the end of the line to the last
character in the line.

g_
g_ To the last non-blank character of the line and
[count - 1] lines downward inclusive . {not in Vi}

g0 g<Home>
g0 or g<Home> When lines wrap ('wrap' on): To the first character of
the screen line. exclusive motion. Differs from
"0" when a line is wider than the screen.
When lines don't wrap ('wrap' off): To the leftmost
character of the current line that is on the screen.
Differs from "0" when the first character of the line
is not on the screen. {not in Vi}

g^

g^ When lines wrap ('wrap' on): To the first non-blank character of the screen line. exclusive motion. Differs from "^" when a line is wider than the screen. When lines don't wrap ('wrap' off): To the leftmost non-blank character of the current line that is on the screen. Differs from "^" when the first non-blank character of the line is not on the screen. {not in Vi}

gm

gm Like "g0", but half a screenwidth to the right (or as much as possible). {not in Vi}

g$ g<End>

g$ or g<End> When lines wrap ('wrap' on): To the last character of the screen line and [count - 1] screen lines downward inclusive . Differs from "$" when a line is wider than the screen.
When lines don't wrap ('wrap' off): To the rightmost character of the current line that is visible on the screen. Differs from "$" when the last character of the line is not on the screen or when a count is used. Additionally, vertical movements keep the column, instead of going to the end of the line.
When 'virtualedit' is enabled moves to the end of the screen line.
{not in Vi}

bar

| To screen column [count] in the current line. exclusive motion. Ceci n'est pas une pipe.

f

f{char} To [count]'th occurrence of {char} to the right. The cursor is placed on {char} inclusive .
{char} can be entered as a digraph digraph-arg .
When 'encoding' is set to Unicode, composing characters may be used, see utf-8-char-arg .
:lmap mappings apply to {char}. The CTRL-^ command in Insert mode can be used to switch this on/off i_CTRL-^ .

F

F{char} To the [count]'th occurrence of {char} to the left. The cursor is placed on {char} exclusive .
{char} can be entered like with the f command.

t

t{char} Till before [count]'th occurrence of {char} to the right. The cursor is placed on the character left of {char} inclusive .
{char} can be entered like with the f command.

T

```
T{char}                 Till after [count]'th occurrence of {char} to the
                        left.  The cursor is placed on the character right of
                        {char}  exclusive .
                        {char} can be entered like with the  f  command.

                                                                        ;
;                       Repeat latest f, t, F or T [count] times. See  cpo-;

                                                                        ,
,                       Repeat latest f, t, F or T in opposite direction
                        [count] times. See also  cpo-;

==============================================================================
3. Up-down motions                                      up-down-motions

k               or                                      k
<Up>            or                                      <Up>   CTRL-P
CTRL-P                  [count] lines upward  linewise .

j               or                                      j
<Down>          or                                      <Down>
CTRL-J          or                                      CTRL-J
<NL>            or                                      <NL>   CTRL-N
CTRL-N                  [count] lines downward  linewise .

gk              or                                      gk   g<Up>
g<Up>                   [count] display lines upward.   exclusive  motion.
                        Differs from 'k' when lines wrap, and when used with
                        an operator, because it's not linewise.  {not in Vi}

gj              or                                      gj   g<Down>
g<Down>                 [count] display lines downward.   exclusive  motion.
                        Differs from 'j' when lines wrap, and when used with
                        an operator, because it's not linewise.  {not in Vi}

                                                                        -
-  <minus>              [count] lines upward, on the first non-blank
                        character  linewise .

+               or                                      +
CTRL-M          or                                      CTRL-M   <CR>
<CR>                    [count] lines downward, on the first non-blank
                        character  linewise .

                                                                        _
_  <underscore>         [count] - 1 lines downward, on the first non-blank
                        character  linewise .

                                                                        G
G                       Goto line [count], default last line, on the first
                        non-blank character  linewise .  If 'startofline' not
                        set, keep the same column.
                        G is a one of  jump-motions .
```

<C-End>
<C-End> Goto line [count], default last line, on the last
character inclusive . {not in Vi}

<C-Home> or gg <C-Home>
gg Goto line [count], default first line, on the first
non-blank character linewise . If 'startofline' not
set, keep the same column.

:[range]
:[range] Set the cursor on the last line number in [range].
[range] can also be just one line number, e.g., ":1"
or ":'m".
In contrast with G this command does not modify the
 jumplist .

N%
{count}% Go to {count} percentage in the file, on the first
non-blank in the line linewise . To compute the new
line number this formula is used:
    ({count} * number-of-lines + 99) / 100
See also 'startofline' option. {not in Vi}

:[range]go[to] [count] :go :goto go
[count]go Go to [count] byte in the buffer. Default [count] is
one, start of the file. When giving [range], the
last number in it used as the byte count. End-of-line
characters are counted depending on the current
'fileformat' setting.
Also see the line2byte() function, and the 'o'
option in 'statusline'.
{not in Vi}
{not available when compiled without the
 +byte_offset feature}

These commands move to the specified line. They stop when reaching the first
or the last line. The first two commands put the cursor in the same column
(if possible) as it was after the last command that changed the column,
except after the "$" command, then the cursor will be put on the last
character of the line.

If "k", "-" or CTRL-P is used with a [count] and there are less than [count]
lines above the cursor and the 'cpo' option includes the "-" flag it is an
error. cpo-- .

==
4. Word motions word-motions

<S-Right> or <S-Right> w
w [count] words forward. exclusive motion.

<C-Right> or <C-Right> W
W [count] WORDS forward. exclusive motion.

e

e   Forward to the end of word [count] inclusive .
                        Does not stop in an empty line.

                                                            E
E   Forward to the end of WORD [count] inclusive .
                        Does not stop in an empty line.

<S-Left>   or   <S-Left>   b
b   [count] words backward.   exclusive motion.

<C-Left>   or   <C-Left>   B
B   [count] WORDS backward.   exclusive motion.

                                                            ge
ge   Backward to the end of word [count] inclusive .

                                                            gE
gE   Backward to the end of WORD [count] inclusive .

These commands move over words or WORDS.
                                                            word
A word consists of a sequence of letters, digits and underscores, or a
sequence of other non-blank characters, separated with white space (spaces,
tabs, <EOL>). This can be changed with the 'iskeyword' option. An empty line
is also considered to be a word.
                                                            WORD
A WORD consists of a sequence of non-blank characters, separated with white
space. An empty line is also considered to be a WORD.

A sequence of folded lines is counted for one word of a single character.
"w" and "W", "e" and "E" move to the start/end of the first word or WORD after
a range of folded lines. "b" and "B" move to the start of the first word or
WORD before the fold.

Special case: "cw" and "cW" are treated like "ce" and "cE" if the cursor is
on a non-blank. This is because "cw" is interpreted as change-word, and a
word does not include the following white space. {Vi: "cw" when on a blank
followed by other blanks changes only the first blank; this is probably a
bug, because "dw" deletes all the blanks}

Another special case: When using the "w" motion in combination with an
operator and the last word moved over is at the end of a line, the end of
that word becomes the end of the operated text, not the first word in the
next line.

The original Vi implementation of "e" is buggy. For example, the "e" command
will stop on the first character of a line if the previous line was empty.
But when you use "2e" this does not happen. In Vim "ee" and "2e" are the
same, which is more logical. However, this causes a small incompatibility
between Vi and Vim.

==
5. Text object motions   object-motions

(
([count] sentences backward.   exclusive motion.

)
)   [count] sentences forward.   exclusive motion.

{
{   [count] paragraphs backward.   exclusive motion.

}
}   [count] paragraphs forward.   exclusive motion.

]]
]]   [count] sections forward or to the next '{' in the
                        first column. When used after an operator, then also
                        stops below a '}' in the first column.   exclusive
                        Note that exclusive-linewise often applies.

][
][[count] sections forward or to the next '}' in the
                        first column.   exclusive
                        Note that exclusive-linewise often applies.

[[
[[[count] sections backward or to the previous '{' in
                        the first column.   exclusive
                        Note that exclusive-linewise often applies.

[]
[]   [count] sections backward or to the previous '}' in
                        the first column.   exclusive
                        Note that exclusive-linewise often applies.

These commands move over three kinds of text objects.

sentence
A sentence is defined as ending at a '.', '!' or '?' followed by either the
end of a line, or by a space or tab. Any number of closing ')', ']', '"'
and ''' characters may appear after the '.', '!' or '?' before the spaces,
tabs or end of line. A paragraph and section boundary is also a sentence
boundary.
If the 'J' flag is present in 'cpoptions', at least two spaces have to
follow the punctuation mark; <Tab>s are not recognized as white space.
The definition of a sentence cannot be changed.

paragraph
A paragraph begins after each empty line, and also at each of a set of
paragraph macros, specified by the pairs of characters in the 'paragraphs'
option. The default is "IPLPPPQPP TPHPLIPpLpItpplpipbp", which corresponds to
the macros ".IP", ".LP", etc. (These are nroff macros, so the dot must be in
the first column). A section boundary is also a paragraph boundary.
Note that a blank line (only containing white space) is NOT a paragraph
boundary.
Also note that this does not include a '{' or '}' in the first column. When

the '{' flag is in 'cpoptions' then '{' in the first column is used as a paragraph boundary posix .

section
A section begins after a form-feed (<C-L>) in the first column and at each of a set of section macros, specified by the pairs of characters in the 'sections' option. The default is "SHNHH HUnhsh", which defines a section to start at the nroff macros ".SH", ".NH", ".H", ".HU", ".nh" and ".sh".

The "]" and "[" commands stop at the '{' or '}' in the first column. This is useful to find the start or end of a function in a C program. Note that the first character of the command determines the search direction and the second character the type of brace found.

If your '{' or '}' are not in the first column, and you would like to use "[[" and "]]" anyway, try these mappings:
```
:map [[ ?{<CR>w99[{
:map ][ /}<CR>b99]}
:map ]] j0[[%/{<CR>
:map [] k$][%?}<CR>
```
[type these literally, see <>]

==========
6. Text object selection object-select text-objects v_a v_i

This is a series of commands that can only be used while in Visual mode or after an operator. The commands that start with "a" select "a"n object including white space, the commands starting with "i" select an "inner" object without white space, or just the white space. Thus the "inner" commands always select less text than the "a" commands.

These commands are {not in Vi}.
These commands are not available when the +textobjects feature has been disabled at compile time.
Also see `gn` and `gN`, operating on the last search pattern.

v_aw aw
aw "a word", select [count] words (see word).
Leading or trailing white space is included, but not counted.
When used in Visual linewise mode "aw" switches to Visual characterwise mode.

v_iw iw
iw "inner word", select [count] words (see word).
White space between words is counted too.
When used in Visual linewise mode "iw" switches to Visual characterwise mode.

v_aW aW
aW "a WORD", select [count] WORDs (see WORD).
Leading or trailing white space is included, but not counted.

When used in Visual linewise mode "aW" switches to
Visual characterwise mode.

v_iW iW

iW "inner WORD", select [count] WORDs (see WORD).
White space between words is counted too.
When used in Visual linewise mode "iW" switches to
Visual characterwise mode.

v_as as

as "a sentence", select [count] sentences (see
sentence).
When used in Visual mode it is made characterwise.

v_is is

is "inner sentence", select [count] sentences (see
sentence).
When used in Visual mode it is made characterwise.

v_ap ap

ap "a paragraph", select [count] paragraphs (see
paragraph).
Exception: a blank line (only containing white space)
is also a paragraph boundary.
When used in Visual mode it is made linewise.

v_ip ip

ip "inner paragraph", select [count] paragraphs (see
paragraph).
Exception: a blank line (only containing white space)
is also a paragraph boundary.
When used in Visual mode it is made linewise.

v_a] v_a[a] a[

a]
a["a [] block", select [count] '[' ']' blocks. This
goes backwards to the [count] unclosed '[', and finds
the matching ']'. The enclosed text is selected,
including the '[' and ']'.
When used in Visual mode it is made characterwise.

v_i] v_i[i] i[

i]
i["inner [] block", select [count] '[' ']' blocks. This
goes backwards to the [count] unclosed '[', and finds
the matching ']'. The enclosed text is selected,
excluding the '[' and ']'.
When used in Visual mode it is made characterwise.

v_a) a) a(

a)
a(vab v_ab v_a(ab
ab "a block", select [count] blocks, from "[count] [(" to
the matching ')', including the '(' and ')' (see
[( ). Does not include white space outside of the
parenthesis.
When used in Visual mode it is made characterwise.

i) v_i) i) i(
i(vib v_ib v_i(ib
ib "inner block", select [count] blocks, from "[count] [(" to the matching ')', excluding the '(' and ')' (see [( ).
When used in Visual mode it is made characterwise.

a> v_a> v_a< a> a<
a< "a <> block", select [count] <> blocks, from the [count]'th unmatched '<' backwards to the matching '>', including the '<' and '>'.
When used in Visual mode it is made characterwise.

i> v_i> v_i< i> i<
i< "inner <> block", select [count] <> blocks, from the [count]'th unmatched '<' backwards to the matching '>', excluding the '<' and '>'.
When used in Visual mode it is made characterwise.

v_at at
at "a tag block", select [count] tag blocks, from the [count]'th unmatched "<aaa>" backwards to the matching "</aaa>", including the "<aaa>" and "</aaa>".
See tag-blocks about the details.
When used in Visual mode it is made characterwise.

v_it it
it "inner tag block", select [count] tag blocks, from the [count]'th unmatched "<aaa>" backwards to the matching "</aaa>", excluding the "<aaa>" and "</aaa>".
See tag-blocks about the details.
When used in Visual mode it is made characterwise.

a} v_a} a} a{
a{ v_aB v_a{ aB
aB "a Block", select [count] Blocks, from "[count] [{" to the matching '}', including the '{' and '}' (see [{).
When used in Visual mode it is made characterwise.

i} v_i} i} i{
i{ v_iB v_i{ iB
iB "inner Block", select [count] Blocks, from "[count] [{" to the matching '}', excluding the '{' and '}' (see [{).
When used in Visual mode it is made characterwise.

a" v_aquote aquote
a' v_a' a'
a`  v_a` a`
"a quoted string". Selects the text from the previous quote until the next quote. The 'quoteescape' option is used to skip escaped quotes.

Only works within one line.
When the cursor starts on a quote, Vim will figure out
which quote pairs form a string by searching from the
start of the line.
Any trailing white space is included, unless there is
none, then leading white space is included.
When used in Visual mode it is made characterwise.
Repeating this object in Visual mode another string is
included. A count is currently not used.

i" v_iquote iquote
i' v_i' i'
i`  v_i` i`
Like a", a' and a`, but exclude the quotes and
repeating won't extend the Visual selection.
Special case: With a count of 2 the quotes are
included, but no extra white space as with a"/a'/a`.

When used after an operator:
For non-block objects:
For the "a" commands: The operator applies to the object and the white space after the object. If there is no white space after the object or when the cursor was in the white space before the object, the white space before the object is included.
For the "inner" commands: If the cursor was on the object, the operator applies to the object. If the cursor was on white space, the operator applies to the white space.
For a block object:
The operator applies to the block where the cursor is in, or the block on which the cursor is on one of the braces. For the "inner" commands the surrounding braces are excluded. For the "a" commands, the braces are included.

When used in Visual mode:
When start and end of the Visual area are the same (just after typing "v"):
One object is selected, the same as for using an operator.
When start and end of the Visual area are not the same:
For non-block objects the area is extended by one object or the white space up to the next object, or both for the "a" objects. The direction in which this happens depends on which side of the Visual area the cursor is. For the block objects the block is extended one level outwards.

For illustration, here is a list of delete commands, grouped from small to big objects. Note that for a single character and a whole line the existing vi movement commands are used.

"dl"	delete character (alias: "x")	dl
"diw"	delete inner word	diw
"daw"	delete a word	daw
"diW"	delete inner WORD (see WORD)	diW
"daW"	delete a WORD (see WORD)	daW
"dgn"	delete the next search pattern match	dgn
"dd"	delete one line	dd
"dis"	delete inner sentence	dis

```
        "das"   delete a sentence                       das
        "dib"   delete inner '(' ')' block              dib
        "dab"   delete a '(' ')' block                  dab
        "dip"   delete inner paragraph                  dip
        "dap"   delete a paragraph                      dap
        "diB"   delete inner '{' '}' block              diB
        "daB"   delete a '{' '}' block                  daB
```

Note the difference between using a movement command and an object. The movement command operates from here (cursor position) to where the movement takes us. When using an object the whole object is operated upon, no matter where on the object the cursor is. For example, compare "dw" and "daw": "dw" deletes from the cursor position to the start of the next word, "daw" deletes the word under the cursor and the space after or before it.

Tag blocks tag-blocks

For the "it" and "at" text objects an attempt is done to select blocks between matching tags for HTML and XML. But since these are not completely compatible there are a few restrictions.

The normal method is to select a <tag> until the matching </tag>. For "at" the tags are included, for "it" they are excluded. But when "it" is repeated the tags will be included (otherwise nothing would change). Also, "it" used on a tag block with no contents will select the leading tag.

"<aaa/>" items are skipped. Case is ignored, also for XML where case does matter.

In HTML it is possible to have a tag like <br> or <meta ...> without a matching end tag. These are ignored.

The text objects are tolerant about mistakes. Stray end tags are ignored.

==
7. Marks mark-motions E20 E78

Jumping to a mark can be done in two ways:
1. With ` (backtick): The cursor is positioned at the specified location and the motion is exclusive .
2. With ' (single quote): The cursor is positioned on the first non-blank character in the line of the specified location and the motion is linewise.

m m mark Mark
m{a-zA-Z} Set mark {a-zA-Z} at cursor position (does not move the cursor, this is not a motion command).

m' m`
m' or m` Set the previous context mark. This can be jumped to with the "''" or "``" command (does not move the cursor, this is not a motion command).

m[or m] Set the '[or '] mark. Useful when an operator is to be simulated by multiple commands. (does not move the cursor, this is not a motion command).

m< or m> Set the '< or '> mark. Useful to change what the `gv` command selects. (does not move the cursor, this is not a motion command).
Note that the Visual mode cannot be set, only the start and end position.

:[range]ma[rk] {a-zA-Z'} Set mark {a-zA-Z'} at last line number in [range], column 0. Default is cursor line.

:[range]k{a-zA-Z'} Same as :mark, but the space before the mark name can be omitted.

'{a-z} `{a-z} Jump to the mark {a-z} in the current buffer.

'{A-Z0-9} `{A-Z0-9} To the mark {A-Z0-9} in the file where it was set (not a motion command when in another file). {not in Vi}

g'{mark} g`{mark} Jump to the {mark}, but don't change the jumplist when jumping within the current buffer. Example:
```
g`"
```
jumps to the last known position in a file. See $VIMRUNTIME/vimrc_example.vim.
Also see :keepjumps .
{not in Vi}

:marks List all the current marks (not a motion command).
The '(, ') , '{ and '} marks are not listed.
The first column has number zero.
{not in Vi}

:marks {arg} List the marks that are mentioned in {arg} (not a motion command). For example:
```
:marks aB
```
to list marks 'a' and 'B'. {not in Vi}

:delm[arks] {marks} Delete the specified marks. Marks that can be deleted include A-Z and 0-9. You cannot delete the ' mark. They can be specified by giving the list of mark names, or with a range, separated with a dash. Spaces

are ignored. Examples:
:delmarks a	deletes mark a
:delmarks a b 1	deletes marks a, b and 1
:delmarks Aa	deletes marks A and a
:delmarks p-z	deletes marks in the range p to z
:delmarks ^.[]	deletes marks ^ . [ ]
:delmarks \"	deletes mark "
{not in Vi}

:delm[arks]!	Delete all marks for the current buffer, but not marks A-Z or 0-9.
{not in Vi}

A mark is not visible in any way. It is just a position in the file that is remembered. Do not confuse marks with named registers, they are totally unrelated.

'a - 'z	lowercase marks, valid within one file
'A - 'Z	uppercase marks, also called file marks, valid between files
'0 - '9	numbered marks, set from .viminfo file

Lowercase marks 'a to 'z are remembered as long as the file remains in the buffer list. If you remove the file from the buffer list, all its marks are lost. If you delete a line that contains a mark, that mark is erased.

Lowercase marks can be used in combination with operators. For example: "d't" deletes the lines from the cursor position to mark 't'. Hint: Use mark 't' for Top, 'b' for Bottom, etc.. Lowercase marks are restored when using undo and redo.

Uppercase marks 'A to 'Z include the file name. {Vi: no uppercase marks} You can use them to jump from file to file. You can only use an uppercase mark with an operator if the mark is in the current file. The line number of the mark remains correct, even if you insert/delete lines or edit another file for a moment. When the 'viminfo' option is not empty, uppercase marks are kept in the .viminfo file. See viminfo-file-marks .

Numbered marks '0 to '9 are quite different. They can not be set directly. They are only present when using a viminfo file viminfo-file . Basically '0 is the location of the cursor when you last exited Vim, '1 the last but one time, etc. Use the "r" flag in 'viminfo' to specify files for which no Numbered mark should be stored. See viminfo-file-marks .

'[`[
'[`[	To the first character of the previously changed or yanked text. {not in Vi}

'] `]
'] `]	To the last character of the previously changed or yanked text. {not in Vi}

After executing an operator the Cursor is put at the beginning of the text that was operated upon. After a put command ("p" or "P") the cursor is

sometimes placed at the first inserted line and sometimes on the last inserted character. The four commands above put the cursor at either end. Example: After yanking 10 lines you want to go to the last one of them: "10Y']". After inserting several lines with the "p" command you want to jump to the lowest inserted line: "p']". This also works for text that has been inserted.

Note: After deleting text, the start and end positions are the same, except when using blockwise Visual mode. These commands do not work when no change was made yet in the current file.

'< `<
'< `< To the first line or character of the last selected Visual area in the current buffer. For block mode it may also be the last character in the first line (to be able to define the block). {not in Vi}.

'> `>
'> `> To the last line or character of the last selected Visual area in the current buffer. For block mode it may also be the first character of the last line (to be able to define the block). Note that 'selection' applies, the position may be just after the Visual area. {not in Vi}.

'' ``
'' `` To the position before the latest jump, or where the last "m'" or "m`" command was given. Not set when the :keepjumps command modifier was used.
Also see restore-position .

'quote `quote
'" `" To the cursor position when last exiting the current buffer. Defaults to the first character of the first line. See last-position-jump for how to use this for each opened file.
Only one position is remembered per buffer, not one for each window. As long as the buffer is visible in a window the position won't be changed.
{not in Vi}.

'^ `^
'^ `^ To the position where the cursor was the last time when Insert mode was stopped. This is used by the gi command. Not set when the :keepjumps command modifier was used. {not in Vi}

'. `.
'. `. To the position where the last change was made. The position is at or near where the change started. Sometimes a command is executed as several changes, then the position can be near the end of what the command changed. For example when inserting a word, the position will be on the last character.
To jump to older changes use g; .

{not in Vi}

'(`(To the start of the current sentence, like the (command. {not in Vi}

') `) To the end of the current sentence, like the) command. {not in Vi}

'{ `{ To the start of the current paragraph, like the { command. {not in Vi}

'} `} To the end of the current paragraph, like the } command. {not in Vi}

These commands are not marks themselves, but jump to a mark:

]' [count] times to next line with a lowercase mark below the cursor, on the first non-blank character in the line. {not in Vi}

]` [count] times to lowercase mark after the cursor. {not in Vi}

[' [count] times to previous line with a lowercase mark before the cursor, on the first non-blank character in the line. {not in Vi}

[` [count] times to lowercase mark before the cursor. {not in Vi}

:loc[kmarks] {command} Execute {command} without adjusting marks. This is useful when changing text in a way that the line count will be the same when the change has completed.
WARNING: When the line count does change, marks below the change will keep their line number, thus move to another text line.
These items will not be adjusted for deleted/inserted lines:
- lower case letter marks 'a - 'z
- upper case letter marks 'A - 'Z
- numbered marks '0 - '9
- last insert position '^
- last change position '.
- the Visual area '< and '>

- line numbers in placed signs
- line numbers in quickfix positions
- positions in the jumplist
- positions in the tagstack
These items will still be adjusted:
- previous context mark ''
- the cursor position
- the view of a window on a buffer
- folds
- diffs

:kee[pmarks] {command} :kee :keepmarks
Currently only has effect for the filter command :range! :
- When the number of lines after filtering is equal to or larger than before, all marks are kept at the same line number.
- When the number of lines decreases, the marks in the lines that disappeared are deleted.
In any case the marks below the filtered text have their line numbers adjusted, thus stick to the text, as usual.
When the 'R' flag is missing from 'cpoptions' this has the same effect as using ":keepmarks".

:keepj :keepjumps
:keepj[umps] {command}
Moving around in {command} does not change the '' , '. and '^ marks, the jumplist or the changelist .
Useful when making a change or inserting text automatically and the user doesn't want to go to this position. E.g., when updating a "Last change" timestamp in the first line:

```
:let lnum = line(".")
:keepjumps normal gg
:call SetLastChange()
:keepjumps exe "normal " . lnum . "G"
```

Note that ":keepjumps" must be used for every command. When invoking a function the commands in that function can still change the jumplist. Also, for ":keepjumps exe 'command '" the "command" won't keep jumps. Instead use: ":exe 'keepjumps command'"

==
8. Jumps jump-motions

A "jump" is a command that normally moves the cursor several lines away. If you make the cursor "jump" the position of the cursor before the jump is remembered. You can return to that position with the "''" and "``" command, unless the line containing that position was changed or deleted. The following commands are "jump" commands: "'", "`", "G", "/", "?", "n", "N",

"%", "(", ")", "[[", "]]", "{", "}", ":s", ":tag", "L", "M", "H" and the commands that start editing a new file.

CTRL-O

CTRL-O Go to [count] Older cursor position in jump list (not a motion command). {not in Vi} {not available without the |+jumplist| feature}

<Tab> or CTRL-I <Tab>

CTRL-I Go to [count] newer cursor position in jump list (not a motion command). {not in Vi} {not available without the |+jumplist| feature}

:ju :jumps

:ju[mps] Print the jump list (not a motion command). {not in Vi} {not available without the |+jumplist| feature}

:cle :clearjumps

:cle[arjumps] Clear the jump list of the current window. {not in Vi} {not available without the |+jumplist| feature}

jumplist

Jumps are remembered in a jump list. With the CTRL-O and CTRL-I command you can go to cursor positions before older jumps, and back again. Thus you can move up and down the list. There is a separate jump list for each window. The maximum number of entries is fixed at 100.
{not available without the |+jumplist| feature}

For example, after three jump commands you have this jump list:

```
  jump line  col file/text
    3     1    0 some text
    2    70    0 another line
    1  1154   23 end.
 >
```

The "file/text" column shows the file name, or the text at the jump if it is in the current file (an indent is removed and a long line is truncated to fit in the window).

You are currently in line 1167. If you then use the CTRL-O command, the cursor is put in line 1154. This results in:

```
  jump line  col file/text
    2     1    0 some text
    1    70    0 another line
 >  0  1154   23 end.
    1  1167    0 foo bar
```

The pointer will be set at the last used jump position. The next CTRL-O

command will use the entry above it, the next CTRL-I command will use the entry below it. If the pointer is below the last entry, this indicates that you did not use a CTRL-I or CTRL-O before. In this case the CTRL-O command will cause the cursor position to be added to the jump list, so you can get back to the position before the CTRL-O. In this case this is line 1167.

With more CTRL-O commands you will go to lines 70 and 1. If you use CTRL-I you can go back to 1154 and 1167 again. Note that the number in the "jump" column indicates the count for the CTRL-O or CTRL-I command that takes you to this position.

If you use a jump command, the current line number is inserted at the end of the jump list. If the same line was already in the jump list, it is removed. The result is that when repeating CTRL-O you will get back to old positions only once.

When the :keepjumps command modifier is used, jumps are not stored in the jumplist. Jumps are also not stored in other cases, e.g., in a :global command. You can explicitly add a jump by setting the ' mark with "m'". Note that calling setpos() does not do this.

After the CTRL-O command that got you into line 1154 you could give another jump command (e.g., "G"). The jump list would then become:

```
  jump line  col file/text
    4     1    0 some text
    3    70    0 another line
    2  1167    0 foo bar
    1  1154   23 end.
 >
```

The line numbers will be adjusted for deleted and inserted lines. This fails if you stop editing a file without writing, like with ":n!".

When you split a window, the jumplist will be copied to the new window.

If you have included the ' item in the 'viminfo' option the jumplist will be stored in the viminfo file and restored when starting Vim.

CHANGE LIST JUMPS changelist change-list-jumps E664

When making a change the cursor position is remembered. One position is remembered for every change that can be undone, unless it is close to a previous change. Two commands can be used to jump to positions of changes, also those that have been undone:

g; E662

g; Go to [count] older position in change list.
If [count] is larger than the number of older change positions go to the oldest change.
If there is no older change an error message is given.
(not a motion command)
{not in Vi}

{not available without the |+jumplist| feature}

g, E663

g, Go to [count] newer cursor position in change list. Just like g; but in the opposite direction. (not a motion command)
{not in Vi}
{not available without the |+jumplist| feature}

When using a count you jump as far back or forward as possible. Thus you can use "999g;" to go to the first change for which the position is still remembered. The number of entries in the change list is fixed and is the same as for the jumplist .

When two undo-able changes are in the same line and at a column position less than 'textwidth' apart only the last one is remembered. This avoids that a sequence of small changes in a line, for example "xxxxx", adds many positions to the change list. When 'textwidth' is zero 'wrapmargin' is used. When that also isn't set a fixed number of 79 is used. Detail: For the computations bytes are used, not characters, to avoid a speed penalty (this only matters for multi-byte encodings).

Note that when text has been inserted or deleted the cursor position might be a bit different from the position of the change. Especially when lines have been deleted.

When the :keepjumps command modifier is used the position of a change is not remembered.

:changes

:changes Print the change list. A ">" character indicates the current position. Just after a change it is below the newest entry, indicating that `g;` takes you to the newest entry position. The first column indicates the count needed to take you to this position. Example:

```
change line  col text
    3     9    8 bla bla bla
    2    11   57 foo is a bar
    1    14   54 the latest changed line
>
```

The `3g;` command takes you to line 9. Then the output of `:changes` is:

```
change line  col text
>   0     9    8 bla bla bla
    1    11   57 foo is a bar
    2    14   54 the latest changed line
```

Now you can use "g," to go to line 11 and "2g," to go to line 14.

==========

9. Various motions various-motions

% Find the next item in this line after or under the cursor and jump to its match. inclusive motion. Items can be:
([{}]) parenthesis or (curly/square) brackets (this can be changed with the 'matchpairs' option)
/* */ start or end of C-style comment
#if, #ifdef, #else, #elif, #endif C preprocessor conditionals (when the cursor is on the # or no ([{ following)
For other items the matchit plugin can be used, see matchit-install . This plugin also helps to skip matches in comments.

When 'cpoptions' contains "M" cpo-M backslashes before parens and braces are ignored. Without "M" the number of backslashes matters: an even number doesn't match with an odd number. Thus in "(\))" and "\((\)" the first and last parenthesis match.

When the '%' character is not present in 'cpoptions' cpo-% , parens and braces inside double quotes are ignored, unless the number of parens/braces in a line is uneven and this line and the previous one does not end in a backslash. '(', '{', '[', ']', '}' and ')' are also ignored (parens and braces inside single quotes). Note that this works fine for C, but not for Perl, where single quotes are used for strings.

Nothing special is done for matches in comments. You can either use the matchit plugin matchit-install or put quotes around matches.

No count is allowed, {count}% jumps to a line {count} percentage down the file N% . Using '%' on #if/#else/#endif makes the movement linewise.

[(go to [count] previous unmatched '('. exclusive motion. {not in Vi}

[{ go to [count] previous unmatched '{'. exclusive motion. {not in Vi}

]) go to [count] next unmatched ')'. exclusive motion. {not in Vi}

]}

]}   go to [count] next unmatched '}'.
                         exclusive motion. {not in Vi}

The above four commands can be used to go to the start or end of the current code block. It is like doing "%" on the '(', ')', '{' or '}' at the other end of the code block, but you can do this from anywhere in the code block. Very useful for C programs. Example: When standing on "case x:", "[{" will bring you back to the switch statement.

                                                ]m
]m   Go to [count] next start of a method (for Java or similar structured language). When not before the start of a method, jump to the start or end of the class. When no '{' is found after the cursor, this is an error.   exclusive motion. {not in Vi}
                                                ]M
]M   Go to [count] next end of a method (for Java or similar structured language). When not before the end of a method, jump to the start or end of the class. When no '}' is found after the cursor, this is an error. exclusive motion. {not in Vi}
                                                [m
[m   Go to [count] previous start of a method (for Java or similar structured language). When not after the start of a method, jump to the start or end of the class. When no '{' is found before the cursor this is an error. exclusive motion. {not in Vi}
                                                [M
[M   Go to [count] previous end of a method (for Java or similar structured language). When not after the end of a method, jump to the start or end of the class. When no '}' is found before the cursor this is an error. exclusive motion. {not in Vi}

The above two commands assume that the file contains a class with methods. The class definition is surrounded in '{' and '}'. Each method in the class is also surrounded with '{' and '}'. This applies to the Java language. The file looks like this:

```
        // comment
        class foo {
                int method_one() {
                        body_one();
                }
                int method_two() {
                        body_two();
                }
        }
```

Starting with the cursor on "body_two()", using "[m" will jump to the '{' at the start of "method_two()" (obviously this is much more useful when the method is long!). Using "2[m" will jump to the start of "method_one()". Using "3[m" will jump to the start of the class.

                                                [#

[#   go to [count] previous unmatched "#if" or "#else".
                        exclusive motion. {not in Vi}

                                                ]#
]#   go to [count] next unmatched "#else" or "#endif".
                        exclusive motion. {not in Vi}

These two commands work in C programs that contain #if/#else/#endif
constructs. It brings you to the start or end of the #if/#else/#endif where
the current line is included. You can then use "%" to go to the matching line.

                                                [star [/
[* or [/   go to [count] previous start of a C comment "/*".
                        exclusive motion. {not in Vi}

                                                ]star]/
]* or]/   go to [count] next end of a C comment "*/".
                        exclusive motion. {not in Vi}

                                                H
H   To line [count] from top (Home) of window (default:
                        first line on the window) on the first non-blank
                        character linewise . See also 'startofline' option.
                        Cursor is adjusted for 'scrolloff' option, unless an
                        operator is pending, in which case the text may
                        scroll. E.g. "yH" yanks from the first visible line
                        until the cursor line (inclusive).

                                                M
M   To Middle line of window, on the first non-blank
                        character linewise . See also 'startofline' option.

                                                L
L   To line [count] from bottom of window (default: Last
                        line on the window) on the first non-blank character
                        linewise . See also 'startofline' option.
                        Cursor is adjusted for 'scrolloff' option, unless an
                        operator is pending, in which case the text may
                        scroll. E.g. "yL" yanks from the cursor to the last
                        visible line.

<LeftMouse>   Moves to the position on the screen where the mouse
                        click is exclusive . See also <LeftMouse> . If the
                        position is in a status line, that window is made the
                        active window and the cursor is not moved. {not in Vi}

 vim:tw=78:ts=8:noet:ft=help:norl:

scroll.txt For Vim version 8.1. Last change: 2018 Apr 26

VIM REFERENCE MANUAL by Bram Moolenaar

Scrolling scrolling

These commands move the contents of the window. If the cursor position is moved off of the window, the cursor is moved onto the window (with 'scrolloff' screen lines around it). A page is the number of lines in the window minus two. The mnemonics for these commands may be a bit confusing. Remember that the commands refer to moving the window (the part of the buffer that you see) upwards or downwards in the buffer. When the window moves upwards in the buffer, the text in the window moves downwards on your screen.

See section 03.7 of the user manual for an introduction.

==========

1. Scrolling downwards scroll-down

The following commands move the edit window (the part of the buffer that you see) downwards (this means that more lines downwards in the text buffer can be seen):

CTRL-E

CTRL-E Scroll window [count] lines downwards in the buffer. The text moves upwards on the screen. Mnemonic: Extra lines.

CTRL-D

CTRL-D Scroll window Downwards in the buffer. The number of lines comes from the 'scroll' option (default: half a screen). If [count] given, first set 'scroll' option to [count]. The cursor is moved the same number of lines down in the file (if possible; when lines wrap and when hitting the end of the file there may be a difference). When the cursor is on the last line of the buffer nothing happens and a beep is produced. See also 'startofline' option. {difference from vi: Vim scrolls 'scroll' screen lines, instead of file lines; makes a difference when lines wrap}

<S-Down> or <S-Down> <kPageDown>
<PageDown> or <PageDown> CTRL-F
CTRL-F Scroll window [count] pages Forwards (downwards) in

the buffer. See also 'startofline' option.
When there is only one window the 'window' option
might be used.

z+ Without [count]: Redraw with the line just below the window at the top of the window. Put the cursor in that line, at the first non-blank in the line. With [count]: just like "z<CR>".

==========

2. Scrolling upwards scroll-up

The following commands move the edit window (the part of the buffer that you see) upwards (this means that more lines upwards in the text buffer can be seen):

CTRL-Y Scroll window [count] lines upwards in the buffer. The text moves downwards on the screen.
Note: When using the MS-Windows key bindings CTRL-Y is remapped to redo.

CTRL-U Scroll window Upwards in the buffer. The number of lines comes from the 'scroll' option (default: half a screen). If [count] given, first set the 'scroll' option to [count]. The cursor is moved the same number of lines up in the file (if possible; when lines wrap and when hitting the end of the file there may be a difference). When the cursor is on the first line of the buffer nothing happens and a beep is produced. See also 'startofline' option.
{difference from vi: Vim scrolls 'scroll' screen lines, instead of file lines; makes a difference when lines wrap}

<S-Up> or <PageUp> or CTRL-B Scroll window [count] pages Backwards (upwards) in the buffer. See also 'startofline' option.
When there is only one window the 'window' option might be used.

z^ Without [count]: Redraw with the line just above the window at the bottom of the window. Put the cursor in that line, at the first non-blank in the line.
With [count]: First scroll the text to put the [count] line at the bottom of the window, then redraw with the line which is now at the top of the window at the bottom of the window. Put the cursor in that line, at the first non-blank in the line.

==
3. Scrolling relative to cursor   scroll-cursor

The following commands reposition the edit window (the part of the buffer that you see) while keeping the cursor on the same line. Note that the 'scrolloff' option may cause context lines to show above and below the cursor.

                                                                z<CR>
z<CR>   Redraw, line [count] at top of window (default
                        cursor line). Put cursor at first non-blank in the
                        line.

                                                                zt
zt   Like "z<CR>", but leave the cursor in the same
                        column. {not in Vi}

                                                                zN<CR>
z{height}<CR>   Redraw, make window {height} lines tall. This is
                        useful to make the number of lines small when screen
                        updating is very slow. Cannot make the height more
                        than the physical screen height.

                                                                z.
z.   Redraw, line [count] at center of window (default
                        cursor line). Put cursor at first non-blank in the
                        line.

                                                                zz
zz   Like "z.", but leave the cursor in the same column.
                        Careful: If caps-lock is on, this command becomes
                        "ZZ": write buffer and exit! {not in Vi}

                                                                z-
z-   Redraw, line [count] at bottom of window (default
                        cursor line). Put cursor at first non-blank in the
                        line.

                                                                zb
zb   Like "z-", but leave the cursor in the same column.
                        {not in Vi}

==
4. Scrolling horizontally   scroll-horizontal

For the following four commands the cursor follows the screen. If the character that the cursor is on is moved off the screen, the cursor is moved to the closest character that is on the screen. The value of 'sidescroll' is not used.

z<Right>   or   zl   z<Right>
zl   Move the view on the text [count] characters to the
                        right, thus scroll the text [count] characters to the
                        left. This only works when 'wrap' is off. {not in
                        Vi}

z<Left>	or	zh	z<Left>

zh	Move the view on the text [count] characters to the left, thus scroll the text [count] characters to the right. This only works when 'wrap' is off. {not in Vi}

zL

zL	Move the view on the text half a screenwidth to the right, thus scroll the text half a screenwidth to the left. This only works when 'wrap' is off. {not in Vi}

zH

zH	Move the view on the text half a screenwidth to the left, thus scroll the text half a screenwidth to the right. This only works when 'wrap' is off. {not in Vi}

For the following two commands the cursor is not moved in the text, only the text scrolls on the screen.

zs

zs	Scroll the text horizontally to position the cursor at the start (left side) of the screen. This only works when 'wrap' is off. {not in Vi}

ze

ze	Scroll the text horizontally to position the cursor at the end (right side) of the screen. This only works when 'wrap' is off. {not in Vi}

==========

## 5. Scrolling synchronously	scroll-binding

Occasionally, it is desirable to bind two or more windows together such that when one window is scrolled, the other windows are also scrolled. In Vim, windows can be given this behavior by setting the (window-specific) 'scrollbind' option. When a window that has 'scrollbind' set is scrolled, all other 'scrollbind' windows are scrolled the same amount, if possible. The behavior of 'scrollbind' can be modified by the 'scrollopt' option.

When using the scrollbars, the binding only happens when scrolling the window with focus (where the cursor is). You can use this to avoid scroll-binding for a moment without resetting options.

When a window also has the 'diff' option set, the scroll-binding uses the differences between the two buffers to synchronize the position precisely. Otherwise the following method is used.

scrollbind-relative

Each 'scrollbind' window keeps track of its "relative offset," which can be thought of as the difference between the current window's vertical scroll position and the other window's vertical scroll position. When one of the

'scrollbind' windows is asked to vertically scroll past the beginning or end limit of its text, the window no longer scrolls, but remembers how far past the limit it wishes to be. The window keeps this information so that it can maintain the same relative offset, regardless of its being asked to scroll past its buffer's limits.

However, if a 'scrollbind' window that has a relative offset that is past its buffer's limits is given the cursor focus, the other 'scrollbind' windows must jump to a location where the current window's relative offset is valid. This behavior can be changed by clearing the "jump" flag from the 'scrollopt' option.

syncbind :syncbind :sync

:syncbind Force all 'scrollbind' windows to have the same relative offset. I.e., when any of the 'scrollbind' windows is scrolled to the top of its buffer, all of the 'scrollbind' windows will also be at the top of their buffers.

scrollbind-quickadj

The 'scrollbind' flag is meaningful when using keyboard commands to vertically scroll a window, and also meaningful when using the vertical scrollbar of the window which has the cursor focus. However, when using the vertical scrollbar of a window which doesn't have the cursor focus, 'scrollbind' is ignored. This allows quick adjustment of the relative offset of 'scrollbind' windows.

==========

6. Scrolling with a mouse wheel scroll-mouse-wheel

When your mouse has a scroll wheel, it should work with Vim in the GUI. How it works depends on your system. It might also work in an xterm xterm-mouse-wheel . By default only vertical scroll wheels are supported, but some GUIs also support horizontal scroll wheels.

For the Win32 GUI the scroll action is hard coded. It works just like dragging the scrollbar of the current window. How many lines are scrolled depends on your mouse driver. If the scroll action causes input focus problems, see intellimouse-wheel-problems .

For the X11 GUIs (Motif, Athena and GTK) scrolling the wheel generates key presses <ScrollWheelUp>, <ScrollWheelDown>, <ScrollWheelLeft> and <ScrollWheelRight>. For example, if you push the scroll wheel upwards a <ScrollWheelUp> key press is generated causing the window to scroll upwards (while the text is actually moving downwards). The default action for these keys are:

<ScrollWheelUp>	scroll three lines up	<ScrollWheelUp>
<S-ScrollWheelUp>	scroll one page up	<S-ScrollWheelUp>
<C-ScrollWheelUp>	scroll one page up	<C-ScrollWheelUp>
<ScrollWheelDown>	scroll three lines down	<ScrollWheelDown>
<S-ScrollWheelDown>	scroll one page down	<S-ScrollWheelDown>
<C-ScrollWheelDown>	scroll one page down	<C-ScrollWheelDown>
<ScrollWheelLeft>	scroll six columns left	<ScrollWheelLeft>
<S-ScrollWheelLeft>	scroll one page left	<S-ScrollWheelLeft>
<C-ScrollWheelLeft>	scroll one page left	<C-ScrollWheelLeft>

```
    <ScrollWheelRight>      scroll six columns right     <ScrollWheelRight>
    <S-ScrollWheelRight>    scroll one page right        <S-ScrollWheelRight>
    <C-ScrollWheelRight>    scroll one page right        <C-ScrollWheelRight>
```
This should work in all modes, except when editing the command line.

Note that horizontal scrolling only works if 'nowrap' is set. Also, unless the "h" flag in 'guioptions' is set, the cursor moves to the longest visible line if the cursor line is about to be scrolled off the screen (similarly to how the horizontal scrollbar works).

You can modify the default behavior by mapping the keys. For example, to make the scroll wheel move one line or half a page in Normal mode:
```
   :map <ScrollWheelUp> <C-Y>
   :map <S-ScrollWheelUp> <C-U>
   :map <ScrollWheelDown> <C-E>
   :map <S-ScrollWheelDown> <C-D>
```
You can also use Alt and Ctrl modifiers.

This only works when Vim gets the scroll wheel events, of course. You can check if this works with the "xev" program.

When using XFree86, the /etc/XF86Config file should have the correct entry for your mouse. For FreeBSD, this entry works for a Logitech scrollmouse:
```
    Protocol     "MouseMan"
    Device       "/dev/psm0"
    ZAxisMapping 4 5
```
See the XFree86 documentation for information.

<MouseDown> <MouseUp>

The keys <MouseDown> and <MouseUp> have been deprecated. Use <ScrollWheelUp> instead of <MouseDown> and use <ScrollWheelDown> instead of <MouseUp>.

xterm-mouse-wheel

To use the mouse wheel in a new xterm you only have to make the scroll wheel work in your Xserver, as mentioned above.

To use the mouse wheel in an older xterm you must do this:
1. Make it work in your Xserver, as mentioned above.
2. Add translations for the xterm, so that the xterm will pass a scroll event to Vim as an escape sequence.
3. Add mappings in Vim, to interpret the escape sequences as <ScrollWheelDown> or <ScrollWheelUp> keys.

You can do the translations by adding this to your ~.Xdefaults file (or other file where your X resources are kept):

```
  XTerm*VT100.Translations:            #override \n\
                s<Btn4Down>: string("0x9b") string("[64~") \n\
                s<Btn5Down>: string("0x9b") string("[65~") \n\
                <Btn4Down>: string("0x9b") string("[62~") \n\
                <Btn5Down>: string("0x9b") string("[63~") \n\
                <Btn4Up>: \n\
                <Btn5Up>:
```

Add these mappings to your vimrc file:

```
:map <M-Esc>[62~ <ScrollWheelUp>
:map! <M-Esc>[62~ <ScrollWheelUp>
:map <M-Esc>[63~ <ScrollWheelDown>
:map! <M-Esc>[63~ <ScrollWheelDown>
:map <M-Esc>[64~ <S-ScrollWheelUp>
:map! <M-Esc>[64~ <S-ScrollWheelUp>
:map <M-Esc>[65~ <S-ScrollWheelDown>
:map! <M-Esc>[65~ <S-ScrollWheelDown>
```

vim:tw=78:ts=8:noet:ft=help:norl:

insert.txt For Vim version 8.1. Last change: 2018 Feb 10

VIM REFERENCE MANUAL by Bram Moolenaar

Inserting and replacing text Insert Insert-mode mode-ins-repl

Most of this file is about Insert and Replace mode. At the end are a few commands for inserting text in other ways.

An overview of the most often used commands can be found in chapter 24 of the user manual usr_24.txt .

Also see 'virtualedit', for moving the cursor to positions where there is no character. Useful for editing a table.

==
1. Special keys ins-special-keys

In Insert and Replace mode, the following characters have a special meaning; other characters are inserted directly. To insert one of these special characters into the buffer, precede it with CTRL-V. To insert a <Nul> character use "CTRL-V CTRL-@" or "CTRL-V 000". On some systems, you have to use "CTRL-V 003" to insert a CTRL-C. Note: When CTRL-V is mapped you can often use CTRL-Q instead i_CTRL-Q .

If you are working in a special language mode when inserting text, see the 'langmap' option, 'langmap' , on how to avoid switching this mode on and off all the time.

If you have 'insertmode' set, <Esc> and a few other keys get another meaning. See 'insertmode' .

char	action
<Esc> or CTRL-[i_CTRL-[i_<Esc>	End insert or Replace mode, go back to Normal mode. Finish abbreviation. Note: If your <Esc> key is hard to hit on your keyboard, train yourself to use CTRL-[. If Esc doesn't work and you are using a Mac, try CTRL-Esc.

Or disable Listening under Accessibility preferences.

i_CTRL-C
CTRL-C Quit insert mode, go back to Normal mode. Do not check for abbreviations. Does not trigger the InsertLeave autocommand event.

i_CTRL-@
CTRL-@ Insert previously inserted text and stop insert. {Vi: only when typed as first char, only up to 128 chars}

i_CTRL-A
CTRL-A Insert previously inserted text. {not in Vi}

i_CTRL-H i_<BS> i_BS
<BS> or CTRL-H Delete the character before the cursor (see i_backspacing about joining lines).
See :fixdel if your <BS> key does not do what you want.
{Vi: does not delete autoindents}

i_<Del> i_DEL
<Del> Delete the character under the cursor. If the cursor is at the end of the line, and the 'backspace' option includes "eol", delete the <EOL>; the next line is appended after the current one.
See :fixdel if your <Del> key does not do what you want.
{not in Vi}

i_CTRL-W
CTRL-W Delete the word before the cursor (see i_backspacing about joining lines). See the section "word motions", word-motions , for the definition of a word.

i_CTRL-U
CTRL-U Delete all entered characters before the cursor in the current line. If there are no newly entered characters and 'backspace' is not empty, delete all characters before the cursor in the current line.
See i_backspacing about joining lines.

i_CTRL-I i_<Tab> i_Tab
<Tab> or CTRL-I Insert a tab. If the 'expandtab' option is on, the equivalent number of spaces is inserted (use CTRL-V <Tab> to avoid the expansion; use CTRL-Q <Tab> if CTRL-V is mapped i_CTRL-Q). See also the 'smarttab' option and ins-expandtab .

i_CTRL-J i_<NL>
<NL> or CTRL-J Begin new line.

i_CTRL-M i_<CR>
<CR> or CTRL-M Begin new line.

i_CTRL-K
CTRL-K {char1} [char2]
Enter digraph (see digraphs). When {char1} is a special key, the code for that key is inserted in <> form. For example, the string "<S-Space>" can be entered by typing <C-K><S-Space> (two keys). Neither char is considered for mapping. {not in Vi}

CTRL-N Find next keyword (see i_CTRL-N). {not in Vi}
CTRL-P Find previous keyword (see i_CTRL-P). {not in Vi}

```
CTRL-R {0-9a-z"%#*+:.-=}                                        i_CTRL-R
                Insert the contents of a register.  Between typing CTRL-R and
                the second character, '"' will be displayed to indicate that
                you are expected to enter the name of a register.
                The text is inserted as if you typed it, but mappings and
                abbreviations are not used.  If you have options like
                'textwidth', 'formatoptions', or 'autoindent' set, this will
                influence what will be inserted.  This is different from what
                happens with the "p" command and pasting with the mouse.
                Special registers:
                        '""'    the unnamed register, containing the text of
                                the last delete or yank
                        '%'     the current file name
                        '#'     the alternate file name
                        '*'     the clipboard contents (X11: primary selection)
                        '+'     the clipboard contents
                        '/'     the last search pattern
                        ':'     the last command-line
                        '.'     the last inserted text
                        '-'     the last small (less than a line) delete
                                                        i_CTRL-R_=
                        '='     the expression register: you are prompted to
                                enter an expression (see  expression )
                                Note that 0x80 (128 decimal) is used for
                                special keys.  E.g., you can use this to move
                                the cursor up:
                                        CTRL-R ="\<Up>"
                                Use CTRL-R CTRL-R to insert text literally.
                                When the result is a  List  the items are used
                                as lines.  They can have line breaks inside
                                too.
                                When the result is a Float it's automatically
                                converted to a String.
                                When append() or setline() is invoked the undo
                                sequence will be broken.
                See  registers  about registers.  {not in Vi}

CTRL-R CTRL-R {0-9a-z"%#*+/:.-=}                        i_CTRL-R_CTRL-R
                Insert the contents of a register.  Works like using a single
                CTRL-R, but the text is inserted literally, not as if typed.
                This differs when the register contains characters like <BS>.
                Example, where register a contains "ab^Hc":
                CTRL-R a                results in "ac".
                CTRL-R CTRL-R a         results in "ab^Hc".
                Options 'textwidth', 'formatoptions', etc. still apply.  If
                you also want to avoid these, use CTRL-R CTRL-O, see below.
                The '.' register (last inserted text) is still inserted as
                typed.  {not in Vi}

CTRL-R CTRL-O {0-9a-z"%#*+/:.-=}                        i_CTRL-R_CTRL-O
                Insert the contents of a register literally and don't
                auto-indent.  Does the same as pasting with the mouse
                 <MiddleMouse> . When the register is linewise this will
```

insert the text above the current line, like with `P`.
Does not replace characters!
The '.' register (last inserted text) is still inserted as
typed. {not in Vi}

CTRL-R CTRL-P {0-9a-z"%#*+/:.-=} i_CTRL-R_CTRL-P
Insert the contents of a register literally and fix the
indent, like [<MiddleMouse> .
Does not replace characters!
The '.' register (last inserted text) is still inserted as
typed. {not in Vi}

i_CTRL-T
CTRL-T Insert one shiftwidth of indent at the start of the current
line. The indent is always rounded to a 'shiftwidth' (this is
vi compatible). {Vi: only when in indent}
i_CTRL-D
CTRL-D Delete one shiftwidth of indent at the start of the current
line. The indent is always rounded to a 'shiftwidth' (this is
vi compatible). {Vi: CTRL-D works only when used after
autoindent}
i_0_CTRL-D
0 CTRL-D Delete all indent in the current line. {Vi: CTRL-D works
only when used after autoindent}
i_^_CTRL-D
^ CTRL-D Delete all indent in the current line. The indent is
restored in the next line. This is useful when inserting a
label. {Vi: CTRL-D works only when used after autoindent}

i_CTRL-V
CTRL-V Insert next non-digit literally. For special keys, the
terminal code is inserted. It's also possible to enter the
decimal, octal or hexadecimal value of a character
 i_CTRL-V_digit .
The characters typed right after CTRL-V are not considered for
mapping. {Vi: no decimal byte entry}
Note: When CTRL-V is mapped (e.g., to paste text) you can
often use CTRL-Q instead i_CTRL-Q .

i_CTRL-Q
CTRL-Q Same as CTRL-V.
Note: Some terminal connections may eat CTRL-Q, it doesn't
work then. It does work in the GUI.

CTRL-X Enter CTRL-X mode. This is a sub-mode where commands can
be given to complete words or scroll the window. See
 i_CTRL-X and ins-completion . {not in Vi}

i_CTRL-E
CTRL-E Insert the character which is below the cursor. {not in Vi}
i_CTRL-Y
CTRL-Y Insert the character which is above the cursor. {not in Vi}
Note that for CTRL-E and CTRL-Y 'textwidth' is not used, to be
able to copy characters from a long line.

```
                                                        i_CTRL-_
CTRL-_          Switch between languages, as follows:
                -  When in a rightleft window, revins and nohkmap are toggled,
                   since English will likely be inserted in this case.
                -  When in a norightleft window, revins and hkmap are toggled,
                   since Hebrew will likely be inserted in this case.

                CTRL-_ moves the cursor to the end of the typed text.

                This command is only available when the 'allowrevins' option
                is set.
                Please refer to  rileft.txt  for more information about
                right-to-left mode.
                {not in Vi}
                Only if compiled with the  +rightleft  feature.

                                                        i_CTRL-^
CTRL-^          Toggle the use of typing language characters.
                When language  :lmap  mappings are defined:
                - If 'iminsert' is 1 (langmap mappings used) it becomes 0 (no
                  langmap mappings used).
                - If 'iminsert' has another value it becomes 1, thus langmap
                  mappings are enabled.
                When no language mappings are defined:
                - If 'iminsert' is 2 (Input Method used) it becomes 0 (no
                  Input Method used).
                - If 'iminsert' has another value it becomes 2, thus the Input
                  Method is enabled.
                When set to 1, the value of the "b:keymap_name" variable, the
                'keymap' option or "<lang>" appears in the status line.
                The language mappings are normally used to type characters
                that are different from what the keyboard produces.  The
                'keymap' option can be used to install a whole number of them.
                {not in Vi}

                                                        i_CTRL-]
CTRL-]          Trigger abbreviation, without inserting a character.  {not in
                Vi}

                                                        i_<Insert>
<Insert>        Toggle between Insert and Replace mode.  {not in Vi}
-------------------------------------------------------------------------------

                                                        i_backspacing
The effect of the <BS>, CTRL-W, and CTRL-U depend on the 'backspace' option
(unless 'revins' is set).  This is a comma separated list of items:

item        action
indent      allow backspacing over autoindent
eol         allow backspacing over end-of-line (join lines)
start       allow backspacing over the start position of insert; CTRL-W and
            CTRL-U stop once at the start position
```

When 'backspace' is empty, Vi compatible backspacing is used. You cannot backspace over autoindent, before column 1 or before where insert started.

For backwards compatibility the values "0", "1" and "2" are also allowed, see 'backspace' .

If the 'backspace' option does contain "eol" and the cursor is in column 1 when one of the three keys is used, the current line is joined with the previous line. This effectively deletes the <EOL> in front of the cursor. {Vi: does not cross lines, does not delete past start position of insert}

i_CTRL-V_digit

With CTRL-V the decimal, octal or hexadecimal value of a character can be entered directly. This way you can enter any character, except a line break (<NL>, value 10). There are five ways to enter the character value:

first char	mode	max nr of chars	max value	
(none)	decimal	3	255	
o or O	octal	3	377	(255)
x or X	hexadecimal	2	ff	(255)
u	hexadecimal	4	ffff	(65535)
U	hexadecimal	8	7fffffff	(2147483647)

Normally you would type the maximum number of characters. Thus to enter a space (value 32) you would type <C-V>032. You can omit the leading zero, in which case the character typed after the number must be a non-digit. This happens for the other modes as well: As soon as you type a character that is invalid for the mode, the value before it will be used and the "invalid" character is dealt with in the normal way.

If you enter a value of 10, it will end up in the file as a 0. The 10 is a <NL>, which is used internally to represent the <Nul> character. When writing the buffer to a file, the <NL> character is translated into <Nul>. The <NL> character is written at the end of each line. Thus if you want to insert a <NL> character in a file you will have to make a line break.

i_CTRL-X insert_expand

CTRL-X enters a sub-mode where several commands can be used. Most of these commands do keyword completion; see ins-completion . These are not available when Vim was compiled without the +insert_expand feature.

Two commands can be used to scroll the window up or down, without exiting insert mode:

i_CTRL-X_CTRL-E

CTRL-X CTRL-E scroll window one line up.
When doing completion look here: complete_CTRL-E

i_CTRL-X_CTRL-Y

CTRL-X CTRL-Y scroll window one line down.
When doing completion look here: complete_CTRL-Y

After CTRL-X is pressed, each CTRL-E (CTRL-Y) scrolls the window up (down) by one line unless that would cause the cursor to move from its current position

in the file. As soon as another key is pressed, CTRL-X mode is exited and that key is interpreted as in Insert mode.

==
2. Special special keys ins-special-special

The following keys are special. They stop the current insert, do something, and then restart insertion. This means you can do something without getting out of Insert mode. This is very handy if you prefer to use the Insert mode all the time, just like editors that don't have a separate Normal mode. You may also want to set the 'backspace' option to "indent,eol,start" and set the 'insertmode' option. You can use CTRL-O if you want to map a function key to a command.

The changes (inserted or deleted characters) before and after these keys can be undone separately. Only the last change can be redone and always behaves like an "i" command.

char	action	
<Up>	cursor one line up	i_<Up>
<Down>	cursor one line down	i_<Down>
CTRL-G <Up>	cursor one line up, insert start column	i_CTRL-G_<Up>
CTRL-G k	cursor one line up, insert start column	i_CTRL-G_k
CTRL-G CTRL-K	cursor one line up, insert start column	i_CTRL-G_CTRL-K
CTRL-G <Down>	cursor one line down, insert start column	i_CTRL-G_<Down>
CTRL-G j	cursor one line down, insert start column	i_CTRL-G_j
CTRL-G CTRL-J	cursor one line down, insert start column	i_CTRL-G_CTRL-J
<Left>	cursor one character left	i_<Left>
<Right>	cursor one character right	i_<Right>
<S-Left>	cursor one word back (like "b" command)	i_<S-Left>
<C-Left>	cursor one word back (like "b" command)	i_<C-Left>
<S-Right>	cursor one word forward (like "w" command)	i_<S-Right>
<C-Right>	cursor one word forward (like "w" command)	i_<C-Right>
<Home>	cursor to first char in the line	i_<Home>
<End>	cursor to after last char in the line	i_<End>
<C-Home>	cursor to first char in the file	i_<C-Home>
<C-End>	cursor to after last char in the file	i_<C-End>
<LeftMouse>	cursor to position of mouse click	i_<LeftMouse>
<S-Up>	move window one page up	i_<S-Up>
<PageUp>	move window one page up	i_<PageUp>
<S-Down>	move window one page down	i_<S-Down>
<PageDown>	move window one page down	i_<PageDown>
<ScrollWheelDown>	move window three lines down	i_<ScrollWheelDown>
<S-ScrollWheelDown>	move window one page down	i_<S-ScrollWheelDown>
<ScrollWheelUp>	move window three lines up	i_<ScrollWheelUp>
<S-ScrollWheelUp>	move window one page up	i_<S-ScrollWheelUp>
<ScrollWheelLeft>	move window six columns left	i_<ScrollWheelLeft>
<S-ScrollWheelLeft>	move window one page left	i_<S-ScrollWheelLeft>
<ScrollWheelRight>	move window six columns right	i_<ScrollWheelRight>
<S-ScrollWheelRight>	move window one page right	i_<S-ScrollWheelRight>
CTRL-O	execute one command, return to Insert mode	i_CTRL-O
CTRL-\ CTRL-O	like CTRL-O but don't move the cursor	i_CTRL-_CTRL-O

```
CTRL-L          when 'insertmode' is set: go to Normal mode   i_CTRL-L
CTRL-G u        break undo sequence, start new change         i_CTRL-G_u
CTRL-G U        don't break undo with next left/right cursor  i_CTRL-G_U
                movement (but only if the cursor stays
                within same the line)
-------------------------------------------------------------------------
```

Note: If the cursor keys take you out of Insert mode, check the 'noesckeys' option.

The CTRL-O command sometimes has a side effect: If the cursor was beyond the end of the line, it will be put on the last character in the line. In mappings it's often better to use <Esc> (first put an "x" in the text, <Esc> will then always put the cursor on it). Or use CTRL-\ CTRL-O, but then beware of the cursor possibly being beyond the end of the line. Note that the command following CTRL-\ CTRL-O can still move the cursor, it is not restored to its original position.

The CTRL-O command takes you to Normal mode. If you then use a command enter Insert mode again it normally doesn't nest. Thus when typing "a<C-O>a" and then <Esc> takes you back to Normal mode, you do not need to type <Esc> twice. An exception is when not typing the command, e.g. when executing a mapping or sourcing a script. This makes mappings work that briefly switch to Insert mode.

The shifted cursor keys are not available on all terminals.

Another side effect is that a count specified before the "i" or "a" command is ignored. That is because repeating the effect of the command after CTRL-O is too complicated.

An example for using CTRL-G u:

```
:inoremap <C-H> <C-G>u<C-H>
```

This redefines the backspace key to start a new undo sequence. You can now undo the effect of the backspace key, without changing what you typed before that, with CTRL-O u. Another example:

```
:inoremap <CR> <C-]><C-G>u<CR>
```

This breaks undo at each line break. It also expands abbreviations before this.

An example for using CTRL-G U:

```
inoremap <Left>  <C-G>U<Left>
inoremap <Right> <C-G>U<Right>
inoremap <expr> <Home> col('.') == match(getline('.'), '\S') + 1 ?
 \ repeat('<C-G>U<Left>', col('.') - 1) :
 \ (col('.') < match(getline('.'), '\S') ?
 \     repeat('<C-G>U<Right>', match(getline('.'), '\S') + 0) :
 \     repeat('<C-G>U<Left>', col('.') - 1 - match(getline('.'), '\S')))
inoremap <expr> <End> repeat('<C-G>U<Right>', col('$') - col('.'))
```

```
        inoremap ( ()<C-G>U<Left>
```

This makes it possible to use the cursor keys in Insert mode, without breaking the undo sequence and therefore using . (redo) will work as expected. Also entering a text like (with the "(" mapping from above):

```
   Lorem ipsum (dolor
```

will be repeatable by using . to the expected

```
   Lorem ipsum (dolor)
```

Using CTRL-O splits undo: the text typed before and after it is undone separately. If you want to avoid this (e.g., in a mapping) you might be able to use CTRL-R = i_CTRL-R . E.g., to call a function:

```
        :imap <F2> <C-R>=MyFunc()<CR>
```

When the 'whichwrap' option is set appropriately, the <Left> and <Right> keys on the first/last character in the line make the cursor wrap to the previous/next line.

The CTRL-G j and CTRL-G k commands can be used to insert text in front of a column. Example:

```
   int i;
   int j;
```

Position the cursor on the first "int", type "istatic <C-G>j ". The result is:

```
   static int i;
          int j;
```

When inserting the same text in front of the column in every line, use the Visual blockwise command "I" v_b_I .

==========

3. 'textwidth' and 'wrapmargin' options ins-textwidth

The 'textwidth' option can be used to automatically break a line before it gets too long. Set the 'textwidth' option to the desired maximum line length. If you then type more characters (not spaces or tabs), the last word will be put on a new line (unless it is the only word on the line). If you set 'textwidth' to 0, this feature is disabled.

The 'wrapmargin' option does almost the same. The difference is that 'textwidth' has a fixed width while 'wrapmargin' depends on the width of the screen. When using 'wrapmargin' this is equal to using 'textwidth' with a value equal to (columns - 'wrapmargin'), where columns is the width of the screen.

When 'textwidth' and 'wrapmargin' are both set, 'textwidth' is used.

If you don't really want to break the line, but view the line wrapped at a convenient place, see the 'linebreak' option.

The line is only broken automatically when using Insert mode, or when appending to a line. When in replace mode and the line length is not

changed, the line will not be broken.

Long lines are broken if you enter a non-white character after the margin.
The situations where a line will be broken can be restricted by adding
characters to the 'formatoptions' option:
"l" Only break a line if it was not longer than 'textwidth' when the insert
     started.
"v" Only break at a white character that has been entered during the
     current insert command. This is mostly Vi-compatible.
"lv" Only break if the line was not longer than 'textwidth' when the insert
     started and only at a white character that has been entered during the
     current insert command. Only differs from "l" when entering non-white
     characters while crossing the 'textwidth' boundary.

Normally an internal function will be used to decide where to break the line.
If you want to do it in a different way set the 'formatexpr' option to an
expression that will take care of the line break.

If you want to format a block of text, you can use the "gq" operator. Type
"gq" and a movement command to move the cursor to the end of the block. In
many cases, the command "gq}" will do what you want (format until the end of
paragraph). Alternatively, you can use "gqap", which will format the whole
paragraph, no matter where the cursor currently is. Or you can use Visual
mode: hit "v", move to the end of the block, and type "gq". See also gq .

==
4. 'expandtab', 'smarttab' and 'softtabstop' options   ins-expandtab

If the 'expandtab' option is on, spaces will be used to fill the amount of
whitespace of the tab. If you want to enter a real <Tab>, type CTRL-V first
(use CTRL-Q when CTRL-V is mapped i_CTRL-Q).
The 'expandtab' option is off by default. Note that in Replace mode, a single
character is replaced with several spaces. The result of this is that the
number of characters in the line increases. Backspacing will delete one
space at a time. The original character will be put back for only one space
that you backspace over (the last one). {Vi does not have the 'expandtab'
option}

                                                        ins-smarttab
When the 'smarttab' option is on, a <Tab> inserts 'shiftwidth' positions at
the beginning of a line and 'tabstop' positions in other places. This means
that often spaces instead of a <Tab> character are inserted. When 'smarttab'
is off, a <Tab> always inserts 'tabstop' positions, and 'shiftwidth' is only
used for ">>" and the like. {not in Vi}

                                                        ins-softtabstop
When the 'softtabstop' option is non-zero, a <Tab> inserts 'softtabstop'
positions, and a <BS> used to delete white space, will delete 'softtabstop'
positions. This feels like 'tabstop' was set to 'softtabstop', but a real
<Tab> character still takes 'tabstop' positions, so your file will still look
correct when used by other applications.

If 'softtabstop' is non-zero, a <BS> will try to delete as much white space to
move to the previous 'softtabstop' position, except when the previously

inserted character is a space, then it will only delete the character before the cursor. Otherwise you cannot always delete a single character before the cursor. You will have to delete 'softtabstop' characters first, and then type extra spaces to get where you want to be.

==
5. Replace mode   Replace   Replace-mode   mode-replace

Enter Replace mode with the "R" command in normal mode.

In Replace mode, one character in the line is deleted for every character you type. If there is no character to delete (at the end of the line), the typed character is appended (as in Insert mode). Thus the number of characters in a line stays the same until you get to the end of the line. If a <NL> is typed, a line break is inserted and no character is deleted.

Be careful with <Tab> characters. If you type a normal printing character in its place, the number of characters is still the same, but the number of columns will become smaller.

If you delete characters in Replace mode (with <BS>, CTRL-W, or CTRL-U), what happens is that you delete the changes. The characters that were replaced are restored. If you had typed past the existing text, the characters you added are deleted. This is effectively a character-at-a-time undo.

If the 'expandtab' option is on, a <Tab> will replace one character with several spaces. The result of this is that the number of characters in the line increases. Backspacing will delete one space at a time. The original character will be put back for only one space that you backspace over (the last one). {Vi does not have the 'expandtab' option}

==
6. Virtual Replace mode   vreplace-mode   Virtual-Replace-mode

Enter Virtual Replace mode with the "gR" command in normal mode.
{not available when compiled without the |+vreplace| feature}
{Vi does not have Virtual Replace mode}

Virtual Replace mode is similar to Replace mode, but instead of replacing actual characters in the file, you are replacing screen real estate, so that characters further on in the file never appear to move.

So if you type a <Tab> it may replace several normal characters, and if you type a letter on top of a <Tab> it may not replace anything at all, since the <Tab> will still line up to the same place as before.

Typing a <NL> still doesn't cause characters later in the file to appear to move. The rest of the current line will be replaced by the <NL> (that is, they are deleted), and replacing continues on the next line. A new line is NOT inserted unless you go past the end of the file.

Interesting effects are seen when using CTRL-T and CTRL-D. The characters before the cursor are shifted sideways as normal, but characters later in the line still remain still. CTRL-T will hide some of the old line under the

shifted characters, but CTRL-D will reveal them again.

As with Replace mode, using <BS> etc will bring back the characters that were replaced. This still works in conjunction with 'smartindent', CTRL-T and CTRL-D, 'expandtab', 'smarttab', 'softtabstop', etc.

In 'list' mode, Virtual Replace mode acts as if it was not in 'list' mode, unless "L" is in 'cpoptions'.

Note that the only situations for which characters beyond the cursor should appear to move are in List mode 'list' , and occasionally when 'wrap' is set (and the line changes length to become shorter or wider than the width of the screen). In other cases spaces may be inserted to avoid following characters to move.

This mode is very useful for editing <Tab> separated columns in tables, for entering new data while keeping all the columns aligned.

==
7. Insert mode completion   ins-completion

In Insert and Replace mode, there are several commands to complete part of a keyword or line that has been typed. This is useful if you are using complicated keywords (e.g., function names with capitals and underscores).

These commands are not available when the +insert_expand feature was disabled at compile time.

Completion can be done for:

1. Whole lines   i_CTRL-X_CTRL-L
2. keywords in the current file   i_CTRL-X_CTRL-N
3. keywords in 'dictionary'   i_CTRL-X_CTRL-K
4. keywords in 'thesaurus', thesaurus-style   i_CTRL-X_CTRL-T
5. keywords in the current and included files   i_CTRL-X_CTRL-I
6. tags   i_CTRL-X_CTRL-]
7. file names   i_CTRL-X_CTRL-F
8. definitions or macros   i_CTRL-X_CTRL-D
9. Vim command-line   i_CTRL-X_CTRL-V
10. User defined completion   i_CTRL-X_CTRL-U
11. omni completion   i_CTRL-X_CTRL-O
12. Spelling suggestions   i_CTRL-X_s
13. keywords in 'complete'   i_CTRL-N   i_CTRL-P

All these, except CTRL-N and CTRL-P, are done in CTRL-X mode. This is a sub-mode of Insert and Replace modes. You enter CTRL-X mode by typing CTRL-X and one of the CTRL-X commands. You exit CTRL-X mode by typing a key that is not a valid CTRL-X mode command. Valid keys are the CTRL-X command itself, CTRL-N (next), and CTRL-P (previous).

Also see the 'infercase' option if you want to adjust the case of the match.

                                                             complete_CTRL-E
When completion is active you can use CTRL-E to stop it and go back to the

originally typed text. The CTRL-E will not be inserted.

complete_CTRL-Y

When the popup menu is displayed you can use CTRL-Y to stop completion and accept the currently selected entry. The CTRL-Y is not inserted. Typing a space, Enter, or some other unprintable character will leave completion mode and insert that typed character.

When the popup menu is displayed there are a few more special keys, see popupmenu-keys .

Note: The keys that are valid in CTRL-X mode are not mapped. This allows for ":map ^F ^X^F" to work (where ^F is CTRL-F and ^X is CTRL-X). The key that ends CTRL-X mode (any key that is not a valid CTRL-X mode command) is mapped. Also, when doing completion with 'complete' mappings apply as usual.

Note: While completion is active Insert mode can't be used recursively. Mappings that somehow invoke ":normal i.." will generate an E523 error.

The following mappings are suggested to make typing the completion commands a bit easier (although they will hide other commands):

```
:inoremap ^] ^X^]
:inoremap ^F ^X^F
:inoremap ^D ^X^D
:inoremap ^L ^X^L
```

As a special case, typing CTRL-R to perform register insertion (see i_CTRL-R) will not exit CTRL-X mode. This is primarily to allow the use of the '=' register to call some function to determine the next operation. If the contents of the register (or result of the '=' register evaluation) are not valid CTRL-X mode keys, then CTRL-X mode will be exited as if those keys had been typed.

For example, the following will map <Tab> to either actually insert a <Tab> if the current line is currently only whitespace, or start/continue a CTRL-N completion operation:

```
function! CleverTab()
   if strpart( getline('.'), 0, col('.')-1 ) =~ '^\s*$'
      return "\<Tab>"
   else
      return "\<C-N>"
   endif
endfunction
inoremap <Tab> <C-R>=CleverTab()<CR>
```

Completing whole lines compl-whole-line

i_CTRL-X_CTRL-L

CTRL-X CTRL-L Search backwards for a line that starts with the same characters as those in the current line before the cursor. Indent is ignored. The matching line is

inserted in front of the cursor.
The 'complete' option is used to decide which buffers are searched for a match. Both loaded and unloaded buffers are used.

CTRL-L or CTRL-P — Search backwards for next matching line. This line replaces the previous matching line.

CTRL-N — Search forward for next matching line. This line replaces the previous matching line.

CTRL-X CTRL-L — After expanding a line you can additionally get the line next to it by typing CTRL-X CTRL-L again, unless a double CTRL-X is used. Only works for loaded buffers.

Completing keywords in current file compl-current

i_CTRL-X_CTRL-P
i_CTRL-X_CTRL-N

CTRL-X CTRL-N — Search forwards for words that start with the keyword in front of the cursor. The found keyword is inserted in front of the cursor.

CTRL-X CTRL-P — Search backwards for words that start with the keyword in front of the cursor. The found keyword is inserted in front of the cursor.

CTRL-N — Search forward for next matching keyword. This keyword replaces the previous matching keyword.

CTRL-P — Search backwards for next matching keyword. This keyword replaces the previous matching keyword.

CTRL-X CTRL-N or CTRL-X CTRL-P — Further use of CTRL-X CTRL-N or CTRL-X CTRL-P will copy the words following the previous expansion in other contexts unless a double CTRL-X is used.

If there is a keyword in front of the cursor (a name made out of alphabetic characters and characters in 'iskeyword'), it is used as the search pattern, with "\<" prepended (meaning: start of a word). Otherwise "\<\k\k" is used as search pattern (start of any keyword of at least two characters).

In Replace mode, the number of characters that are replaced depends on the length of the matched string. This works like typing the characters of the matched string in Replace mode.

If there is not a valid keyword character before the cursor, any keyword of at least two characters is matched.

```
e.g., to get:
    printf("(%g, %g, %g)", vector[0], vector[1], vector[2]);
just type:
    printf("(%g, %g, %g)", vector[0], ^P[1], ^P[2]);
```

The search wraps around the end of the file, the value of 'wrapscan' is not used here.

Multiple repeats of the same completion are skipped; thus a different match will be inserted at each CTRL-N and CTRL-P (unless there is only one matching keyword).

Single character matches are never included, as they usually just get in the way of what you were really after.
```
        e.g., to get:
                printf("name = %s\n", name);
        just type:
                printf("name = %s\n", n^P);
        or even:
                printf("name = %s\n", ^P);
```
The 'n' in '\n' is skipped.

After expanding a word, you can use CTRL-X CTRL-P or CTRL-X CTRL-N to get the word following the expansion in other contexts. These sequences search for the text just expanded and further expand by getting an extra word. This is useful if you need to repeat a sequence of complicated words. Although CTRL-P and CTRL-N look just for strings of at least two characters, CTRL-X CTRL-P and CTRL-X CTRL-N can be used to expand words of just one character.
```
        e.g., to get:
                M&eacute;xico
        you can type:
                M^N^P^X^P^X^P
```
CTRL-N starts the expansion and then CTRL-P takes back the single character "M", the next two CTRL-X CTRL-P's get the words "&eacute" and ";xico".

If the previous expansion was split, because it got longer than 'textwidth', then just the text in the current line will be used.

If the match found is at the end of a line, then the first word in the next line will be inserted and the message "word from next line" displayed, if this word is accepted the next CTRL-X CTRL-P or CTRL-X CTRL-N will search for those lines starting with this word.

Completing keywords in 'dictionary' compl-dictionary

i_CTRL-X_CTRL-K

CTRL-X CTRL-K Search the files given with the 'dictionary' option for words that start with the keyword in front of the cursor. This is like CTRL-N, but only the dictionary files are searched, not the current file. The found keyword is inserted in front of the cursor. This could potentially be pretty slow, since all matches are found before the first match is used. By default, the 'dictionary' option is empty.
For suggestions where to find a list of words, see the 'dictionary' option.

CTRL-K or
CTRL-N		Search forward for next matching keyword. This
		keyword replaces the previous matching keyword.

CTRL-P		Search backwards for next matching keyword. This
		keyword replaces the previous matching keyword.

i_CTRL-X_CTRL-T
CTRL-X CTRL-T		Works as CTRL-X CTRL-K, but in a special way. It uses
		the 'thesaurus' option instead of 'dictionary'. If a
		match is found in the thesaurus file, all the
		remaining words on the same line are included as
		matches, even though they don't complete the word.
		Thus a word can be completely replaced.

		For an example, imagine the 'thesaurus' file has a
		line like this:
			angry furious mad enraged
		Placing the cursor after the letters "ang" and typing
		CTRL-X CTRL-T would complete the word "angry";
		subsequent presses would change the word to "furious",
		"mad" etc.
		Other uses include translation between two languages,
		or grouping API functions by keyword.

CTRL-T or
CTRL-N		Search forward for next matching keyword. This
		keyword replaces the previous matching keyword.

CTRL-P		Search backwards for next matching keyword. This
		keyword replaces the previous matching keyword.

Completing keywords in the current and included files	compl-keyword

The 'include' option is used to specify a line that contains an include file
name. The 'path' option is used to search for include files.

i_CTRL-X_CTRL-I
CTRL-X CTRL-I		Search for the first keyword in the current and
		included files that starts with the same characters
		as those before the cursor. The matched keyword is
		inserted in front of the cursor.

CTRL-N		Search forwards for next matching keyword. This
		keyword replaces the previous matching keyword.
		Note: CTRL-I is the same as <Tab>, which is likely to
		be typed after a successful completion, therefore
		CTRL-I is not used for searching for the next match.

CTRL-P		Search backward for previous matching keyword. This
		keyword replaces the previous matching keyword.

CTRL-X CTRL-I	Further use of CTRL-X CTRL-I will copy the words

following the previous expansion in other contexts
unless a double CTRL-X is used.

Completing tags compl-tag
i_CTRL-X_CTRL-]

CTRL-X CTRL-] Search for the first tag that starts with the same characters as before the cursor. The matching tag is inserted in front of the cursor. Alphabetic characters and characters in 'iskeyword' are used to decide which characters are included in the tag name (same as for a keyword). See also CTRL-] . The 'showfulltag' option can be used to add context from around the tag definition.

CTRL-] or
CTRL-N Search forwards for next matching tag. This tag replaces the previous matching tag.

CTRL-P Search backward for previous matching tag. This tag replaces the previous matching tag.

Completing file names compl-filename
i_CTRL-X_CTRL-F

CTRL-X CTRL-F Search for the first file name that starts with the same characters as before the cursor. The matching file name is inserted in front of the cursor. Alphabetic characters and characters in 'isfname' are used to decide which characters are included in the file name. Note: the 'path' option is not used here (yet).

CTRL-F or
CTRL-N Search forwards for next matching file name. This file name replaces the previous matching file name.

CTRL-P Search backward for previous matching file name. This file name replaces the previous matching file name.

Completing definitions or macros compl-define

The 'define' option is used to specify a line that contains a definition. The 'include' option is used to specify a line that contains an include file name. The 'path' option is used to search for include files.

i_CTRL-X_CTRL-D

CTRL-X CTRL-D Search in the current and included files for the first definition (or macro) name that starts with the same characters as before the cursor. The found definition name is inserted in front of the cursor.

CTRL-D or
CTRL-N Search forwards for next matching macro name. This macro name replaces the previous matching macro name.

CTRL-P		Search backward for previous matching macro name.
		This macro name replaces the previous matching macro
		name.

CTRL-X CTRL-D	Further use of CTRL-X CTRL-D will copy the words
		following the previous expansion in other contexts
		unless a double CTRL-X is used.

Completing Vim commands		compl-vim

Completion is context-sensitive. It works like on the Command-line. It completes an Ex command as well as its arguments. This is useful when writing a Vim script.

		i_CTRL-X_CTRL-V
CTRL-X CTRL-V		Guess what kind of item is in front of the cursor and find the first match for it.
		Note: When CTRL-V is mapped you can often use CTRL-Q instead of i_CTRL-Q .
	CTRL-V or
	CTRL-N		Search forwards for next match. This match replaces the previous one.

	CTRL-P		Search backwards for previous match. This match replaces the previous one.

	CTRL-X CTRL-V	Further use of CTRL-X CTRL-V will do the same as CTRL-V. This allows mapping a key to do Vim command completion, for example:
			:imap <Tab> <C-X><C-V>

User defined completion		compl-function

Completion is done by a function that can be defined by the user with the 'completefunc' option. See below for how the function is called and an example complete-functions .

		i_CTRL-X_CTRL-U
CTRL-X CTRL-U		Guess what kind of item is in front of the cursor and find the first match for it.
	CTRL-U or
	CTRL-N		Use the next match. This match replaces the previous one.

	CTRL-P		Use the previous match. This match replaces the previous one.

Omni completion		compl-omni

Completion is done by a function that can be defined by the user with the 'omnifunc' option. This is to be used for filetype-specific completion.

See below for how the function is called and an example complete-functions .
For remarks about specific filetypes see compl-omni-filetypes .
More completion scripts will appear, check www.vim.org. Currently there is a
first version for C++.

                                                                i_CTRL-X_CTRL-O
CTRL-X CTRL-O   Guess what kind of item is in front of the cursor and
                        find the first match for it.
        CTRL-O or
        CTRL-N   Use the next match. This match replaces the previous
                        one.

        CTRL-P   Use the previous match. This match replaces the
                        previous one.

Spelling suggestions   compl-spelling

A word before or at the cursor is located and correctly spelled words are
suggested to replace it. If there is a badly spelled word in the line, before
or under the cursor, the cursor is moved to after it. Otherwise the word just
before the cursor is used for suggestions, even though it isn't badly spelled.

NOTE: CTRL-S suspends display in many Unix terminals. Use 's' instead. Type
CTRL-Q to resume displaying.

                                                  i_CTRL-X_CTRL-S   i_CTRL-X_s
CTRL-X CTRL-S   or
CTRL-X s   Locate the word in front of the cursor and find the
                        first spell suggestion for it.
        CTRL-S or
        CTRL-N   Use the next suggestion. This replaces the previous
                        one. Note that you can't use 's' here.

        CTRL-P   Use the previous suggestion. This replaces the
                        previous one.

Completing keywords from different sources   compl-generic

                                                                i_CTRL-N
CTRL-N   Find next match for words that start with the
                        keyword in front of the cursor, looking in places
                        specified with the 'complete' option. The found
                        keyword is inserted in front of the cursor.

                                                                i_CTRL-P
CTRL-P   Find previous match for words that start with the
                        keyword in front of the cursor, looking in places
                        specified with the 'complete' option. The found
                        keyword is inserted in front of the cursor.

        CTRL-N   Search forward for next matching keyword. This

keyword replaces the previous matching keyword.

CTRL-P Search backwards for next matching keyword. This keyword replaces the previous matching keyword.

CTRL-X CTRL-N or
CTRL-X CTRL-P Further use of CTRL-X CTRL-N or CTRL-X CTRL-P will copy the words following the previous expansion in other contexts unless a double CTRL-X is used.

FUNCTIONS FOR FINDING COMPLETIONS complete-functions

This applies to 'completefunc' and 'omnifunc'.

The function is called in two different ways:
- First the function is called to find the start of the text to be completed.
- Later the function is called to actually find the matches.

On the first invocation the arguments are:
   a:findstart 1
   a:base   empty

The function must return the column where the completion starts. It must be a number between zero and the cursor column "col('.')". This involves looking at the characters just before the cursor and including those characters that could be part of the completed item. The text between this column and the cursor column will be replaced with the matches.

Special return values:
   -1 If no completion can be done, the completion will be cancelled with an error message.
   -2 To cancel silently and stay in completion mode.
   -3 To cancel silently and leave completion mode.

On the second invocation the arguments are:
   a:findstart 0
   a:base   the text with which matches should match; the text that was located in the first call (can be empty)

The function must return a List with the matching words. These matches usually include the "a:base" text. When there are no matches return an empty List.

In order to return more information than the matching words, return a Dict that contains the List. The Dict can have these items:
   words   The List of matching words (mandatory).
   refresh A string to control re-invocation of the function (optional).
            The only value currently recognized is "always", the effect is that the function is called whenever the leading text is changed.
Other items are ignored.

For acting upon end of completion, see the CompleteDone autocommand event.

For example, the function can contain this:
```
	let matches = ... list of words ...
	return {'words': matches, 'refresh': 'always'}
```

complete-items

Each list item can either be a string or a Dictionary. When it is a string it is used as the completion. When it is a Dictionary it can contain these items:

word	the text that will be inserted, mandatory
abbr	abbreviation of "word"; when not empty it is used in the menu instead of "word"
menu	extra text for the popup menu, displayed after "word" or "abbr"
info	more information about the item, can be displayed in a preview window
kind	single letter indicating the type of completion
icase	when non-zero case is to be ignored when comparing items to be equal; when omitted zero is used, thus items that only differ in case are added
dup	when non-zero this match will be added even when an item with the same word is already present.
empty	when non-zero this match will be added even when it is an empty string
user_data	custom data which is associated with the item and available in v:completed_item

All of these except "icase", "dup" and "empty" must be a string. If an item does not meet these requirements then an error message is given and further items in the list are not used. You can mix string and Dictionary items in the returned list.

The "menu" item is used in the popup menu and may be truncated, thus it should be relatively short. The "info" item can be longer, it will be displayed in the preview window when "preview" appears in 'completeopt'. The "info" item will also remain displayed after the popup menu has been removed. This is useful for function arguments. Use a single space for "info" to remove existing text in the preview window. The size of the preview window is three lines, but 'previewheight' is used when it has a value of 1 or 2.

The "kind" item uses a single letter to indicate the kind of completion. This may be used to show the completion differently (different color or icon). Currently these types can be used:

v	variable
f	function or method
m	member of a struct or class
t	typedef
d	#define or macro

When searching for matches takes some time call complete_add() to add each match to the total list. These matches should then not appear in the returned list! Call complete_check() now and then to allow the user to press a key while still searching for matches. Stop searching when it returns non-zero.

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The function is allowed to move the cursor, it is restored afterwards.
The function is not allowed to move to another window or delete text.

An example that completes the names of the months:

```
fun! CompleteMonths(findstart, base)
  if a:findstart
    " locate the start of the word
    let line = getline('.')
    let start = col('.') - 1
    while start > 0 && line[start - 1] =~ '\a'
      let start -= 1
    endwhile
    return start
  else
    " find months matching with "a:base"
    let res = []
    for m in split("Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec")
      if m =~ '^' . a:base
        call add(res, m)
      endif
    endfor
    return res
  endif
endfun
set completefunc=CompleteMonths
```

The same, but now pretending searching for matches is slow:

```
fun! CompleteMonths(findstart, base)
  if a:findstart
    " locate the start of the word
    let line = getline('.')
    let start = col('.') - 1
    while start > 0 && line[start - 1] =~ '\a'
      let start -= 1
    endwhile
    return start
  else
    " find months matching with "a:base"
    for m in split("Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec")
      if m =~ '^' . a:base
        call complete_add(m)
      endif
      sleep 300m        " simulate searching for next match
      if complete_check()
        break
      endif
    endfor
    return []
  endif
endfun
set completefunc=CompleteMonths
```

INSERT COMPLETION POPUP MENU

ins-completion-menu
popupmenu-completion

Vim can display the matches in a simplistic popup menu.

The menu is used when:
- The 'completeopt' option contains "menu" or "menuone".
- The terminal supports at least 8 colors.
- There are at least two matches. One if "menuone" is used.

The 'pumheight' option can be used to set a maximum height. The default is to use all space available.
The 'pumwidth' option can be used to set a minimum width. The default is 15 characters.

There are three states:
1. A complete match has been inserted, e.g., after using CTRL-N or CTRL-P.
2. A cursor key has been used to select another match. The match was not inserted then, only the entry in the popup menu is highlighted.
3. Only part of a match has been inserted and characters were typed or the backspace key was used. The list of matches was then adjusted for what is in front of the cursor.

You normally start in the first state, with the first match being inserted.
When "longest" is in 'completeopt' and there is more than one match you start in the third state.

If you select another match, e.g., with CTRL-N or CTRL-P, you go to the first state. This doesn't change the list of matches.

When you are back at the original text then you are in the third state. To get there right away you can use a mapping that uses CTRL-P right after starting the completion:

```
:imap <F7> <C-N><C-P>
```

popupmenu-keys

In the first state these keys have a special meaning:

<BS> and CTRL-H — Delete one character, find the matches for the word before the cursor. This reduces the list of matches, often to one entry, and switches to the second state.

Any non-special character: Stop completion without changing the match and insert the typed character.

In the second and third state these keys have a special meaning:

<BS> and CTRL-H — Delete one character, find the matches for the shorter word before the cursor. This may find more matches.

CTRL-L — Add one character from the current match, may reduce the number of matches.

any printable, non-white character: Add this character and reduce the number of matches.

In all three states these can be used:

CTRL-Y — Yes: Accept the currently selected match and stop completion.

CTRL-E End completion, go back to what was there before selecting a match (what was typed or longest common string).
<PageUp> Select a match several entries back, but don't insert it.
<PageDown> Select a match several entries further, but don't insert it.
<Up> Select the previous match, as if CTRL-P was used, but don't insert it.
<Down> Select the next match, as if CTRL-N was used, but don't insert it.
<Space> or <Tab> Stop completion without changing the match and insert the typed character.

The behavior of the <Enter> key depends on the state you are in:
first state: Use the text as it is and insert a line break.
second state: Insert the currently selected match.
third state: Use the text as it is and insert a line break.

In other words: If you used the cursor keys to select another entry in the list of matches then the <Enter> key inserts that match. If you typed something else then <Enter> inserts a line break.

The colors of the menu can be changed with these highlight groups:
Pmenu normal item hl-Pmenu
PmenuSel selected item hl-PmenuSel
PmenuSbar scrollbar hl-PmenuSbar
PmenuThumb thumb of the scrollbar hl-PmenuThumb

There are no special mappings for when the popup menu is visible. However, you can use an Insert mode mapping that checks the pumvisible() function to do something different. Example:
```
:inoremap <Down> <C-R>=pumvisible() ? "\<lt>C-N>" : "\<lt>Down>"<CR>
```

You can use of <expr> in mapping to have the popup menu used when typing a character and some condition is met. For example, for typing a dot:
```
inoremap <expr> . MayComplete()
func MayComplete()
    if (can complete)
      return ".\<C-X>\<C-O>"
    endif
    return '.'
endfunc
```

See :map-<expr> for more info.

FILETYPE-SPECIFIC REMARKS FOR OMNI COMPLETION compl-omni-filetypes

The file used for {filetype} should be autoload/{filetype}complete.vim in 'runtimepath'. Thus for "java" it is autoload/javacomplete.vim.

C ft-c-omni

Completion of C code requires a tags file. You should use Exuberant ctags,

because it adds extra information that is needed for completion. You can find
it here: http://ctags.sourceforge.net/ Version 5.6 or later is recommended.

For version 5.5.4 you should add a patch that adds the "typename:" field:
	ftp://ftp.vim.org/pub/vim/unstable/patches/ctags-5.5.4.patch
A compiled .exe for MS-Windows can be found at:
	http://ctags.sourceforge.net/
	https://github.com/universal-ctags/ctags-win32

If you want to complete system functions you can do something like this. Use
ctags to generate a tags file for all the system header files:
	% ctags -R -f ~/.vim/systags /usr/include /usr/local/include
In your vimrc file add this tags file to the 'tags' option:
	set tags+=~/.vim/systags

When using CTRL-X CTRL-O after a name without any "." or "->" it is completed
from the tags file directly. This works for any identifier, also function
names. If you want to complete a local variable name, which does not appear
in the tags file, use CTRL-P instead.

When using CTRL-X CTRL-O after something that has "." or "->" Vim will attempt
to recognize the type of the variable and figure out what members it has.
This means only members valid for the variable will be listed.

When a member name already was complete, CTRL-X CTRL-O will add a "." or
"->" for composite types.

Vim doesn't include a C compiler, only the most obviously formatted
declarations are recognized. Preprocessor stuff may cause confusion.
When the same structure name appears in multiple places all possible members
are included.

CSS	ft-css-omni

Complete properties and their appropriate values according to CSS 2.1
specification.

HTML	ft-html-omni
XHTML	ft-xhtml-omni

CTRL-X CTRL-O provides completion of various elements of (X)HTML files. It is
designed to support writing of XHTML 1.0 Strict files but will also work for
other versions of HTML. Features:

- after "<" complete tag name depending on context (no div suggestion inside
  of an a tag); '/>' indicates empty tags
- inside of tag complete proper attributes (no width attribute for an a tag);
  show also type of attribute; '*' indicates required attributes
- when attribute has limited number of possible values help to complete them
- complete names of entities
- complete values of "class" and "id" attributes with data obtained from
  <style> tag and included CSS files

- when completing value of "style" attribute or working inside of "style" tag switch to ft-css-omni completion
- when completing values of events attributes or working inside of "script" tag switch to ft-javascript-omni completion
- when used after "</" CTRL-X CTRL-O will close the last opened tag

Note: When used first time completion menu will be shown with little delay - this is time needed for loading of data file.
Note: Completion may fail in badly formatted documents. In such case try to run :make command to detect formatting problems.

HTML flavor html-flavor

The default HTML completion depends on the filetype. For HTML files it is HTML 4.01 Transitional ('filetype' is "html"), for XHTML it is XHTML 1.0 Strict ('filetype' is "xhtml").

When doing completion outside of any other tag you will have possibility to choose DOCTYPE and the appropriate data file will be loaded and used for all next completions.

More about format of data file in xml-omni-datafile . Some of the data files may be found on the Vim website (www).

Note that b:html_omni_flavor may point to a file with any XML data. This makes possible to mix PHP (ft-php-omni) completion with any XML dialect (assuming you have data file for it). Without setting that variable XHTML 1.0 Strict will be used.

JAVASCRIPT ft-javascript-omni

Completion of most elements of JavaScript language and DOM elements.

Complete:

- variables
- function name; show function arguments
- function arguments
- properties of variables trying to detect type of variable
- complete DOM objects and properties depending on context
- keywords of language

Completion works in separate JavaScript files (&ft==javascript), inside of <script> tag of (X)HTML and in values of event attributes (including scanning of external files).

DOM compatibility

At the moment (beginning of 2006) there are two main browsers - MS Internet Explorer and Mozilla Firefox. These two applications are covering over 90% of market. Theoretically standards are created by W3C organisation (http://www.w3c.org) but they are not always followed/implemented.

```
IE      FF      W3C  Omni completion
+/-     +/-     +    +
+       +       -    +
+       -       -    -
-       +       -    -
```

Regardless from state of implementation in browsers but if element is defined in standards, completion plugin will place element in suggestion list. When both major engines implemented element, even if this is not in standards it will be suggested. All other elements are not placed in suggestion list.

PHP ft-php-omni

Completion of PHP code requires a tags file for completion of data from external files and for class aware completion. You should use Exuberant ctags version 5.5.4 or newer. You can find it here: http://ctags.sourceforge.net/

Script completes:

- after $ variables name
  - if variable was declared as object add "->", if tags file is available show name of class
  - after "->" complete only function and variable names specific for given class. To find class location and contents tags file is required. Because PHP isn't strongly typed language user can use @var tag to declare class:

```
/* @var $myVar myClass */
$myVar->
```

    Still, to find myClass contents tags file is required.

- function names with additional info:
  - in case of built-in functions list of possible arguments and after | type data returned by function
  - in case of user function arguments and name of file where function was defined (if it is not current file)

- constants names
- class names after "new" declaration

Note: when doing completion first time Vim will load all necessary data into memory. It may take several seconds. After next use of completion delay should not be noticeable.

Script detects if cursor is inside <?php ?> tags. If it is outside it will automatically switch to HTML/CSS/JavaScript completion. Note: contrary to original HTML files completion of tags (and only tags) isn't context aware.

RUBY ft-ruby-omni

Completion of Ruby code requires that vim be built with `+ruby`.

Ruby completion will parse your buffer on demand in order to provide a list of completions. These completions will be drawn from modules loaded by 'require' and modules defined in the current buffer.

The completions provided by CTRL-X CTRL-O are sensitive to the context:

	CONTEXT	COMPLETIONS PROVIDED
1.	Not inside a class definition	Classes, constants and globals
2.	Inside a class definition	Methods or constants defined in the class
3.	After '.', '::' or ':'	Methods applicable to the object being dereferenced
4.	After ':' or ':foo'	Symbol name (beginning with 'foo')

Notes:
- Vim will load/evaluate code in order to provide completions. This may cause some code execution, which may be a concern. This is no longer enabled by default, to enable this feature add
  `let g:rubycomplete_buffer_loading = 1`
- In context 1 above, Vim can parse the entire buffer to add a list of classes to the completion results. This feature is turned off by default, to enable it add
  `let g:rubycomplete_classes_in_global = 1`
  to your vimrc
- In context 2 above, anonymous classes are not supported.
- In context 3 above, Vim will attempt to determine the methods supported by the object.
- Vim can detect and load the Rails environment for files within a rails project. The feature is disabled by default, to enable it add
  `let g:rubycomplete_rails = 1`
  to your vimrc

SYNTAX ft-syntax-omni

Vim has the ability to color syntax highlight nearly 500 languages. Part of this highlighting includes knowing what keywords are part of a language. Many filetypes already have custom completion scripts written for them, the syntaxcomplete plugin provides basic completion for all other filetypes. It does this by populating the omni completion list with the text Vim already knows how to color highlight. It can be used for any filetype and provides a minimal language-sensitive completion.

To enable syntax code completion you can run:
```
setlocal omnifunc=syntaxcomplete#Complete
```

You can automate this by placing the following in your `.vimrc` (after any ":filetype" command):
```
if has("autocmd") && exists("+omnifunc")
```

```
        autocmd Filetype *
                    \   if &omnifunc == "" |
                    \           setlocal omnifunc=syntaxcomplete#Complete |
                    \   endif
    endif
```

The above will set completion to this script only if a specific plugin does
not already exist for that filetype.

Each filetype can have a wide range of syntax items. The plugin allows you to
customize which syntax groups to include or exclude from the list. Let's have
a look at the PHP filetype to see how this works.

If you edit a file called, index.php, run the following command:

```
    syntax list
```

The first thing you will notice is that there are many different syntax groups.
The PHP language can include elements from different languages like HTML,
JavaScript and many more. The syntax plugin will only include syntax groups
that begin with the filetype, "php", in this case. For example these syntax
groups are included by default with the PHP: phpEnvVar, phpIntVar,
phpFunctions.

If you wish non-filetype syntax items to also be included, you can use a
regular expression syntax (added in version 13.0 of
autoload/syntaxcomplete.vim) to add items. Looking at the output from
":syntax list" while editing a PHP file I can see some of these entries:

```
    htmlArg,htmlTag,htmlTagName,javaScriptStatement,javaScriptGlobalObjects
```

To pick up any JavaScript and HTML keyword syntax groups while editing a PHP
file, you can use 3 different regexs, one for each language. Or you can
simply restrict the include groups to a particular value, without using
a regex string:

```
    let g:omni_syntax_group_include_php = 'php\w\+,javaScript\w\+,html\w\+'
    let g:omni_syntax_group_include_php = 'phpFunctions,phpMethods'
```

The basic form of this variable is:

```
    let g:omni_syntax_group_include_{filetype} = 'regex,comma,separated'
```

The PHP language has an enormous number of items which it knows how to syntax
highlight. These items will be available within the omni completion list.

Some people may find this list unwieldy or are only interested in certain
items. There are two ways to prune this list (if necessary). If you find
certain syntax groups you do not wish displayed you can use two different
methods to identify these groups. The first specifically lists the syntax
groups by name. The second uses a regular expression to identify both
syntax groups. Simply add one the following to your vimrc:

```
    let g:omni_syntax_group_exclude_php = 'phpCoreConstant,phpConstant'
    let g:omni_syntax_group_exclude_php = 'php\w*Constant'
```

Add as many syntax groups to this list by comma separating them. The basic
form of this variable is:

```
    let g:omni_syntax_group_exclude_{filetype} = 'regex,comma,separated'
```

You can create as many of these variables as you need, varying only the
filetype at the end of the variable name.

The plugin uses the isKeyword option to determine where word boundaries are
for the syntax items. For example, in the Scheme language completion should
include the "-", call-with-output-file. Depending on your filetype, this may
not provide the words you are expecting. Setting the
g:omni_syntax_use_iskeyword option to 0 will force the syntax plugin to break
on word characters. This can be controlled adding the following to your
vimrc:

```
    let g:omni_syntax_use_iskeyword = 0
```

For plugin developers, the plugin exposes a public function OmniSyntaxList.
This function can be used to request a List of syntax items. When editing a
SQL file (:e syntax.sql) you can use the ":syntax list" command to see the
various groups and syntax items. For example:

```
    syntax list
```

Yields data similar to this:

```
    sqlOperator    xxx some prior all like and any escape exists in is not
                       or intersect minus between distinct
                       links to Operator
    sqlType        xxx varbit varchar nvarchar bigint int uniqueidentifier
                       date money long tinyint unsigned xml text smalldate
                       double datetime nchar smallint numeric time bit char
                       varbinary binary smallmoney
                       image float integer timestamp real decimal
```

There are two syntax groups listed here: sqlOperator and sqlType. To retrieve
a List of syntax items you can call OmniSyntaxList a number of different
ways. To retrieve all syntax items regardless of syntax group:

```
    echo OmniSyntaxList( [] )
```

To retrieve only the syntax items for the sqlOperator syntax group:

```
    echo OmniSyntaxList( ['sqlOperator'] )
```

To retrieve all syntax items for both the sqlOperator and sqlType groups:

```
    echo OmniSyntaxList( ['sqlOperator', 'sqlType'] )
```

A regular expression can also be used:

```
    echo OmniSyntaxList( ['sql\w\+'] )
```

From within a plugin, you would typically assign the output to a List:

```
    let myKeywords = []
    let myKeywords = OmniSyntaxList( ['sqlKeyword'] )
```

SQL ft-sql-omni

Completion for the SQL language includes statements, functions, keywords.
It will also dynamically complete tables, procedures, views and column lists
with data pulled directly from within a database. For detailed instructions
and a tutorial see omni-sql-completion .

The SQL completion plugin can be used in conjunction with other completion plugins. For example, the PHP filetype has its own completion plugin. Since PHP is often used to generate dynamic website by accessing a database, the SQL completion plugin can also be enabled. This allows you to complete PHP code and SQL code at the same time.

XML ft-xml-omni

Vim 7 provides a mechanism for context aware completion of XML files. It depends on a special xml-omni-datafile and two commands: :XMLns and :XMLent . Features are:

- after "<" complete the tag name, depending on context
- inside of a tag complete proper attributes
- when an attribute has a limited number of possible values help to complete them
- complete names of entities (defined in xml-omni-datafile and in the current file with "<!ENTITY" declarations)
- when used after "</" CTRL-X CTRL-O will close the last opened tag

Format of XML data file xml-omni-datafile

XML data files are stored in the "autoload/xml" directory in 'runtimepath'. Vim distribution provides examples of data files in the "$VIMRUNTIME/autoload/xml" directory. They have a meaningful name which will be used in commands. It should be a unique name which will not create conflicts. For example, the name xhtml10s.vim means it is the data file for XHTML 1.0 Strict.

Each file contains a variable with a name like g:xmldata_xhtml10s . It is a compound from two parts:

1. "g:xmldata_" general prefix, constant for all data files
2. "xhtml10s" the name of the file and the name of the described XML dialect; it will be used as an argument for the :XMLns command

Part two must be exactly the same as name of file.

The variable is a Dictionary . Keys are tag names and each value is a two element List . The first element of the List is also a List with the names of possible children. The second element is a Dictionary with the names of attributes as keys and the possible values of attributes as values. Example:

```
let g:xmldata_crippled = {
\ "vimxmlentities": ["amp", "lt", "gt", "apos", "quot"],
\ 'vimxmlroot': ['tag1'],
\ 'tag1':
\ [ ['childoftag1a', 'childoftag1b'], {'attroftag1a': [],
\ 'attroftag1b': ['valueofattr1', 'valueofattr2']}],
\ 'childoftag1a':
\ [ [], {'attrofchild': ['attrofchild']}],
```

```
    \ 'childoftag1b':
    \ [ ['childoftag1a'], {'attrofchild': []}],
    \ "vimxmltaginfo": {
    \ 'tag1': ['Menu info', 'Long information visible in preview window']},
    \ 'vimxmlattrinfo': {
    \ 'attrofchild': ['Menu info', 'Long information visible in preview window']}}
```

This example would be put in the "autoload/xml/crippled.vim" file and could help to write this file:

```
    <tag1 attroftag1b="valueofattr1">
        <childoftag1a attrofchild>
                &amp; &lt;
        </childoftag1a>
        <childoftag1b attrofchild="5">
            <childoftag1a>
                &gt; &apos; &quot;
            </childoftag1a>
        </childoftag1b>
    </tag1>
```

In the example four special elements are visible:

1. "vimxmlentities" - a special key with List containing entities of this XML dialect.
2. If the list containing possible values of attributes has one element and this element is equal to the name of the attribute this attribute will be treated as boolean and inserted as 'attrname' and not as 'attrname="'
3. "vimxmltaginfo" - a special key with a Dictionary containing tag names as keys and two element List as values, for additional menu info and the long description.
4. "vimxmlattrinfo" - special key with Dictionary containing attribute names as keys and two element List as values, for additional menu info and long description.

Note: Tag names in the data file MUST not contain a namespace description. Check xsl.vim for an example.
Note: All data and functions are publicly available as global variables/functions and can be used for personal editing functions.

DTD -> Vim dtd2vim

On www is the script dtd2vim which parses DTD and creates an XML data file for Vim XML omni completion.

    dtd2vim: http://www.vim.org/scripts/script.php?script_id=1462

Check the beginning of that file for usage details.
The script requires perl and:

    perlSGML: http://savannah.nongnu.org/projects/perlsgml

Commands

:XMLns {name} [{namespace}] :XMLns

Vim has to know which data file should be used and with which namespace. For loading of the data file and connecting data with the proper namespace use :XMLns command. The first (obligatory) argument is the name of the data (xhtml10s, xsl). The second argument is the code of namespace (h, xsl). When used without a second argument the dialect will be used as default - without namespace declaration. For example to use XML completion in .xsl files:

```
:XMLns xhtml10s
:XMLns xsl xsl
```

:XMLent {name} :XMLent

By default entities will be completed from the data file of the default namespace. The XMLent command should be used in case when there is no default namespace:

```
:XMLent xhtml10s
```

Usage

While used in this situation (after declarations from previous part, | is cursor position):

```
<|
```

Will complete to an appropriate XHTML tag, and in this situation:

```
<xsl:|
```

Will complete to an appropriate XSL tag.

The script xmlcomplete.vim, provided through the autoload mechanism, has the xmlcomplete#GetLastOpenTag() function which can be used in XML files to get the name of the last open tag (b:unaryTagsStack has to be defined):

```
:echo xmlcomplete#GetLastOpenTag("b:unaryTagsStack")
```

==

8. Insert mode commands inserting

The following commands can be used to insert new text into the buffer. They can all be undone and repeated with the "." command.

a a

a Append text after the cursor [count] times. If the cursor is in the first column of an empty line Insert

starts there. But not when 'virtualedit' is set!

A
A   Append text at the end of the line [count] times.

<insert>   or   i   insert   <Insert>
i   Insert text before the cursor [count] times.
When using CTRL-O in Insert mode i_CTRL-O the count
is not supported.

I
I   Insert text before the first non-blank in the line
[count] times.
When the 'H' flag is present in 'cpoptions' and the
line only contains blanks, insert start just before
the last blank.

gI
gI   Insert text in column 1 [count] times. {not in Vi}

gi
gi   Insert text in the same position as where Insert mode
was stopped last time in the current buffer.
This uses the '^ mark. It's different from "`^i"
when the mark is past the end of the line.
The position is corrected for inserted/deleted lines,
but NOT for inserted/deleted characters.
When the :keepjumps command modifier is used the '^
mark won't be changed.
{not in Vi}

o
o   Begin a new line below the cursor and insert text,
repeat [count] times. {Vi: blank [count] screen
lines}
When the '#' flag is in 'cpoptions' the count is
ignored.

O
O   Begin a new line above the cursor and insert text,
repeat [count] times. {Vi: blank [count] screen
lines}
When the '#' flag is in 'cpoptions' the count is
ignored.

These commands are used to start inserting text. You can end insert mode with
<Esc>. See mode-ins-repl for the other special characters in Insert mode.
The effect of [count] takes place after Insert mode is exited.

When 'autoindent' is on, the indent for a new line is obtained from the
previous line. When 'smartindent' or 'cindent' is on, the indent for a line
is automatically adjusted for C programs.

'textwidth' can be set to the maximum width for a line. When a line becomes

too long when appending characters a line break is automatically inserted.

==
9. Ex insert commands   inserting-ex

                                                        :a :append
:{range}a[ppend][!]   Insert several lines of text below the specified
                        line. If the {range} is missing, the text will be
                        inserted after the current line.
                        Adding [!] toggles 'autoindent' for the time this
                        command is executed.

                                                        :i :in :insert
:{range}i[nsert][!]   Insert several lines of text above the specified
                        line. If the {range} is missing, the text will be
                        inserted before the current line.
                        Adding [!] toggles 'autoindent' for the time this
                        command is executed.

These two commands will keep on asking for lines, until you type a line
containing only a ".". Watch out for lines starting with a backslash, see
 line-continuation .

When in Ex mode (see -e) a backslash at the end of the line can be used to
insert a NUL character. To be able to have a line ending in a backslash use
two backslashes. This means that the number of backslashes is halved, but
only at the end of the line.

NOTE: These commands cannot be used with :global or :vglobal .
":append" and ":insert" don't work properly in between ":if" and
":endif", ":for" and ":endfor", ":while" and ":endwhile".

                                                        :start :startinsert
:star[tinsert][!]   Start Insert mode just after executing this command.
                        Works like typing "i" in Normal mode. When the ! is
                        included it works like "A", append to the line.
                        Otherwise insertion starts at the cursor position.
                        Note that when using this command in a function or
                        script, the insertion only starts after the function
                        or script is finished.
                        This command does not work from :normal .
                        {not in Vi}

                                                        :stopi :stopinsert
:stopi[nsert]   Stop Insert mode as soon as possible. Works like
                        typing <Esc> in Insert mode.
                        Can be used in an autocommand, example:
                                :au BufEnter scratch stopinsert

                                                replacing-ex :startreplace
:startr[eplace][!]   Start Replace mode just after executing this command.
                        Works just like typing "R" in Normal mode. When the
                        ! is included it acts just like "$R" had been typed

(ie. begin replace mode at the end-of-line). Otherwise replacement begins at the cursor position. Note that when using this command in a function or script that the replacement will only start after the function or script is finished. {not in Vi}

:startgreplace

:startg[replace][!] Just like :startreplace , but use Virtual Replace mode, like with gR . {not in Vi}

==========

10. Inserting a file inserting-file

:r :re :read

:r[ead] [++opt] [name]
Insert the file [name] (default: current file) below the cursor.
See ++opt for the possible values of [++opt].

:{range}r[ead] [++opt] [name]
Insert the file [name] (default: current file) below the specified line.
See ++opt for the possible values of [++opt].

:r! :read!

:[range]r[ead] [++opt] !{cmd}
Execute {cmd} and insert its standard output below the cursor or the specified line. A temporary file is used to store the output of the command which is then read into the buffer. 'shellredir' is used to save the output of the command, which can be set to include stderr or not. {cmd} is executed like with ":!{cmd}", any '!' is replaced with the previous command :! .
See ++opt for the possible values of [++opt].

These commands insert the contents of a file, or the output of a command, into the buffer. They can be undone. They cannot be repeated with the "." command. They work on a line basis, insertion starts below the line in which the cursor is, or below the specified line. To insert text above the first line use the command ":0r {name}".

After the ":read" command, the cursor is left on the first non-blank in the first new line. Unless in Ex mode, then the cursor is left on the last new line (sorry, this is Vi compatible).

If a file name is given with ":r", it becomes the alternate file. This can be used, for example, when you want to edit that file instead: ":e! #". This can be switched off by removing the 'a' flag from the 'cpoptions' option.

Of the [++opt] arguments one is specifically for ":read", the ++edit argument. This is useful when the ":read" command is actually used to read a file into the buffer as if editing that file. Use this command in an empty buffer:

```
        :read ++edit filename
```
The effect is that the 'fileformat', 'fileencoding', 'bomb', etc. options are set to what has been detected for "filename". Note that a single empty line remains, you may want to delete it.

file-read

The 'fileformat' option sets the <EOL> style for a file:

'fileformat'	characters	name
"dos"	<CR><NL> or <NL>	DOS format
"unix"	<NL>	Unix format
"mac"	<CR>	Mac format

Previously 'textmode' was used. It is obsolete now.

If 'fileformat' is "dos", a <CR> in front of an <NL> is ignored and a CTRL-Z at the end of the file is ignored.

If 'fileformat' is "mac", a <NL> in the file is internally represented by a <CR>. This is to avoid confusion with a <NL> which is used to represent a <NUL>. See CR-used-for-NL .

If the 'fileformats' option is not empty Vim tries to recognize the type of <EOL> (see file-formats). However, the 'fileformat' option will not be changed, the detected format is only used while reading the file.
A similar thing happens with 'fileencodings'.

On non-MS-DOS, Win32, and OS/2 systems the message "[dos format]" is shown if a file is read in DOS format, to remind you that something unusual is done.
On Macintosh, MS-DOS, Win32, and OS/2 the message "[unix format]" is shown if a file is read in Unix format.
On non-Macintosh systems, the message "[Mac format]" is shown if a file is read in Mac format.

An example on how to use ":r !":
```
        :r !uuencode binfile binfile
```
This command reads "binfile", uuencodes it and reads it into the current buffer. Useful when you are editing e-mail and want to include a binary file.

read-messages

When reading a file Vim will display a message with information about the read file. In the table is an explanation for some of the items. The others are self explanatory. Using the long or the short version depends on the 'shortmess' option.

long	short	meaning
[readonly]	{RO}	the file is write protected
[fifo/socket]		using a stream
[fifo]		using a fifo stream
[socket]		using a socket stream
[CR missing]		reading with "dos" 'fileformat' and a NL without a preceding CR was found.
[NL found]		reading with "mac" 'fileformat' and a NL was found (could be "unix" format)
[long lines split]		at least one line was split in two

[NOT converted]	conversion from 'fileencoding' to 'encoding' was desired but not possible
[converted]	conversion from 'fileencoding' to 'encoding' done
[crypted]	file was decrypted
[READ ERRORS]	not all of the file could be read

vim:tw=78:ts=8:noet:ft=help:norl:

VIM REFERENCE MANUAL by Bram Moolenaar

This file describes commands that delete or change text. In this context, changing text means deleting the text and replacing it with other text using one command. You can undo all of these commands. You can repeat the non-Ex commands with the "." command.

For inserting text see insert.txt .

==========

1. Deleting text deleting E470

["x]<Del> or <Del> x dl

["x]x Delete [count] characters under and after the cursor [into register x] (not linewise). Does the same as "dl".
The <Del> key does not take a [count]. Instead, it deletes the last character of the count.
See :fixdel if the <Del> key does not do what you want. See 'whichwrap' for deleting a line break (join lines). {Vi does not support <Del>}

X dh

["x]X Delete [count] characters before the cursor [into register x] (not linewise). Does the same as "dh".
Also see 'whichwrap' .

d

["x]d{motion} Delete text that {motion} moves over [into register x]. See below for exceptions.

dd

["x]dd Delete [count] lines [into register x] linewise .

D

["x]D Delete the characters under the cursor until the end of the line and [count]-1 more lines [into register x]; synonym for "d$".

(not linewise)
When the '#' flag is in 'cpoptions' the count is
ignored.

{Visual}["x]x or v_x v_d v_<Del>
{Visual}["x]d or
{Visual}["x]<Del> Delete the highlighted text [into register x] (for
{Visual} see Visual-mode). {not in Vi}

{Visual}["x]CTRL-H or v_CTRL-H v_<BS>
{Visual}["x]<BS> When in Select mode: Delete the highlighted text [into
register x].

{Visual}["x]X or v_X v_D v_b_D
{Visual}["x]D Delete the highlighted lines [into register x] (for
{Visual} see Visual-mode). In Visual block mode,
"D" deletes the highlighted text plus all text until
the end of the line. {not in Vi}

:d :de :del :delete :dl :dp
:[range]d[elete] [x] Delete [range] lines (default: current line) [into
register x].
Note these weird abbreviations:

:dl	delete and list
:dell	idem
:delel	idem
:deletl	idem
:deletel	idem
:dp	delete and print
:dep	idem
:delp	idem
:delep	idem
:deletp	idem
:deletep	idem

:[range]d[elete] [x] {count}
Delete {count} lines, starting with [range]
(default: current line cmdline-ranges) [into
register x].

These commands delete text. You can repeat them with the `.` command
(except `:d`) and undo them. Use Visual mode to delete blocks of text. See
registers for an explanation of registers.

An exception for the d{motion} command: If the motion is not linewise, the
start and end of the motion are not in the same line, and there are only
blanks before the start and there are no non-blanks after the end of the
motion, the delete becomes linewise. This means that the delete also removes
the line of blanks that you might expect to remain. Use the o_v operator to
force the motion to be characterwise.

Trying to delete an empty region of text (e.g., "d0" in the first column)
is an error when 'cpoptions' includes the 'E' flag.

J

J   Join [count] lines, with a minimum of two lines.
                        Remove the indent and insert up to two spaces (see
                        below). Fails when on the last line of the buffer.
                        If [count] is too big it is reduced to the number of
                        lines available.

v_J

{Visual}J   Join the highlighted lines, with a minimum of two
                        lines. Remove the indent and insert up to two spaces
                        (see below). {not in Vi}

gJ

gJ   Join [count] lines, with a minimum of two lines.
                        Don't insert or remove any spaces. {not in Vi}

v_gJ

{Visual}gJ   Join the highlighted lines, with a minimum of two
                        lines. Don't insert or remove any spaces. {not in
                        Vi}

:j :join

:[range]j[oin][!] [flags]
                        Join [range] lines. Same as "J", except with [!]
                        the join does not insert or delete any spaces.
                        If a [range] has equal start and end values, this
                        command does nothing. The default behavior is to
                        join the current line with the line below it.
                        {not in Vi: !}
                        See ex-flags for [flags].

:[range]j[oin][!] {count} [flags]
                        Join {count} lines, starting with [range] (default:
                        current line cmdline-ranges). Same as "J", except
                        with [!] the join does not insert or delete any
                        spaces.
                        {not in Vi: !}
                        See ex-flags for [flags].

These commands delete the <EOL> between lines. This has the effect of joining multiple lines into one line. You can repeat these commands (except `:j`) and undo them.

These commands, except "gJ", insert one space in place of the <EOL> unless there is trailing white space or the next line starts with a ')'. These commands, except "gJ", delete any leading white space on the next line. If the 'joinspaces' option is on, these commands insert two spaces after a '.', '!' or '?' (but if 'cpoptions' includes the 'j' flag, they insert two spaces only after a '.').
The 'B' and 'M' flags in 'formatoptions' change the behavior for inserting spaces before and after a multi-byte character fo-table .

The '[mark is set at the end of the first line that was joined, '] at the end of the resulting line.

==
2. Delete and insert   delete-insert   replacing

                                                                        R
R   Enter Replace mode: Each character you type replaces
                        an existing character, starting with the character
                        under the cursor. Repeat the entered text [count]-1
                        times. See Replace-mode for more details.

                                                                        gR
gR   Enter Virtual Replace mode: Each character you type
                        replaces existing characters in screen space. So a
                        <Tab> may replace several characters at once.
                        Repeat the entered text [count]-1 times. See
                         Virtual-Replace-mode for more details.

                                                                        c
["x]c{motion}   Delete {motion} text [into register x] and start
                        insert. When 'cpoptions' includes the 'E' flag and
                        there is no text to delete (e.g., with "cTx" when the
                        cursor is just after an 'x'), an error occurs and
                        insert mode does not start (this is Vi compatible).
                        When 'cpoptions' does not include the 'E' flag, the
                        "c" command always starts insert mode, even if there
                        is no text to delete.

                                                                        cc
["x]cc   Delete [count] lines [into register x] and start
                        insert linewise . If 'autoindent' is on, preserve
                        the indent of the first line.

                                                                        C
["x]C   Delete from the cursor position to the end of the
                        line and [count]-1 more lines [into register x], and
                        start insert. Synonym for c$ (not linewise).

                                                                        s
["x]s   Delete [count] characters [into register x] and start
                        insert (s stands for Substitute). Synonym for "cl"
                        (not linewise).

                                                                        S
["x]S   Delete [count] lines [into register x] and start
                        insert. Synonym for "cc" linewise .

{Visual}["x]c   or   v_c   v_s
{Visual}["x]s   Delete the highlighted text [into register x] and
                        start insert (for {Visual} see Visual-mode). {not
                        in Vi}

                                                                        v_r
{Visual}["x]r{char}   Replace all selected characters by {char}.

v_C
{Visual}["x]C Delete the highlighted lines [into register x] and start insert. In Visual block mode it works differently v_b_C . {not in Vi}

v_S
{Visual}["x]S Delete the highlighted lines [into register x] and start insert (for {Visual} see Visual-mode). {not in Vi}

v_R
{Visual}["x]R Currently just like {Visual}["x]S. In a next version it might work differently. {not in Vi}

Notes:
- You can end Insert and Replace mode with <Esc>.
- See the section "Insert and Replace mode" mode-ins-repl for the other special characters in these modes.
- The effect of [count] takes place after Vim exits Insert or Replace mode.
- When the 'cpoptions' option contains '$' and the change is within one line, Vim continues to show the text to be deleted and puts a '$' at the last deleted character.

See registers for an explanation of registers.

Replace mode is just like Insert mode, except that every character you enter deletes one character. If you reach the end of a line, Vim appends any further characters (just like Insert mode). In Replace mode, the backspace key restores the original text (if there was any). (See section "Insert and Replace mode" mode-ins-repl).

cw cW
Special case: When the cursor is in a word, "cw" and "cW" do not include the white space after a word, they only change up to the end of the word. This is because Vim interprets "cw" as change-word, and a word does not include the following white space.
{Vi: "cw" when on a blank followed by other blanks changes only the first blank; this is probably a bug, because "dw" deletes all the blanks; use the 'w' flag in 'cpoptions' to make it work like Vi anyway}

If you prefer "cw" to include the space after a word, use this mapping:
```
:map cw dwi
```
Or use "caw" (see aw).

:c :ch :change
:{range}c[hange][!] Replace lines of text with some different text. Type a line containing only "." to stop replacing. Without {range}, this command changes only the current line.
Adding [!] toggles 'autoindent' for the time this command is executed.

==========
3. Simple changes simple-change

r

r{char} Replace the character under the cursor with {char}. If {char} is a <CR> or <NL>, a line break replaces the character. To replace with a real <CR>, use CTRL-V <CR>. CTRL-V <NL> replaces with a <Nul>. {Vi: CTRL-V <CR> still replaces with a line break, cannot replace something with a <CR>}

If {char} is CTRL-E or CTRL-Y the character from the line below or above is used, just like with i_CTRL-E and i_CTRL-Y . This also works with a count, thus `10r<C-E>` copies 10 characters from the line below.

If you give a [count], Vim replaces [count] characters with [count] {char}s. When {char} is a <CR> or <NL>, however, Vim inserts only one <CR>: "5r<CR>" replaces five characters with a single line break. When {char} is a <CR> or <NL>, Vim performs autoindenting. This works just like deleting the characters that are replaced and then doing "i<CR><Esc>". {char} can be entered as a digraph digraph-arg . :lmap mappings apply to {char}. The CTRL-^ command in Insert mode can be used to switch this on/off i_CTRL-^ . See utf-8-char-arg about using composing characters when 'encoding' is Unicode.

gr

gr{char} Replace the virtual characters under the cursor with {char}. This replaces in screen space, not file space. See gR and Virtual-Replace-mode for more details. As with r a count may be given. {char} can be entered like with r .

digraph-arg

The argument for Normal mode commands like r and t is a single character. When 'cpo' doesn't contain the 'D' flag, this character can also be entered like digraphs . First type CTRL-K and then the two digraph characters. {not available when compiled without the |+digraphs| feature}

case

The following commands change the case of letters. The currently active locale is used. See :language . The LC_CTYPE value matters here.

~

~ 'notildeop' option: Switch case of the character under the cursor and move the cursor to the right. If a [count] is given, do that many characters. {Vi: no count}

~{motion} 'tildeop' option: switch case of {motion} text. {Vi: tilde cannot be used as an operator}

g~

g~{motion}		Switch case of {motion} text. {not in Vi}

g~g~ g~g~ g~~
g~~		Switch case of current line. {not in Vi}.

v_~
{Visual}~		Switch case of highlighted text (for {Visual} see Visual-mode). {not in Vi}

v_U
{Visual}U		Make highlighted text uppercase (for {Visual} see Visual-mode). {not in Vi}

gU uppercase
gU{motion}		Make {motion} text uppercase. {not in Vi}
Example:
```
:map! <C-F> <Esc>gUiw`]a
```
This works in Insert mode: press CTRL-F to make the word before the cursor uppercase. Handy to type words in lowercase and then make them uppercase.

gUgU gUgU gUU
gUU		Make current line uppercase. {not in Vi}.

v_u
{Visual}u		Make highlighted text lowercase (for {Visual} see Visual-mode). {not in Vi}

gu lowercase
gu{motion}		Make {motion} text lowercase. {not in Vi}

gugu gugu guu
guu		Make current line lowercase. {not in Vi}.

g? rot13
g?{motion}		Rot13 encode {motion} text. {not in Vi}

v_g?
{Visual}g?		Rot13 encode the highlighted text (for {Visual} see Visual-mode). {not in Vi}

g?g? g?g? g??
g??		Rot13 encode current line. {not in Vi}.

To turn one line into title caps, make every first letter of a word uppercase:
```
:s/\v<(.)(\w*)/\u\1\L\2/g
```

Adding and subtracting

CTRL-A
CTRL-A		Add [count] to the number or alphabetic character at or after the cursor. {not in Vi}

v_CTRL-A
{Visual}CTRL-A Add [count] to the number or alphabetic character in the highlighted text. {not in Vi}

v_g_CTRL-A
{Visual}g CTRL-A Add [count] to the number or alphabetic character in the highlighted text. If several lines are highlighted, each one will be incremented by an additional [count] (so effectively creating a [count] incrementing sequence). {not in Vi}
For Example, if you have this list of numbers:

```
1.
1.
1.
1.
```

Move to the second "1." and Visually select three lines, pressing g CTRL-A results in:

```
1.
2.
3.
4.
```

CTRL-X
CTRL-X Subtract [count] from the number or alphabetic character at or after the cursor. {not in Vi}

v_CTRL-X
{Visual}CTRL-X Subtract [count] from the number or alphabetic character in the highlighted text. {not in Vi}

On MS-Windows, this is mapped to cut Visual text dos-standard-mappings . If you want to disable the mapping, use this:

```
silent! vunmap <C-X>
```

v_g_CTRL-X
{Visual}g CTRL-X Subtract [count] from the number or alphabetic character in the highlighted text. If several lines are highlighted, each value will be decremented by an additional [count] (so effectively creating a [count] decrementing sequence). {not in Vi}

The CTRL-A and CTRL-X commands can work for:
- signed and unsigned decimal numbers
- unsigned binary, octal and hexadecimal numbers
- alphabetic characters

This depends on the 'nrformats' option:
- When 'nrformats' includes "bin", Vim assumes numbers starting with '0b' or '0B' are binary.
- When 'nrformats' includes "octal", Vim considers numbers starting with a '0' to be octal, unless the number includes a '8' or '9'. Other numbers are decimal and may have a preceding minus sign.

  If the cursor is on a number, the commands apply to that number; otherwise
  Vim uses the number to the right of the cursor.
- When 'nrformats' includes "hex", Vim assumes numbers starting with '0x' or
  '0X' are hexadecimal. The case of the rightmost letter in the number
  determines the case of the resulting hexadecimal number. If there is no
  letter in the current number, Vim uses the previously detected case.
- When 'nrformats' includes "alpha", Vim will change the alphabetic character
  under or after the cursor. This is useful to make lists with an alphabetic
  index.

For decimals a leading negative sign is considered for incrementing/
decrementing, for binary, octal and hex values, it won't be considered. To
ignore the sign Visually select the number before using CTRL-A or CTRL-X.

For numbers with leading zeros (including all octal and hexadecimal numbers),
Vim preserves the number of characters in the number when possible. CTRL-A on
"0077" results in "0100", CTRL-X on "0x100" results in "0x0ff".
There is one exception: When a number that starts with a zero is found not to
be octal (it contains a '8' or '9'), but 'nrformats' does include "octal",
leading zeros are removed to avoid that the result may be recognized as an
octal number.

Note that when 'nrformats' includes "octal", decimal numbers with leading
zeros cause mistakes, because they can be confused with octal numbers.

Note similarly, when 'nrformats' includes "bin", binary numbers with a leading
'0x' or '0X' can be interpreted as hexadecimal rather than binary since '0b'
are valid hexadecimal digits.

The CTRL-A command is very useful in a macro. Example: Use the following
steps to make a numbered list.

1. Create the first list entry, make sure it starts with a number.
2. qa   - start recording into register 'a'
3. Y   - yank the entry
4. p   - put a copy of the entry below the first one
5. CTRL-A   - increment the number
6. q   - stop recording
7. <count>@a - repeat the yank, put and increment <count> times

SHIFTING LINES LEFT OR RIGHT shift-left-right

<{motion} Shift {motion} lines one 'shiftwidth' leftwards. <

<< Shift [count] lines one 'shiftwidth' leftwards. <<

{Visual}[count]< Shift the highlighted lines [count] 'shiftwidth' leftwards (for {Visual} see Visual-mode). {not in Vi} v_<

>

>{motion} Shift {motion} lines one 'shiftwidth' rightwards.

>>

>> Shift [count] lines one 'shiftwidth' rightwards.

v_>

{Visual}[count]> Shift the highlighted lines [count] 'shiftwidth' rightwards (for {Visual} see Visual-mode). {not in Vi}

:<

:[range]< Shift [range] lines one 'shiftwidth' left. Repeat '<' for shifting multiple 'shiftwidth's.

:[range]< {count} Shift {count} lines one 'shiftwidth' left, starting with [range] (default current line cmdline-ranges). Repeat '<' for shifting multiple 'shiftwidth's.

:[range]le[ft] [indent] left align lines in [range]. Sets the indent in the lines to [indent] (default 0). {not in Vi}

:>

:[range]> [flags] Shift {count} [range] lines one 'shiftwidth' right. Repeat '>' for shifting multiple 'shiftwidth's. See ex-flags for [flags].

:[range]> {count} [flags]
  Shift {count} lines one 'shiftwidth' right, starting with [range] (default current line cmdline-ranges). Repeat '>' for shifting multiple 'shiftwidth's. See ex-flags for [flags].

The ">" and "<" commands are handy for changing the indentation within programs. Use the 'shiftwidth' option to set the size of the white space which these commands insert or delete. Normally the 'shiftwidth' option is 8, but you can set it to, say, 3 to make smaller indents. The shift leftwards stops when there is no indent. The shift right does not affect empty lines.

If the 'shiftround' option is on, the indent is rounded to a multiple of 'shiftwidth'.

If the 'smartindent' option is on, or 'cindent' is on and 'cinkeys' contains '#' with a zero value, shift right does not affect lines starting with '#' (these are supposed to be C preprocessor lines that must stay in column 1). This can be changed with the 'cino' option, see cino-# .

When the 'expandtab' option is off (this is the default) Vim uses <Tab>s as much as possible to make the indent. You can use ">><<" to replace an indent made out of spaces with the same indent made out of <Tab>s (and a few spaces if necessary). If the 'expandtab' option is on, Vim uses only spaces. Then you can use ">><<" to replace <Tab>s in the indent by spaces (or use `:retab!`).

To move a line several 'shiftwidth's, use Visual mode or the `:` commands.
For example:

```
        Vjj4>           move three lines 4 indents to the right
        :<<<            move current line 3 indents to the left
        :>> 5           move 5 lines 2 indents to the right
        :5>>            move line 5 2 indents to the right
```

==
4. Complex changes   complex-change

4.1 Filter commands   filter

A filter is a program that accepts text at standard input, changes it in some way, and sends it to standard output. You can use the commands below to send some text through a filter, so that it is replaced by the filter output. Examples of filters are "sort", which sorts lines alphabetically, and "indent", which formats C program files (you need a version of indent that works like a filter; not all versions do). The 'shell' option specifies the shell Vim uses to execute the filter command (See also the 'shelltype' option). You can repeat filter commands with ".". Vim does not recognize a comment (starting with '"') after the `:!` command.

                                                                !
!{motion}{filter}   Filter {motion} text lines through the external
                        program {filter}.

                                                                !!
!!{filter}   Filter [count] lines through the external program
                        {filter}.

                                                                v_!
{Visual}!{filter}   Filter the highlighted lines through the external
                        program {filter} (for {Visual} see Visual-mode).
                        {not in Vi}

:{range}![!]{filter} [!][arg]   :range!
                        Filter {range} lines through the external program
                        {filter}. Vim replaces the optional bangs with the
                        latest given command and appends the optional [arg].
                        Vim saves the output of the filter command in a
                        temporary file and then reads the file into the buffer
                         tempfile . Vim uses the 'shellredir' option to
                        redirect the filter output to the temporary file.
                        However, if the 'shelltemp' option is off then pipes
                        are used when possible (on Unix).
                        When the 'R' flag is included in 'cpoptions' marks in
                        the filtered lines are deleted, unless the
                         :keepmarks command is used. Example:
                                :keepmarks '<,'>!sort
                       When the number of lines after filtering is less than
                        before, marks in the missing lines are deleted anyway.

                                                                =
={motion}   Filter {motion} lines through the external program

given with the 'equalprg' option. When the 'equalprg' option is empty (this is the default), use the internal formatting function C-indenting and 'lisp'. But when 'indentexpr' is not empty, it will be used instead indent-expression. When Vim was compiled without internal formatting then the "indent" program is used as a last resort.

== Filter [count] lines like with ={motion}.

{Visual}= Filter the highlighted lines like with ={motion}. {not in Vi}

tempfile setuid

Vim uses temporary files for filtering, generating diffs and also for tempname(). For Unix, the file will be in a private directory (only accessible by the current user) to avoid security problems (e.g., a symlink attack or other people reading your file). When Vim exits the directory and all files in it are deleted. When Vim has the setuid bit set this may cause problems, the temp file is owned by the setuid user but the filter command probably runs as the original user.
On MS-DOS and OS/2 the first of these directories that works is used: $TMP, $TEMP, c:\TMP, c:\TEMP.
For Unix the list of directories is: $TMPDIR, /tmp, current-dir, $HOME.
For MS-Windows the GetTempFileName() system function is used.
For other systems the tmpnam() library function is used.

4.2 Substitute

:substitute :s :su

:[range]s[ubstitute]/{pattern}/{string}/[flags] [count]
For each line in [range] replace a match of {pattern} with {string}.
For the {pattern} see pattern.
{string} can be a literal string, or something special; see sub-replace-special.
E939
When [range] and [count] are omitted, replace in the current line only. When [count] is given, replace in [count] lines, starting with the last line in [range]. When [range] is omitted start in the current line. [count] must be a positive number. Also see cmdline-ranges.

See :s_flags for [flags].

:[range]s[ubstitute] [flags] [count]
:[range]&[&][flags] [count] :&
Repeat last :substitute with same search pattern and substitute string, but without the same flags. You

may add [flags], see :s_flags .
Note that after `:substitute` the '&' flag can't be
used, it's recognized as a pattern separator.
The space between `:substitute` and the 'c', 'g',
'i', 'I' and 'r' flags isn't required, but in scripts
it's a good idea to keep it to avoid confusion.

:[range]~[&][flags] [count] :~
Repeat last substitute with same substitute string
but with last used search pattern. This is like
`:&r`. See :s_flags for [flags].

&
& Synonym for `:s` (repeat last substitute). Note
that the flags are not remembered, thus it might
actually work differently. You can use `:&&` to keep
the flags.

g&
g& Synonym for `:%s//~/&` (repeat last substitute with
last search pattern on all lines with the same flags).
For example, when you first do a substitution with
`:s/pattern/repl/flags` and then `/search` for
something else, `g&` will do `:%s/search/repl/flags`.
Mnemonic: global substitute. {not in Vi}

:snomagic :sno
:[range]sno[magic] ... Same as `:substitute`, but always use 'nomagic'.
{not in Vi}

:smagic :sm
:[range]sm[agic] ... Same as `:substitute`, but always use 'magic'.
{not in Vi}

:s_flags
The flags that you can use for the substitute commands:

:&&
[&] Must be the first one: Keep the flags from the previous substitute
command. Examples:
:&&
:s/this/that/&
Note that `:s` and `:&` don't keep the flags.
{not in Vi}

[c] Confirm each substitution. Vim highlights the matching string (with
hl-IncSearch). You can type: :s_c
'y' to substitute this match
'l' to substitute this match and then quit ("last")
'n' to skip this match
<Esc> to quit substituting
'a' to substitute this and all remaining matches {not in Vi}
'q' to quit substituting {not in Vi}
CTRL-E to scroll the screen up {not in Vi, not available when

compiled without the +insert_expand feature}
CTRL-Y to scroll the screen down {not in Vi, not available when
compiled without the +insert_expand feature}
If the 'edcompatible' option is on, Vim remembers the [c] flag and
toggles it each time you use it, but resets it when you give a new
search pattern.
{not in Vi: highlighting of the match, other responses than 'y' or 'n'}

[e] When the search pattern fails, do not issue an error message and, in
particular, continue in maps as if no error occurred. This is most
useful to prevent the "No match" error from breaking a mapping. Vim
does not suppress the following error messages, however:
Regular expressions can't be delimited by letters
\ should be followed by /, ? or &
No previous substitute regular expression
Trailing characters
Interrupted
{not in Vi}

[g] Replace all occurrences in the line. Without this argument,
replacement occurs only for the first occurrence in each line. If
the 'edcompatible' option is on, Vim remembers this flag and toggles
it each time you use it, but resets it when you give a new search
pattern. If the 'gdefault' option is on, this flag is on by default
and the [g] argument switches it off.

[i] Ignore case for the pattern. The 'ignorecase' and 'smartcase' options
are not used.
{not in Vi}

[I] Don't ignore case for the pattern. The 'ignorecase' and 'smartcase'
options are not used.
{not in Vi}

[n] Report the number of matches, do not actually substitute. The [c]
flag is ignored. The matches are reported as if 'report' is zero.
Useful to count-items .
If \= sub-replace-expression is used, the expression will be
evaluated in the sandbox at every match.

[p] Print the line containing the last substitute.

[#] Like [p] and prepend the line number.

[l] Like [p] but print the text like :list .

[r] Only useful in combination with `:&` or `:s` without arguments. `:&r`
works the same way as `:~`: When the search pattern is empty, use the
previously used search pattern instead of the search pattern from the
last substitute or `:global`. If the last command that did a search
was a substitute or `:global`, there is no effect. If the last
command was a search command such as "/", use the pattern from that
command.
For `:s` with an argument this already happens:

```
		:s/blue/red/
		/green
		:s//red/   or  :~   or  :&r
	The last commands will replace "green" with "red".
		:s/blue/red/
		/green
		:&
	The last command will replace "blue" with "red".
	 {not in Vi}
```

Note that there is no flag to change the "magicness" of the pattern. A different command is used instead, or you can use /\v and friends. The reason is that the flags can only be found by skipping the pattern, and in order to skip the pattern the "magicness" must be known. Catch 22!

If the {pattern} for the substitute command is empty, the command uses the pattern from the last substitute or `:global` command. If there is none, but there is a previous search pattern, that one is used. With the [r] flag, the command uses the pattern from the last substitute, `:global`, or search command.

If the {string} is omitted the substitute is done as if it's empty. Thus the matched pattern is deleted. The separator after {pattern} can also be left out then. Example:

```
	:%s/TESTING
```

This deletes "TESTING" from all lines, but only one per line.

For compatibility with Vi these two exceptions are allowed:
"\/{string}/" and "\?{string}?" do the same as "//{string}/r".
"\&{string}&" does the same as "//{string}/".

E146

Instead of the '/' which surrounds the pattern and replacement string, you can use any other single-byte character, but not an alphanumeric character, '\', '"' or '|'. This is useful if you want to include a '/' in the search pattern or replacement string. Example:

```
	:s+/+//+
```

For the definition of a pattern, see pattern . In Visual block mode, use /\%V in the pattern to have the substitute work in the block only. Otherwise it works on whole lines anyway.

sub-replace-special :s\=

When the {string} starts with "\=" it is evaluated as an expression, see sub-replace-expression . You can use that for complex replacement or special characters.

Otherwise these characters in {string} have a special meaning:

:s%

When {string} is equal to "%" and '/' is included with the 'cpoptions' option, then the {string} of the previous substitute command is used, see cpo-/

magic	nomagic	action	
&	\&	replaced with the whole matched pattern	s/\&
\&	&	replaced with &	

```
      \0          replaced with the whole matched pattern           \0   s/\0
      \1          replaced with the matched pattern in the first
                  pair of ()                                          s/\1
      \2          replaced with the matched pattern in the second
                  pair of ()                                          s/\2
      ..          ..                                                  s/\3
      \9          replaced with the matched pattern in the ninth
                  pair of ()                                          s/\9
  ~       \~      replaced with the {string} of the previous
                  substitute                                          s~
 \~        ~      replaced with ~                                     s/\~
      \u          next character made uppercase                       s/\u
      \U          following characters made uppercase, until \E       s/\U
      \l          next character made lowercase                       s/\l
      \L          following characters made lowercase, until \E       s/\L
      \e          end of \u, \U, \l and \L (NOTE: not <Esc>!)         s/\e
      \E          end of \u, \U, \l and \L                            s/\E
      <CR>        split line in two at this point
                  (Type the <CR> as CTRL-V <Enter>)                   s<CR>
      \r          idem                                                s/\r
      \<CR>       insert a carriage-return (CTRL-M)
                  (Type the <CR> as CTRL-V <Enter>)                   s/\<CR>
      \n          insert a <NL> (<NUL> in the file)
                  (does NOT break the line)                           s/\n
      \b          insert a <BS>                                       s/\b
      \t          insert a <Tab>                                      s/\t
      \\          insert a single backslash                           s/\\
      \x          where x is any character not mentioned above:
                  Reserved for future expansion
```

The special meaning is also used inside the third argument {sub} of the substitute() function with the following exceptions:
- A % inserts a percent literally without regard to 'cpoptions'.
- magic is always set without regard to 'magic'.
- A ~ inserts a tilde literally.
- <CR> and \r inserts a carriage-return (CTRL-M).
- \<CR> does not have a special meaning. it's just one of \x.

Examples:

```
:s/a\|b/xxx\0xxx/g             modifies "a b"      to "xxxaxxx xxxbxxx"
:s/\([abc]\)\([efg]\)/\2\1/g   modifies "af fa bg" to "fa fa gb"
:s/abcde/abc^Mde/              modifies "abcde"    to "abc", "de" (two lines)
:s/$/\^M/                      modifies "abcde"    to "abcde^M"
:s/\w\+/\u\0/g                 modifies "bla bla"  to "Bla Bla"
:s/\w\+/\L\u\0/g               modifies "BLA bla"  to "Bla Bla"
```

Note: "\L\u" can be used to capitalize the first letter of a word. This is not compatible with Vi and older versions of Vim, where the "\u" would cancel out the "\L". Same for "\U\l".

Note: In previous versions CTRL-V was handled in a special way. Since this is not Vi compatible, this was removed. Use a backslash instead.

```
command         text    result
```

```
:s/aa/a^Ma/     aa      a<line-break>a
:s/aa/a\^Ma/    aa      a^Ma
:s/aa/a\\^Ma/   aa      a\<line-break>a
```

(you need to type CTRL-V <CR> to get a ^M here)

The numbering of "\1", "\2" etc. is done based on which "\(" comes first in the pattern (going left to right). When a parentheses group matches several times, the last one will be used for "\1", "\2", etc. Example:

```
  :s/\(\(a[a-d] \)*\)/\2/      modifies "aa ab x" to "ab x"
```

The "\2" is for "\(a[a-d] \)". At first it matches "aa ", secondly "ab ".

When using parentheses in combination with '|', like in \([ab]\)\|\([cd]\), either the first or second pattern in parentheses did not match, so either \1 or \2 is empty. Example:

```
  :s/\([ab]\)\|\([cd]\)/\1x/g   modifies "a b c d"  to "ax bx x x"
```

:sc :sce :scg :sci :scI :scl :scp :sg :sgc
:sge :sgi :sgI :sgl :sgn :sgp :sgr :sI :si
:sic :sIc :sie :sIe :sIg :sIl :sin :sIn :sIp
:sip :sIr :sir :sr :src :srg :sri :srI :srl
:srn :srp

2-letter and 3-letter :substitute commands

List of :substitute commands

	c	e	g	i	I	n	p	l	r
c	:sc	:sce	:scg	:sci	:scI	:scn	:scp	:scl	---
e									
g	:sgc	:sge	:sg	:sgi	:sgI	:sgn	:sgp	:sgl	:sgr
i	:sic	:sie	---	:si	:siI	:sin	:sip	---	:sir
I	:sIc	:sIe	:sIg	:sIi	:sI	:sIn	:sIp	:sIl	:sIr
n									
p									
l									
r	:src	---	:srg	:sri	:srI	:srn	:srp	:srl	:sr

Exceptions:

```
     :scr  is  `:scriptnames`
     :se   is  `:set`
     :sig  is  `:sign`
     :sil  is  `:silent`
     :sn   is  `:snext`
     :sp   is  `:split`
     :sl   is  `:sleep`
     :sre  is  `:srewind`
```

Substitute with an expression sub-replace-expression
sub-replace-\= s/\=

When the substitute string starts with "\=" the remainder is interpreted as an expression.

The special meaning for characters as mentioned at sub-replace-special does

not apply except for "<CR>". A <NL> character is used as a line break, you can get one with a double-quote string: "\n". Prepend a backslash to get a real <NL> character (which will be a NUL in the file).

The "\=" notation can also be used inside the third argument {sub} of substitute() function. In this case, the special meaning for characters as mentioned at sub-replace-special does not apply at all. Especially, <CR> and <NL> are interpreted not as a line break but as a carriage-return and a new-line respectively.

When the result is a List then the items are joined with separating line breaks. Thus each item becomes a line, except that they can contain line breaks themselves.

The whole matched text can be accessed with "submatch(0)". The text matched with the first pair of () with "submatch(1)". Likewise for further sub-matches in ().

Be careful: The separation character must not appear in the expression! Consider using a character like "@" or ":". There is no problem if the result of the expression contains the separation character.

Examples:

```
:s@\n@\="\r" . expand("$HOME") . "\r"@
```

This replaces an end-of-line with a new line containing the value of $HOME.

```
s/E/\="\<Char-0x20ac>"/g
```

This replaces each 'E' character with a euro sign. Read more in <Char-> .

4.3 Search and replace

search-replace

:pro :promptfind

:promptf[ind] [string]

Put up a Search dialog. When [string] is given, it is used as the initial search string.
{only for Win32, Motif and GTK GUI}

:promptr :promptrepl

:promptr[epl] [string]

Put up a Search/Replace dialog. When [string] is given, it is used as the initial search string.
{only for Win32, Motif and GTK GUI}

4.4 Changing tabs

change-tabs

:ret :retab :retab!

:[range]ret[ab][!] [new_tabstop]

Replace all sequences of white-space containing a <Tab> with new strings of white-space using the new tabstop value given. If you do not specify a new tabstop size or it is zero, Vim uses the current value of 'tabstop'.
The current value of 'tabstop' is always used to

compute the width of existing tabs.
With !, Vim also replaces strings of only normal
spaces with tabs where appropriate.
With 'expandtab' on, Vim replaces all tabs with the
appropriate number of spaces.
This command sets 'tabstop' to the new value given,
and if performed on the whole file, which is default,
should not make any visible change.
Careful: This command modifies any <Tab> characters
inside of strings in a C program. Use "\t" to avoid
this (that's a good habit anyway).
`:retab!` may also change a sequence of spaces by
<Tab> characters, which can mess up a printf().
If the +vartabs feature is enabled then a list of
tab widths separated by commas may be used in place of
a single tabstop. Each value in the list represents
the width of one tabstop, except the final value which
applies to all following tabstops.
{not in Vi}

retab-example
Example for using autocommands and ":retab" to edit a file which is stored
with tabstops at 8 but edited with tabstops set at 4. Warning: white space
inside of strings can change! Also see 'softtabstop' option.

```
:auto BufReadPost     *.xx    retab! 4
:auto BufWritePre     *.xx    retab! 8
:auto BufWritePost    *.xx    retab! 4
:auto BufNewFile      *.xx    set ts=4
```

==========
5. Copying and moving text   copy-move

quote
"{a-zA-Z0-9.%#:-"}   Use register {a-zA-Z0-9.%#:-"} for next delete, yank
or put (use uppercase character to append with
delete and yank) ({.%#:} only work with put).

:reg   :registers
:reg[isters]   Display the contents of all numbered and named
registers. If a register is written to for :redir
it will not be listed.
{not in Vi}

:reg[isters] {arg}   Display the contents of the numbered and named
registers that are mentioned in {arg}. For example:
:reg 1a
to display registers '1' and 'a'. Spaces are allowed
in {arg}. {not in Vi}

:di   :display
:di[splay] [arg]   Same as :registers. {not in Vi}

y yank

["x]y{motion} Yank {motion} text [into register x]. When no characters are to be yanked (e.g., "y0" in column 1), this is an error when 'cpoptions' includes the 'E' flag.

yy

["x]yy Yank [count] lines [into register x] linewise .

Y

["x]Y yank [count] lines [into register x] (synonym for yy, linewise). If you like "Y" to work from the cursor to the end of line (which is more logical, but not Vi-compatible) use ":map Y y$".

v_y

{Visual}["x]y Yank the highlighted text [into register x] (for {Visual} see Visual-mode). {not in Vi}

v_Y

{Visual}["x]Y Yank the highlighted lines [into register x] (for {Visual} see Visual-mode). {not in Vi}

:y :yank E850

:[range]y[ank] [x] Yank [range] lines [into register x]. Yanking to the "* or "+ registers is possible only when the +clipboard feature is included.

:[range]y[ank] [x] {count}
Yank {count} lines, starting with last line number in [range] (default: current line cmdline-ranges), [into register x].

p put E353

["x]p Put the text [from register x] after the cursor [count] times. {Vi: no count}

P

["x]P Put the text [from register x] before the cursor [count] times. {Vi: no count}

<MiddleMouse>

["x]<MiddleMouse> Put the text from a register before the cursor [count] times. Uses the "* register, unless another is specified.
Leaves the cursor at the end of the new text.
Using the mouse only works when 'mouse' contains 'n' or 'a'.
{not in Vi}
If you have a scrollwheel and often accidentally paste text, you can use these mappings to disable the pasting with the middle mouse button:

```
:map <MiddleMouse> <Nop>
:imap <MiddleMouse> <Nop>
```

You might want to disable the multi-click versions
too, see double-click .

gp
["x]gp Just like "p", but leave the cursor just after the new
text. {not in Vi}

gP
["x]gP Just like "P", but leave the cursor just after the new
text. {not in Vi}

:pu :put
:[line]pu[t] [x] Put the text [from register x] after [line] (default
current line). This always works linewise , thus
this command can be used to put a yanked block as new
lines.
If no register is specified, it depends on the 'cb'
option: If 'cb' contains "unnamedplus", paste from the
+ register quoteplus . Otherwise, if 'cb' contains
"unnamed", paste from the * register quotestar .
Otherwise, paste from the unnamed register
quote_quote .
The register can also be '=' followed by an optional
expression. The expression continues until the end of
the command. You need to escape the '|' and '"'
characters to prevent them from terminating the
command. Example:
:put ='path' . \",/test\"
If there is no expression after '=', Vim uses the
previous expression. You can see it with ":dis =".

:[line]pu[t]! [x] Put the text [from register x] before [line] (default
current line).

]p]<MiddleMouse>
["x]p or
["x]]p or
["x]<MiddleMouse> Like "p", but adjust the indent to the current line.
Using the mouse only works when 'mouse' contains 'n'
or 'a'. {not in Vi}

[P
["x][P or
]P
["x]]P or
[p [<MiddleMouse>
["x][p or
["x][<MiddleMouse> Like "P", but adjust the indent to the current line.
Using the mouse only works when 'mouse' contains 'n'
or 'a'. {not in Vi}

You can use these commands to copy text from one place to another. Do this
by first getting the text into a register with a yank, delete or change
command, then inserting the register contents with a put command. You can
also use these commands to move text from one file to another, because Vim
preserves all registers when changing buffers (the CTRL-^ command is a quick
way to toggle between two files).

linewise-register characterwise-register

You can repeat the put commands with "." (except for :put) and undo them. If the command that was used to get the text into the register was linewise , Vim inserts the text below ("p") or above ("P") the line where the cursor is. Otherwise Vim inserts the text after ("p") or before ("P") the cursor. With the ":put" command, Vim always inserts the text in the next line. You can exchange two characters with the command sequence "xp". You can exchange two lines with the command sequence "ddp". You can exchange two words with the command sequence "deep" (start with the cursor in the blank space before the first word). You can use the "']" or "`]" command after the put command to move the cursor to the end of the inserted text, or use "'[" or "`[" to move the cursor to the start.

put-Visual-mode v_p v_P
When using a put command like p or P in Visual mode, Vim will try to replace the selected text with the contents of the register. Whether this works well depends on the type of selection and the type of the text in the register. With blockwise selection it also depends on the size of the block and whether the corners are on an existing character. (Implementation detail: it actually works by first putting the register after the selection and then deleting the selection.)
The previously selected text is put in the unnamed register. If you want to put the same text into a Visual selection several times you need to use another register. E.g., yank the text to copy, Visually select the text to replace and use "0p . You can repeat this as many times as you like, the unnamed register will be changed each time.

When you use a blockwise Visual mode command and yank only a single line into a register, a paste on a visual selected area will paste that single line on each of the selected lines (thus replacing the blockwise selected region by a block of the pasted line).

blockwise-register
If you use a blockwise Visual mode command to get the text into the register, the block of text will be inserted before ("P") or after ("p") the cursor column in the current and next lines. Vim makes the whole block of text start in the same column. Thus the inserted text looks the same as when it was yanked or deleted. Vim may replace some <Tab> characters with spaces to make this happen. However, if the width of the block is not a multiple of a <Tab> width and the text after the inserted block contains <Tab>s, that text may be misaligned.

Note that after a characterwise yank command, Vim leaves the cursor on the first yanked character that is closest to the start of the buffer. This means that "yl" doesn't move the cursor, but "yh" moves the cursor one character left.
Rationale: In Vi the "y" command followed by a backwards motion would sometimes not move the cursor to the first yanked character, because redisplaying was skipped. In Vim it always moves to the first character, as specified by Posix.
With a linewise yank command the cursor is put in the first line, but the column is unmodified, thus it may not be on the first yanked character.

There are ten types of registers: registers E354
1. The unnamed register ""

2. 10 numbered registers "0 to "9
3. The small delete register "-
4. 26 named registers "a to "z or "A to "Z
5. three read-only registers ":, "., "%
6. alternate buffer register "#
7. the expression register "=
8. The selection and drop registers "*, "+ and "~
9. The black hole register "_
10. Last search pattern register "/

1. Unnamed register ""   quote_quote   quotequote
Vim fills this register with text deleted with the "d", "c", "s", "x" commands
or copied with the yank "y" command, regardless of whether or not a specific
register was used (e.g. "xdd). This is like the unnamed register is pointing
to the last used register. Thus when appending using an uppercase register
name, the unnamed register contains the same text as the named register.
An exception is the '_' register: "_dd does not store the deleted text in any
register.
Vim uses the contents of the unnamed register for any put command (p or P)
which does not specify a register. Additionally you can access it with the
name '""'. This means you have to type two double quotes. Writing to the ""
register writes to register "0.
{Vi: register contents are lost when changing files, no '""'}

2. Numbered registers "0 to "9   quote_number   quote0   quote1
                                        quote2   quote3   quote4   quote9
Vim fills these registers with text from yank and delete commands.
   Numbered register 0 contains the text from the most recent yank command,
unless the command specified another register with ["x].
   Numbered register 1 contains the text deleted by the most recent delete or
change command, unless the command specified another register or the text is
less than one line (the small delete register is used then). An exception is
made for the delete operator with these movement commands: % , (,) , `
 / , ? , n , N , { and } . Register "1 is always used then (this is Vi
compatible). The "- register is used as well if the delete is within a line.
Note that these characters may be mapped. E.g. % is mapped by the matchit
plugin.
   With each successive deletion or change, Vim shifts the previous contents
of register 1 into register 2, 2 into 3, and so forth, losing the previous
contents of register 9.
{Vi: numbered register contents are lost when changing files; register 0 does
not exist}

3. Small delete register "-   quote_-   quote-
This register contains text from commands that delete less than one line,
except when the command specifies a register with ["x].
{not in Vi}

4. Named registers "a to "z or "A to "Z   quote_alpha   quotea
Vim fills these registers only when you say so. Specify them as lowercase
letters to replace their previous contents or as uppercase letters to append
to their previous contents. When the '>' flag is present in 'cpoptions' then
a line break is inserted before the appended text.

5. Read-only registers ":, ". and "%
These are '%', '#', ':' and '.'. You can use them only with the "p", "P",
and ":put" commands and with CTRL-R. {not in Vi}
                                                quote_. quote. E29
        ".   Contains the last inserted text (the same as what is inserted
                with the insert mode commands CTRL-A and CTRL-@). Note: this
                doesn't work with CTRL-R on the command-line. It works a bit
                differently, like inserting the text instead of putting it
                ('textwidth' and other options affect what is inserted).
                                                        quote_% quote%
        "%   Contains the name of the current file.
                                                quote_: quote: E30
        ":   Contains the most recent executed command-line. Example: Use
                "@:" to repeat the previous command-line command.
                The command-line is only stored in this register when at least
                one character of it was typed. Thus it remains unchanged if
                the command was completely from a mapping.
                {not available when compiled without the +cmdline_hist
                feature}
                                                        quote_# quote#
6. Alternate file register "#
Contains the name of the alternate file for the current window. It will
change how the CTRL-^ command works.
This register is writable, mainly to allow for restoring it after a plugin has
changed it. It accepts buffer number:
    let altbuf = bufnr(@#)
    ...
    let @# = altbuf
It will give error E86 if you pass buffer number and this buffer does not
exist.
It can also accept a match with an existing buffer name:
    let @# = 'buffer_name'
Error E93 if there is more than one buffer matching the given name or E94
if none of buffers matches the given name.

7. Expression register "=   quote_= quote= @=
This is not really a register that stores text, but is a way to use an
expression in commands which use a register. The expression register is
read-write.

When typing the '=' after " or CTRL-R the cursor moves to the command-line,
where you can enter any expression (see expression). All normal
command-line editing commands are available, including a special history for
expressions. When you end the command-line by typing <CR>, Vim computes the
result of the expression. If you end it with <Esc>, Vim abandons the
expression. If you do not enter an expression, Vim uses the previous
expression (like with the "/" command).

The expression must evaluate to a String. A Number is always automatically
converted to a String. For the "p" and ":put" command, if the result is a
Float it's converted into a String. If the result is a List each element is
turned into a String and used as a line. A Dictionary or FuncRef results in
an error message (use string() to convert).

If the "= register is used for the "p" command, the String is split up at <NL> characters. If the String ends in a <NL>, it is regarded as a linewise register. {not in Vi}

8. Selection and drop registers "*, "+ and "~
Use these registers for storing and retrieving the selected text for the GUI. See quotestar and quoteplus . When the clipboard is not available or not working, the unnamed register is used instead. For Unix systems the clipboard is only available when the +xterm_clipboard feature is present. {not in Vi}

Note that there is only a distinction between "* and "+ for X11 systems. For an explanation of the difference, see x11-selection . Under MS-Windows, use of "* and "+ is actually synonymous and refers to the gui-clipboard .

quote_~ quote~ <Drop>
The read-only "~ register stores the dropped text from the last drag'n'drop operation. When something has been dropped onto Vim, the "~ register is filled in and the <Drop> pseudo key is sent for notification. You can remap this key if you want; the default action (for all modes) is to insert the contents of the "~ register at the cursor position. {not in Vi}
{only available when compiled with the +dnd feature, currently only with the GTK GUI}

Note: The "~ register is only used when dropping plain text onto Vim.
Drag'n'drop of URI lists is handled internally.

9. Black hole register "_ quote_
When writing to this register, nothing happens. This can be used to delete text without affecting the normal registers. When reading from this register, nothing is returned. {not in Vi}

10. Last search pattern register "/ quote_/ quote/
Contains the most recent search-pattern. This is used for "n" and 'hlsearch'. It is writable with `:let`, you can change it to have 'hlsearch' highlight other matches without actually searching. You can't yank or delete into this register. The search direction is available in v:searchforward .
Note that the value is restored when returning from a function
function-search-undo .
{not in Vi}

@/
You can write to a register with a `:let` command :let-@ . Example:
```
:let @/ = "the"
```

If you use a put command without specifying a register, Vim uses the register that was last filled (this is also the contents of the unnamed register). If you are confused, use the `:dis` command to find out what Vim will put (this command displays all named and numbered registers; the unnamed register is labelled '""').

The next three commands always work on whole lines.

:[range]co[py] {address} :co :copy
Copy the lines given by [range] to below the line

given by {address}.

:t
:t Synonym for copy.

:[range]m[ove] {address} :m :mo :move E134
Move the lines given by [range] to below the line
given by {address}.

==========
6. Formatting text formatting

:[range]ce[nter] [width] :ce :center
Center lines in [range] between [width] columns
(default 'textwidth' or 80 when 'textwidth' is 0).
{not in Vi}

:[range]ri[ght] [width] :ri :right
Right-align lines in [range] at [width] columns
(default 'textwidth' or 80 when 'textwidth' is 0).
{not in Vi}

:le :left
:[range]le[ft] [indent]
Left-align lines in [range]. Sets the indent in the
lines to [indent] (default 0). {not in Vi}

gq
gq{motion} Format the lines that {motion} moves over.
Formatting is done with one of three methods:
1. If 'formatexpr' is not empty the expression is
evaluated. This can differ for each buffer.
2. If 'formatprg' is not empty an external program
is used.
3. Otherwise formatting is done internally.

In the third case the 'textwidth' option controls the
length of each formatted line (see below).
If the 'textwidth' option is 0, the formatted line
length is the screen width (with a maximum width of
79).
The 'formatoptions' option controls the type of
formatting fo-table .
The cursor is left on the first non-blank of the last
formatted line.
NOTE: The "Q" command formerly performed this
function. If you still want to use "Q" for
formatting, use this mapping:
:nnoremap Q gq

gqgq gqgq gqq
gqq Format the current line. With a count format that
many lines. {not in Vi}

v_gq
{Visual}gq Format the highlighted text. (for {Visual} see Visual-mode). {not in Vi}

gw
gw{motion} Format the lines that {motion} moves over. Similar to gq but puts the cursor back at the same position in the text. However, 'formatprg' and 'formatexpr' are not used. {not in Vi}

gwgw gwgw gww
gww Format the current line as with "gw". {not in Vi}

v_gw
{Visual}gw Format the highlighted text as with "gw". (for {Visual} see Visual-mode). {not in Vi}

Example: To format the current paragraph use: gqap
gqap

The "gq" command leaves the cursor in the line where the motion command takes the cursor. This allows you to repeat formatting repeated with ".". This works well with "gqj" (format current and next line) and "gq}" (format until end of paragraph). Note: When 'formatprg' is set, "gq" leaves the cursor on the first formatted line (as with using a filter command).

If you want to format the current paragraph and continue where you were, use:
gwap
If you always want to keep paragraphs formatted you may want to add the 'a' flag to 'formatoptions'. See auto-format .

If the 'autoindent' option is on, Vim uses the indent of the first line for the following lines.

Formatting does not change empty lines (but it does change lines with only white space!).

The 'joinspaces' option is used when lines are joined together.

You can set the 'formatexpr' option to an expression or the 'formatprg' option to the name of an external program for Vim to use for text formatting. The 'textwidth' and other options have no effect on formatting by an external program.

format-formatexpr
The 'formatexpr' option can be set to a Vim Script function that performs reformatting of the buffer. This should usually happen in an ftplugin , since formatting is highly dependent on the type of file. It makes sense to use an autoload script, so the corresponding script is only loaded when actually needed and the script should be called <filetype>format.vim.

For example, the XML filetype plugin distributed with Vim in the $VIMRUNTIME directory, sets the 'formatexpr' option to:

```
   setlocal formatexpr=xmlformat#Format()
```

That means, you will find the corresponding script, defining the
xmlformat#Format() function, in the directory:
`$VIMRUNTIME/autoload/xmlformat.vim`

Here is an example script that removes trailing whitespace from the selected
text. Put it in your autoload directory, e.g. ~/.vim/autoload/format.vim:

```
  func! format#Format()
    " only reformat on explicit gq command
    if mode() != 'n'
      " fall back to Vims internal reformatting
      return 1
    endif
    let lines = getline(v:lnum, v:lnum + v:count - 1)
    call map(lines, {key, val -> substitute(val, '\s\+$', '', 'g')})
    call setline('.', lines)

    " do not run internal formatter!
    return 0
  endfunc
```

You can then enable the formatting by executing:
```
  setlocal formatexpr=format#Format()
```

Note: this function explicitly returns non-zero when called from insert mode
(which basically means, text is inserted beyond the 'textwidth' limit). This
causes Vim to fall back to reformat the text by using the internal formatter.

However, if the gq command is used to reformat the text, the function
will receive the selected lines, trim trailing whitespace from those lines and
put them back in place. If you are going to split single lines into multiple
lines, be careful not to overwrite anything.

If you want to allow reformatting of text from insert or replace mode, one has
to be very careful, because the function might be called recursively. For
debugging it helps to set the 'debug' option.

                                                        right-justify
There is no command in Vim to right justify text. You can do it with
an external command, like "par" (e.g.: "!}par" to format until the end of the
paragraph) or set 'formatprg' to "par".

                                                        format-comments
An overview of comment formatting is in section 30.6 of the user manual.

Vim can automatically insert and format comments in a special way. Vim
recognizes a comment by a specific string at the start of the line (ignoring
white space). Three types of comments can be used:

- A comment string that repeats at the start of each line. An example is the
  type of comment used in shell scripts, starting with "#".
- A comment string that occurs only in the first line, not in the following

  lines. An example is this list with dashes.
- Three-piece comments that have a start string, an end string, and optional
  lines in between. The strings for the start, middle and end are different.
  An example is the C style comment:
        /*
         * this is a C comment
         */

The 'comments' option is a comma-separated list of parts. Each part defines a
type of comment string. A part consists of:
        {flags}:{string}

{string} is the literal text that must appear.

{flags}:
  n   Nested comment. Nesting with mixed parts is allowed. If 'comments'
        is "n:),n:>" a line starting with ">) >" is a comment.

  b   Blank (<Space>, <Tab> or <EOL>) required after {string}.

  f   Only the first line has the comment string. Do not repeat comment on
        the next line, but preserve indentation (e.g., a bullet-list).

  s   Start of three-piece comment

  m   Middle of a three-piece comment

  e   End of a three-piece comment

  l   Left align. Used together with 's' or 'e', the leftmost character of
        start or end will line up with the leftmost character from the middle.
        This is the default and can be omitted. See below for more details.

  r   Right align. Same as above but rightmost instead of leftmost. See
        below for more details.

  O   Don't consider this comment for the "O" command.

  x   Allows three-piece comments to be ended by just typing the last
        character of the end-comment string as the first action on a new
        line when the middle-comment string has been inserted automatically.
        See below for more details.

  {digits}
        When together with 's' or 'e': add {digit} amount of offset to an
        automatically inserted middle or end comment leader. The offset begins
        from a left alignment. See below for more details.

  -{digits}
        Like {digits} but reduce the indent. This only works when there is
        some indent for the start or end part that can be removed.

When a string has none of the 'f', 's', 'm' or 'e' flags, Vim assumes the
comment string repeats at the start of each line. The flags field may be

empty.

Any blank space in the text before and after the {string} is part of the {string}, so do not include leading or trailing blanks unless the blanks are a required part of the comment string.

When one comment leader is part of another, specify the part after the whole. For example, to include both "-" and "->", use
	:set comments=f:->,f:-

A three-piece comment must always be given as start,middle,end, with no other parts in between. An example of a three-piece comment is
	sr:/*,mb:*,ex:*/
for C-comments. To avoid recognizing "*ptr" as a comment, the middle string includes the 'b' flag. For three-piece comments, Vim checks the text after the start and middle strings for the end string. If Vim finds the end string, the comment does not continue on the next line. Three-piece comments must have a middle string because otherwise Vim can't recognize the middle lines.

Notice the use of the "x" flag in the above three-piece comment definition. When you hit Return in a C-comment, Vim will insert the middle comment leader for the new line: " * ". To close this comment you just have to type "/" before typing anything else on the new line. This will replace the middle-comment leader with the end-comment leader and apply any specified alignment, leaving just " */". There is no need to hit Backspace first.

When there is a match with a middle part, but there also is a matching end part which is longer, the end part is used. This makes a C style comment work without requiring the middle part to end with a space.

Here is an example of alignment flags at work to make a comment stand out (kind of looks like a 1 too). Consider comment string:
	:set comments=sr:/***,m:**,ex-2:******/

```
                                /***
                                  **<--right aligned from "r" flag
                                  **
offset 2 spaces for the "-2" flag--->**
                                ******/
```

In this case, the first comment was typed, then return was pressed 4 times, then "/" was pressed to end the comment.

Here are some finer points of three part comments. There are three times when alignment and offset flags are taken into consideration: opening a new line after a start-comment, opening a new line before an end-comment, and automatically ending a three-piece comment. The end alignment flag has a backwards perspective; the result is that the same alignment flag used with "s" and "e" will result in the same indent for the starting and ending pieces. Only one alignment per comment part is meant to be used, but an offset number will override the "r" and "l" flag.

Enabling 'cindent' will override the alignment flags in many cases. Reindenting using a different method like gq or = will not consult alignment flags either. The same behaviour can be defined in those other

formatting options. One consideration is that 'cindent' has additional options for context based indenting of comments but cannot replicate many three piece indent alignments. However, 'indentexpr' has the ability to work better with three piece comments.

Other examples:
```
   "b:*"        Includes lines starting with "*", but not if the "*" is
                followed by a non-blank.  This avoids a pointer dereference
                like "*str" to be recognized as a comment.
   "n:>"        Includes a line starting with ">", ">>", ">>>", etc.
   "fb:-"       Format a list that starts with "- ".
```

By default, "b:#" is included. This means that a line that starts with "#include" is not recognized as a comment line. But a line that starts with "# define" is recognized. This is a compromise.

{not available when compiled without the |+comments| feature}

fo-table

You can use the 'formatoptions' option to influence how Vim formats text. 'formatoptions' is a string that can contain any of the letters below. The default setting is "tcq". You can separate the option letters with commas for readability.

letter meaning when present in 'formatoptions'

t Auto-wrap text using textwidth

c Auto-wrap comments using textwidth, inserting the current comment leader automatically.

r Automatically insert the current comment leader after hitting <Enter> in Insert mode.

o Automatically insert the current comment leader after hitting 'o' or 'O' in Normal mode.

q Allow formatting of comments with "gq". Note that formatting will not change blank lines or lines containing only the comment leader. A new paragraph starts after such a line, or when the comment leader changes.

w Trailing white space indicates a paragraph continues in the next line. A line that ends in a non-white character ends a paragraph.

a Automatic formatting of paragraphs. Every time text is inserted or deleted the paragraph will be reformatted. See auto-format . When the 'c' flag is present this only happens for recognized comments.

n When formatting text, recognize numbered lists. This actually uses the 'formatlistpat' option, thus any kind of list can be used. The indent of the text after the number is used for the next line. The default is to find a number, optionally followed by '.', ':', ')', ']' or '}'. Note that 'autoindent' must be set too. Doesn't work well together with "2". Example:

```
        1. the first item
           wraps
        2. the second item
```

2 When formatting text, use the indent of the second line of a paragraph

```
        for the rest of the paragraph, instead of the indent of the first
        line.  This supports paragraphs in which the first line has a
        different indent than the rest.  Note that 'autoindent' must be set
        too.  Example:
                        first line of a paragraph
                second line of the same paragraph
                third line.
       This also works inside comments, ignoring the comment leader.
v       Vi-compatible auto-wrapping in insert mode: Only break a line at a
        blank that you have entered during the current insert command.  (Note:
        this is not 100% Vi compatible.  Vi has some "unexpected features" or
        bugs in this area.  It uses the screen column instead of the line
        column.)
b       Like 'v', but only auto-wrap if you enter a blank at or before
        the wrap margin.  If the line was longer than 'textwidth' when you
        started the insert, or you do not enter a blank in the insert before
        reaching 'textwidth', Vim does not perform auto-wrapping.
l       Long lines are not broken in insert mode: When a line was longer than
        'textwidth' when the insert command started, Vim does not
        automatically format it.
m       Also break at a multi-byte character above 255.  This is useful for
        Asian text where every character is a word on its own.
M       When joining lines, don't insert a space before or after a multi-byte
        character.  Overrules the 'B' flag.
B       When joining lines, don't insert a space between two multi-byte
        characters.  Overruled by the 'M' flag.
1       Don't break a line after a one-letter word.  It's broken before it
        instead (if possible).
j       Where it makes sense, remove a comment leader when joining lines.  For
        example, joining:
                int i;   // the index
                         // in the list
        Becomes:
                int i;   // the index in the list


With 't' and 'c' you can specify when Vim performs auto-wrapping:
value   action
""      no automatic formatting (you can use "gq" for manual formatting)
"t"     automatic formatting of text, but not comments
"c"     automatic formatting for comments, but not text (good for C code)
"tc"    automatic formatting for text and comments

Note that when 'textwidth' is 0, Vim does no automatic formatting anyway (but
does insert comment leaders according to the 'comments' option).  An exception
is when the 'a' flag is present.  auto-format

Note that when 'paste' is on, Vim does no formatting at all.

Note that 'textwidth' can be non-zero even if Vim never performs auto-wrapping;
'textwidth' is still useful for formatting with "gq".

If the 'comments' option includes "/*", "*" and/or "*/", then Vim has some
built in stuff to treat these types of comments a bit more cleverly.
```

Opening a new line before or after "/*" or "*/" (with 'r' or 'o' present in 'formatoptions') gives the correct start of the line automatically. The same happens with formatting and auto-wrapping. Opening a line after a line starting with "/*" or "*" and containing "*/", will cause no comment leader to be inserted, and the indent of the new line is taken from the line containing the start of the comment.
E.g.:

```
    /*
     * Your typical comment.
     */
    The indent on this line is the same as the start of the above
    comment.
```

All of this should be really cool, especially in conjunction with the new :autocmd command to prepare different settings for different types of file.

Some examples:

```
  for C code (only format comments):
        :set fo=croq
 for Mail/news (format all, don't start comment with "o" command):
        :set fo=tcrq
```

Automatic formatting auto-format autoformat

When the 'a' flag is present in 'formatoptions' text is formatted automatically when inserting text or deleting text. This works nice for editing text paragraphs. A few hints on how to use this:

- You need to properly define paragraphs. The simplest is paragraphs that are separated by a blank line. When there is no separating blank line, consider using the 'w' flag and adding a space at the end of each line in the paragraphs except the last one.

- You can set the 'formatoptions' based on the type of file filetype or specifically for one file with a modeline .

- Set 'formatoptions' to "aw2tq" to make text with indents like this:

```
            bla bla foobar bla
        bla foobar bla foobar bla
            bla bla foobar bla
        bla foobar bla bla foobar
```

- Add the 'c' flag to only auto-format comments. Useful in source code.

- Set 'textwidth' to the desired width. If it is zero then 79 is used, or the width of the screen if this is smaller.

And a few warnings:

- When part of the text is not properly separated in paragraphs, making changes in this text will cause it to be formatted anyway. Consider doing

```
        :set fo-=a
```

- When using the 'w' flag (trailing space means paragraph continues) and deleting the last line of a paragraph with dd , the paragraph will be joined with the next one.

- Changed text is saved for undo. Formatting is also a change. Thus each format action saves text for undo. This may consume quite a lot of memory.

- Formatting a long paragraph and/or with complicated indenting may be slow.

==
7. Sorting text   sorting

Vim has a sorting function and a sorting command. The sorting function can be found here: sort() , uniq() .

                                                                :sor   :sort
:[range]sor[t][!] [b][f][i][n][o][r][u][x] [/{pattern}/]
                        Sort lines in [range]. When no range is given all
                        lines are sorted.

                        With [!] the order is reversed.

                        With [i] case is ignored.

                        Options [n][f][x][o][b] are mutually exclusive.

                        With [n] sorting is done on the first decimal number
                        in the line (after or inside a {pattern} match).
                        One leading '-' is included in the number.

                        With [f] sorting is done on the Float in the line.
                        The value of Float is determined similar to passing
                        the text (after or inside a {pattern} match) to
                        str2float() function. This option is available only
                        if Vim was compiled with Floating point support.

                        With [x] sorting is done on the first hexadecimal
                        number in the line (after or inside a {pattern}
                        match). A leading "0x" or "0X" is ignored.
                        One leading '-' is included in the number.

                        With [o] sorting is done on the first octal number in
                        the line (after or inside a {pattern} match).

                        With [b] sorting is done on the first binary number in
                        the line (after or inside a {pattern} match).

                        With [u] (u stands for unique) only keep the first of
                        a sequence of identical lines (ignoring case when [i]
                        is used). Without this flag, a sequence of identical
                        lines will be kept in their original order.
                        Note that leading and trailing white space may cause

lines to be different.

When /{pattern}/ is specified and there is no [r] flag the text matched with {pattern} is skipped, so that you sort on what comes after the match.
Instead of the slash any non-letter can be used.
For example, to sort on the second comma-separated field:

```
:sort /[^,]*,/
```

To sort on the text at virtual column 10 (thus ignoring the difference between tabs and spaces):

```
:sort /.*\%10v/
```

To sort on the first number in the line, no matter what is in front of it:

```
:sort /.\{-}\ze\d/
```

(Explanation: ".\{-}" matches any text, "\ze" sets the end of the match and \d matches a digit.)
With [r] sorting is done on the matching {pattern} instead of skipping past it as described above.
For example, to sort on only the first three letters of each line:

```
:sort /\a\a\a/ r
```

If a {pattern} is used, any lines which don't have a match for {pattern} are kept in their current order, but separate from the lines which do match {pattern}.
If you sorted in reverse, they will be in reverse order after the sorted lines, otherwise they will be in their original order, right before the sorted lines.

If {pattern} is empty (e.g. // is specified), the last search pattern is used. This allows trying out a pattern first.

Note that using `:sort` with `:global` doesn't sort the matching lines, it's quite useless.

The details about sorting depend on the library function used. There is no guarantee that sorting obeys the current locale. You will have to try it out. Vim does do a "stable" sort.

The sorting can be interrupted, but if you interrupt it too late in the process you may end up with duplicated lines. This also depends on the system library function used.

vim:tw=78:ts=8:noet:ft=help:norl:

indent.txt For Vim version 8.1. Last change: 2018 Apr 04

VIM REFERENCE MANUAL by Bram Moolenaar

This file is about indenting C programs and other files.

==========

1. Indenting C style programs C-indenting

The basics for C style indenting are explained in section 30.2 of the user manual.

Vim has options for automatically indenting C style program files. Many programming languages including Java and C++ follow very closely the formatting conventions established with C. These options affect only the indent and do not perform other formatting. There are additional options that affect other kinds of formatting as well as indenting, see format-comments , fo-table , gq and formatting for the main ones.

Note that this will not work when the +smartindent or +cindent features have been disabled at compile time.

There are in fact four main methods available for indentation, each one overrides the previous if it is enabled, or non-empty for 'indentexpr':

'autoindent' uses the indent from the previous line.
'smartindent' is like 'autoindent' but also recognizes some C syntax to increase/reduce the indent where appropriate.
'cindent' Works more cleverly than the other two and is configurable to different indenting styles.
'indentexpr' The most flexible of all: Evaluates an expression to compute the indent of a line. When non-empty this method overrides the other ones. See indent-expression .

The rest of this section describes the 'cindent' option.

Note that 'cindent' indenting does not work for every code scenario. Vim is not a C compiler: it does not recognize all syntax. One requirement is that toplevel functions have a '{' in the first column. Otherwise they are easily confused with declarations.

These four options control C program indenting:

'cindent' Enables Vim to perform C program indenting automatically.
'cinkeys' Specifies which keys trigger reindenting in insert mode.
'cinoptions' Sets your preferred indent style.
'cinwords' Defines keywords that start an extra indent in the next line.

If 'lisp' is not on and 'equalprg' is empty, the "=" operator indents using Vim's built-in algorithm rather than calling an external program.

See autocommand for how to set the 'cindent' option automatically for C code

files and reset it for others.

cinkeys-format indentkeys-format

The 'cinkeys' option is a string that controls Vim's indenting in response to typing certain characters or commands in certain contexts. Note that this not only triggers C-indenting. When 'indentexpr' is not empty 'indentkeys' is used instead. The format of 'cinkeys' and 'indentkeys' is equal.

The default is "0{,0},0),:,0#,!^F,o,O,e" which specifies that indenting occurs as follows:

```
        "0{"    if you type '{' as the first character in a line
        "0}"    if you type '}' as the first character in a line
        "0)"    if you type ')' as the first character in a line
        ":"     if you type ':' after a label or case statement
        "0#"    if you type '#' as the first character in a line
        "!^F"   if you type CTRL-F (which is not inserted)
        "o"     if you type a <CR> anywhere or use the "o" command (not in
                insert mode!)
        "O"     if you use the "O" command (not in insert mode!)
        "e"     if you type the second 'e' for an "else" at the start of a
                line
```

Characters that can precede each key: i_CTRL-F

```
!       When a '!' precedes the key, Vim will not insert the key but will
        instead reindent the current line.  This allows you to define a
        command key for reindenting the current line.  CTRL-F is the default
        key for this.  Be careful if you define CTRL-I for this because CTRL-I
        is the ASCII code for <Tab>.
*       When a '*' precedes the key, Vim will reindent the line before
        inserting the key.  If 'cinkeys' contains "*<Return>", Vim reindents
        the current line before opening a new line.
0       When a zero precedes the key (but appears after '!' or '*') Vim will
        reindent the line only if the key is the first character you type in
        the line.  When used before "=" Vim will only reindent the line if
        there is only white space before the word.
```

When neither '!' nor '*' precedes the key, Vim reindents the line after you type the key. So ';' sets the indentation of a line which includes the ';'.

Special key names:

```
<>      Angle brackets mean spelled-out names of keys.  For example: "<Up>",
        "<Ins>" (see  key-notation ).
^       Letters preceded by a caret (^) are control characters.  For example:
        "^F" is CTRL-F.
o       Reindent a line when you use the "o" command or when Vim opens a new
        line below the current one (e.g., when you type <Enter> in insert
        mode).
O       Reindent a line when you use the "O" command.
e       Reindent a line that starts with "else" when you type the second 'e'.
:       Reindent a line when a ':' is typed which is after a label or case
        statement.  Don't reindent for a ":" in "class::method" for C++.  To
        Reindent for any ":", use "<:>".
=word   Reindent when typing the last character of "word".  "word" may
```

actually be part of another word. Thus "=end" would cause reindenting when typing the "d" in "endif" or "endwhile". But not when typing "bend". Also reindent when completion produces a word that starts with "word". "0=word" reindents when there is only white space before the word.

=~word Like =word, but ignore case.

If you really want to reindent when you type 'o', 'O', 'e', '0', '<', '>', '*', ':' or '!', use "<o>", "<O>", "<e>", "<0>", "<<>", "<>>", "<*>", "<:>" or "<!>", respectively, for those keys.

For an emacs-style indent mode where lines aren't indented every time you press <Enter> but only if you press <Tab>, I suggest:

```
:set cinkeys=0{,0},:,0#,!<Tab>,!^F
```

You might also want to switch off 'autoindent' then.

Note: If you change the current line's indentation manually, Vim ignores the cindent settings for that line. This prevents vim from reindenting after you have changed the indent by typing <BS>, <Tab>, or <Space> in the indent or used CTRL-T or CTRL-D.

cinoptions-values

The 'cinoptions' option sets how Vim performs indentation. The value after the option character can be one of these (N is any number):

N	indent N spaces
-N	indent N spaces to the left
Ns	N times 'shiftwidth' spaces
-Ns	N times 'shiftwidth' spaces to the left

In the list below,
"N" represents a number of your choice (the number can be negative). When there is an 's' after the number, Vim multiplies the number by 'shiftwidth': "1s" is 'shiftwidth', "2s" is two times 'shiftwidth', etc. You can use a decimal point, too: "-0.5s" is minus half a 'shiftwidth'.
The examples below assume a 'shiftwidth' of 4.

cino->

>N Amount added for "normal" indent. Used after a line that should increase the indent (lines starting with "if", an opening brace, etc.). (default 'shiftwidth').

```
cino=                cino=>2              cino=>2s
  if (cond)            if (cond)            if (cond)
  {                    {                    {
      foo;                 foo;                 foo;
  }                    }                    }
```

cino-e

eN Add N to the prevailing indent inside a set of braces if the opening brace at the End of the line (more precise: is not the first character in a line). This is useful if you want a different indent when the '{' is at the start of the line from when '{' is at the end of the line. (default 0).

```
cino=                cino=e2              cino=e-2
```

```
if (cond) {         if (cond) {         if (cond) {
    foo;                foo;              foo;
}                   }                   }
else                else                else
{                   {                   {
    bar;                bar;                bar;
}                   }                   }
```

cino-n

nN Add N to the prevailing indent for a statement after an "if", "while", etc., if it is NOT inside a set of braces. This is useful if you want a different indent when there is no '{' before the statement from when there is a '{' before it. (default 0).

```
cino=               cino=n2             cino=n-2
  if (cond)           if (cond)           if (cond)
      foo;                foo;              foo;
  else                else                else
  {                   {                   {
      bar;                bar;                bar;
  }                   }                   }
```

cino-f

fN Place the first opening brace of a function or other block in column N. This applies only for an opening brace that is not inside other braces and is at the start of the line. What comes after the brace is put relative to this brace. (default 0).

```
cino=               cino=f.5s           cino=f1s
  func()              func()              func()
  {                   {                   {
      int foo;            int foo;            int foo;
```

cino-{

{N Place opening braces N characters from the prevailing indent. This applies only for opening braces that are inside other braces. (default 0).

```
cino=               cino={.5s           cino={1s
  if (cond)           if (cond)           if (cond)
  {                   {                   {
      foo;                foo;                foo;
```

cino-}

}N Place closing braces N characters from the matching opening brace. (default 0).

```
cino=               cino={2,}-0.5s      cino=}2
  if (cond)           if (cond)           if (cond)
  {                   {                   {
      foo;                foo;                foo;
  }                   }                   }
```

cino-^

^N Add N to the prevailing indent inside a set of braces if the opening brace is in column 0. This can specify a different indent for whole of a function (some may like to set it to a negative number). (default 0).

```
cino=                cino=^-2             cino=^-s
  func()               func()               func()
  {                    {                    {
      if (cond)          if (cond)            if (cond)
      {                  {                    {
          a = b;             a = b;               a = b;
      }                  }                    }
  }                    }                    }
```

cino-L

LN Controls placement of jump labels. If N is negative, the label will be placed at column 1. If N is non-negative, the indent of the label will be the prevailing indent minus N. (default -1).

```
cino=                cino=L2              cino=Ls
  func()               func()               func()
  {                    {                    {
      {                    {                    {
          stmt;                stmt;                stmt;
  LABEL:               LABEL:               LABEL:
      }                    }                    }
  }                    }                    }
```

cino-:

:N Place case labels N characters from the indent of the switch(). (default 'shiftwidth').

```
cino=                cino=:0
  switch (x)           switch(x)
  {                    {
      case 1:          case 1:
          a = b;           a = b;
      default:         default:
  }                    }
```

cino-=

=N Place statements occurring after a case label N characters from the indent of the label. (default 'shiftwidth').

```
cino=                cino==10
   case 11:              case 11:  a = a + 1;
       a = a + 1;                  b = b + 1;
```

cino-l

lN If N != 0 Vim will align with a case label instead of the statement after it in the same line.

```
cino=                        cino=l1
```

```
        switch (a) {              switch (a) {
            case 1: {                 case 1: {
                        break;                    break;
                    }                         }
```

cino-b

bN If N != 0 Vim will align a final "break" with the case label, so that case..break looks like a sort of block. (default: 0). When using 1, consider adding "0=break" to 'cinkeys'.

```
  cino=                cino=b1
    switch (x)           switch(x)
    {                    {
        case 1:              case 1:
            a = b;               a = b;
            break;           break;

        default:             default:
            a = 0;               a = 0;
            break;           break;
    }                    }
```

cino-g

gN Place C++ scope declarations N characters from the indent of the block they are in. (default 'shiftwidth'). A scope declaration can be "public:", "protected:" or "private:".

```
  cino=                cino=g0
    {                    {
        public:              public:
            a = b;               a = b;
        private:             private:
    }                    }
```

cino-h

hN Place statements occurring after a C++ scope declaration N characters from the indent of the label. (default 'shiftwidth').

```
  cino=                cino=h10
     public:              public:   a = a + 1;
         a = a + 1;                b = b + 1;
```

cino-N

NN Indent inside C++ namespace N characters extra compared to a normal block. (default 0).

```
  cino=                      cino=N-s
    namespace {                namespace {
        void function();           void function();
    }                          }

    namespace my               namespace my
    {                          {
```

```
        void function();        void function();
    }                           }
```

cino-E

EN Indent inside C++ linkage specifications (extern "C" or extern "C++") N characters extra compared to a normal block. (default 0).

```
  cino=                     cino=E-s
    extern "C" {              extern "C" {
        void function();        void function();
    }                           }

    extern "C"                extern "C"
    {                         {
        void function();        void function();
    }                           }
```

cino-p

pN Parameter declarations for K&R-style function declarations will be indented N characters from the margin. (default 'shiftwidth').

```
  cino=             cino=p0           cino=p2s
    func(a, b)        func(a, b)        func(a, b)
        int a;          int a;                int a;
        char b;         char b;               char b;
```

cino-t

tN Indent a function return type declaration N characters from the margin. (default 'shiftwidth').

```
  cino=             cino=t0           cino=t7
        int             int                     int
    func()            func()            func()
```

cino-i

iN Indent C++ base class declarations and constructor initializations, if they start in a new line (otherwise they are aligned at the right side of the ':'). (default 'shiftwidth').

```
  cino=                     cino=i0
    class MyClass :           class MyClass :
        public BaseClass        public BaseClass
    {}                        {}
    MyClass::MyClass() :      MyClass::MyClass() :
        BaseClass(3)          BaseClass(3)
    {}                        {}
```

cino-+

+N Indent a continuation line (a line that spills onto the next) inside a function N additional characters. (default 'shiftwidth').

Outside of a function, when the previous line ended in a backslash, the 2 * N is used.

```
  cino=                       cino=+10
    a = b + 9 *                 a = b + 9 *
        c;                              c;
```

cino-c

cN Indent comment lines after the comment opener, when there is no other text with which to align, N characters from the comment opener. (default 3). See also format-comments .

```
  cino=                       cino=c5
    /*                          /*
       text.                       text.
     */                          */
```

cino-C

CN When N is non-zero, indent comment lines by the amount specified with the c flag above even if there is other text behind the comment opener. (default 0).

```
  cino=c0                     cino=c0,C1
    /********                   /********
      text.                      text.
    ********/                    ********/
```

(Example uses ":set comments& comments-=s1:/* comments^=s0:/*")

cino-/

/N Indent comment lines N characters extra. (default 0).

```
  cino=                       cino=/4
    a = b;                      a = b;
    /* comment */                   /* comment */
    c = d;                      c = d;
```

cino-(

(N When in unclosed parentheses, indent N characters from the line with the unclosed parentheses. Add a 'shiftwidth' for every extra unclosed parentheses. When N is 0 or the unclosed parentheses is the first non-white character in its line, line up with the next non-white character after the unclosed parentheses. (default 'shiftwidth' * 2).

```
  cino=                       cino=(0
    if (c1 && (c2 ||            if (c1 && (c2 ||
                c3))                        c3))
        foo;                        foo;
    if (c1 &&                   if (c1 &&
          (c2 || c3))                 (c2 || c3))
       {                           {
```

cino-u

uN Same as (N, but for one nesting level deeper. (default 'shiftwidth').

```
cino=                       cino=u2
  if (c123456789              if (c123456789
          && (c22345                  && (c22345
              || c3))                   || c3))
```

cino-U

UN When N is non-zero, do not ignore the indenting specified by (or u in case that the unclosed parentheses is the first non-white character in its line. (default 0).

```
cino= or cino=(s            cino=(s,U1
  c = c1 &&                   c = c1 &&
      (                           (
       c2 ||                        c2 ||
       c3                           c3
      ) && c4;                    ) && c4;
```

cino-w

wN When in unclosed parentheses and N is non-zero and either using "(0" or "u0", respectively, or using "U0" and the unclosed parentheses is the first non-white character in its line, line up with the character immediately after the unclosed parentheses rather than the first non-white character. (default 0).

```
cino=(0                     cino=(0,w1
  if (   c1                   if (   c1
         && (   c2                && (   c2
                || c3))                  || c3))
      foo;                        foo;
```

cino-W

WN When in unclosed parentheses and N is non-zero and either using "(0" or "u0", respectively and the unclosed parentheses is the last non-white character in its line and it is not the closing parentheses, indent the following line N characters relative to the outer context (i.e. start of the line or the next unclosed parentheses). (default: 0).

```
cino=(0                      cino=(0,W4
  a_long_line(                a_long_line(
              argument,           argument,
              argument);          argument);
  a_short_line(argument,      a_short_line(argument,
               argument);                 argument);
```

cino-k

kN When in unclosed parentheses which follow "if", "for" or "while" and N is non-zero, overrides the behaviour defined by "(N": causes the indent to be N characters relative to the outer context (i.e. the line where "if", "for" or "while" is). Has no effect on deeper levels of nesting. Affects flags like "wN" only for the "if", "for" and "while" conditions. If 0, defaults to behaviour defined by the "(N" flag. (default: 0).

```
cino=(0                    cino=(0,ks
  if (condition1             if (condition1
      && condition2)                 && condition2)
      action();                  action();
  function(argument1         function(argument1
           && argument2);             && argument2);
```

cino-m

mN When N is non-zero, line up a line starting with a closing parentheses with the first character of the line with the matching opening parentheses. (default 0).

```
cino=(s                    cino=(s,m1
  c = c1 && (                c = c1 && (
      c2 ||                      c2 ||
      c3                         c3
      ) && c4;                 ) && c4;
  if (                       if (
      c1 && c2                   c1 && c2
     )                          )
      foo;                       foo;
```

cino-M

MN When N is non-zero, line up a line starting with a closing parentheses with the first character of the previous line. (default 0).

```
cino=                      cino=M1
  if (cond1 &&               if (cond1 &&
          cond2                      cond2
     )                          )
```

java-cinoptions java-indenting cino-j

jN Indent Java anonymous classes correctly. Also works well for Javascript. The value 'N' is currently unused but must be non-zero (e.g. 'j1'). 'j1' will indent for example the following code snippet correctly:

```
object.add(new ChangeListener() {
    public void stateChanged(ChangeEvent e) {
        do_something();
    }
});
```

javascript-cinoptions javascript-indenting cino-J

JN Indent JavaScript object declarations correctly by not confusing them with labels. The value 'N' is currently unused but must be non-zero (e.g. 'J1'). If you enable this you probably also want to set cino-j .

```
var bar = {
    foo: {
        that: this,
```

```
                some: ok,
            },
            "bar":{
                a : 2,
                b: "123abc",
                x: 4,
                "y": 5
            }
        }
```

cino-)

)N Vim searches for unclosed parentheses at most N lines away.
    This limits the time needed to search for parentheses. (default
    20 lines).

cino-star

*N Vim searches for unclosed comments at most N lines away. This
    limits the time needed to search for the start of a comment.
    If your /* */ comments stop indenting after N lines this is the
    value you will want to change.
    (default 70 lines).

cino-#

#N When N is non-zero recognize shell/Perl comments starting with
    '#', do not recognize preprocessor lines; allow right-shifting
    lines that start with "#".
    When N is zero (default): don't recognize '#' comments, do
    recognize preprocessor lines; right-shifting lines that start
    with "#" does not work.

The defaults, spelled out in full, are:

```
    cinoptions=>s,e0,n0,f0,{0,}0,^0,L-1,:s,=s,l0,b0,gs,hs,N0,E0,ps,ts,is,+s,
                c3,C0,/0,(2s,us,U0,w0,W0,k0,m0,j0,J0,)20,*70,#0
```

Vim puts a line in column 1 if:
- It starts with '#' (preprocessor directives), if 'cinkeys' contains '#0'.
- It starts with a label (a keyword followed by ':', other than "case" and
  "default") and 'cinoptions' does not contain an 'L' entry with a positive
  value.
- Any combination of indentations causes the line to have less than 0
  indentation.

==
2. Indenting by expression indent-expression

The basics for using flexible indenting are explained in section 30.3 of the
user manual.

If you want to write your own indent file, it must set the 'indentexpr'
option. Setting the 'indentkeys' option is often useful. See the
$VIMRUNTIME/indent directory for examples.

REMARKS ABOUT SPECIFIC INDENT FILES

CLOJURE ft-clojure-indent clojure-indent

Clojure indentation differs somewhat from traditional Lisps, due in part to the use of square and curly brackets, and otherwise by community convention. These conventions are not universally followed, so the Clojure indent script offers a few configurable options, listed below.

If the current vim does not include searchpairpos(), the indent script falls back to normal 'lisp' indenting, and the following options are ignored.

g:clojure_maxlines

Set maximum scan distance of searchpairpos(). Larger values trade performance for correctness when dealing with very long forms. A value of 0 will scan without limits.

```
" Default
let g:clojure_maxlines = 100
```

g:clojure_fuzzy_indent
g:clojure_fuzzy_indent_patterns
g:clojure_fuzzy_indent_blacklist

The 'lispwords' option is a list of comma-separated words that mark special forms whose subforms must be indented with two spaces.

For example:

```
(defn bad []
      "Incorrect indentation")

(defn good []
  "Correct indentation")
```

If you would like to specify 'lispwords' with a pattern instead, you can use the fuzzy indent feature:

```
" Default
let g:clojure_fuzzy_indent = 1
let g:clojure_fuzzy_indent_patterns = ['^with', '^def', '^let']
let g:clojure_fuzzy_indent_blacklist =
        \ ['-fn$', '\v^with-%(meta|out-str|loading-context)$']

" Legacy comma-delimited string version; the list format above is
" recommended. Note that patterns are implicitly anchored with ^ and $
let g:clojure_fuzzy_indent_patterns = 'with.*,def.*,let.*'
```

g:clojure_fuzzy_indent_patterns and g:clojure_fuzzy_indent_blacklist are Lists of patterns that will be matched against the unquoted, unqualified symbol at the head of a list. This means that a pattern like "^foo" will match all these candidates: "foobar", "my.ns/foobar", and "#'foobar".

Each candidate word is tested for special treatment in this order:

1. Return true if word is literally in 'lispwords'
2. Return false if word matches a pattern in
   g:clojure_fuzzy_indent_blacklist
3. Return true if word matches a pattern in
   g:clojure_fuzzy_indent_patterns
4. Return false and indent normally otherwise

g:clojure_special_indent_words

Some forms in Clojure are indented so that every subform is indented only two spaces, regardless of 'lispwords'. If you have a custom construct that should be indented in this idiosyncratic fashion, you can add your symbols to the default list below.

```
" Default
let g:clojure_special_indent_words =
   \ 'deftype,defrecord,reify,proxy,extend-type,extend-protocol,letfn'
```

g:clojure_align_multiline_strings

Align subsequent lines in multiline strings to the column after the opening quote, instead of the same column.

For example:

```
(def default
  "Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do
  eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut
  enim ad minim veniam, quis nostrud exercitation ullamco laboris
  nisi ut aliquip ex ea commodo consequat.")

(def aligned
  "Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do
   eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut
   enim ad minim veniam, quis nostrud exercitation ullamco laboris
   nisi ut aliquip ex ea commodo consequat.")
```

This option is off by default.

```
" Default
let g:clojure_align_multiline_strings = 0
```

g:clojure_align_subforms

By default, parenthesized compound forms that look like function calls and whose head subform is on its own line have subsequent subforms indented by two spaces relative to the opening paren:

```
(foo
  bar
  baz)
```

Setting this option changes this behavior so that all subforms are aligned to the same column, emulating the default behavior of clojure-mode.el:

```
(foo
 bar
 baz)
```

This option is off by default.

```
" Default
let g:clojure_align_subforms = 0
```

FORTRAN ft-fortran-indent

Block if, select case, where, and forall constructs are indented. So are type, interface, associate, block, and enum constructs. The indenting of subroutines, functions, modules, and program blocks is optional. Comments, labelled statements and continuation lines are indented if the Fortran is in free source form, whereas they are not indented if the Fortran is in fixed source form because of the left margin requirements. Hence manual indent corrections will be necessary for labelled statements and continuation lines when fixed source form is being used. For further discussion of the method used for the detection of source format see ft-fortran-syntax .

Do loops

All do loops are left unindented by default. Do loops can be unstructured in Fortran with (possibly multiple) loops ending on a labelled executable statement of almost arbitrary type. Correct indentation requires compiler-quality parsing. Old code with do loops ending on labelled statements of arbitrary type can be indented with elaborate programs such as Tidy (http://www.unb.ca/chem/ajit/f_tidy.htm). Structured do/continue loops are also left unindented because continue statements are also used for purposes other than ending a do loop. Programs such as Tidy can convert structured do/continue loops to the do/enddo form. Do loops of the do/enddo variety can be indented. If you use only structured loops of the do/enddo form, you should declare this by setting the fortran_do_enddo variable in your .vimrc as follows

```
let fortran_do_enddo=1
```

in which case do loops will be indented. If all your loops are of do/enddo type only in, say, .f90 files, then you should set a buffer flag with an autocommand such as

```
au! BufRead,BufNewFile *.f90 let b:fortran_do_enddo=1
```

to get do loops indented in .f90 files and left alone in Fortran files with other extensions such as .for.

Program units

The indenting of program units (subroutines, functions, modules, and program blocks) is enabled by default but can be suppressed if a lighter, screen-width

preserving indent style is desired. To suppress the indenting of program units for all fortran files set the global fortran_indent_less variable in your .vimrc as follows

```
let fortran_indent_less=1
```

A finer level of suppression can be achieved by setting the corresponding buffer-local variable as follows

```
let b:fortran_indent_less=1
```

HTML ft-html-indent html-indent html-indenting

This is about variables you can set in your vimrc to customize HTML indenting.

You can set the indent for the first line after <script> and <style> "blocktags" (default "zero"):

```
:let g:html_indent_script1 = "inc"
:let g:html_indent_style1 = "inc"
```

VALUE	MEANING
"zero"	zero indent
"auto"	auto indent (same indent as the blocktag)
"inc"	auto indent + one indent step

Many tags increase the indent for what follows per default (see "Add Indent Tags" in the script). You can add further tags with:

```
:let g:html_indent_inctags = "html,body,head,tbody"
```

You can also remove such tags with:

```
:let g:html_indent_autotags = "th,td,tr,tfoot,thead"
```

Default value is empty for both variables. Note: the initial "inctags" are only defined once per Vim session.

User variables are only read when the script is sourced. To enable your changes during a session, without reloading the HTML file, you can manually do:

```
:call HtmlIndent_CheckUserSettings()
```

Detail:
  Calculation of indent inside "blocktags" with "alien" content:

BLOCKTAG	INDENT EXPR	WHEN APPLICABLE
<script>	: {customizable}	if first line of block
	: cindent(v:lnum)	if attributes empty or contain "java"
	: -1	else (vbscript, tcl, ...)
<style>	: {customizable}	if first line of block
	: GetCSSIndent()	else
<!-- -->	: -1	

PHP   ft-php-indent   php-indent   php-indenting

NOTE: PHP files will be indented correctly only if PHP syntax is active.

If you are editing a file in Unix 'fileformat' and '\r' characters are present
before new lines, indentation won't proceed correctly ; you have to remove
those useless characters first with a command like:

```
:%s /\r$//g
```

Or, you can simply :let the variable PHP_removeCRwhenUnix to 1 and the
script will silently remove them when Vim loads a PHP file (at each BufRead).

OPTIONS:

PHP indenting can be altered in several ways by modifying the values of some
global variables:

                                              php-comment   PHP_autoformatcomment
To not enable auto-formatting of comments by default (if you want to use your
own 'formatoptions'):

```
:let g:PHP_autoformatcomment = 0
```

Else, 't' will be removed from the 'formatoptions' string and "qrowcb" will be
added, see fo-table for more information.

                                                          PHP_outdentSLComments
To add extra indentation to single-line comments:

```
:let g:PHP_outdentSLComments = N
```

With N being the number of 'shiftwidth' to add.

Only single-line comments will be affected such as:

```
# Comment
// Comment
/* Comment */
```

                                                        PHP_default_indenting
To add extra indentation to every PHP lines with N being the number of
'shiftwidth' to add:

```
:let g:PHP_default_indenting = N
```

For example, with N = 1, this will give:

```
<?php
    if (!isset($History_lst_sel))
        if (!isset($History_lst_sel))
            if (!isset($History_lst_sel)) {
                $History_lst_sel=0;
            } else
```

```
                    $foo="bar";

        $command_hist = TRUE;
    ?>
```
(Notice the extra indentation between the PHP container markers and the code)

PHP_outdentphpescape

To indent PHP escape tags as the surrounding non-PHP code (only affects the PHP escape tags):
```
:let g:PHP_outdentphpescape = 0
```

PHP_removeCRwhenUnix

To automatically remove '\r' characters when the 'fileformat' is set to Unix:
```
    :let g:PHP_removeCRwhenUnix = 1
```

PHP_BracesAtCodeLevel

To indent braces at the same level than the code they contain:
```
    :let g:PHP_BracesAtCodeLevel = 1
```

This will give the following result:
```
    if ($foo)
        {
        foo();
        }
```
Instead of:
```
    if ($foo)
    {
        foo();
    }
```

NOTE: Indenting will be a bit slower if this option is used because some optimizations won't be available.

PHP_vintage_case_default_indent

To indent 'case:' and 'default:' statements in switch() blocks:
```
    :let g:PHP_vintage_case_default_indent = 1
```

In PHP braces are not required inside 'case/default' blocks therefore 'case:' and 'default:' are indented at the same level than the 'switch()' to avoid meaningless indentation. You can use the above option to return to the traditional way.

PHP_noArrowMatching

By default the indent script will indent multi-line chained calls by matching the position of the '->':

```
    $user_name_very_long->name()
                        ->age()
                        ->info();
```

You can revert to the classic way of indenting by setting this option to 1:
```
:let g:PHP_noArrowMatching = 1
```

You will obtain the following result:

```
$user_name_very_long->name()
    ->age()
    ->info();
```

PYTHON ft-python-indent

The amount of indent can be set for the following situations. The examples given are the defaults. Note that the variables are set to an expression, so that you can change the value of 'shiftwidth' later.

```
Indent after an open paren:
        let g:pyindent_open_paren = '&sw * 2'
Indent after a nested paren:
        let g:pyindent_nested_paren = '&sw'
Indent for a continuation line:
        let g:pyindent_continue = '&sw * 2'
```

R ft-r-indent

Function arguments are aligned if they span for multiple lines. If you prefer do not have the arguments of functions aligned, put in your vimrc :

```
let r_indent_align_args = 0
```

All lines beginning with a comment character, #, get the same indentation level of the normal R code. Users of Emacs/ESS may be used to have lines beginning with a single # indented in the 40th column, ## indented as R code, and ### not indented. If you prefer that lines beginning with comment characters are aligned as they are by Emacs/ESS, put in your vimrc :

```
let r_indent_ess_comments = 1
```

If you prefer that lines beginning with a single # are aligned at a column different from the 40th one, you should set a new value to the variable r_indent_comment_column, as in the example below:

```
let r_indent_comment_column = 30
```

Any code after a line that ends with "<-" is indented. Emacs/ESS does not indent the code if it is a top level function. If you prefer that the Vim-R-plugin behaves like Emacs/ESS in this regard, put in your vimrc :

```
let r_indent_ess_compatible = 1
```

Below is an example of indentation with and without this option enabled:

```
### r_indent_ess_compatible = 1
foo <-
    function(x)
{
    paste(x)
}
```

```
### r_indent_ess_compatible = 0
foo <-
    function(x)
    {
        paste(x)
    }
```

SHELL ft-sh-indent

The amount of indent applied under various circumstances in a shell file can be configured by setting the following keys in the Dictionary b:sh_indent_defaults to a specific amount or to a Funcref that references a function that will return the amount desired:

b:sh_indent_options['default'] Default amount of indent.

b:sh_indent_options['continuation-line']
Amount of indent to add to a continued line.

b:sh_indent_options['case-labels']
Amount of indent to add for case labels.
(not actually implemented)

b:sh_indent_options['case-statements']
Amount of indent to add for case statements.

b:sh_indent_options['case-breaks']
Amount of indent to add (or more likely
remove) for case breaks.

VERILOG ft-verilog-indent

General block statements such as if, for, case, always, initial, function, specify and begin, etc., are indented. The module block statements (first level blocks) are not indented by default. you can turn on the indent with setting a variable in the .vimrc as follows:

```
  let b:verilog_indent_modules = 1
```

then the module blocks will be indented. To stop this, remove the variable:

```
  :unlet b:verilog_indent_modules
```

To set the variable only for Verilog file. The following statements can be used:

```
  au BufReadPost * if exists("b:current_syntax")
  au BufReadPost *   if b:current_syntax == "verilog"
  au BufReadPost *     let b:verilog_indent_modules = 1
  au BufReadPost *   endif
  au BufReadPost * endif
```

Furthermore, setting the variable b:verilog_indent_width to change the
indenting width (default is 'shiftwidth'):

```
  let b:verilog_indent_width = 4
  let b:verilog_indent_width = &sw * 2
```

In addition, you can turn the verbose mode for debug issue:

```
  let b:verilog_indent_verbose = 1
```

Make sure to do ":set cmdheight=2" first to allow the display of the message.

VHDL ft-vhdl-indent

Alignment of generic/port mapping statements are performed by default. This
causes the following alignment example:

```
  ENTITY sync IS
  PORT (
         clk        : IN  STD_LOGIC;
         reset_n    : IN  STD_LOGIC;
         data_input : IN  STD_LOGIC;
         data_out   : OUT STD_LOGIC
       );
  END ENTITY sync;
```

To turn this off, add

```
  let g:vhdl_indent_genportmap = 0
```

to the .vimrc file, which causes the previous alignment example to change:

```
  ENTITY sync IS
  PORT (
    clk        : IN  STD_LOGIC;
    reset_n    : IN  STD_LOGIC;
    data_input : IN  STD_LOGIC;
    data_out   : OUT STD_LOGIC
  );
  END ENTITY sync;
```

Alignment of right-hand side assignment "<=" statements are performed by
default. This causes the following alignment example:

```
  sig_out <= (bus_a(1) AND
              (sig_b OR sig_c)) OR
              (bus_a(0) AND sig_d);
```

To turn this off, add

```
  let g:vhdl_indent_rhsassign = 0
```

to the .vimrc file, which causes the previous alignment example to change:

```
  sig_out <= (bus_a(1) AND
    (sig_b OR sig_c)) OR
    (bus_a(0) AND sig_d);
```

Full-line comments (lines that begin with "--") are indented to be aligned with the very previous line's comment, PROVIDED that a whitespace follows after "--".

For example:

```
  sig_a <= sig_b; -- start of a comment
                  -- continuation of the comment
                  -- more of the same comment
```

While in Insert mode, after typing "-- " (note the space " "), hitting CTRL-F will align the current "-- " with the previous line's "--".

If the very previous line does not contain "--", THEN the full-line comment will be aligned with the start of the next non-blank line that is NOT a full-line comment.

Indenting the following code:

```
  sig_c <= sig_d; -- comment 0
         -- comment 1
               -- comment 2
    --debug_code:
    --PROCESS(debug_in)
         --BEGIN
            --  FOR i IN 15 DOWNTO 0 LOOP
             --    debug_out(8*i+7 DOWNTO 8*i) <= debug_in(15-i);
            --  END LOOP;
     --END PROCESS debug_code;

      -- comment 3
  sig_e <= sig_f; -- comment 4
           -- comment 5
```

results in:

```
  sig_c <= sig_d; -- comment 0
                  -- comment 1
                  -- comment 2
  --debug_code:
  --PROCESS(debug_in)
  --BEGIN
  --  FOR i IN 15 DOWNTO 0 LOOP
  --    debug_out(8*i+7 DOWNTO 8*i) <= debug_in(15-i);
  --  END LOOP;
```

```
  --END PROCESS debug_code;

  -- comment 3
  sig_e <= sig_f; -- comment 4
                  -- comment 5
```

Notice that "--debug_code:" does not align with "-- comment 2"
because there is no whitespace that follows after "--" in "--debug_code:".

Given the dynamic nature of indenting comments, indenting should be done TWICE.
On the first pass, code will be indented. On the second pass, full-line
comments will be indented according to the correctly indented code.

VIM ft-vim-indent

For indenting Vim scripts there is one variable that specifies the amount of
indent for a continuation line, a line that starts with a backslash:

```
        :let g:vim_indent_cont = &sw * 3
```

Three times shiftwidth is the default value.

vim:tw=78:ts=8:noet:ft=help:norl:

undo.txt For Vim version 8.1. Last change: 2014 May 24

VIM REFERENCE MANUAL by Bram Moolenaar

Undo and redo undo-redo

The basics are explained in section 02.5 of the user manual.

==========

1. Undo and redo commands undo-commands

<Undo> or undo <Undo> u

u Undo [count] changes. {Vi: only one level}

:u :un :undo

:u[ndo] Undo one change. {Vi: only one level}

E830

:u[ndo] {N} Jump to after change number {N}. See undo-branches for the meaning of {N}. {not in Vi}

CTRL-R

CTRL-R Redo [count] changes which were undone. {Vi: redraw screen}

:red :redo redo

:red[o] Redo one change which was undone. {Vi: no redo}

U

U Undo all latest changes on one line, the line where the latest change was made. U itself also counts as a change, and thus U undoes a previous U. {Vi: while not moved off of the last modified line}

The last changes are remembered. You can use the undo and redo commands above to revert the text to how it was before each change. You can also apply the changes again, getting back the text before the undo.

The "U" command is treated by undo/redo just like any other command. Thus a "u" command undoes a "U" command and a 'CTRL-R' command redoes it again. When mixing "U", "u" and 'CTRL-R' you will notice that the "U" command will restore the situation of a line to before the previous "U" command. This may be confusing. Try it out to get used to it.
The "U" command will always mark the buffer as changed. When "U" changes the buffer back to how it was without changes, it is still considered changed. Use "u" to undo changes until the buffer becomes unchanged.

==
2. Two ways of undo   undo-two-ways

How undo and redo commands work depends on the 'u' flag in 'cpoptions'.
There is the Vim way ('u' excluded) and the Vi-compatible way ('u' included).
In the Vim way, "uu" undoes two changes. In the Vi-compatible way, "uu" does
nothing (undoes an undo).

'u' excluded, the Vim way:
You can go back in time with the undo command. You can then go forward again
with the redo command. If you make a new change after the undo command,
the redo will not be possible anymore.

'u' included, the Vi-compatible way:
The undo command undoes the previous change, and also the previous undo command.
The redo command repeats the previous undo command. It does NOT repeat a
change command, use "." for that.

Examples   Vim way   Vi-compatible way
"uu"   two times undo   no-op
"u CTRL-R"   no-op   two times undo

Rationale: Nvi uses the "." command instead of CTRL-R. Unfortunately, this
            is not Vi compatible. For example "dwdwu." in Vi deletes two
            words, in Nvi it does nothing.

==
3. Undo blocks   undo-blocks

One undo command normally undoes a typed command, no matter how many changes
that command makes. This sequence of undo-able changes forms an undo block.
Thus if the typed key(s) call a function, all the commands in the function are
undone together.

If you want to write a function or script that doesn't create a new undoable
change but joins in with the previous change use this command:

                                                :undoj   :undojoin   E790
:undoj[oin]   Join further changes with the previous undo block.
                        Warning: Use with care, it may prevent the user from
                        properly undoing changes. Don't use this after undo
                        or redo.
                        {not in Vi}

This is most useful when you need to prompt the user halfway through a change.
For example in a function that calls getchar() . Do make sure that there was
a related change before this that you must join with.

This doesn't work by itself, because the next key press will start a new
change again. But you can do something like this:

        :undojoin | delete

After this an "u" command will undo the delete command and the previous change.

To do the opposite, break a change into two undo blocks, in Insert mode use CTRL-G u. This is useful if you want an insert command to be undoable in parts. E.g., for each sentence. i_CTRL-G_u
Setting the value of 'undolevels' also breaks undo. Even when the new value is equal to the old value.

==
4. Undo branches undo-branches undo-tree

Above we only discussed one line of undo/redo. But it is also possible to branch off. This happens when you undo a few changes and then make a new change. The undone changes become a branch. You can go to that branch with the following commands.

This is explained in the user manual: usr_32.txt .

:undol :undolist
:undol[ist] List the leafs in the tree of changes. Example:

number	changes	when	saved
88	88	2010/01/04 14:25:53	
108	107	08/07 12:47:51	
136	46	13:33:01	7
166	164	3 seconds ago	

The "number" column is the change number. This number continuously increases and can be used to identify a specific undo-able change, see :undo .
The "changes" column is the number of changes to this leaf from the root of the tree.
The "when" column is the date and time when this change was made. The four possible formats are:

N seconds ago	
HH:MM:SS	hour, minute, seconds
MM/DD HH:MM:SS	idem, with month and day
YYYY/MM/DD HH:MM:SS	idem, with year

The "saved" column specifies, if this change was written to disk and which file write it was. This can be used with the :later and :earlier commands.
For more details use the undotree() function.

g-
g- Go to older text state. With a count repeat that many times. {not in Vi}

:ea :earlier
:earlier {count} Go to older text state {count} times.
:earlier {N}s Go to older text state about {N} seconds before.
:earlier {N}m Go to older text state about {N} minutes before.
:earlier {N}h Go to older text state about {N} hours before.
:earlier {N}d Go to older text state about {N} days before.

:earlier {N}f Go to older text state {N} file writes before.

When changes were made since the last write
":earlier 1f" will revert the text to the state when
it was written. Otherwise it will go to the write
before that.
When at the state of the first file write, or when
the file was not written, ":earlier 1f" will go to
before the first change.

g+

g+ Go to newer text state. With a count repeat that many
times. {not in Vi}

:lat :later

:later {count} Go to newer text state {count} times.
:later {N}s Go to newer text state about {N} seconds later.
:later {N}m Go to newer text state about {N} minutes later.
:later {N}h Go to newer text state about {N} hours later.
:later {N}d Go to newer text state about {N} days later.

:later {N}f Go to newer text state {N} file writes later.
When at the state of the last file write, ":later 1f"
will go to the newest text state.

Note that text states will become unreachable when undo information is cleared for 'undolevels'.

Don't be surprised when moving through time shows multiple changes to take place at a time. This happens when moving through the undo tree and then making a new change.

EXAMPLE

Start with this text:
        one two three

Delete the first word by pressing "x" three times:
        ne two three
        e two three
         two three

Now undo that by pressing "u" three times:
        e two three
        ne two three
        one two three

Delete the second word by pressing "x" three times:
        one wo three
        one o three
        one three

Now undo that by using "g-" three times:
        one o three
        one wo three
         two three

You are now back in the first undo branch, after deleting "one". Repeating
"g-" will now bring you back to the original text:
        e two three
        ne two three
        one two three

Jump to the last change with ":later 1h":
        one three

And back to the start again with ":earlier 1h":
        one two three

Note that using "u" and CTRL-R will not get you to all possible text states
while repeating "g-" and "g+" does.

==
5. Undo persistence   undo-persistence   persistent-undo

When unloading a buffer Vim normally destroys the tree of undos created for
that buffer. By setting the 'undofile' option, Vim will automatically save
your undo history when you write a file and restore undo history when you edit
the file again.

The 'undofile' option is checked after writing a file, before the BufWritePost
autocommands. If you want to control what files to write undo information
for, you can use a BufWritePre autocommand:
        au BufWritePre /tmp/* setlocal noundofile

Vim saves undo trees in a separate undo file, one for each edited file, using
a simple scheme that maps filesystem paths directly to undo files. Vim will
detect if an undo file is no longer synchronized with the file it was written
for (with a hash of the file contents) and ignore it when the file was changed
after the undo file was written, to prevent corruption. An undo file is also
ignored if its owner differs from the owner of the edited file, except when
the owner of the undo file is the current user. Set 'verbose' to get a
message about that when opening a file.

Undo files are normally saved in the same directory as the file. This can be
changed with the 'undodir' option.

When the file is encrypted, the text in the undo file is also crypted. The
same key and method is used. encryption

You can also save and restore undo histories by using ":wundo" and ":rundo"
respectively:
                                                        :wundo   :rundo
:wundo[!] {file}
                Write undo history to {file}.
                When {file} exists and it does not look like an undo file
                (the magic number at the start of the file is wrong), then
                this fails, unless the ! was added.
                If it exists and does look like an undo file it is

overwritten. If there is no undo-history, nothing will be written.
Implementation detail: Overwriting happens by first deleting the existing file and then creating a new file with the same name. So it is not possible to overwrite an existing undofile in a write-protected directory.
{not in Vi}

:rundo {file}	Read undo history from {file}.
{not in Vi}

You can use these in autocommands to explicitly specify the name of the history file. E.g.:

```
au BufReadPost * call ReadUndo()
au BufWritePost * call WriteUndo()
func ReadUndo()
  if filereadable(expand('%:h'). '/UNDO/' . expand('%:t'))
    rundo %:h/UNDO/%:t
  endif
endfunc
func WriteUndo()
  let dirname = expand('%:h') . '/UNDO'
  if !isdirectory(dirname)
    call mkdir(dirname)
  endif
  wundo %:h/UNDO/%:t
endfunc
```

You should keep 'undofile' off, otherwise you end up with two undo files for every write.

You can use the undofile() function to find out the file name that Vim would use.

Note that while reading/writing files and 'undofile' is set most errors will be silent, unless 'verbose' is set. With :wundo and :rundo you will get more error messages, e.g., when the file cannot be read or written.

NOTE: undo files are never deleted by Vim. You need to delete them yourself.

Reading an existing undo file may fail for several reasons:
E822	It cannot be opened, because the file permissions don't allow it.
E823	The magic number at the start of the file doesn't match. This usually means it is not an undo file.
E824	The version number of the undo file indicates that it's written by a newer version of Vim. You need that newer version to open it. Don't write the buffer if you want to keep the undo info in the file.
"File contents changed, cannot use undo info"
	The file text differs from when the undo file was written. This means the undo file cannot be used, it would corrupt the text. This also happens when 'encoding' differs from when the undo file was written.
E825	The undo file does not contain valid contents and cannot be used.
E826	The undo file is encrypted but decryption failed.

E827	The undo file is encrypted but this version of Vim does not support
	encryption. Open the file with another Vim.
E832	The undo file is encrypted but 'key' is not set, the text file is not
	encrypted. This would happen if the text file was written by Vim
	encrypted at first, and later overwritten by not encrypted text.
	You probably want to delete this undo file.
"Not reading undo file, owner differs"
	The undo file is owned by someone else than the owner of the text
	file. For safety the undo file is not used.

Writing an undo file may fail for these reasons:
E828	The file to be written cannot be created. Perhaps you do not have
	write permissions in the directory.
"Cannot write undo file in any directory in 'undodir'"
	None of the directories in 'undodir' can be used.
"Will not overwrite with undo file, cannot read"
	A file exists with the name of the undo file to be written, but it
	cannot be read. You may want to delete this file or rename it.
"Will not overwrite, this is not an undo file"
	A file exists with the name of the undo file to be written, but it
	does not start with the right magic number. You may want to delete
	this file or rename it.
"Skipping undo file write, nothing to undo"
	There is no undo information to be written, nothing has been changed
	or 'undolevels' is negative.
E829	An error occurred while writing the undo file. You may want to try
	again.

==
6. Remarks about undo						undo-remarks

The number of changes that are remembered is set with the 'undolevels' option.
If it is zero, the Vi-compatible way is always used. If it is negative no
undo is possible. Use this if you are running out of memory.

							clear-undo
When you set 'undolevels' to -1 the undo information is not immediately
cleared, this happens at the next change. To force clearing the undo
information you can use these commands:
	:let old_undolevels = &undolevels
	:set undolevels=-1
	:exe "normal a \<BS>\<Esc>"
	:let &undolevels = old_undolevels
	:unlet old_undolevels

Marks for the buffer ('a to 'z) are also saved and restored, together with the
text. {Vi does this a little bit different}

When all changes have been undone, the buffer is not considered to be changed.
It is then possible to exit Vim with ":q" instead of ":q!" {not in Vi}. Note
that this is relative to the last write of the file. Typing "u" after ":w"
actually changes the buffer, compared to what was written, so the buffer is
considered changed then.

When manual folding is being used, the folds are not saved and restored.
Only changes completely within a fold will keep the fold as it was, because
the first and last line of the fold don't change.

The numbered registers can also be used for undoing deletes. Each time you
delete text, it is put into register "1. The contents of register "1 are
shifted to "2, etc. The contents of register "9 are lost. You can now get
back the most recent deleted text with the put command: '"1P'. (also, if the
deleted text was the result of the last delete or copy operation, 'P' or 'p'
also works as this puts the contents of the unnamed register). You can get
back the text of three deletes ago with '"3P'.

redo-register

If you want to get back more than one part of deleted text, you can use a
special feature of the repeat command ".". It will increase the number of the
register used. So if you first do ""1P", the following "." will result in a
'"2P'. Repeating this will result in all numbered registers being inserted.

Example: If you deleted text with 'dd....' it can be restored with
'"1P....'.

If you don't know in which register the deleted text is, you can use the
:display command. An alternative is to try the first register with '"1P', and
if it is not what you want do 'u.'. This will remove the contents of the
first put, and repeat the put command for the second register. Repeat the
'u.' until you got what you want.

vim:tw=78:ts=8:ft=help:norl:

repeat.txt For Vim version 8.1. Last change: 2018 Mar 04

VIM REFERENCE MANUAL by Bram Moolenaar

Repeating commands, Vim scripts and debugging repeating

Chapter 26 of the user manual introduces repeating usr_26.txt .

==========

1. Single repeats single-repeat

.

. Repeat last change, with count replaced with [count].
Also repeat a yank command, when the 'y' flag is
included in 'cpoptions'. Does not repeat a
command-line command.

Simple changes can be repeated with the "." command. Without a count, the count of the last change is used. If you enter a count, it will replace the last one. v:count and v:count1 will be set.

If the last change included a specification of a numbered register, the register number will be incremented. See redo-register for an example how to use this.

Note that when repeating a command that used a Visual selection, the same SIZE of area is used, see visual-repeat .

@:

@: Repeat last command-line [count] times.
{not available when compiled without the
 +cmdline_hist feature}

==========

2. Multiple repeats multi-repeat

:g :global E148

:[range]g[lobal]/{pattern}/[cmd]
Execute the Ex command [cmd] (default ":p") on the
lines within [range] where {pattern} matches.

:[range]g[lobal]!/{pattern}/[cmd]

Execute the Ex command [cmd] (default ":p") on the
lines within [range] where {pattern} does NOT match.

:v :vglobal

:[range]v[global]/{pattern}/[cmd]
Same as :g!.

Instead of the '/' which surrounds the {pattern}, you can use any other single byte character, but not an alphabetic character, '\', '"' or '|'. This is useful if you want to include a '/' in the search pattern or replacement string.

For the definition of a pattern, see pattern .

NOTE [cmd] may contain a range; see collapse and edit-paragraph-join for examples.

The global commands work by first scanning through the [range] lines and marking each line where a match occurs (for a multi-line pattern, only the start of the match matters).
In a second scan the [cmd] is executed for each marked line, as if the cursor was in that line. For ":v" and ":g!" the command is executed for each not marked line. If a line is deleted its mark disappears.
The default for [range] is the whole buffer (1,$). Use "CTRL-C" to interrupt the command. If an error message is given for a line, the command for that line is aborted and the global command continues with the next marked or unmarked line.

E147

When the command is used recursively, it only works on one line. Giving a range is then not allowed. This is useful to find all lines that match a pattern and do not match another pattern:

```
:g/found/v/notfound/{cmd}
```

This first finds all lines containing "found", but only executes {cmd} when there is no match for "notfound".

To execute a non-Ex command, you can use the `:normal` command:

```
:g/pat/normal {commands}
```

Make sure that {commands} ends with a whole command, otherwise Vim will wait for you to type the rest of the command for each match. The screen will not have been updated, so you don't know what you are doing. See :normal .

The undo/redo command will undo/redo the whole global command at once.
The previous context mark will only be set once (with "''" you go back to where the cursor was before the global command).

The global command sets both the last used search pattern and the last used substitute pattern (this is vi compatible). This makes it easy to globally replace a string:

```
:g/pat/s//PAT/g
```

This replaces all occurrences of "pat" with "PAT". The same can be done with:

```
:%s/pat/PAT/g
```

Which is two characters shorter!

When using "global" in Ex mode, a special case is using ":visual" as a

command. This will move to a matching line, go to Normal mode to let you execute commands there until you use Q to return to Ex mode. This will be repeated for each matching line. While doing this you cannot use ":global". To abort this type CTRL-C twice.

==
3. Complex repeats   complex-repeat

                                                                q   recording
q{0-9a-zA-Z"}   Record typed characters into register {0-9a-zA-Z"} (uppercase to append). The 'q' command is disabled while executing a register, and it doesn't work inside a mapping and :normal .

                        Note: If the register being used for recording is also used for y and p the result is most likely not what is expected, because the put will paste the recorded macro and the yank will overwrite the recorded macro. {Vi: no recording}

q   Stops recording. (Implementation note: The 'q' that stops recording is not stored in the register, unless it was the result of a mapping) {Vi: no recording}

                                                                @
@{0-9a-z".=*+}   Execute the contents of register {0-9a-z".=*+} [count] times. Note that register '%' (name of the current file) and '#' (name of the alternate file) cannot be used.
                        The register is executed like a mapping, that means that the difference between 'wildchar' and 'wildcharm' applies.
                        For "@=" you are prompted to enter an expression. The result of the expression is then executed.
                        See also @: . {Vi: only named registers}

                                                                @@   E748
@@   Repeat the previous @{0-9a-z":*} [count] times.

:[addr]*{0-9a-z".=+}   :@   :star
:[addr]@{0-9a-z".=*+}   Execute the contents of register {0-9a-z".=*+} as an Ex command. First set cursor at line [addr] (default is current line). When the last line in the register does not have a <CR> it will be added automatically when the 'e' flag is present in 'cpoptions'.
                        Note that the ":*" command is only recognized when the '*' flag is present in 'cpoptions'. This is NOT the default when 'nocompatible' is used.
                        For ":@=" the last used expression is used. The result of evaluating the expression is executed as an Ex command.
                        Mappings are not recognized in these commands.
                        {Vi: only in some versions} Future: Will execute the register for each line in the address range.

:[addr]@: :@:
Repeat last command-line. First set cursor at line [addr] (default is current line). {not in Vi}

:[addr]@ :@@
:[addr]@@
Repeat the previous :@{0-9a-z"}. First set cursor at line [addr] (default is current line). {Vi: only in some versions}

==========

4. Using Vim scripts using-scripts

For writing a Vim script, see chapter 41 of the user manual usr_41.txt .

:so :source load-vim-script
:so[urce] {file}
Read Ex commands from {file}. These are commands that start with a ":".
Triggers the SourcePre autocommand.

:so[urce]! {file}
Read Vim commands from {file}. These are commands that are executed from Normal mode, like you type them.
When used after :global , :argdo , :windo , :bufdo , in a loop or when another command follows the display won't be updated while executing the commands.
{not in Vi}

:ru :runtime
:ru[ntime][!] [where] {file} ..
Read Ex commands from {file} in each directory given by 'runtimepath' and/or 'packpath'. There is no error for non-existing files.

Example:
```
:runtime syntax/c.vim
```

There can be multiple {file} arguments, separated by spaces. Each {file} is searched for in the first directory from 'runtimepath', then in the second directory, etc. Use a backslash to include a space inside {file} (although it's better not to use spaces in file names, it causes trouble).

When [!] is included, all found files are sourced. When it is not included only the first found file is sourced.

When [where] is omitted only 'runtimepath' is used. Other values:
```
START   search under "start" in 'packpath'
OPT     search under "opt" in 'packpath'
PACK    search under "start" and "opt" in
```

'packpath'
ALL first use 'runtimepath', then search under "start" and "opt" in 'packpath'

When {file} contains wildcards it is expanded to all matching files. Example:
```
:runtime! plugin/*.vim
```
This is what Vim uses to load the plugin files when starting up. This similar command:
```
:runtime plugin/*.vim
```
would source the first file only.

When 'verbose' is one or higher, there is a message when no file could be found.
When 'verbose' is two or higher, there is a message about each searched file.
{not in Vi}

:pa :packadd E919

:pa[ckadd][!] {name} Search for an optional plugin directory in 'packpath' and source any plugin files found. The directory must match:
```
pack/*/opt/{name}
```
The directory is added to 'runtimepath' if it wasn't there yet.
If the directory pack/*/opt/{name}/after exists it is added at the end of 'runtimepath'.

If loading packages from "pack/*/start" was skipped, then this directory is searched first:
```
pack/*/start/{name}
```

Note that {name} is the directory name, not the name of the .vim file. All the files matching the pattern
```
pack/*/opt/{name}/plugin/**/*.vim
```
will be sourced. This allows for using subdirectories below "plugin", just like with plugins in 'runtimepath'.

If the filetype detection was not enabled yet (this is usually done with a "syntax enable" or "filetype on" command in your .vimrc file), this will also look for "{name}/ftdetect/*.vim" files.

When the optional ! is added no plugin files or ftdetect scripts are loaded, only the matching directories are added to 'runtimepath'. This is useful in your .vimrc. The plugins will then be loaded during initialization, see load-plugins .

Also see pack-add .
{only available when compiled with |+eval|}

:packl :packloadall

:packl[oadall][!]	Load all packages in the "start" directory under each entry in 'packpath'.

First all the directories found are added to 'runtimepath', then the plugins found in the directories are sourced. This allows for a plugin to depend on something of another plugin, e.g. an "autoload" directory. See packload-two-steps for how this can be useful.

This is normally done automatically during startup, after loading your .vimrc file. With this command it can be done earlier.

Packages will be loaded only once. After this command it won't happen again. When the optional ! is added this command will load packages even when done before.

An error only causes sourcing the script where it happens to be aborted, further plugins will be loaded. See packages .
{only available when compiled with |+eval|}

:scripte[ncoding] [encoding]	:scripte :scriptencoding E167

Specify the character encoding used in the script. The following lines will be converted from [encoding] to the value of the 'encoding' option, if they are different. Examples:

```
scriptencoding iso-8859-5
scriptencoding cp932
```

When [encoding] is empty, no conversion is done. This can be used to restrict conversion to a sequence of lines:

```
scriptencoding euc-jp
... lines to be converted ...
scriptencoding
... not converted ...
```

When conversion isn't supported by the system, there is no error message and no conversion is done. When a line can't be converted there is no error and the original line is kept.

Don't use "ucs-2" or "ucs-4", scripts cannot be in these encodings (they would contain NUL bytes). When a sourced script starts with a BOM (Byte Order Mark) in utf-8 format Vim will recognize it, no need to use ":scriptencoding utf-8" then.

If you set the 'encoding' option in your .vimrc , `:scriptencoding` must be placed after that. E.g.:

```
set encoding=utf-8
scriptencoding utf-8
```

When compiled without the +multi_byte feature this command is ignored.
{not in Vi}

:scr :scriptnames
:scr[iptnames] List all sourced script names, in the order they were first sourced. The number is used for the script ID <SID> .
{not in Vi} {not available when compiled without the +eval feature}

:fini :finish E168
:fini[sh] Stop sourcing a script. Can only be used in a Vim script file. This is a quick way to skip the rest of the file. If it is used after a :try but before the matching :finally (if present), the commands following the ":finally" up to the matching :endtry are executed first. This process applies to all nested ":try"s in the script. The outermost ":endtry" then stops sourcing the script. {not in Vi}

All commands and command sequences can be repeated by putting them in a named register and then executing it. There are two ways to get the commands in the register:
- Use the record command "q". You type the commands once, and while they are being executed they are stored in a register. Easy, because you can see what you are doing. If you make a mistake, "p"ut the register into the file, edit the command sequence, and then delete it into the register again. You can continue recording by appending to the register (use an uppercase letter).
- Delete or yank the command sequence into the register.

Often used command sequences can be put under a function key with the ':map' command.

An alternative is to put the commands in a file, and execute them with the ':source!' command. Useful for long command sequences. Can be combined with the ':map' command to put complicated commands under a function key.

The ':source' command reads Ex commands from a file line by line. You will have to type any needed keyboard input. The ':source!' command reads from a script file character by character, interpreting each character as if you typed it.

Example: When you give the ":!ls" command you get the hit-enter prompt. If you ':source' a file with the line "!ls" in it, you will have to type the <Enter> yourself. But if you ':source!' a file with the line ":!ls" in it, the next characters from that file are read until a <CR> is found. You will not have to type <CR> yourself, unless ":!ls" was the last line in the file.

It is possible to put ':source[!]' commands in the script file, so you can make a top-down hierarchy of script files. The ':source' command can be nested as deep as the number of files that can be opened at one time (about

15). The ':source!' command can be nested up to 15 levels deep.

You can use the "<sfile>" string (literally, this is not a special key) inside of the sourced file, in places where a file name is expected. It will be replaced by the file name of the sourced file. For example, if you have a "other.vimrc" file in the same directory as your ".vimrc" file, you can source it from your ".vimrc" file with this command:

```
:source <sfile>:h/other.vimrc
```

In script files terminal-dependent key codes are represented by terminal-independent two character codes. This means that they can be used in the same way on different kinds of terminals. The first character of a key code is 0x80 or 128, shown on the screen as "~@". The second one can be found in the list key-notation . Any of these codes can also be entered with CTRL-V followed by the three digit decimal code. This does NOT work for the <t_xx> termcap codes, these can only be used in mappings.

:source_crnl W15

MS-DOS, Win32 and OS/2: Files that are read with ":source" normally have <CR><NL> <EOL>s. These always work. If you are using a file with <NL> <EOL>s (for example, a file made on Unix), this will be recognized if 'fileformats' is not empty and the first line does not end in a <CR>. This fails if the first line has something like ":map <F1> :help^M", where "^M" is a <CR>. If the first line ends in a <CR>, but following ones don't, you will get an error message, because the <CR> from the first lines will be lost.

Mac Classic: Files that are read with ":source" normally have <CR> <EOL>s. These always work. If you are using a file with <NL> <EOL>s (for example, a file made on Unix), this will be recognized if 'fileformats' is not empty and the first line does not end in a <CR>. Be careful not to use a file with <NL> linebreaks which has a <CR> in first line.

On other systems, Vim expects ":source"ed files to end in a <NL>. These always work. If you are using a file with <CR><NL> <EOL>s (for example, a file made on MS-DOS), all lines will have a trailing <CR>. This may cause problems for some commands (e.g., mappings). There is no automatic <EOL> detection, because it's common to start with a line that defines a mapping that ends in a <CR>, which will confuse the automaton.

line-continuation

Long lines in a ":source"d Ex command script file can be split by inserting a line continuation symbol "\" (backslash) at the start of the next line. There can be white space before the backslash, which is ignored.

Example: the lines

```
:set comments=sr:/*,mb:*,el:*/,
                \://,
                \b:#,
                \:%,
                \n:>,
                \fb:-
```

are interpreted as if they were given in one line:

```
:set comments=sr:/*,mb:*,el:*/,://,b:#,:%,n:>,fb:-
```

All leading whitespace characters in the line before a backslash are ignored.
Note however that trailing whitespace in the line before it cannot be
inserted freely; it depends on the position where a command is split up
whether additional whitespace is allowed or not.

When a space is required it's best to put it right after the backslash. A
space at the end of a line is hard to see and may be accidentally deleted.

```
        :syn match Comment
                \ "very long regexp"
                \ keepend
```

There is a problem with the ":append" and ":insert" commands:

```
   :1append
   \asdf
   .
```

The backslash is seen as a line-continuation symbol, thus this results in the
command:

```
   :1appendasdf
   .
```

To avoid this, add the 'C' flag to the 'cpoptions' option:

```
   :set cpo+=C
   :1append
   \asdf
   .
   :set cpo-=C
```

Note that when the commands are inside a function, you need to add the 'C'
flag when defining the function, it is not relevant when executing it.

```
   :set cpo+=C
   :function Foo()
   :1append
   \asdf
   .
   :endfunction
   :set cpo-=C
```

Rationale:
        Most programs work with a trailing backslash to indicate line
        continuation. Using this in Vim would cause incompatibility with Vi.
        For example for this Vi mapping:

```
                :map xx  asdf\
```

       Therefore the unusual leading backslash is used.

==
5. Using Vim packages   packages

A Vim package is a directory that contains one or more plugins. The
advantages over normal plugins:
- A package can be downloaded as an archive and unpacked in its own directory.
  Thus the files are not mixed with files of other plugins. That makes it
  easy to update and remove.
- A package can be a git, mercurial, etc. repository. That makes it really
  easy to update.
- A package can contain multiple plugins that depend on each other.

- A package can contain plugins that are automatically loaded on startup and
  ones that are only loaded when needed with `:packadd`.

Using a package and loading automatically

Let's assume your Vim files are in the "~/.vim" directory and you want to add a
package from a zip archive "/tmp/foopack.zip":

```
% mkdir -p ~/.vim/pack/foo
% cd ~/.vim/pack/foo
% unzip /tmp/foopack.zip
```

The directory name "foo" is arbitrary, you can pick anything you like.

You would now have these files under ~/.vim:

```
pack/foo/README.txt
pack/foo/start/foobar/plugin/foo.vim
pack/foo/start/foobar/syntax/some.vim
pack/foo/opt/foodebug/plugin/debugger.vim
```

When Vim starts up, after processing your .vimrc, it scans all directories in
'packpath' for plugins under the "pack/*/start" directory. First all those
directories are added to 'runtimepath'. Then all the plugins are loaded.
See packload-two-steps for how these two steps can be useful.

In the example Vim will find "pack/foo/start/foobar/plugin/foo.vim" and adds
"~/.vim/pack/foo/start/foobar" to 'runtimepath'.

If the "foobar" plugin kicks in and sets the 'filetype' to "some", Vim will
find the syntax/some.vim file, because its directory is in 'runtimepath'.

Vim will also load ftdetect files, if there are any.

Note that the files under "pack/foo/opt" are not loaded automatically, only the
ones under "pack/foo/start". See pack-add below for how the "opt" directory
is used.

Loading packages automatically will not happen if loading plugins is disabled,
see load-plugins .

To load packages earlier, so that 'runtimepath' gets updated:

```
:packloadall
```

This also works when loading plugins is disabled. The automatic loading will
only happen once.

If the package has an "after" directory, that directory is added to the end of
'runtimepath', so that anything there will be loaded later.

Using a single plugin and loading it automatically

If you don't have a package but a single plugin, you need to create the extra
directory level:

```
% mkdir -p ~/.vim/pack/foo/start/foobar
```

```
        % cd ~/.vim/pack/foo/start/foobar
        % unzip /tmp/someplugin.zip

You would now have these files:
        pack/foo/start/foobar/plugin/foo.vim
        pack/foo/start/foobar/syntax/some.vim

From here it works like above.
```

Optional plugins

pack-add

```
To load an optional plugin from a pack use the `:packadd` command:
        :packadd foodebug
This searches for "pack/*/opt/foodebug" in 'packpath' and will find
~/.vim/pack/foo/opt/foodebug/plugin/debugger.vim and source it.

This could be done if some conditions are met.  For example, depending on
whether Vim supports a feature or a dependency is missing.

You can also load an optional plugin at startup, by putting this command in
your  .vimrc :
        :packadd! foodebug
The extra "!" is so that the plugin isn't loaded if Vim was started with
 --noplugin .

It is perfectly normal for a package to only have files in the "opt"
directory.  You then need to load each plugin when you want to use it.
```

Where to put what

```
Since color schemes, loaded with `:colorscheme`, are found below
"pack/*/start" and "pack/*/opt", you could put them anywhere.  We recommend
you put them below "pack/*/opt", for example
".vim/pack/mycolors/opt/dark/colors/very_dark.vim".

Filetype plugins should go under "pack/*/start", so that they are always
found.  Unless you have more than one plugin for a file type and want to
select which one to load with `:packadd`.  E.g. depending on the compiler
version:
        if foo_compiler_version > 34
          packadd foo_new
        else
          packadd foo_old
        endif

The "after" directory is most likely not useful in a package.  It's not
disallowed though.
```

6. Creating Vim packages

package-create

```
This assumes you write one or more plugins that you distribute as a package.
```

If you have two unrelated plugins you would use two packages, so that Vim
users can chose what they include or not. Or you can decide to use one
package with optional plugins, and tell the user to add the ones he wants with
`:packadd`.

Decide how you want to distribute the package. You can create an archive or
you could use a repository. An archive can be used by more users, but is a
bit harder to update to a new version. A repository can usually be kept
up-to-date easily, but it requires a program like "git" to be available.
You can do both, github can automatically create an archive for a release.

Your directory layout would be like this:
```
   start/foobar/plugin/foo.vim          " always loaded, defines commands
   start/foobar/plugin/bar.vim          " always loaded, defines commands
   start/foobar/autoload/foo.vim        " loaded when foo command used
   start/foobar/doc/foo.txt             " help for foo.vim
   start/foobar/doc/tags                " help tags
   opt/fooextra/plugin/extra.vim        " optional plugin, defines commands
   opt/fooextra/autoload/extra.vim      " loaded when extra command used
   opt/fooextra/doc/extra.txt           " help for extra.vim
   opt/fooextra/doc/tags                " help tags
```

This allows for the user to do:
```
        mkdir ~/.vim/pack/myfoobar
        cd ~/.vim/pack/myfoobar
        git clone https://github.com/you/foobar.git
```

Here "myfoobar" is a name that the user can choose, the only condition is that
it differs from other packages.

In your documentation you explain what the plugins do, and tell the user how
to load the optional plugin:
```
        :packadd! fooextra
```

You could add this packadd command in one of your plugins, to be executed when
the optional plugin is needed.

Run the `:helptags` command to generate the doc/tags file. Including this
generated file in the package means that the user can drop the package in his
pack directory and the help command works right away. Don't forget to re-run
the command after changing the plugin help:
```
        :helptags path/start/foobar/doc
        :helptags path/opt/fooextra/doc
```

Dependencies between plugins

packload-two-steps

Suppose you have two plugins that depend on the same functionality. You can
put the common functionality in an autoload directory, so that it will be
found automatically. Your package would have these files:

```
        pack/foo/start/one/plugin/one.vim
                call foolib#getit()
```

```
	pack/foo/start/two/plugin/two.vim
			call foolib#getit()
	pack/foo/start/lib/autoload/foolib.vim
			func foolib#getit()
```

This works, because loading packages will first add all found directories to
'runtimepath' before sourcing the plugins.

==
7. Debugging scripts   debug-scripts

Besides the obvious messages that you can add to your scripts to find out what
they are doing, Vim offers a debug mode. This allows you to step through a
sourced file or user function and set breakpoints.

NOTE: The debugging mode is far from perfect. Debugging will have side
effects on how Vim works. You cannot use it to debug everything. For
example, the display is messed up by the debugging messages.
{Vi does not have a debug mode}

An alternative to debug mode is setting the 'verbose' option. With a bigger
number it will give more verbose messages about what Vim is doing.

STARTING DEBUG MODE   debug-mode

To enter debugging mode use one of these methods:
1. Start Vim with the -D argument:
	vim -D file.txt
   Debugging will start as soon as the first vimrc file is sourced. This is
   useful to find out what is happening when Vim is starting up. A side
   effect is that Vim will switch the terminal mode before initialisations
   have finished, with unpredictable results.
   For a GUI-only version (Windows, Macintosh) the debugging will start as
   soon as the GUI window has been opened. To make this happen early, add a
   ":gui" command in the vimrc file.
                                                            :debug
2. Run a command with ":debug" prepended. Debugging will only be done while
   this command executes. Useful for debugging a specific script or user
   function. And for scripts and functions used by autocommands. Example:
	:debug edit test.txt.gz

3. Set a breakpoint in a sourced file or user function. You could do this in
   the command line:
	vim -c "breakadd file */explorer.vim" .
   This will run Vim and stop in the first line of the "explorer.vim" script.
   Breakpoints can also be set while in debugging mode.

In debugging mode every executed command is displayed before it is executed.
Comment lines, empty lines and lines that are not executed are skipped. When
a line contains two commands, separated by "|", each command will be displayed
separately.

DEBUG MODE

Once in debugging mode, the usual Ex commands can be used. For example, to
inspect the value of a variable:
	echo idx
When inside a user function, this will print the value of the local variable
"idx". Prepend "g:" to get the value of a global variable:
	echo g:idx
All commands are executed in the context of the current function or script.
You can also set options, for example setting or resetting 'verbose' will show
what happens, but you might want to set it just before executing the lines you
are interested in:
	:set verbose=20

Commands that require updating the screen should be avoided, because their
effect won't be noticed until after leaving debug mode. For example:
	:help
won't be very helpful.

There is a separate command-line history for debug mode.

The line number for a function line is relative to the start of the function.
If you have trouble figuring out where you are, edit the file that defines
the function in another Vim, search for the start of the function and do
"99j". Replace "99" with the line number.

Additionally, these commands can be used:

>cont
	cont		Continue execution until the next breakpoint is hit.
>quit
	quit		Abort execution. This is like using CTRL-C, some
			things might still be executed, doesn't abort
			everything. Still stops at the next breakpoint.
>next
	next		Execute the command and come back to debug mode when
			it's finished. This steps over user function calls
			and sourced files.
>step
	step		Execute the command and come back to debug mode for
			the next command. This steps into called user
			functions and sourced files.
>interrupt
	interrupt	This is like using CTRL-C, but unlike ">quit" comes
			back to debug mode for the next command that is
			executed. Useful for testing :finally and :catch
			on interrupt exceptions.
>finish
	finish		Finish the current script or user function and come
			back to debug mode for the command after the one that
			sourced or called it.
>bt
>backtrace
>where
	backtrace	Show the call stacktrace for current debugging session.

bt
where
                                                        >frame
frame N   Goes to N backtrace level. + and - signs make movement
                relative. E.g., ":frame +3" goes three frames up.
                                                        >up
up   Goes one level up from call stacktrace.
                                                        >down
down   Goes one level down from call stacktrace.

About the additional commands in debug mode:
- There is no command-line completion for them, you get the completion for the
  normal Ex commands only.
- You can shorten them, up to a single character, unless more than one command
  starts with the same letter. "f" stands for "finish", use "fr" for "frame".
- Hitting <CR> will repeat the previous one. When doing another command, this
  is reset (because it's not clear what you want to repeat).
- When you want to use the Ex command with the same name, prepend a colon:
  ":cont", ":next", ":finish" (or shorter).

The backtrace shows the hierarchy of function calls, e.g.:
        >bt
          3 function One[3]
          2 Two[3]
        ->1 Three[3]
          0 Four
        line 1: let four = 4

The "->" points to the current frame. Use "up", "down" and "frame N" to
select another frame.

In the current frame you can evaluate the local function variables. There is
no way to see the command at the current line yet.

DEFINING BREAKPOINTS
                                                        :breaka   :breakadd
:breaka[dd] func [lnum] {name}
                Set a breakpoint in a function. Example:
                        :breakadd func Explore
               Doesn't check for a valid function name, thus the breakpoint
                can be set before the function is defined.

:breaka[dd] file [lnum] {name}
                Set a breakpoint in a sourced file. Example:
                        :breakadd file 43 .vimrc

:breaka[dd] here
                Set a breakpoint in the current line of the current file.
                Like doing:
                        :breakadd file <cursor-line> <current-file>
               Note that this only works for commands that are executed when
                sourcing the file, not for a function defined in that file.

:breaka[dd] expr {expression}
		Sets a breakpoint, that will break whenever the {expression}
		evaluates to a different value. Example:
			:breakadd expr g:lnum

		Will break, whenever the global variable lnum changes.
		Note if you watch a script-variable this will break
		when switching scripts, since the script variable is only
		valid in the script where it has been defined and if that
		script is called from several other scripts, this will stop
		whenever that particular variable will become visible or
		unaccessible again.

The [lnum] is the line number of the breakpoint. Vim will stop at or after
this line. When omitted line 1 is used.

:debug-name
{name} is a pattern that is matched with the file or function name. The
pattern is like what is used for autocommands. There must be a full match (as
if the pattern starts with "^" and ends in "$"). A "*" matches any sequence
of characters. 'ignorecase' is not used, but "\c" can be used in the pattern
to ignore case /\c . Don't include the () for the function name!

The match for sourced scripts is done against the full file name. If no path
is specified the current directory is used. Examples:
	breakadd file explorer.vim
matches "explorer.vim" in the current directory.
	breakadd file *explorer.vim
matches ".../plugin/explorer.vim", ".../plugin/iexplorer.vim", etc.
	breakadd file */explorer.vim
matches ".../plugin/explorer.vim" and "explorer.vim" in any other directory.

The match for functions is done against the name as it's shown in the output
of ":function". For local functions this means that something like "<SNR>99_"
is prepended.

Note that functions are first loaded and later executed. When they are loaded
the "file" breakpoints are checked, when they are executed the "func"
breakpoints.

DELETING BREAKPOINTS
:breakd :breakdel E161
:breakd[el] {nr}
		Delete breakpoint {nr}. Use :breaklist to see the number of
		each breakpoint.

:breakd[el] *
		Delete all breakpoints.

:breakd[el] func [lnum] {name}
		Delete a breakpoint in a function.

:breakd[el] file [lnum] {name}

Delete a breakpoint in a sourced file.

:breakd[el] here
Delete a breakpoint at the current line of the current file.

When [lnum] is omitted, the first breakpoint in the function or file is deleted.
The {name} must be exactly the same as what was typed for the ":breakadd" command. "explorer", "*explorer.vim" and "*explorer*" are different.

LISTING BREAKPOINTS

:breakl[ist] :breakl :breaklist
List all breakpoints.

OBSCURE

:debugg[reedy] :debugg :debuggreedy
Read debug mode commands from the normal input stream, instead of getting them directly from the user. Only useful for test scripts. Example:

```
echo 'q^Mq' | vim -e -s -c debuggreedy -c 'breakadd file script.vim' -S s
```

:0debugg[reedy]
Undo ":debuggreedy": get debug mode commands directly from the user, don't use typeahead for debug commands.

==
8. Profiling profile profiling

Profiling means that Vim measures the time that is spent on executing functions and/or scripts. The +profile feature is required for this.
It is only included when Vim was compiled with "huge" features.
{Vi does not have profiling}

You can also use the reltime() function to measure time. This only requires the +reltime feature, which is present more often.

For profiling syntax highlighting see :syntime .

For example, to profile the one_script.vim script file:

```
:profile start /tmp/one_script_profile
:profile file one_script.vim
:source one_script.vim
:exit
```

:prof[ile] start {fname} :prof :profile E750
Start profiling, write the output in {fname} upon exit.
"~/" and environment variables in {fname} will be expanded.
If {fname} already exists it will be silently overwritten.

The variable v:profiling is set to one.

:prof[ile] pause
Don't profile until the following ":profile continue". Can be used when doing something that should not be counted (e.g., an external command). Does not nest.

:prof[ile] continue
Continue profiling after ":profile pause".

:prof[ile] func {pattern}
Profile function that matches the pattern {pattern}.
See :debug-name for how {pattern} is used.

:prof[ile][!] file {pattern}
Profile script file that matches the pattern {pattern}.
See :debug-name for how {pattern} is used.
This only profiles the script itself, not the functions defined in it.
When the [!] is added then all functions defined in the script will also be profiled.
Note that profiling only starts when the script is loaded after this command. A :profile command in the script itself won't work.

:profd[el] ... :profd :profdel
Stop profiling for the arguments specified. See :breakdel for the arguments.

You must always start with a ":profile start fname" command. The resulting file is written when Vim exits. Here is an example of the output, with line numbers prepended for the explanation:

```
 1 FUNCTION  Test2()
 2 Called 1 time
 3 Total time:   0.155251
 4  Self time:   0.002006
 5
 6 count  total (s)   self (s)
 7     9              0.000096   for i in range(8)
 8     8   0.153655   0.000410     call Test3()
 9     8              0.000070   endfor
10                               " Ask a question
11     1              0.001341   echo input("give me an answer: ")
```

The header (lines 1-4) gives the time for the whole function. The "Total" time is the time passed while the function was executing. The "Self" time is the "Total" time reduced by time spent in:
- other user defined functions
- sourced scripts
- executed autocommands
- external (shell) commands

Lines 7-11 show the time spent in each executed line. Lines that are not executed do not count. Thus a comment line is never counted.

The Count column shows how many times a line was executed. Note that the "for" command in line 7 is executed one more time as the following lines. That is because the line is also executed to detect the end of the loop.

The time Vim spends waiting for user input isn't counted at all. Thus how long you take to respond to the input() prompt is irrelevant.

Profiling should give a good indication of where time is spent, but keep in mind there are various things that may clobber the results:

- The accuracy of the time measured depends on the gettimeofday() system function. It may only be as accurate as 1/100 second, even though the times are displayed in micro seconds.

- Real elapsed time is measured, if other processes are busy they may cause delays at unpredictable moments. You may want to run the profiling several times and use the lowest results.

- If you have several commands in one line you only get one time. Split the line to see the time for the individual commands.

- The time of the lines added up is mostly less than the time of the whole function. There is some overhead in between.

- Functions that are deleted before Vim exits will not produce profiling information. You can check the v:profiling variable if needed:
```
:if !v:profiling
:   delfunc MyFunc
:endif
```

- Profiling may give weird results on multi-processor systems, when sleep mode kicks in or the processor frequency is reduced to save power.

- The "self" time is wrong when a function is used recursively.

vim:tw=78:ts=8:noet:ft=help:norl:

visual.txt For Vim version 8.1. Last change: 2017 Sep 02

VIM REFERENCE MANUAL by Bram Moolenaar

Visual mode Visual Visual-mode visual-mode

Visual mode is a flexible and easy way to select a piece of text for an operator. It is the only way to select a block of text.

This is introduced in section 04.4 of the user manual.

{Vi has no Visual mode, the name "visual" is used for Normal mode, to distinguish it from Ex mode}
{Since Vim 7.4.200 the |+visual| feature is always included}

==========

1. Using Visual mode visual-use

Using Visual mode consists of three parts:
1. Mark the start of the text with "v", "V" or CTRL-V.
   The character under the cursor will be used as the start.
2. Move to the end of the text.
   The text from the start of the Visual mode up to and including the character under the cursor is highlighted.
3. Type an operator command.
   The highlighted characters will be operated upon.

The 'highlight' option can be used to set the display mode to use for highlighting in Visual mode.
The 'virtualedit' option can be used to allow positioning the cursor to positions where there is no actual character.

The highlighted text normally includes the character under the cursor. However, when the 'selection' option is set to "exclusive" and the cursor is after the Visual area, the character under the cursor is not included.

With "v" the text before the start position and after the end position will not be highlighted. However, all uppercase and non-alpha operators, except "~" and "U", will work on whole lines anyway. See the list of operators below.

visual-block
With CTRL-V (blockwise Visual mode) the highlighted text will be a rectangle

between start position and the cursor. However, some operators work on whole lines anyway (see the list below). The change and substitute operators will delete the highlighted text and then start insertion at the top left position.

==
2. Starting and stopping Visual mode   visual-start

                                                v   characterwise-visual
[count]v   Start Visual mode per character.
                        With [count] select the same number of characters or
                        lines as used for the last Visual operation, but at
                        the current cursor position, multiplied by [count].
                        When the previous Visual operation was on a block both
                        the width and height of the block are multiplied by
                        [count].
                        When there was no previous Visual operation [count]
                        characters are selected. This is like moving the
                        cursor right N * [count] characters. One less when
                        'selection' is not "exclusive".

                                                V   linewise-visual
[count]V   Start Visual mode linewise.
                        With [count] select the same number of lines as used
                        for the last Visual operation, but at the current
                        cursor position, multiplied by [count]. When there
                        was no previous Visual operation [count] lines are
                        selected.

                                                CTRL-V   blockwise-visual
[count]CTRL-V   Start Visual mode blockwise. Note: Under Windows
                        CTRL-V could be mapped to paste text, it doesn't work
                        to start Visual mode then, see CTRL-V-alternative .
                        [count] is used as with `v` above.

If you use <Esc>, click the left mouse button or use any command that does a jump to another buffer while in Visual mode, the highlighting stops and no text is affected. Also when you hit "v" in characterwise Visual mode, "CTRL-V" in blockwise Visual mode or "V" in linewise Visual mode. If you hit CTRL-Z the highlighting stops and the editor is suspended or a new shell is started CTRL-Z .

              new mode after typing: v_v   v_CTRL-V   v_V
old mode   "v"   "CTRL-V"   "V"

Normal   Visual   blockwise Visual   linewise Visual
Visual   Normal   blockwise Visual   linewise Visual
blockwise Visual   Visual   Normal   linewise Visual
linewise Visual   Visual   blockwise Visual   Normal

                                                gv   v_gv   reselect-Visual
gv   Start Visual mode with the same area as the previous
                        area and the same mode.
                        In Visual mode the current and the previous Visual

area are exchanged.
After using "p" or "P" in Visual mode the text that
was put will be selected.

gn gn v_gn
Search forward for the last used search pattern, like
with `n`, and start Visual mode to select the match.
If the cursor is on the match, visually selects it.
If an operator is pending, operates on the match.
E.g., "dgn" deletes the text of the next match.
If Visual mode is active, extends the selection
until the end of the next match.

gN gN v_gN
Like gn but searches backward, like with `N`.

<LeftMouse> <LeftMouse>
Set the current cursor position. If Visual mode is
active it is stopped. Only when 'mouse' option is
contains 'n' or 'a'. If the position is within 'so'
lines from the last line on the screen the text is
scrolled up. If the position is within 'so' lines from
the first line on the screen the text is scrolled
down.

<RightMouse> <RightMouse>
Start Visual mode if it is not active. The text from
the cursor position to the position of the click is
highlighted. If Visual mode was already active move
the start or end of the highlighted text, which ever
is closest, to the position of the click. Only when
'mouse' option contains 'n' or 'a'.

Note: when 'mousemodel' is set to "popup",
<S-LeftMouse> has to be used instead of <RightMouse>.

<LeftRelease> <LeftRelease>
This works like a <LeftMouse>, if it is not at
the same position as <LeftMouse>. In an older version
of xterm you won't see the selected area until the
button is released, unless there is access to the
display where the xterm is running (via the DISPLAY
environment variable or the -display argument). Only
when 'mouse' option contains 'n' or 'a'.

If Visual mode is not active and the "v", "V" or CTRL-V is preceded with a
count, the size of the previously highlighted area is used for a start. You
can then move the end of the highlighted area and give an operator. The type
of the old area is used (character, line or blockwise).
- Linewise Visual mode: The number of lines is multiplied with the count.
- Blockwise Visual mode: The number of lines and columns is multiplied with
  the count.
- Normal Visual mode within one line: The number of characters is multiplied
  with the count.

- Normal Visual mode with several lines: The number of lines is multiplied
  with the count, in the last line the same number of characters is used as
  in the last line in the previously highlighted area.
The start of the text is the Cursor position. If the "$" command was used as one of the last commands to extend the highlighted text, the area will be extended to the rightmost column of the longest line.

If you want to highlight exactly the same area as the last time, you can use "gv" gv v_gv .

v_<Esc>
<Esc> In Visual mode: Stop Visual mode.

v_CTRL-C
CTRL-C In Visual mode: Stop Visual mode. When insert mode is pending (the mode message shows "-- (insert) VISUAL --"), it is also stopped.

==
3. Changing the Visual area visual-change

v_o
o Go to Other end of highlighted text: The current cursor position becomes the start of the highlighted text and the cursor is moved to the other end of the highlighted text. The highlighted area remains the same.

v_O
O Go to Other end of highlighted text. This is like "o", but in Visual block mode the cursor moves to the other corner in the same line. When the corner is at a character that occupies more than one position on the screen (e.g., a <Tab>), the highlighted text may change.

v_$
When the "$" command is used with blockwise Visual mode, the right end of the highlighted text will be determined by the longest highlighted line. This stops when a motion command is used that does not move straight up or down.

For moving the end of the block many commands can be used, but you cannot use Ex commands, commands that make changes or abandon the file. Commands (starting with) ".", "&", CTRL-^, "Z", CTRL-], CTRL-T, CTRL-R, CTRL-I and CTRL-O cause a beep and Visual mode continues.

When switching to another window on the same buffer, the cursor position in that window is adjusted, so that the same Visual area is still selected. This is especially useful to view the start of the Visual area in one window, and the end in another. You can then use <RightMouse> (or <S-LeftMouse> when 'mousemodel' is "popup") to drag either end of the Visual area.

==
4. Operating on the Visual area visual-operators

```
The operators that can be used are:
        ~       switch case                                         v_~
        d       delete                                              v_d
        c       change (4)                                          v_c
        y       yank                                                v_y
        >       shift right (4)                                     v_>
        <       shift left (4)                                      v_<
        !       filter through external command (1)                 v_!
        =       filter through 'equalprg' option command (1)        v_=
        gq      format lines to 'textwidth' length (1)              v_gq

The objects that can be used are:
        aw      a word (with white space)                           v_aw
        iw      inner word                                          v_iw
        aW      a WORD (with white space)                           v_aW
        iW      inner WORD                                          v_iW
        as      a sentence (with white space)                       v_as
        is      inner sentence                                      v_is
        ap      a paragraph (with white space)                      v_ap
        ip      inner paragraph                                     v_ip
        ab      a () block (with parenthesis)                       v_ab
        ib      inner () block                                      v_ib
        aB      a {} block (with braces)                            v_aB
        iB      inner {} block                                      v_iB
        at      a <tag> </tag> block (with tags)                    v_at
        it      inner <tag> </tag> block                            v_it
        a<      a <> block (with <>)                                v_a<
        i<      inner <> block                                      v_i<
        a[      a [] block (with [])                                v_a[
        i[      inner [] block                                      v_i[
        a"      a double quoted string (with quotes)                v_aquote
        i"      inner double quoted string                          v_iquote
        a'      a single quoted string (with quotes)                v_a'
        i'      inner simple quoted string                          v_i'
        a`      a string in backticks (with backticks)              v_a`
        i`      inner string in backticks                           v_i`

Additionally the following commands can be used:
        :       start Ex command for highlighted lines (1)          v_:
        r       change (4)                                          v_r
        s       change                                              v_s
        C       change (2)(4)                                       v_C
        S       change (2)                                          v_S
        R       change (2)                                          v_R
        x       delete                                              v_x
        D       delete (3)                                          v_D
        X       delete (2)                                          v_X
        Y       yank (2)                                            v_Y
        p       put                                                 v_p
        J       join (1)                                            v_J
        U       make uppercase                                      v_U
        u       make lowercase                                      v_u
        ^]      find tag                                            v_CTRL-]
```

```
        I       block insert                                    v_b_I
        A       block append                                    v_b_A

(1): Always whole lines, see  :visual_example .
(2): Whole lines when not using CTRL-V.
(3): Whole lines when not using CTRL-V, delete until the end of the line when
     using CTRL-V.
(4): When using CTRL-V operates on the block only.

Note that the ":vmap" command can be used to specifically map keys in Visual
mode.  For example, if you would like the "/" command not to extend the Visual
area, but instead take the highlighted text and search for that:
        :vmap / y/<C-R>"<CR>
(In the <> notation  <> , when typing it you should type it literally; you
need to remove the 'B' and '<' flags from 'cpoptions'.)

If you want to give a register name using the """ command, do this just before
typing the operator character: "v{move-around}"xd".

If you want to give a count to the command, do this just before typing the
operator character: "v{move-around}3>" (move lines 3 indents to the right).

                                                        {move-around}
The {move-around} is any sequence of movement commands.  Note the difference
with {motion}, which is only ONE movement command.

Another way to operate on the Visual area is using the  /\%V  item in a
pattern.  For example, to replace all '(' in the Visual area with '#':

        :'<,'>s/\%V(/#/g

Note that the "'<,'>" will appear automatically when you press ":" in Visual
mode.

==============================================================================
5. Blockwise operators                                  blockwise-operators

{not available when compiled without the |+visualextra| feature}

Reminder: Use 'virtualedit' to be able to select blocks that start or end
after the end of a line or halfway a tab.

Visual-block Insert                                             v_b_I
With a blockwise selection, I{string}<ESC> will insert {string} at the start
of block on every line of the block, provided that the line extends into the
block.  Thus lines that are short will remain unmodified.  TABs are split to
retain visual columns.  Works only for adding text to a line, not for
deletions.  See  v_b_I_example .

Visual-block Append                                             v_b_A
With a blockwise selection, A{string}<ESC> will append {string} to the end of
block on every line of the block.  There is some differing behavior where the
block RHS is not straight, due to different line lengths:
```

1. Block was created with <C-v>$
    In this case the string is appended to the end of each line.
2. Block was created with <C-v>{move-around}
    In this case the string is appended to the end of the block on each line,
    and whitespace is inserted to pad to the end-of-block column.
See v_b_A_example .
Note: "I" and "A" behave differently for lines that don't extend into the
selected block. This was done intentionally, so that you can do it the way
you want.
Works only for adding text to a line, not for deletions.

Visual-block change   v_b_c
All selected text in the block will be replaced by the same text string. When
using "c" the selected text is deleted and Insert mode started. You can then
enter text (without a line break). When you hit <Esc>, the same string is
inserted in all previously selected lines.

Visual-block Change   v_b_C
Like using "c", but the selection is extended until the end of the line for
all lines.

                                                                       v_b_<
Visual-block Shift   v_b_>
The block is shifted by 'shiftwidth'. The RHS of the block is irrelevant. The
LHS of the block determines the point from which to apply a right shift, and
padding includes TABs optimally according to 'ts' and 'et'. The LHS of the
block determines the point upto which to shift left.
See v_b_>_example .
See v_b_<_example .

Visual-block Replace   v_b_r
Every screen char in the highlighted region is replaced with the same char, ie
TABs are split and the virtual whitespace is replaced, maintaining screen
layout.
See v_b_r_example .

==
6. Repeating   visual-repeat

When repeating a Visual mode operator, the operator will be applied to the
same amount of text as the last time:
- Linewise Visual mode: The same number of lines.
- Blockwise Visual mode: The same number of lines and columns.
- Normal Visual mode within one line: The same number of characters.
- Normal Visual mode with several lines: The same number of lines, in the
  last line the same number of characters as in the last line the last time.
The start of the text is the Cursor position. If the "$" command was used as
one of the last commands to extend the highlighted text, the repeating will
be applied up to the rightmost column of the longest line.

==
7. Examples   visual-examples

:visual_example
Currently the ":" command works on whole lines only. When you select part of a line, doing something like ":!date" will replace the whole line. If you want only part of the line to be replaced you will have to make a mapping for it. In a future release ":" may work on partial lines.

Here is an example, to replace the selected text with the output of "date":

```
:vmap _a <Esc>`>a<CR><Esc>`<i<CR><Esc>!!date<CR>kJJ
```

(In the <> notation <> , when typing it you should type it literally; you need to remove the 'B' and '<' flags from 'cpoptions')

What this does is:

```
<Esc>           stop Visual mode
`>              go to the end of the Visual area
a<CR><Esc>      break the line after the Visual area
`<              jump to the start of the Visual area
i<CR><Esc>      break the line before the Visual area
!!date<CR>      filter the Visual text through date
kJJ             Join the lines back together
```

visual-search
Here is an idea for a mapping that makes it possible to do a search for the selected text:

```
:vmap X y/<C-R>"<CR>
```

(In the <> notation <> , when typing it you should type it literally; you need to remove the 'B' and '<' flags from 'cpoptions')

Note that special characters (like '.' and '*') will cause problems.

Visual-block Examples blockwise-examples
With the following text, I will indicate the commands to produce the block and the results below. In all cases, the cursor begins on the 'a' in the first line of the test text.
The following modeline settings are assumed ":ts=8:sw=4:".

It will be helpful to

```
:set hls
/<TAB>
```

where <TAB> is a real TAB. This helps visualise the operations.

The test text is:

```
abcdefghijklmnopqrstuvwxyz
abc             defghijklmnopqrstuvwxyz
abcdef  ghi             jklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
```

1. fo<C-v>3jISTRING<ESC> v_b_I_example

```
abcdefghijklmnSTRINGopqrstuvwxyz
abc           STRING  defghijklmnopqrstuvwxyz
```

```
abcdef  ghi   STRING    jklmnopqrstuvwxyz
abcdefghijklmnSTRINGopqrstuvwxyz

2. fo<C-v>3j$ASTRING<ESC>                                        v_b_A_example

abcdefghijklmnopqrstuvwxyzSTRING
abc             defghijklmnopqrstuvwxyzSTRING
abcdef  ghi             jklmnopqrstuvwxyzSTRING
abcdefghijklmnopqrstuvwxyzSTRING

3. fo<C-v>3j3l<..                                                v_b_<_example

abcdefghijklmnopqrstuvwxyz
abc           defghijklmnopqrstuvwxyz
abcdef  ghi   jklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz

4. fo<C-v>3j>..                                                  v_b_>_example

abcdefghijklmn            opqrstuvwxyz
abc                         defghijklmnopqrstuvwxyz
abcdef  ghi                         jklmnopqrstuvwxyz
abcdefghijklmn            opqrstuvwxyz

5. fo<C-v>5l3jrX                                                 v_b_r_example

abcdefghijklmnXXXXXXuvwxyz
abc           XXXXXXhijklmnopqrstuvwxyz
abcdef  ghi   XXXXXX    jklmnopqrstuvwxyz
abcdefghijklmnXXXXXXuvwxyz

================================================================================
8. Select mode                                          Select   Select-mode

Select mode looks like Visual mode, but the commands accepted are quite
different.  This resembles the selection mode in Microsoft Windows.
When the 'showmode' option is set, "-- SELECT --" is shown in the last line.

Entering Select mode:
- Using the mouse to select an area, and 'selectmode' contains "mouse".
  'mouse' must also contain a flag for the current mode.
- Using a non-printable movement command, with the Shift key pressed, and
  'selectmode' contains "key".  For example: <S-Left> and <S-End>.  'keymodel'
  must also contain "startsel".
- Using "v", "V" or CTRL-V command, and 'selectmode' contains "cmd".
- Using "gh", "gH" or "g_CTRL-H" command in Normal mode.
- From Visual mode, press CTRL-G.                        v_CTRL-G

Commands in Select mode:
- Printable characters, <NL> and <CR> cause the selection to be deleted, and
  Vim enters Insert mode.  The typed character is inserted.
- Non-printable movement commands, with the Shift key pressed, extend the
  selection.  'keymodel' must include "startsel".
- Non-printable movement commands, with the Shift key NOT pressed, stop Select
```

mode. 'keymodel' must include "stopsel".
- ESC stops Select mode.
- CTRL-O switches to Visual mode for the duration of one command. v_CTRL-O
- CTRL-G switches to Visual mode.

Otherwise, typed characters are handled as in Visual mode.

When using an operator in Select mode, and the selection is linewise, the selected lines are operated upon, but like in characterwise selection. For example, when a whole line is deleted, it can later be pasted halfway a line.

Mappings and menus in Select mode. Select-mode-mapping

When mappings and menus are defined with the :vmap or :vmenu command they work both in Visual mode and in Select mode. When these are used in Select mode Vim automatically switches to Visual mode, so that the same behavior as in Visual mode is effective. If you don't want this use :xmap or :smap .

Users will expect printable characters to replace the selected area. Therefore avoid mapping printable characters in Select mode. Or use :sunmap after :map and :vmap to remove it for Select mode.

After the mapping or menu finishes, the selection is enabled again and Select mode entered, unless the selected area was deleted, another buffer became the current one or the window layout was changed.

When a character was typed that causes the selection to be deleted and Insert mode started, Insert mode mappings are applied to this character. This may cause some confusion, because it means Insert mode mappings apply to a character typed in Select mode. Language mappings apply as well.

gV gV v_gV
gV Avoid the automatic reselection of the Visual area after a Select mode mapping or menu has finished. Put this just before the end of the mapping or menu. At least it should be after any operations on the selection.

gh gh
gh Start Select mode, characterwise. This is like "v", but starts Select mode instead of Visual mode. Mnemonic: "get highlighted".

gH gH
gH Start Select mode, linewise. This is like "V", but starts Select mode instead of Visual mode. Mnemonic: "get Highlighted".

g CTRL-H g_CTRL-H
g CTRL-H Start Select mode, blockwise. This is like CTRL-V, but starts Select mode instead of Visual mode. Mnemonic: "get Highlighted".

vim:tw=78:ts=8:ft=help:norl:

VIM REFERENCE MANUAL by Bram Moolenaar

Various commands various

==========

1. Various commands various-cmds

CTRL-L

CTRL-L Clear and redraw the screen. The redraw may happen later, after processing typeahead.

:redr :redraw

:redr[aw][!] Redraw the screen right now. When ! is included it is cleared first.
Useful to update the screen halfway executing a script or function. Also when halfway a mapping and 'lazyredraw' is set.

:redraws :redrawstatus

:redraws[tatus][!] Redraw the status line of the current window. When ! is included all status lines are redrawn.
Useful to update the status line(s) when 'statusline' includes an item that doesn't cause automatic updating.

N<Del>

<Del> When entering a number: Remove the last digit.
Note: if you like to use <BS> for this, add this mapping to your .vimrc:
:map CTRL-V <BS> CTRL-V <Del>
See :fixdel if your <Del> key does not do what you want.

ga :as :ascii

:as[cii] or
ga Print the ascii value of the character under the cursor in decimal, hexadecimal and octal.
Mnemonic: Get Ascii value.

For example, when the cursor is on a 'R':
<R> 82, Hex 52, Octal 122
When the character is a non-standard ASCII character, but printable according to the 'isprint' option, the non-printable version is also given.

When the character is larger than 127, the <M-x> form is also printed. For example:
<~A> <M-^A> 129, Hex 81, Octal 201

<p> <|~> <M-~> 254, Hex fe, Octal 376
(where <p> is a special character)

The <Nul> character in a file is stored internally as
<NL>, but it will be shown as:
<^@> 0, Hex 00, Octal 000

If the character has composing characters these are
also shown. The value of 'maxcombine' doesn't matter.

If the character can be inserted as a digraph, also
output the two characters that can be used to create
the character:
    <ö> 246, Hex 00f6, Oct 366, Digr o:
This shows you can type CTRL-K o : to insert ö.

{not in Vi}

g8

g8 Print the hex values of the bytes used in the
character under the cursor, assuming it is in UTF-8
encoding. This also shows composing characters. The
value of 'maxcombine' doesn't matter.
Example of a character with two composing characters:
        e0 b8 81 + e0 b8 b9 + e0 b9 89
{not in Vi} {only when compiled with the +multi_byte
feature}

8g8

8g8 Find an illegal UTF-8 byte sequence at or after the
cursor. This works in two situations:
1. when 'encoding' is any 8-bit encoding
2. when 'encoding' is "utf-8" and 'fileencoding' is
   any 8-bit encoding
Thus it can be used when editing a file that was
supposed to be UTF-8 but was read as if it is an 8-bit
encoding because it contains illegal bytes.
Does not wrap around the end of the file.
Note that when the cursor is on an illegal byte or the
cursor is halfway a multi-byte character the command
won't move the cursor.
{not in Vi} {only when compiled with the +multi_byte
feature}

:p :pr :print E749

:[range]p[rint] [flags]
Print [range] lines (default current line).
Note: If you are looking for a way to print your text
on paper see :hardcopy . In the GUI you can use the
File.Print menu entry.
See ex-flags for [flags].
The :filter command can be used to only show lines
matching a pattern.

:[range]p[rint] {count} [flags]
Print {count} lines, starting with [range] (default
current line cmdline-ranges).
See ex-flags for [flags].

:P :Print
:[range]P[rint] [count] [flags]
Just as ":print". Was apparently added to Vi for
people that keep the shift key pressed too long...
Note: A user command can overrule this command.
See ex-flags for [flags].

:l :list
:[range]l[ist] [count] [flags]
Same as :print, but display unprintable characters
with '^' and put $ after the line. This can be
further changed with the 'listchars' option.
See ex-flags for [flags].

:nu :number
:[range]nu[mber] [count] [flags]
Same as :print, but precede each line with its line
number. (See also 'highlight' and 'numberwidth'
option).
See ex-flags for [flags].

:#
:[range]# [count] [flags]
synonym for :number.

:#!
:#!{anything} Ignored, so that you can start a Vim script with:

```
#!vim -S
echo "this is a Vim script"
quit
```

:z E144
:{range}z[+-^.=]{count} Display several lines of text surrounding the line
specified with {range}, or around the current line
if there is no {range}. If there is a {count}, that's
how many lines you'll see; if there is only one window
then twice the value of the 'scroll' option is used,
otherwise the current window height minus 3 is used.

If there is a {count} the 'window' option is set to
its value.

:z can be used either alone or followed by any of
several punctuation marks. These have the following
effect:

mark	first line	last line	new cursor line
+	current line	1 scr forward	1 scr forward

```
                        -       1 scr back    current line   current line
                        ^       2 scr back    1 scr back     1 scr back
                        .       1/2 scr back  1/2 scr fwd    1/2 scr fwd
                        =       1/2 scr back  1/2 scr fwd    current line

                        Specifying no mark at all is the same as "+".
                        If the mark is "=", a line of dashes is printed
                        around the current line.

:{range}z#[+-^.=]{count}                                            :z#
                        Like ":z", but number the lines.
                        {not in all versions of Vi, not with these arguments}

                                                                    :=
:= [flags]              Print the last line number.
                        See  ex-flags  for [flags].

:{range}= [flags]       Prints the last line number in {range}.  For example,
                        this prints the current line number:
                                :.=
                       See  ex-flags  for [flags].

:norm[al][!] {commands}                                     :norm   :normal
                        Execute Normal mode commands {commands}.  This makes
                        it possible to execute Normal mode commands typed on
                        the command-line.  {commands} are executed like they
                        are typed.  For undo all commands are undone together.
                        Execution stops when an error is encountered.

                        If the [!] is given, mappings will not be used.
                        Without it, when this command is called from a
                        non-remappable mapping ( :noremap ), the argument can
                        be mapped anyway.

                        {commands} should be a complete command.  If
                        {commands} does not finish a command, the last one
                        will be aborted as if <Esc> or <C-C> was typed.
                        This implies that an insert command must be completed
                        (to start Insert mode, see  :startinsert ).  A ":"
                        command must be completed as well.  And you can't use
                        "Q" or "gQ" to start Ex mode.

                        The display is not updated while ":normal" is busy.

                        {commands} cannot start with a space.  Put a count of
                        1 (one) before it, "1 " is one space.

                        The 'insertmode' option is ignored for {commands}.

                        This command cannot be followed by another command,
                        since any '|' is considered part of the command.

                        This command can be used recursively, but the depth is
                        limited by 'maxmapdepth'.
```

An alternative is to use :execute , which uses an expression as argument. This allows the use of printable characters to represent special characters.

Example:

```
:exe "normal \<c-w>\<c-w>"
```

{not in Vi, of course}

:{range}norm[al][!] {commands} :normal-range

Execute Normal mode commands {commands} for each line in the {range}. Before executing the {commands}, the cursor is positioned in the first column of the range, for each line. Otherwise it's the same as the ":normal" command without a range.
{not in Vi}

:sh :shell E371

:sh[ell] This command starts a shell. When the shell exits (after the "exit" command) you return to Vim. The name for the shell command comes from 'shell' option.
E360

Note: This doesn't work when Vim on the Amiga was started in QuickFix mode from a compiler, because the compiler will have set stdin to a non-interactive mode.

:!cmd :! E34

:!{cmd} Execute {cmd} with the shell. See also the 'shell' and 'shelltype' option.

Any '!' in {cmd} is replaced with the previous external command (see also 'cpoptions'). But not when there is a backslash before the '!', then that backslash is removed. Example: ":!ls" followed by ":!echo ! \! \\!" executes "echo ls ! \!".

A '|' in {cmd} is passed to the shell, you cannot use it to append a Vim command. See :bar .

If {cmd} contains "%" it is expanded to the current file name. Special characters are not escaped, use quotes to avoid their special meaning:

```
:!ls "%"
```

If the file name contains a "$" single quotes might work better (but a single quote causes trouble):

```
:!ls '%'
```

This should always work, but it's more typing:

```
:exe "!ls " . shellescape(expand("%"))
```

A newline character ends {cmd}, what follows is interpreted as a following ":" command. However, if there is a backslash before the newline it is removed and {cmd} continues. It doesn't matter how many

backslashes are before the newline, only one is
removed.

On Unix the command normally runs in a non-interactive
shell. If you want an interactive shell to be used
(to use aliases) set 'shellcmdflag' to "-ic".
For Win32 also see :!start .

After the command has been executed, the timestamp and
size of the current file is checked timestamp .

Vim redraws the screen after the command is finished,
because it may have printed any text. This requires a
hit-enter prompt, so that you can read any messages.
To avoid this use:
        :silent !{cmd}
The screen is not redrawn then, thus you have to use
CTRL-L or ":redraw!" if the command did display
something.
Also see shell-window .

                                                :!!
:!!   Repeat last ":!{cmd}".

                                                :ve   :version
:ve[rsion]   Print the version number of the editor. If the
compiler used understands "__DATE__" the compilation
date is mentioned. Otherwise a fixed release-date is
shown.
The following lines contain information about which
features were enabled when Vim was compiled. When
there is a preceding '+', the feature is included,
when there is a '-' it is excluded. To change this,
you have to edit feature.h and recompile Vim.
To check for this in an expression, see has() .
Here is an overview of the features.
The first column shows the smallest version in which
they are included:
   T   tiny (always)
   S   small
   N   normal
   B   big
   H   huge
   m   manually enabled or depends on other features
 (none) system dependent
Thus if a feature is marked with "N", it is included
in the normal, big and huge versions of Vim.

                                                +feature-list
    +acl   ACL support included
    +ARP   Amiga only: ARP support included
B   +arabic   Arabic language support
T   +autocmd   :autocmd , automatic commands
H   +autoservername   Automatically enable clientserver

```
m   +balloon_eval        balloon-eval  support in the GUI. Included when
                         compiling with supported GUI (Motif, GTK, GUI) and
                         either Netbeans/Sun Workshop integration or  +eval
                         feature.
H   +balloon_eval_term   balloon-eval  support in the terminal,
                         'balloonevalterm'
N   +browse              :browse  command
N   +builtin_terms       some terminals builtin  builtin-terms
B   ++builtin_terms      maximal terminals builtin  builtin-terms
N   +byte_offset         support for 'o' flag in 'statusline' option, "go"
                         and ":goto" commands.
m   +channel             inter process communication  channel
N   +cindent             'cindent' , C indenting
N   +clientserver        Unix and Win32: Remote invocation  clientserver
    +clipboard           clipboard  support
N   +cmdline_compl       command line completion  cmdline-completion
S   +cmdline_hist        command line history  cmdline-history
N   +cmdline_info        'showcmd'  and  'ruler'
N   +comments            'comments'  support
B   +conceal             "conceal" support, see  conceal   :syn-conceal  etc.
N   +cryptv              encryption support  encryption
B   +cscope              cscope  support
T   +cursorbind          'cursorbind'  support
m   +cursorshape         termcap-cursor-shape  support
m   +debug               Compiled for debugging.
N   +dialog_gui          Support for  :confirm  with GUI dialog.
N   +dialog_con          Support for  :confirm  with console dialog.
N   +dialog_con_gui      Support for  :confirm  with GUI and console dialog.
N   +diff                vimdiff  and 'diff'
N   +digraphs            digraphs   E196
    +directx             Win32 GUI only: DirectX and  'renderoptions'
    +dnd                 Support for DnD into the "~ register  quote_~ .
B   +emacs_tags          emacs-tags  files
N   +eval                expression evaluation  eval.txt
N   +ex_extra            always on now, used to be for Vim's extra Ex commands
N   +extra_search        'hlsearch'  and  'incsearch'  options.
B   +farsi               farsi  language
N   +file_in_path        gf ,  CTRL-W_f  and  <cfile>
N   +find_in_path        include file searches:  [I ,  :isearch ,
                         CTRL-W_CTRL-I ,  :checkpath , etc.
N   +folding             folding
    +footer              gui-footer
    +fork                Unix only:  fork  shell commands
    +float               Floating point support
N   +gettext             message translations  multi-lang
    +GUI_Athena          Unix only: Athena  GUI
    +GUI_neXtaw          Unix only: neXtaw  GUI
    +GUI_GTK             Unix only: GTK+  GUI
    +GUI_Motif           Unix only: Motif  GUI
    +GUI_Photon          QNX only:  Photon  GUI
m   +hangul_input        Hangul input support  hangul
    +iconv               Compiled with the  iconv()  function
    +iconv/dyn           Likewise  iconv-dynamic   /dyn
N   +insert_expand       insert_expand  Insert mode completion
```

```
m   +job                starting and stopping jobs  job
S   +jumplist            jumplist
B   +keymap              'keymap'
N   +lambda              lambda  and  closure
B   +langmap             'langmap'
N   +libcall             libcall()
N   +linebreak           'linebreak' ,  'breakat'  and  'showbreak'
N   +lispindent          'lisp'
T   +listcmds           Vim commands for the list of buffers  buffer-hidden
                        and argument list  :argdelete
N   +localmap           Support for mappings local to a buffer  :map-local
m   +lua                 Lua  interface
m   +lua/dyn             Lua  interface  /dyn
N   +menu                :menu
N   +mksession           :mksession
N   +modify_fname        filename-modifiers
N   +mouse              Mouse handling  mouse-using
N   +mouseshape          'mouseshape'
B   +mouse_dec          Unix only: Dec terminal mouse handling  dec-mouse
N   +mouse_gpm          Unix only: Linux console mouse handling  gpm-mouse
N   +mouse_jsbterm      JSB mouse handling  jsbterm-mouse
B   +mouse_netterm      Unix only: netterm mouse handling  netterm-mouse
N   +mouse_pterm        QNX only: pterm mouse handling  qnx-terminal
N   +mouse_sysmouse     Unix only: *BSD console mouse handling  sysmouse
B   +mouse_sgr          Unix only: sgr mouse handling  sgr-mouse
B   +mouse_urxvt        Unix only: urxvt mouse handling  urxvt-mouse
N   +mouse_xterm        Unix only: xterm mouse handling  xterm-mouse
N   +multi_byte         16 and 32 bit characters  multibyte
    +multi_byte_ime     Win32 input method for multibyte chars  multibyte-ime
N   +multi_lang         non-English language support  multi-lang
m   +mzscheme           Mzscheme interface  mzscheme
m   +mzscheme/dyn       Mzscheme interface  mzscheme-dynamic   /dyn
m   +netbeans_intg       netbeans
    +num64              64-bit Number support  Number
m   +ole                Win32 GUI only:  ole-interface
N   +packages           Loading  packages
N   +path_extra         Up/downwards search in 'path' and 'tags'
m   +perl               Perl interface  perl
m   +perl/dyn           Perl interface  perl-dynamic   /dyn
N   +persistent_undo    Persistent undo  undo-persistence
    +postscript          :hardcopy  writes a PostScript file
N   +printer             :hardcopy  command
H   +profile             :profile  command
m   +python             Python 2 interface  python
m   +python/dyn         Python 2 interface  python-dynamic   /dyn
m   +python3            Python 3 interface  python
m   +python3/dyn        Python 3 interface  python-dynamic   /dyn
N   +quickfix            :make  and  quickfix  commands
N   +reltime             reltime()  function, 'hlsearch'/'incsearch' timeout,
                        'redrawtime' option
B   +rightleft          Right to left typing  'rightleft'
m   +ruby               Ruby interface  ruby
m   +ruby/dyn           Ruby interface  ruby-dynamic   /dyn
T   +scrollbind          'scrollbind'
```

```
B   +signs              :sign
N   +smartindent        'smartindent'
N   +startuptime        --startuptime  argument
N   +statusline         Options 'statusline', 'rulerformat' and special
                        formats of 'titlestring' and 'iconstring'
m   +sun_workshop       workshop
N   +syntax             Syntax highlighting  syntax
    +system()           Unix only: opposite of  +fork
T   +tag_binary         binary searching in tags file  tag-binary-search
N   +tag_old_static     old method for static tags  tag-old-static
m   +tag_any_white      any white space allowed in tags file  tag-any-white
m   +tcl                Tcl interface  tcl
m   +tcl/dyn            Tcl interface  tcl-dynamic   /dyn
m   +terminal           Support for terminal window  terminal
    +terminfo           uses  terminfo  instead of termcap
N   +termresponse       support for  t_RV  and  v:termresponse
B   +termguicolors      24-bit color in xterm-compatible terminals support
N   +textobjects        text-objects  selection
    +tgetent            non-Unix only: able to use external termcap
N   +timers             the  timer_start()  function
N   +title              Setting the window 'title' and 'icon'
N   +toolbar            gui-toolbar
N   +user_commands      User-defined commands.  user-commands
B   +vartabs            Variable-width tabstops.  'vartabstop'
N   +viminfo            'viminfo'
    +vertsplit          Vertically split windows  :vsplit ; Always enabled
                        since 8.0.1118.
                        in sync with the  +windows  feature
N   +virtualedit        'virtualedit'
S   +visual             Visual mode  Visual-mode  Always enabled since 7.4.200.
N   +visualextra        extra Visual mode commands  blockwise-operators
T   +vreplace           gR  and  gr
    +vtp                on MS-Windows console: support for 'termguicolors'
N   +wildignore         'wildignore'
N   +wildmenu           'wildmenu'
    +windows            more than one window; Always enabled since 8.0.1118.
m   +writebackup        'writebackup'  is default on
m   +xim                X input method  xim
    +xfontset           X fontset support  xfontset
    +xpm                pixmap support
m   +xpm_w32            Win32 GUI only: pixmap support  w32-xpm-support
    +xsmp               XSMP (X session management) support
    +xsmp_interact      interactive XSMP (X session management) support
N   +xterm_clipboard    Unix only: xterm clipboard handling
m   +xterm_save         save and restore xterm screen  xterm-screens
N   +X11                Unix only: can restore window title  X11

                                                    /dyn   E370   E448
                        To some of the features "/dyn" is added when the
                        feature is only available when the related library can
                        be dynamically loaded.

:ve[rsion] {nr}         Is now ignored.  This was previously used to check the
                        version number of a .vimrc file.  It was removed,
```

because you can now use the ":if" command for
version-dependent behavior. {not in Vi}

:redi :redir

:redi[r][!] > {file} Redirect messages to file {file}. The messages which are the output of commands are written to that file, until redirection ends. The messages are also still shown on the screen. When [!] is included, an existing file is overwritten. When [!] is omitted, and {file} exists, this command fails.

Only one ":redir" can be active at a time. Calls to ":redir" will close any active redirection before starting redirection to the new target. For recursive use check out execute() .

To stop the messages and commands from being echoed to the screen, put the commands in a function and call it with ":silent call Function()".
An alternative is to use the 'verbosefile' option, this can be used in combination with ":redir".
{not in Vi}

:redi[r] >> {file} Redirect messages to file {file}. Append if {file} already exists. {not in Vi}

:redi[r] @{a-zA-Z}
:redi[r] @{a-zA-Z}> Redirect messages to register {a-z}. Append to the contents of the register if its name is given uppercase {A-Z}. The ">" after the register name is optional. {not in Vi}
:redi[r] @{a-z}>> Append messages to register {a-z}. {not in Vi}

:redi[r] @*>
:redi[r] @+> Redirect messages to the selection or clipboard. For backward compatibility, the ">" after the register name can be omitted. See quotestar and quoteplus . {not in Vi}
:redi[r] @*>>
:redi[r] @+>> Append messages to the selection or clipboard. {not in Vi}

:redi[r] @"> Redirect messages to the unnamed register. For backward compatibility, the ">" after the register name can be omitted. {not in Vi}
:redi[r] @">> Append messages to the unnamed register. {not in Vi}

:redi[r] => {var} Redirect messages to a variable. If the variable doesn't exist, then it is created. If the variable exists, then it is initialized to an empty string. The variable will remain empty until redirection ends. Only string variables can be used. After the redirection starts, if the variable is removed or locked or the variable type is changed, then further

command output messages will cause errors. {not in Vi}
To get the output of one command the execute() function can be used.

:redi[r] =>> {var} Append messages to an existing variable. Only string variables can be used. {not in Vi}

:redi[r] END End redirecting messages. {not in Vi}

:filt :filter

:filt[er][!] {pat} {command}
:filt[er][!] /{pat}/ {command}
Restrict the output of {command} to lines matching with {pat}. For example, to list only xml files:
:filter /\.xml$/ oldfiles
If the [!] is given, restrict the output of {command} to lines that do NOT match {pat}.

{pat} is a Vim search pattern. Instead of enclosing it in / any non-ID character (see 'isident') can be used, so long as it does not appear in {pat}. Without the enclosing character the pattern cannot include the bar character.

The pattern is matched against the relevant part of the output, not necessarily the whole line. Only some commands support filtering, try it out to check if it works.

Only normal messages are filtered, error messages are not.

:sil :silent :silent!

:sil[ent][!] {command} Execute {command} silently. Normal messages will not be given or added to the message history.
When [!] is added, error messages will also be skipped, and commands and mappings will not be aborted when an error is detected. v:errmsg is still set.
When [!] is not used, an error message will cause further messages to be displayed normally.
Redirection, started with :redir , will continue as usual, although there might be small differences.
This will allow redirecting the output of a command without seeing it on the screen. Example:
```
:redir >/tmp/foobar
:silent g/Aap/p
:redir END
```
To execute a Normal mode command silently, use the :normal command. For example, to search for a string without messages:
```
:silent exe "normal /path\<CR>"
```
":silent!" is useful to execute a command that may fail, but the failure is to be ignored. Example:
```
:let v:errmsg = ""
```

```
                        :silent! /^begin
                        :if v:errmsg != ""
                        : ... pattern was not found
                    ":silent" will also avoid the hit-enter prompt.  When
                    using this for an external command, this may cause the
                    screen to be messed up.  Use  CTRL-L  to clean it up
                    then.
                    ":silent menu ..." defines a menu that will not echo a
                    Command-line command.  The command will still produce
                    messages though.  Use ":silent" in the command itself
                    to avoid that: ":silent menu .... :silent command".

                                                        :uns   :unsilent
:uns[ilent] {command}   Execute {command} not silently.  Only makes a
                    difference when  :silent  was used to get to this
                    command.
                    Use this for giving a message even when  :silent  was
                    used.  In this example  :silent  is used to avoid the
                    message about reading the file and  :unsilent  to be
                    able to list the first line of each file.
              :silent argdo unsilent echo expand('%') . ": " . getline(1)


                                                        :verb   :verbose
:[count]verb[ose] {command}
                    Execute {command} with 'verbose' set to [count].  If
                    [count] is omitted one is used. ":0verbose" can be
                    used to set 'verbose' to zero.
                    The additional use of ":silent" makes messages
                    generated but not displayed.
                    The combination of ":silent" and ":verbose" can be
                    used to generate messages and check them with
                     v:statusmsg  and friends.  For example:
                            :let v:statusmsg = ""
                            :silent verbose runtime foobar.vim
                            :if v:statusmsg != ""
                            :  " foobar.vim could not be found
                            :endif
                    When concatenating another command, the ":verbose"
                    only applies to the first one:
                            :4verbose set verbose | set verbose
                             verbose=4
                              verbose=0
                    For logging verbose messages in a file use the
                    'verbosefile' option.

                                                        :verbose-cmd
When 'verbose' is non-zero, listing the value of a Vim option or a key map or
an abbreviation or a user-defined function or a command or a highlight group
or an autocommand will also display where it was last defined.  If it was
defined manually then there will be no "Last set" message.  When it was
defined while executing a function, user command or autocommand, the script in
which it was defined is reported.
{not available when compiled without the |+eval| feature}
```

K

Run a program to lookup the keyword under the cursor. The name of the program is given with the 'keywordprg' (kp) option (default is "man"). The keyword is formed of letters, numbers and the characters in 'iskeyword'. The keyword under or right of the cursor is used. The same can be done with the command

```
:!{program} {keyword}
```

There is an example of a program to use in the tools directory of Vim. It is called "ref" and does a simple spelling check.

Special cases:

- If 'keywordprg' begins with ":" it is invoked as a Vim Ex command with [count].
- If 'keywordprg' is empty, the ":help" command is used. It's a good idea to include more characters in 'iskeyword' then, to be able to find more help.
- When 'keywordprg' is equal to "man" or starts with ":", a [count] before "K" is inserted after keywordprg and before the keyword. For example, using "2K" while the cursor is on "mkdir", results in:

```
!man 2 mkdir
```

- When 'keywordprg' is equal to "man -s", a count before "K" is inserted after the "-s". If there is no count, the "-s" is removed.

{not in Vi}

{Visual}K

Like "K", but use the visually highlighted text for the keyword. Only works when the highlighted text is not more than one line. {not in Vi}

[N]gs
:[N]sl[eep] [N] [m]

Do nothing for [N] seconds. When [m] is included, sleep for [N] milliseconds. The count for "gs" always uses seconds. The default is one second.

```
:sleep          "sleep for one second
:5sleep         "sleep for five seconds
:sleep 100m     "sleep for a hundred milliseconds
10gs            "sleep for ten seconds
```

Can be interrupted with CTRL-C (CTRL-Break on MS-DOS). "gs" stands for "goto sleep". While sleeping the cursor is positioned in the text, if at a visible position. {not in Vi} Also process the received netbeans messages. {only available when compiled with the +netbeans_intg feature}

g CTRL-A

Only when Vim was compiled with MEM_PROFILING defined

(which is very rare): print memory usage statistics.
Only useful for debugging Vim.
For incrementing in Visual mode see v_g_CTRL-A .

==
2. Using Vim like less or more   less

If you use the less or more program to view a file, you don't get syntax
highlighting. Thus you would like to use Vim instead. You can do this by
using the shell script "$VIMRUNTIME/macros/less.sh".

This shell script uses the Vim script "$VIMRUNTIME/macros/less.vim". It sets
up mappings to simulate the commands that less supports. Otherwise, you can
still use the Vim commands.

This isn't perfect. For example, when viewing a short file Vim will still use
the whole screen. But it works good enough for most uses, and you get syntax
highlighting.

The "h" key will give you a short overview of the available commands.

If you want to set options differently when using less, define the
LessInitFunc in your vimrc, for example:

```
func LessInitFunc()
  set nocursorcolumn nocursorline
endfunc
```

vim:tw=78:ts=8:noet:ft=help:norl:

recover.txt For Vim version 8.1. Last change: 2014 Mar 27

VIM REFERENCE MANUAL by Bram Moolenaar

Recovery after a crash crash-recovery

You have spent several hours typing in that text that has to be finished
next morning, and then disaster strikes: Your computer crashes.

DON'T PANIC!

You can recover most of your changes from the files that Vim uses to store
the contents of the file. Mostly you can recover your work with one command:
	vim -r filename

1. The swap file swap-file
2. Recovery recovery

==
1. The swap file swap-file

Vim stores the things you changed in a swap file. Using the original file
you started from plus the swap file you can mostly recover your work.

You can see the name of the current swap file being used with the command:

	:sw[apname] :sw :swapname

The name of the swap file is normally the same as the file you are editing,
with the extension ".swp".
- On Unix, a '.' is prepended to swap file names in the same directory as the
  edited file. This avoids that the swap file shows up in a directory
  listing.
- On MS-DOS machines and when the 'shortname' option is on, any '.' in the
  original file name is replaced with '_'.
- If this file already exists (e.g., when you are recovering from a crash) a
  warning is given and another extension is used, ".swo", ".swn", etc.
- An existing file will never be overwritten.
- The swap file is deleted as soon as Vim stops editing the file.

Technical: The replacement of '.' with '_' is done to avoid problems with
	MS-DOS compatible filesystems (e.g., crossdos, multidos). If Vim
	is able to detect that the file is on an MS-DOS-like filesystem, a
	flag is set that has the same effect as the 'shortname' option.
	This flag is reset when you start editing another file.
	E326
	If the ".swp" file name already exists, the last character is
	decremented until there is no file with that name or ".saa" is
	reached. In the last case, no swap file is created.

By setting the 'directory' option you can place the swap file in another place
than where the edited file is.

Advantages:
- You will not pollute the directories with ".swp" files.
- When the 'directory' is on another partition, reduce the risk of damaging
  the file system where the file is (in a crash).
Disadvantages:
- You can get name collisions from files with the same name but in different
  directories (although Vim tries to avoid that by comparing the path name).
  This will result in bogus ATTENTION warning messages.
- When you use your home directory, and somebody else tries to edit the same
  file, he will not see your swap file and will not get the ATTENTION warning
  message.
On the Amiga you can also use a recoverable ram disk, but there is no 100%
guarantee that this works. Putting swap files in a normal ram disk (like RAM:
on the Amiga) or in a place that is cleared when rebooting (like /tmp on Unix)
makes no sense, you will lose the swap file in a crash.

If you want to put swap files in a fixed place, put a command resembling the
following ones in your .vimrc:
	:set dir=dh2:tmp	(for Amiga)
	:set dir=~/tmp		(for Unix)
	:set dir=c:\\tmp	(for MS-DOS and Win32)
This is also very handy when editing files on floppy. Of course you will have
to create that "tmp" directory for this to work!

For read-only files, a swap file is not used. Unless the file is big, causing
the amount of memory used to be higher than given with 'maxmem' or
'maxmemtot'. And when making a change to a read-only file, the swap file is
created anyway.

The 'swapfile' option can be reset to avoid creating a swapfile. And the
 :noswapfile modifier can be used to not create a swapfile for a new buffer.

:nos[wapfile]   {command}   :nos   :noswapfile
		Execute {command}. If it contains a command that loads a new
		buffer, it will be loaded without creating a swapfile and the
		'swapfile' option will be reset. If a buffer already had a
		swapfile it is not removed and 'swapfile' is not reset.

Detecting an existing swap file

You can find this in the user manual, section 11.3 .

Updating the swapfile

The swap file is updated after typing 200 characters or when you have not
typed anything for four seconds. This only happens if the buffer was
changed, not when you only moved around. The reason why it is not kept up to
date all the time is that this would slow down normal work too much. You can
change the 200 character count with the 'updatecount' option. You can set
the time with the 'updatetime' option. The time is given in milliseconds.
After writing to the swap file Vim syncs the file to disk. This takes some
time, especially on busy Unix systems. If you don't want this you can set the

'swapsync' option to an empty string. The risk of losing work becomes bigger though. On some non-Unix systems (MS-DOS, Amiga) the swap file won't be written at all.

If the writing to the swap file is not wanted, it can be switched off by setting the 'updatecount' option to 0. The same is done when starting Vim with the "-n" option. Writing can be switched back on by setting the 'updatecount' option to non-zero. Swap files will be created for all buffers when doing this. But when setting 'updatecount' to zero, the existing swap files will not be removed, it will only affect files that will be opened after this.

If you want to make sure that your changes are in the swap file use this command:

:pre[serve] Write all text for all buffers into swap file. The original file is no longer needed for recovery. This sets a flag in the current buffer. When the '&' flag is present in 'cpoptions' the swap file will not be deleted for this buffer when Vim exits and the buffer is still loaded cpo-& .
{Vi: might also exit} :pre :preserve E313 E314

A Vim swap file can be recognized by the first six characters: "b0VIM ". After that comes the version number, e.g., "3.0".

Links and symbolic links

On Unix it is possible to have two names for the same file. This can be done with hard links and with symbolic links (symlinks).

For hard links Vim does not know the other name of the file. Therefore, the name of the swapfile will be based on the name you used to edit the file. There is no check for editing the same file by the other name too, because Vim cannot find the other swapfile (except for searching all of your harddisk, which would be very slow).

For symbolic links Vim resolves the links to find the name of the actual file. The swap file name is based on that name. Thus it doesn't matter by what name you edit the file, the swap file name will normally be the same. However, there are exceptions:
- When the directory of the actual file is not writable the swapfile is put elsewhere.
- When the symbolic links somehow create a loop you get an E773 error message and the unmodified file name will be used. You won't be able to save your file normally.

==========
2. Recovery recovery E308 E311

Basic file recovery is explained in the user manual: usr_11.txt .

Another way to do recovery is to start Vim and use the ":recover" command.
This is easy when you start Vim to edit a file and you get the "ATTENTION:
Found a swap file ..." message. In this case the single command ":recover"
will do the work. You can also give the name of the file or the swap file to
the recover command:

:rec :recover E305 E306 E307

:rec[over] [file] Try to recover [file] from the swap file. If [file]
is not given use the file name for the current
buffer. The current contents of the buffer are lost.
This command fails if the buffer was modified.

:rec[over]! [file] Like ":recover", but any changes in the current
buffer are lost.

E312 E309 E310

Vim has some intelligence about what to do if the swap file is corrupt in
some way. If Vim has doubt about what it found, it will give an error
message and insert lines with "???" in the text. If you see an error message
while recovering, search in the file for "???" to see what is wrong. You may
want to cut and paste to get the text you need.

The most common remark is "???LINES MISSING". This means that Vim cannot read
the text from the original file. This can happen if the system crashed and
parts of the original file were not written to disk.

Be sure that the recovery was successful before overwriting the original
file or deleting the swap file. It is good practice to write the recovered
file elsewhere and run 'diff' to find out if the changes you want are in the
recovered file. Or use :DiffOrig .

Once you are sure the recovery is ok delete the swap file. Otherwise, you
will continue to get warning messages that the ".swp" file already exists.

{Vi: recovers in another way and sends mail if there is something to recover}

ENCRYPTION AND THE SWAP FILE :recover-crypt

When the text file is encrypted the swap file is encrypted as well. This
makes recovery a bit more complicated. When recovering from a swap file and
encryption has been used, you will be asked to enter one or two crypt keys.

If the text file does not exist you will only be asked to enter the crypt key
for the swap file.

If the text file does exist, it may be encrypted in a different way than the
swap file. You will be asked for the crypt key twice:

```
Need encryption key for "/tmp/tt"
Enter encryption key: ******
"/tmp/tt" [crypted] 23200L, 522129C
Using swap file "/tmp/.tt.swp"
Original file "/tmp/tt"
Swap file is encrypted: "/tmp/.tt.swp"
```

```
If you entered a new crypt key but did not write the text file,
enter the new crypt key.
If you wrote the text file after changing the crypt key press enter
to use the same key for text file and swap file
Enter encryption key:
```

You can be in one of these two situations:

1. The encryption key was not changed, or after changing the key the text file
   was written. You will be prompted for the crypt key twice. The second
   time you can simply press Enter. That means the same key is used for the
   text file and the swap file.
2. You entered a new encryption key, but did not save the text file. Vim will
   then use the new key for the swap file, and the text file will still be
   encrypted with the old key. At the second prompt enter the new key.

Note that after recovery the key of the swap file will be used for the text
file. Thus if you write the text file, you need to use that new key.

vim:tw=78:ts=8:noet:ft=help:norl:

cmdline.txt For Vim version 8.1. Last change: 2018 May 14

VIM REFERENCE MANUAL by Bram Moolenaar

Command-line mode Cmdline-mode Command-line-mode Cmdline Command-line mode-cmdline :

Command-line mode is used to enter Ex commands (":"), search patterns
("/" and "?"), and filter commands ("!").

Basic command line editing is explained in chapter 20 of the user manual
usr_20.txt .

==
1. Command-line editing cmdline-editing

Normally characters are inserted in front of the cursor position. You can
move around in the command-line with the left and right cursor keys. With the
<Insert> key, you can toggle between inserting and overstriking characters.
{Vi: can only alter the last character in the line}

Note that if your keyboard does not have working cursor keys or any of the
other special keys, you can use ":cnoremap" to define another key for them.
For example, to define tcsh style editing keys: tcsh-style

```
:cnoremap <C-A> <Home>
:cnoremap <C-F> <Right>
:cnoremap <C-B> <Left>
:cnoremap <Esc>b <S-Left>
:cnoremap <Esc>f <S-Right>
```

(<> notation <> ; type all this literally)

cmdline-too-long

When the command line is getting longer than what fits on the screen, only the
part that fits will be shown. The cursor can only move in this visible part,
thus you cannot edit beyond that.

cmdline-history history

The command-lines that you enter are remembered in a history table. You can
recall them with the up and down cursor keys. There are actually five
history tables:
- one for ':' commands
- one for search strings
- one for expressions
- one for input lines, typed for the input() function.

- one for debug mode commands
These are completely separate. Each history can only be accessed when entering the same type of line.
Use the 'history' option to set the number of lines that are remembered (default: 50).
Notes:
- When you enter a command-line that is exactly the same as an older one, the old one is removed (to avoid repeated commands moving older commands out of the history).
- Only commands that are typed are remembered. Ones that completely come from mappings are not put in the history.
- All searches are put in the search history, including the ones that come from commands like "*" and "#". But for a mapping, only the last search is remembered (to avoid that long mappings trash the history).
{Vi: no history}
{not available when compiled without the |+cmdline_hist| feature}

There is an automatic completion of names on the command-line; see cmdline-completion .

c_CTRL-V
CTRL-V Insert next non-digit literally. Up to three digits form the decimal value of a single byte. The non-digit and the three digits are not considered for mapping. This works the same way as in Insert mode (see above, i_CTRL-V).
Note: Under Windows CTRL-V is often mapped to paste text.
Use CTRL-Q instead then.

c_CTRL-Q
CTRL-Q Same as CTRL-V. But with some terminals it is used for control flow, it doesn't work then.

c_<Left> c_Left
<Left> cursor left

c_<Right> c_Right
<Right> cursor right

c_<S-Left>
<S-Left> or <C-Left> c_<C-Left>
cursor one WORD left

c_<S-Right>
<S-Right> or <C-Right> c_<C-Right>
cursor one WORD right

CTRL-B or <Home> c_CTRL-B c_<Home> c_Home
cursor to beginning of command-line

CTRL-E or <End> c_CTRL-E c_<End> c_End
cursor to end of command-line

c_<LeftMouse>
<LeftMouse> Move the cursor to the position of the mouse click.

c_<MiddleMouse>
<MiddleMouse> Paste the contents of the clipboard (for X11 the primary selection). This is similar to using CTRL-R *, but no CR characters are inserted between lines.

CTRL-H   c_<BS> c_CTRL-H c_BS
<BS>   Delete the character in front of the cursor (see :fixdel if
                your <BS> key does not do what you want).
                                                c_<Del> c_Del
<Del>   Delete the character under the cursor (at end of line:
                character before the cursor) (see :fixdel if your <Del>
                key does not do what you want).
                                                c_CTRL-W
CTRL-W   Delete the word before the cursor. This depends on the
                'iskeyword' option.
                                                c_CTRL-U
CTRL-U   Remove all characters between the cursor position and
                the beginning of the line. Previous versions of vim
                deleted all characters on the line. If that is the
                preferred behavior, add the following to your .vimrc:
                        :cnoremap <C-U> <C-E><C-U>

                                                c_<Insert> c_Insert
<Insert>   Toggle between insert and overstrike. {not in Vi}

{char1} <BS> {char2}   or   c_digraph
CTRL-K {char1} {char2}   c_CTRL-K
                enter digraph (see digraphs). When {char1} is a special
                key, the code for that key is inserted in <> form. {not in Vi}

CTRL-R {0-9a-z"%#:-=.}   c_CTRL-R c_<C-R>
                Insert the contents of a numbered or named register. Between
                typing CTRL-R and the second character '"' will be displayed
                to indicate that you are expected to enter the name of a
                register.
                The text is inserted as if you typed it, but mappings and
                abbreviations are not used. Command-line completion through
                'wildchar' is not triggered though. And characters that end
                the command line are inserted literally (<Esc>, <CR>, <NL>,
                <C-C>). A <BS> or CTRL-W could still end the command line
                though, and remaining characters will then be interpreted in
                another mode, which might not be what you intended.
                Special registers:
                        '"'   the unnamed register, containing the text of
                                the last delete or yank
                        '%'   the current file name
                        '#'   the alternate file name
                        '*'   the clipboard contents (X11: primary selection)
                        '+'   the clipboard contents
                        '/'   the last search pattern
                        ':'   the last command-line
                        '-'   the last small (less than a line) delete
                        '.'   the last inserted text
                                                c_CTRL-R_=
                        '='   the expression register: you are prompted to
                                enter an expression (see expression)
                                (doesn't work at the expression prompt; some
                                things such as changing the buffer or current
                                window are not allowed to avoid side effects)

When the result is a List the items are used
as lines. They can have line breaks inside
too.
When the result is a Float it's automatically
converted to a String.
See registers about registers. {not in Vi}
Implementation detail: When using the expression register
and invoking setcmdpos(), this sets the position before
inserting the resulting string. Use CTRL-R CTRL-R to set the
position afterwards.

CTRL-R CTRL-F c_CTRL-R_CTRL-F c_<C-R>_<C-F>
CTRL-R CTRL-P c_CTRL-R_CTRL-P c_<C-R>_<C-P>
CTRL-R CTRL-W c_CTRL-R_CTRL-W c_<C-R>_<C-W>
CTRL-R CTRL-A c_CTRL-R_CTRL-A c_<C-R>_<C-A>
CTRL-R CTRL-L c_CTRL-R_CTRL-L c_<C-R>_<C-L>
Insert the object under the cursor:
CTRL-F the Filename under the cursor
CTRL-P the Filename under the cursor, expanded with
'path' as in gf
CTRL-W the Word under the cursor
CTRL-A the WORD under the cursor; see WORD
CTRL-L the line under the cursor

When 'incsearch' is set the cursor position at the end of the
currently displayed match is used. With CTRL-W the part of
the word that was already typed is not inserted again.

{not in Vi}
CTRL-F and CTRL-P: {only when +file_in_path feature is
included}

c_CTRL-R_CTRL-R c_<C-R>_<C-R>
c_CTRL-R_CTRL-O c_<C-R>_<C-O>
CTRL-R CTRL-R {0-9a-z"%#:-=. CTRL-F CTRL-P CTRL-W CTRL-A CTRL-L}
CTRL-R CTRL-O {0-9a-z"%#:-=. CTRL-F CTRL-P CTRL-W CTRL-A CTRL-L}
Insert register or object under the cursor. Works like
c_CTRL-R but inserts the text literally. For example, if
register a contains "xy^Hz" (where ^H is a backspace),
"CTRL-R a" will insert "xz" while "CTRL-R CTRL-R a" will
insert "xy^Hz".

CTRL-\ e {expr} c_CTRL-_e
Evaluate {expr} and replace the whole command line with the
result. You will be prompted for the expression, type <Enter>
to finish it. It's most useful in mappings though. See
expression .
See c_CTRL-R_= for inserting the result of an expression.
Useful functions are getcmdtype() , getcmdline() and
getcmdpos() .
The cursor position is unchanged, except when the cursor was
at the end of the line, then it stays at the end.
setcmdpos() can be used to set the cursor position.
The sandbox is used for evaluating the expression to avoid

nasty side effects.
Example:

```
:cmap <F7> <C-\>eAppendSome()<CR>
:func AppendSome()
   :let cmd = getcmdline() . " Some()"
   :" place the cursor on the )
   :call setcmdpos(strlen(cmd))
   :return cmd
:endfunc
```

This doesn't work recursively, thus not when already editing an expression. But it is possible to use in a mapping.

c_CTRL-Y

CTRL-Y When there is a modeless selection, copy the selection into the clipboard. modeless-selection
If there is no selection **CTRL-Y** is inserted as a character.

CTRL-M or **CTRL-J** c_CTRL-M c_CTRL-J c_<NL> c_<CR> c_CR

<CR> or <NL> start entered command

CTRL-[c_CTRL-[c_<Esc> c_Esc

<Esc> When typed and 'x' not present in 'cpoptions', quit Command-line mode without executing. In macros or when 'x' present in 'cpoptions', start entered command.
Note: If your <Esc> key is hard to hit on your keyboard, train yourself to use CTRL-[.

c_CTRL-C

CTRL-C quit command-line without executing

c_<Up> c_Up

<Up> recall older command-line from history, whose beginning matches the current command-line (see below).
{not available when compiled without the +cmdline_hist feature}

c_<Down> c_Down

<Down> recall more recent command-line from history, whose beginning matches the current command-line (see below).
{not available when compiled without the +cmdline_hist feature}

c_<S-Up> c_<PageUp>

<S-Up> or <PageUp>
recall older command-line from history
{not available when compiled without the +cmdline_hist feature}

c_<S-Down> c_<PageDown>

<S-Down> or <PageDown>
recall more recent command-line from history
{not available when compiled without the +cmdline_hist feature}

CTRL-D command-line completion (see cmdline-completion)

'wildchar' option
command-line completion (see cmdline-completion)

CTRL-N command-line completion (see cmdline-completion)
CTRL-P command-line completion (see cmdline-completion)
CTRL-A command-line completion (see cmdline-completion)
CTRL-L command-line completion (see cmdline-completion)

c_CTRL-_
CTRL-_ a - switch between Hebrew and English keyboard mode, which is private to the command-line and not related to hkmap. This is useful when Hebrew text entry is required in the command-line, searches, abbreviations, etc. Applies only if Vim is compiled with the +rightleft feature and the 'allowrevins' option is set. See rileft.txt .

b - switch between Farsi and English keyboard mode, which is private to the command-line and not related to fkmap. In Farsi keyboard mode the characters are inserted in reverse insert manner. This is useful when Farsi text entry is required in the command-line, searches, abbreviations, etc. Applies only if Vim is compiled with the +farsi feature. See farsi.txt .

c_CTRL-^
CTRL-^ Toggle the use of language :lmap mappings and/or Input Method.
When typing a pattern for a search command and 'imsearch' is not -1, VAL is the value of 'imsearch', otherwise VAL is the value of 'iminsert'.
When language mappings are defined:
- If VAL is 1 (langmap mappings used) it becomes 0 (no langmap mappings used).
- If VAL was not 1 it becomes 1, thus langmap mappings are enabled.
When no language mappings are defined:
- If VAL is 2 (Input Method is used) it becomes 0 (no input method used)
- If VAL has another value it becomes 2, thus the Input Method is enabled.
These language mappings are normally used to type characters that are different from what the keyboard produces. The 'keymap' option can be used to install a whole number of them.
When entering a command line, langmap mappings are switched off, since you are expected to type a command. After switching it on with CTRL-^, the new state is not used again for the next command or Search pattern.
{not in Vi}

c_CTRL-]
CTRL-] Trigger abbreviation, without inserting a character. {not in Vi}

For Emacs-style editing on the command-line see emacs-keys .

The <Up> and <Down> keys take the current command-line as a search string.

The beginning of the next/previous command-lines are compared with this
string. The first line that matches is the new command-line. When typing
these two keys repeatedly, the same string is used again. For example, this
can be used to find the previous substitute command: Type ":s" and then <Up>.
The same could be done by typing <S-Up> a number of times until the desired
command-line is shown. (Note: the shifted arrow keys do not work on all
terminals)

                                                        :his   :history
:his[tory]   Print the history of last entered commands.
                {not in Vi}
                {not available when compiled without the +cmdline_hist
                feature}

:his[tory] [{name}] [{first}][, [{last}]]
                List the contents of history {name} which can be:
                c[md]   or :   command-line history
                s[earch] or / or ?   search string history
                e[xpr]   or =   expression register history
                i[nput] or @   input line history
                d[ebug] or >   debug command history
                a[ll]   all of the above
                {not in Vi}

                If the numbers {first} and/or {last} are given, the respective
                range of entries from a history is listed. These numbers can
                be specified in the following form:
                                                        :history-indexing
                A positive number represents the absolute index of an entry
                as it is given in the first column of a :history listing.
                This number remains fixed even if other entries are deleted.

                A negative number means the relative position of an entry,
                counted from the newest entry (which has index -1) backwards.

                Examples:
                List entries 6 to 12 from the search history:
                        :history / 6,12

                List the penultimate entry from all histories:
                        :history all -2

                List the most recent two entries from all histories:
                        :history all -2,

:keepp[atterns] {command}   :keepp   :keeppatterns
                Execute {command}, without adding anything to the search
                history

==
2. Command-line completion   cmdline-completion

When editing the command-line, a few commands can be used to complete the
word before the cursor. This is available for:

- Command names: At the start of the command-line.
- Tags: Only after the ":tag" command.
- File names: Only after a command that accepts a file name or a setting for
  an option that can be set to a file name. This is called file name
  completion.
- Shell command names: After ":!cmd", ":r !cmd" and ":w !cmd". $PATH is used.
- Options: Only after the ":set" command.
- Mappings: Only after a ":map" or similar command.
- Variable and function names: Only after a ":if", ":call" or similar command.

When Vim was compiled without the +cmdline_compl feature only file names,
directories and help items can be completed. The number of help item matches
is limited (currently to 300) to avoid a long delay when there are very many
matches.

These are the commands that can be used:

                                                        c_CTRL-D
CTRL-D   List names that match the pattern in front of the cursor.
                When showing file names, directories are highlighted (see
                'highlight' option). Names where 'suffixes' matches are moved
                to the end.
                The 'wildoptions' option can be set to "tagfile" to list the
                file of matching tags.
                                        c_CTRL-I   c_wildchar   c_<Tab>
'wildchar' option
                A match is done on the pattern in front of the cursor. The
                match (if there are several, the first match) is inserted
                in place of the pattern. (Note: does not work inside a
                macro, because <Tab> or <Esc> are mostly used as 'wildchar',
                and these have a special meaning in some macros.) When typed
                again and there were multiple matches, the next
                match is inserted. After the last match, the first is used
                again (wrap around).
                The behavior can be changed with the 'wildmode' option.
                                                        c_<S-Tab>
<S-Tab>   Like 'wildchar' or <Tab>, but begin with the last match and
                then go to the previous match.
                <S-Tab> does not work everywhere.
                                                        c_CTRL-N
CTRL-N   After using 'wildchar' which got multiple matches, go to next
                match. Otherwise recall more recent command-line from history.
                                                        c_CTRL-P
CTRL-P   After using 'wildchar' which got multiple matches, go to
                previous match. Otherwise recall older command-line from
                history.
                                                        c_CTRL-A
CTRL-A   All names that match the pattern in front of the cursor are
                inserted.
                                                        c_CTRL-L
CTRL-L   A match is done on the pattern in front of the cursor. If
                there is one match, it is inserted in place of the pattern.
                If there are multiple matches the longest common part is

inserted in place of the pattern. If the result is shorter than the pattern, no completion is done.

/_CTRL-L

When 'incsearch' is set, entering a search pattern for "/" or "?" and the current match is displayed then CTRL-L will add one character from the end of the current match. If 'ignorecase' and 'smartcase' are set and the command line has no uppercase characters, the added character is converted to lowercase.

c_CTRL-G /_CTRL-G

CTRL-G When 'incsearch' is set, entering a search pattern for "/" or "?" and the current match is displayed then CTRL-G will move to the next match (does not take search-offset into account) Use CTRL-T to move to the previous match. Hint: on a regular keyboard T is above G.

c_CTRL-T /_CTRL-T

CTRL-T When 'incsearch' is set, entering a search pattern for "/" or "?" and the current match is displayed then CTRL-T will move to the previous match (does not take search-offset into account).
Use CTRL-G to move to the next match. Hint: on a regular keyboard T is above G.

The 'wildchar' option defaults to <Tab> (CTRL-E when in Vi compatible mode; in a previous version <Esc> was used). In the pattern standard wildcards '*' and '?' are accepted when matching file names. '*' matches any string, '?' matches exactly one character.

When repeating 'wildchar' or CTRL-N you cycle through the matches, eventually ending up back to what was typed. If the first match is not what you wanted, you can use <S-Tab> or CTRL-P to go straight back to what you typed.

The 'wildignorecase' option can be set to ignore case in filenames.

The 'wildmenu' option can be set to show the matches just above the command line.

If you like tcsh's autolist completion, you can use this mapping:

```
:cnoremap X <C-L><C-D>
```

(Where X is the command key to use, <C-L> is CTRL-L and <C-D> is CTRL-D) This will find the longest match and then list all matching files.

If you like tcsh's autolist completion, you can use the 'wildmode' option to emulate it. For example, this mimics autolist=ambiguous:

```
:set wildmode=longest,list
```

This will find the longest match with the first 'wildchar', then list all matching files with the next.

suffixes

For file name completion you can use the 'suffixes' option to set a priority between files with almost the same name. If there are multiple matches, those files with an extension that is in the 'suffixes' option are ignored. The default is ".bak,~,.o,.h,.info,.swp,.obj", which means that files ending in ".bak", "~", ".o", ".h", ".info", ".swp" and ".obj" are sometimes ignored.

An empty entry, two consecutive commas, match a file name that does not
contain a ".", thus has no suffix. This is useful to ignore "prog" and prefer
"prog.c".

Examples:

```
  pattern:      files:                      match:
   test*        test.c test.h test.o        test.c
   test*        test.h test.o               test.h and test.o
   test*        test.i test.h test.c        test.i and test.c
```

It is impossible to ignore suffixes with two dots.

If there is more than one matching file (after ignoring the ones matching
the 'suffixes' option) the first file name is inserted. You can see that
there is only one match when you type 'wildchar' twice and the completed
match stays the same. You can get to the other matches by entering
'wildchar', CTRL-N or CTRL-P. All files are included, also the ones with
extensions matching the 'suffixes' option.

To completely ignore files with some extension use 'wildignore'.

To match only files that end at the end of the typed text append a "$". For
example, to match only files that end in ".c":

```
        :e *.c$
```

This will not match a file ending in ".cpp". Without the "$" it does match.

The old value of an option can be obtained by hitting 'wildchar' just after
the '='. For example, typing 'wildchar' after ":set dir=" will insert the
current value of 'dir'. This overrules file name completion for the options
that take a file name.

If you would like using <S-Tab> for CTRL-P in an xterm, put this command in
your .cshrc:

```
        xmodmap -e "keysym Tab = Tab Find"
```

And this in your .vimrc:

```
        :cmap <Esc>[1~ <C-P>
```

==
3. Ex command-lines   cmdline-lines

The Ex commands have a few specialties:

                                                        :quote   :comment
'"' at the start of a line causes the whole line to be ignored. '"'
after a command causes the rest of the line to be ignored. This can be used
to add comments. Example:

```
        :set ai         "set 'autoindent' option
```

It is not possible to add a comment to a shell command ":!cmd" or to the
":map" command and a few others, because they see the '"' as part of their
argument. This is mentioned where the command is explained.

                                                        :bar   :\bar

'|' can be used to separate commands, so you can give multiple commands in one
line. If you want to use '|' in an argument, precede it with '\'.

These commands see the '|' as their argument, and can therefore not be
followed by another Vim command:
    :argdo
    :autocmd
    :bufdo
    :cdo
    :cfdo
    :command
    :cscope
    :debug
    :folddoopen
    :folddoclosed
    :function
    :global
    :help
    :helpfind
    :lcscope
    :ldo
    :lfdo
    :make
    :normal
    :perl
    :perldo
    :promptfind
    :promptrepl
    :pyfile
    :python
    :registers
    :read !
    :scscope
    :sign
    :tcl
    :tcldo
    :tclfile
    :vglobal
    :windo
    :write !
    :[range]!
    a user defined command without the "-bar" argument :command

Note that this is confusing (inherited from Vi): With ":g" the '|' is included
in the command, with ":s" it is not.

To be able to use another command anyway, use the ":execute" command.
Example (append the output of "ls" and jump to the first line):
        :execute 'r !ls' | '[

There is one exception: When the 'b' flag is present in 'cpoptions', with the
":map" and ":abbr" commands and friends CTRL-V needs to be used instead of
'\'. You can also use "<Bar>" instead. See also map_bar .

Examples:

```
        :!ls | wc               view the output of two commands
        :r !ls | wc             insert the same output in the text
        :%g/foo/p|>             moves all matching lines one shiftwidth
        :%s/foo/bar/|>          moves one line one shiftwidth
        :map q 10^V|            map "q" to "10|"
        :map q 10\| map \ l     map "q" to "10\" and map "\" to "l"
                                        (when 'b' is present in 'cpoptions')
```

You can also use <NL> to separate commands in the same way as with '|'. To insert a <NL> use CTRL-V CTRL-J. "^@" will be shown. Using '|' is the preferred method. But for external commands a <NL> must be used, because a '|' is included in the external command. To avoid the special meaning of <NL> it must be preceded with a backslash. Example:

```
        :r !date<NL>-join
```

This reads the current date into the file and joins it with the previous line.

Note that when the command before the '|' generates an error, the following commands will not be executed.

Because of Vi compatibility the following strange commands are supported:

```
        :|                      print current line (like ":p")
        :3|                     print line 3 (like ":3p")
        :3                      goto line 3
```

A colon is allowed between the range and the command name. It is ignored (this is Vi compatible). For example:

```
        :1,$:s/pat/string
```

When the character '%' or '#' is used where a file name is expected, they are expanded to the current and alternate file name (see the chapter "editing files" :_% :_#).

Embedded spaces in file names are allowed on the Amiga if one file name is expected as argument. Trailing spaces will be ignored, unless escaped with a backslash or CTRL-V. Note that the ":next" command uses spaces to separate file names. Escape the spaces to include them in a file name. Example:

```
        :next foo\ bar goes\ to school\
```

starts editing the three files "foo bar", "goes to" and "school ".

When you want to use the special characters '"' or '|' in a command, or want to use '%' or '#' in a file name, precede them with a backslash. The backslash is not required in a range and in the ":substitute" command. See also `= .

:_!

The '!' (bang) character after an Ex command makes the command behave in a different way. The '!' should be placed immediately after the command, without any blanks in between. If you insert blanks the '!' will be seen as an argument for the command, which has a different meaning. For example:

```
        :w! name        write the current buffer to file "name", overwriting
                        any existing file
        :w !name        send the current buffer as standard input to command
```

"name"

==
4. Ex command-line ranges		cmdline-ranges	[range]	E16

Some Ex commands accept a line range in front of them. This is noted as
[range]. It consists of one or more line specifiers, separated with ',' or
';'.

The basics are explained in section 10.3 of the user manual.

:,	:;
When separated with ';' the cursor position will be set to that line
before interpreting the next line specifier. This doesn't happen for ','.
Examples:
   4,/this line/
	from line 4 till match with "this line" after the cursor line.
   5;/that line/
	from line 5 till match with "that line" after line 5.

The default line specifier for most commands is the cursor position, but the
commands ":write" and ":global" have the whole file (1,$) as default.

If more line specifiers are given than required for the command, the first
one(s) will be ignored.

Line numbers may be specified with:		:range	E14	{address}
	{number}	an absolute line number
	.		the current line			:.
	$		the last line in the file		:$
	%		equal to 1,$ (the entire file)		:%
	't		position of mark t (lowercase)		:'
	'T		position of mark T (uppercase); when the mark is in
			another file it cannot be used in a range
	/{pattern}[/]	the next line where {pattern} matches	:/
	?{pattern}[?]	the previous line where {pattern} matches	:?
	\/		the next line where the previously used search
			pattern matches
	\?		the previous line where the previously used search
			pattern matches
	\&		the next line where the previously used substitute
			pattern matches

Each may be followed (several times) by '+' or '-' and an optional number.
This number is added or subtracted from the preceding line number. If the
number is omitted, 1 is used.

The "/" and "?" after {pattern} are required to separate the pattern from
anything that follows.

The "/" and "?" may be preceded with another address. The search starts from
there. The difference from using ';' is that the cursor isn't moved.
Examples:
	/pat1//pat2/	Find line containing "pat2" after line containing

```
                        "pat1", without moving the cursor.
        7;/pat2/        Find line containing "pat2", after line 7, leaving
                        the cursor in line 7.
```

The {number} must be between 0 and the number of lines in the file. When using a 0 (zero) this is interpreted as a 1 by most commands. Commands that use it as a count do use it as a zero (:tag , :pop , etc). Some commands interpret the zero as "before the first line" (:read , search pattern, etc).

Examples:

```
        .+3             three lines below the cursor
        /that/+1        the line below the next line containing "that"
        .,$             from current line until end of file
        0;/that         the first line containing "that", also matches in the
                        first line.
        1;/that         the first line after line 1 containing "that"
```

Some commands allow for a count after the command. This count is used as the number of lines to be used, starting with the line given in the last line specifier (the default is the cursor line). The commands that accept a count are the ones that use a range but do not have a file name argument (because a file name can also be a number).

Examples:

```
        :s/x/X/g 5      substitute 'x' by 'X' in the current line and four
                        following lines
        :23d 4          delete lines 23, 24, 25 and 26
```

Folds and Range

When folds are active the line numbers are rounded off to include the whole closed fold. See fold-behavior .

Reverse Range E493

A range should have the lower line number first. If this is not the case, Vim will ask you if it should swap the line numbers.

```
        Backwards range given, OK to swap
```

This is not done within the global command ":g".

You can use ":silent" before a command to avoid the question, the range will always be swapped then.

Count and Range N:

When giving a count before entering ":", this is translated into:

```
                :.,.+(count - 1)
```

In words: The 'count' lines at and after the cursor. Example: To delete three lines:

```
                3:d<CR>         is translated into: .,.+2d<CR>
```

Visual Mode and Range v_:

{Visual}: Starts a command-line with the Visual selected lines as a range. The code `:'<,'>` is used for this range, which makes it possible to select a similar line from the command-line history for repeating a command on different Visually selected lines.
When Visual mode was already ended, a short way to use the Visual area for a range is `:*`. This requires that "*" does not appear in 'cpo', see cpo-star . Otherwise you will have to type `:'<,'>`

==
5. Ex command-line flags ex-flags

These flags are supported by a selection of Ex commands. They print the line that the cursor ends up after executing the command:

l output like for :list
add line number
p output like for :print

The flags can be combined, thus "l#" uses both a line number and :list style output.

==
6. Ex special characters cmdline-special

Note: These are special characters in the executed command line. If you want to insert special things while typing you can use the CTRL-R command. For example, "%" stands for the current file name, while CTRL-R % inserts the current file name right away. See c_CTRL-R .

Note: If you want to avoid the effects of special characters in a Vim script you may want to use fnameescape() . Also see `= .

In Ex commands, at places where a file name can be used, the following characters have a special meaning. These can also be used in the expression function expand() .

% Is replaced with the current file name. :_% c_%
# Is replaced with the alternate file name. :_# c_#
This is remembered for every window.
#n (where n is a number) is replaced with :_#0 :_#n
the file name of buffer n. "#0" is the same as "#". c_#n
Is replaced with all names in the argument list :_## c_##
concatenated, separated by spaces. Each space in a name
is preceded with a backslash.
#<n (where n is a number > 0) is replaced with old :_#< c_#<
file name n. See :oldfiles or v:oldfiles to get the
number. E809
{only when compiled with the |+eval| and |+viminfo| features}

Note that these, except "#<n", give the file name as it was typed. If an absolute path is needed (when using the file name from a different directory), you need to add ":p". See filename-modifiers .

The "#<n" item returns an absolute path, but it will start with "~/" for files below your home directory.

Note that backslashes are inserted before spaces, so that the command will correctly interpret the file name. But this doesn't happen for shell commands. For those you probably have to use quotes (this fails for files that contain a quote and wildcards):

```
:!ls "%"
:r !spell "%"
```

To avoid the special meaning of '%' and '#' insert a backslash before it. Detail: The special meaning is always escaped when there is a backslash before it, no matter how many backslashes.

you type:	result
#	alternate.file
\#	#
\\#	\#

Also see `= .

:<cword> :<cWORD> :<cfile> <cfile>
:<sfile> <sfile> :<afile> <afile>
:<abuf> <abuf> :<amatch> <amatch>
:<cexpr> <cexpr>
<slnum> E495 E496 E497 E499 E500

Note: these are typed literally, they are not special keys!

- <cword> is replaced with the word under the cursor (like star)
- <cWORD> is replaced with the WORD under the cursor (see WORD)
- <cexpr> is replaced with the word under the cursor, including more to form a C expression. E.g., when the cursor is on "arg" of "ptr->arg" then the result is "ptr->arg"; when the cursor is on "]" of "list[idx]" then the result is "list[idx]". This is used for v:beval_text .
- <cfile> is replaced with the path name under the cursor (like what gf uses)
- <afile> When executing autocommands, is replaced with the file name of the buffer being manipulated, or the file for a read or write.
- <abuf> When executing autocommands, is replaced with the currently effective buffer number (for ":r file" and ":so file" it is the current buffer, the file being read/sourced is not in a buffer).
- <amatch> When executing autocommands, is replaced with the match for which this autocommand was executed. It differs from <afile> only when the file name isn't used to match with (for FileType, Syntax and SpellFileMissing events).
- <sfile> When executing a ":source" command, is replaced with the file name of the sourced file. E498
  When executing a function, is replaced with:
  "function {function-name}[{lnum}]"

function call nesting is indicated like this:
"function {function-name1}[{lnum}]..{function-name2}[{lnum}]"
Note that filename-modifiers are useless when <sfile> is
used inside a function.

<slnum> When executing a ":source" command, is replaced with the line number. E842
When executing a function it's the line number relative to the start of the function.

filename-modifiers

:_%: ::8 ::p ::. ::~ ::h ::t ::r ::e ::s ::gs ::S
%:8 %:p %:. %:~ %:h %:t %:r %:e %:s %:gs %:S

The file name modifiers can be used after "%", "#", "#n", "<cfile>", "<sfile>", "<afile>" or "<abuf>". They are also used with the fnamemodify() function. These are not available when Vim has been compiled without the +modify_fname feature.
These modifiers can be given, in this order:

:p Make file name a full path. Must be the first modifier. Also changes "~/" (and "~user/" for Unix and VMS) to the path for the home directory. If the name is a directory a path separator is added at the end. For a file name that does not exist and does not have an absolute path the result is unpredictable. On MS-Windows an 8.3 filename is expanded to the long name.

:8 Converts the path to 8.3 short format (currently only on MS-Windows). Will act on as much of a path that is an existing path.

:~ Reduce file name to be relative to the home directory, if possible. File name is unmodified if it is not below the home directory.

:. Reduce file name to be relative to current directory, if possible. File name is unmodified if it is not below the current directory, but on MS-Windows the drive is removed if it is the current drive.
For maximum shortness, use ":~:.".

:h Head of the file name (the last component and any separators removed). Cannot be used with :e, :r or :t.
Can be repeated to remove several components at the end.
When the file name ends in a path separator, only the path separator is removed. Thus ":p:h" on a directory name results on the directory name itself (without trailing slash).
When the file name is an absolute path (starts with "/" for Unix; "x:\" for MS-DOS, WIN32, OS/2; "drive:" for Amiga), that part is not removed. When there is no head (path is relative to current directory) the result is empty.

:t Tail of the file name (last component of the name). Must precede any :r or :e.

:r Root of the file name (the last extension removed). When there is only an extension (file name that starts with '.', e.g., ".vimrc"), it is not removed. Can be repeated to remove several extensions (last one first).

:e Extension of the file name. Only makes sense when used alone.
When there is no extension the result is empty.
When there is only an extension (file name that starts with

'.'), the result is empty. Can be repeated to include more
extensions. If there are not enough extensions (but at least
one) as much as possible are included.
:s?pat?sub?
Substitute the first occurrence of "pat" with "sub". This
works like the :s command. "pat" is a regular expression.
Any character can be used for '?', but it must not occur in
"pat" or "sub".
After this, the previous modifiers can be used again. For
example ":p", to make a full path after the substitution.
:gs?pat?sub?
Substitute all occurrences of "pat" with "sub". Otherwise
this works like ":s".
:S Escape special characters for use with a shell command (see
shellescape()). Must be the last one. Examples:
:!dir <cfile>:S
:call system('chmod +w -- ' . expand('%:S'))

Examples, when the file name is "src/version.c", current dir
"/home/mool/vim":
:p /home/mool/vim/src/version.c
:p:. src/version.c
:p:~ ~/vim/src/version.c
:h src
:p:h /home/mool/vim/src
:p:h:h /home/mool/vim
:t version.c
:p:t version.c
:r src/version
:p:r /home/mool/vim/src/version
:t:r version
:e c
:s?version?main? src/main.c
:s?version?main?:p /home/mool/vim/src/main.c
:p:gs?/?\\? \home\mool\vim\src\version.c

Examples, when the file name is "src/version.c.gz":
:p /home/mool/vim/src/version.c.gz
:e gz
:e:e c.gz
:e:e:e c.gz
:e:e:r c
:r src/version.c
:r:e c
:r:r src/version
:r:r:r src/version

extension-removal :_%<
If a "<" is appended to "%", "#", "#n" or "CTRL-V p" the extension of the file
name is removed (everything after and including the last '.' in the file
name). This is included for backwards compatibility with version 3.0, the
":r" form is preferred. Examples:

% current file name

```
        %<              current file name without extension
        #               alternate file name for current window
        #<              idem, without extension
        #31             alternate file number 31
        #31<            idem, without extension
        <cword>         word under the cursor
        <cWORD>         WORD under the cursor (see |WORD|)
        <cfile>         path name under the cursor
        <cfile><        idem, without extension

Note: Where a file name is expected wildcards expansion is done.  On Unix the
shell is used for this, unless it can be done internally (for speed).
Unless in  restricted-mode , backticks work also, like in
        :n `echo *.c`
But expansion is only done if there are any wildcards before expanding the
'%', '#', etc..  This avoids expanding wildcards inside a file name.  If you
want to expand the result of <cfile>, add a wildcard character to it.
Examples: (alternate file name is "?readme?")
        command         expands to
        :e #            :e ?readme?
        :e `ls #`       :e {files matching "?readme?"}
        :e #.*          :e {files matching "?readme?.*"}
        :cd <cfile>     :cd {file name under cursor}
        :cd <cfile>*    :cd {file name under cursor plus "*" and then expanded}
Also see  `= .

When the expanded argument contains a "!" and it is used for a shell command
(":!cmd", ":r !cmd" or ":w !cmd"), the "!" is escaped with a backslash to
avoid it being expanded into a previously used command.  When the 'shell'
option contains "sh", this is done twice, to avoid the shell trying to expand
the "!".

                                                        filename-backslash
For filesystems that use a backslash as directory separator (MS-DOS, Windows,
OS/2), it's a bit difficult to recognize a backslash that is used to escape
the special meaning of the next character.  The general rule is: If the
backslash is followed by a normal file name character, it does not have a
special meaning.  Therefore "\file\foo" is a valid file name, you don't have
to type the backslash twice.

An exception is the '$' sign.  It is a valid character in a file name.  But
to avoid a file name like "$home" to be interpreted as an environment variable,
it needs to be preceded by a backslash.  Therefore you need to use "/\$home"
for the file "$home" in the root directory.  A few examples:

        FILE NAME       INTERPRETED AS
        $home           expanded to value of environment var $home
        \$home          file "$home" in current directory
        /\$home         file "$home" in root directory
        \\$home         file "\\", followed by expanded $home

Also see  `= .

==============================================================================
```

7. Command-line window cmdline-window cmdwin command-line-window

In the command-line window the command line can be edited just like editing text in any window. It is a special kind of window, because you cannot leave it in a normal way.
{not available when compiled without the +cmdline_hist or +vertsplit feature}

OPEN c_CTRL-F q: q/ q?

There are two ways to open the command-line window:
1. From Command-line mode, use the key specified with the 'cedit' option. The default is CTRL-F when 'compatible' is not set.
2. From Normal mode, use the "q:", "q/" or "q?" command. This starts editing an Ex command-line ("q:") or search string ("q/" or "q?"). Note that this is not possible while recording is in progress (the "q" stops recording then).

When the window opens it is filled with the command-line history. The last line contains the command as typed so far. The left column will show a character that indicates the type of command-line being edited, see cmdwin-char .

Vim will be in Normal mode when the editor is opened, except when 'insertmode' is set.

The height of the window is specified with 'cmdwinheight' (or smaller if there is no room). The window is always full width and is positioned just above the command-line.

EDIT

You can now use commands to move around and edit the text in the window. Both in Normal mode and Insert mode.

It is possible to use ":", "/" and other commands that use the command-line, but it's not possible to open another command-line window then. There is no nesting. E11
The command-line window is not a normal window. It is not possible to move to another window or edit another buffer. All commands that would do this are disabled in the command-line window. Of course it _is_ possible to execute any command that you entered in the command-line window. Other text edits are discarded when closing the window.

CLOSE E199

There are several ways to leave the command-line window:

<CR> Execute the command-line under the cursor. Works both in Insert and in Normal mode.

CTRL-C   Continue in Command-line mode. The command-line under the
                cursor is used as the command-line. Works both in Insert and
                in Normal mode. There is no redraw, thus the window will
                remain visible.
:quit   Discard the command line and go back to Normal mode.
                ":close", ":exit", ":xit" and CTRL-\ CTRL-N also work.
:qall   Quit Vim, unless there are changes in some buffer.
:qall!   Quit Vim, discarding changes to any buffer.

Once the command-line window is closed the old window sizes are restored. The
executed command applies to the window and buffer where the command-line was
started from. This works as if the command-line window was not there, except
that there will be an extra screen redraw.
The buffer used for the command-line window is deleted. Any changes to lines
other than the one that is executed with <CR> are lost.

If you would like to execute the command under the cursor and then have the
command-line window open again, you may find this mapping useful:

        :autocmd CmdwinEnter * map <buffer> <F5> <CR>q:

VARIOUS

The command-line window cannot be used:
- when there already is a command-line window (no nesting)
- for entering an encryption key or when using inputsecret()
- when Vim was not compiled with the +vertsplit feature

Some options are set when the command-line window is opened:
'filetype'   "vim", when editing an Ex command-line; this starts Vim syntax
                highlighting if it was enabled
'rightleft'   off
'modifiable'   on
'buftype'   "nofile"
'swapfile'   off

It is allowed to write the buffer contents to a file. This is an easy way to
save the command-line history and read it back later.

If the 'wildchar' option is set to <Tab>, and the command-line window is used
for an Ex command, then two mappings will be added to use <Tab> for completion
in the command-line window, like this:
        :imap <buffer> <Tab> <C-X><C-V>
        :nmap <buffer> <Tab> a<C-X><C-V>
Note that hitting <Tab> in Normal mode will do completion on the next
character. That way it works at the end of the line.
If you don't want these mappings, disable them with:
        au CmdwinEnter [:>] iunmap <Tab>
        au CmdwinEnter [:>] nunmap <Tab>
You could put these lines in your vimrc file.

While in the command-line window you cannot use the mouse to put the cursor in
another window, or drag statuslines of other windows. You can drag the

statusline of the command-line window itself and the statusline above it.
Thus you can resize the command-line window, but not others.

The getcmdwintype() function returns the type of the command-line being edited as described in cmdwin-char .

AUTOCOMMANDS

Two autocommand events are used: CmdwinEnter and CmdwinLeave . Since this window is of a special type, the WinEnter, WinLeave, BufEnter and BufLeave events are not triggered. You can use the Cmdwin events to do settings specifically for the command-line window. Be careful not to cause side effects!
Example:

```
:au CmdwinEnter :  let b:cpt_save = &cpt | set cpt=.
:au CmdwinLeave :  let &cpt = b:cpt_save
```

This sets 'complete' to use completion in the current window for i_CTRL-N .
Another example:

```
:au CmdwinEnter [/?]  startinsert
```

This will make Vim start in Insert mode in the command-line window.

cmdwin-char
The character used for the pattern indicates the type of command-line:

```
:       normal Ex command
>       debug mode command  debug-mode
/       forward search string
?       backward search string
=       expression for "=  expr-register
@       string for  input()
-       text for  :insert  or  :append
```

vim:tw=78:ts=8:noet:ft=help:norl:

VIM REFERENCE MANUAL by Bram Moolenaar

Options options

1. Setting options set-option
2. Automatically setting options auto-setting
3. Options summary option-summary

For an overview of options see quickref.txt option-list .

Vim has a number of internal variables and switches which can be set to
achieve special effects. These options come in three forms:
        boolean   can only be on or off boolean toggle
        number   has a numeric value
        string   has a string value

==========
1. Setting options set-option E764

:se :set
:se[t] Show all options that differ from their default value.

:se[t] all Show all but terminal options.

:se[t] termcap Show all terminal options. Note that in the GUI the
key codes are not shown, because they are generated
internally and can't be changed. Changing the terminal
codes in the GUI is not useful either...

E518 E519
:se[t] {option}? Show value of {option}.

:se[t] {option} Toggle option: set, switch it on.
Number option: show value.
String option: show value.

:se[t] no{option} Toggle option: Reset, switch it off.

:set-! :set-inv
:se[t] {option}! or
:se[t] inv{option} Toggle option: Invert value. {not in Vi}

:set-default :set-& :set-&vi :set-&vim
:se[t] {option}& Reset option to its default value. May depend on the
current value of 'compatible'. {not in Vi}
:se[t] {option}&vi Reset option to its Vi default value. {not in Vi}
:se[t] {option}&vim Reset option to its Vim default value. {not in Vi}

:se[t] all& Set all options to their default value. The values of
these options are not changed:

all terminal options, starting with t_
'columns'
'cryptmethod'
'encoding'
'key'
'lines'
'term'
'ttymouse'
'ttytype'
Warning: This may have a lot of side effects.
{not in Vi}

:set-args E487 E521

:se[t] {option}={value} or
:se[t] {option}:{value}
Set string or number option to {value}.
For numeric options the value can be given in decimal, hex (preceded with 0x) or octal (preceded with '0'). The old value can be inserted by typing 'wildchar' (by default this is a <Tab> or CTRL-E if 'compatible' is set). See cmdline-completion .
White space between {option} and '=' is allowed and will be ignored. White space between '=' and {value} is not allowed.
See option-backslash for using white space and backslashes in {value}.

:se[t] {option}+={value} :set+=
Add the {value} to a number option, or append the {value} to a string option. When the option is a comma separated list, a comma is added, unless the value was empty.
If the option is a list of flags, superfluous flags are removed. When adding a flag that was already present the option value doesn't change.
Also see :set-args above.
{not in Vi}

:se[t] {option}^={value} :set^=
Multiply the {value} to a number option, or prepend the {value} to a string option. When the option is a comma separated list, a comma is added, unless the value was empty.
Also see :set-args above.
{not in Vi}

:se[t] {option}-={value} :set-=
Subtract the {value} from a number option, or remove the {value} from a string option, if it is there.
If the {value} is not found in a string option, there is no error or warning. When the option is a comma separated list, a comma is deleted, unless the option becomes empty.
When the option is a list of flags, {value} must be

exactly as they appear in the option. Remove flags
one by one to avoid problems.
Also see :set-args above.
{not in Vi}

The {option} arguments to ":set" may be repeated. For example:
	:set ai nosi sw=3 ts=3
If you make an error in one of the arguments, an error message will be given
and the following arguments will be ignored.

:set-verbose
When 'verbose' is non-zero, displaying an option value will also tell where it
was last set. Example:
	:verbose set shiftwidth cindent?
	 shiftwidth=4
		Last set from modeline
	  cindent
		Last set from /usr/local/share/vim/vim60/ftplugin/c.vim
This is only done when specific option values are requested, not for ":verbose
set all" or ":verbose set" without an argument.
When the option was set by hand there is no "Last set" message.
When the option was set while executing a function, user command or
autocommand, the script in which it was defined is reported.
Note that an option may also have been set as a side effect of setting
'compatible'.
A few special texts:
	Last set from modeline
		Option was set in a modeline .
	Last set from --cmd argument
		Option was set with command line argument --cmd or +.
	Last set from -c argument
		Option was set with command line argument -c , +, -S or
		 -q .
	Last set from environment variable
		Option was set from an environment variable, $VIMINIT,
		$GVIMINIT or $EXINIT.
	Last set from error handler
		Option was cleared when evaluating it resulted in an error.

{not available when compiled without the |+eval| feature}

:set-termcap E522
For {option} the form "t_xx" may be used to set a terminal option. This will
override the value from the termcap. You can then use it in a mapping. If
the "xx" part contains special characters, use the <t_xx> form:
	:set <t_#4>=^[Ot
This can also be used to translate a special code for a normal key. For
example, if Alt-b produces <Esc>b, use this:
	:set <M-b>=^[b
(the ^[is a real <Esc> here, use CTRL-V <Esc> to enter it)
The advantage over a mapping is that it works in all situations.

You can define any key codes, e.g.:
	:set t_xy=^[foo;

There is no warning for using a name that isn't recognized. You can map these codes as you like:
```
:map <t_xy> something
```
E846
When a key code is not set, it's like it does not exist. Trying to get its value will result in an error:
```
:set t_kb=
:set t_kb
E846: Key code not set: t_kb
```

The t_xx options cannot be set from a modeline or in the sandbox, for security reasons.

The listing from ":set" looks different from Vi. Long string options are put at the end of the list. The number of options is quite large. The output of "set all" probably does not fit on the screen, causing Vim to give the more-prompt.

option-backslash
To include white space in a string option value it has to be preceded with a backslash. To include a backslash you have to use two. Effectively this means that the number of backslashes in an option value is halved (rounded down).
A few examples:
```
:set tags=tags\ /usr/tags        results in "tags /usr/tags"
:set tags=tags\\,file            results in "tags\,file"
:set tags=tags\\\ file           results in "tags\ file"
```

The "|" character separates a ":set" command from a following command. To include the "|" in the option value, use "\|" instead. This example sets the 'titlestring' option to "hi|there":
```
:set titlestring=hi\|there
```
This sets the 'titlestring' option to "hi" and 'iconstring' to "there":
```
:set titlestring=hi|set iconstring=there
```

Similarly, the double quote character starts a comment. To include the '"' in the option value, use '\"' instead. This example sets the 'titlestring' option to 'hi "there"':
```
:set titlestring=hi\ \"there\"
```

For MS-DOS and WIN32 backslashes in file names are mostly not removed. More precise: For options that expect a file name (those where environment variables are expanded) a backslash before a normal file name character is not removed. But a backslash before a special character (space, backslash, comma, etc.) is used like explained above.
There is one special situation, when the value starts with "\\":
```
:set dir=\\machine\path          results in "\\machine\path"
:set dir=\\\\machine\\path       results in "\\machine\path"
:set dir=\\path\\file            results in "\\path\file" (wrong!)
```
For the first one the start is kept, but for the second one the backslashes are halved. This makes sure it works both when you expect backslashes to be halved and when you expect the backslashes to be kept. The third gives a result which is probably not what you want. Avoid it.

add-option-flags remove-option-flags
E539 E550 E551 E552

Some options are a list of flags. When you want to add a flag to such an option, without changing the existing ones, you can do it like this:

```
:set guioptions+=a
```

Remove a flag from an option like this:

```
:set guioptions-=a
```

This removes the 'a' flag from 'guioptions'.
Note that you should add or remove one flag at a time. If 'guioptions' has the value "ab", using "set guioptions-=ba" won't work, because the string "ba" doesn't appear.

:set_env expand-env expand-environment-var

Environment variables in specific string options will be expanded. If the environment variable exists the '$' and the following environment variable name is replaced with its value. If it does not exist the '$' and the name are not modified. Any non-id character (not a letter, digit or '_') may follow the environment variable name. That character and what follows is appended to the value of the environment variable. Examples:

```
:set term=$TERM.new
:set path=/usr/$INCLUDE,$HOME/include,.
```

When adding or removing a string from an option with ":set opt-=val" or ":set opt+=val" the expansion is done before the adding or removing.

Handling of local options local-options

Some of the options only apply to a window or buffer. Each window or buffer has its own copy of this option, thus each can have its own value. This allows you to set 'list' in one window but not in another. And set 'shiftwidth' to 3 in one buffer and 4 in another.

The following explains what happens to these local options in specific situations. You don't really need to know all of this, since Vim mostly uses the option values you would expect. Unfortunately, doing what the user expects is a bit complicated...

When splitting a window, the local options are copied to the new window. Thus right after the split the contents of the two windows look the same.

When editing a new buffer, its local option values must be initialized. Since the local options of the current buffer might be specifically for that buffer, these are not used. Instead, for each buffer-local option there also is a global value, which is used for new buffers. With ":set" both the local and global value is changed. With "setlocal" only the local value is changed, thus this value is not used when editing a new buffer.

When editing a buffer that has been edited before, the options from the window that was last closed are used again. If this buffer has been edited in this window, the values from back then are used. Otherwise the values from the last closed window where the buffer was edited last are used.

It's possible to set a local window option specifically for a type of buffer. When you edit another buffer in the same window, you don't want to keep

using these local window options. Therefore Vim keeps a global value of the local window options, which is used when editing another buffer. Each window has its own copy of these values. Thus these are local to the window, but global to all buffers in the window. With this you can do:

```
:e one
:set list
:e two
```

Now the 'list' option will also be set in "two", since with the ":set list" command you have also set the global value.

```
:set nolist
:e one
:setlocal list
:e two
```

Now the 'list' option is not set, because ":set nolist" resets the global value, ":setlocal list" only changes the local value and ":e two" gets the global value. Note that if you do this next:

```
:e one
```

You will get back the 'list' value as it was the last time you edited "one". The options local to a window are remembered for each buffer. This also happens when the buffer is not loaded, but they are lost when the buffer is wiped out :bwipe .

:setl :setlocal

:setl[ocal] ... Like ":set" but set only the value local to the current buffer or window. Not all options have a local value. If the option does not have a local value the global value is set.
With the "all" argument: display local values for all local options.
Without argument: Display local values for all local options which are different from the default.
When displaying a specific local option, show the local value. For a global/local boolean option, when the global value is being used, "--" is displayed before the option name.
For a global option the global value is shown (but that might change in the future).
{not in Vi}

:setl[ocal] {option}< Set the local value of {option} to its global value by copying the value.
{not in Vi}

:se[t] {option}< For global-local options: Remove the local value of {option}, so that the global value will be used.
{not in Vi}

:setg :setglobal

:setg[lobal] ... Like ":set" but set only the global value for a local option without changing the local value.
When displaying an option, the global value is shown.
With the "all" argument: display global values for all local options.
Without argument: display global values for all local

options which are different from the default.
{not in Vi}

For buffer-local and window-local options:

Command	global value	local value
:set option=value	set	set
:setlocal option=value	-	set
:setglobal option=value	set	-
:set option?	-	display
:setlocal option?	-	display
:setglobal option?	display	-

Global options with a local value global-local

Options are global when you mostly use one value for all buffers and windows.
For some global options it's useful to sometimes have a different local value.
You can set the local value with ":setlocal". That buffer or window will then
use the local value, while other buffers and windows continue using the global
value.

For example, you have two windows, both on C source code. They use the global
'makeprg' option. If you do this in one of the two windows:
:set makeprg=gmake
then the other window will switch to the same value. There is no need to set
the 'makeprg' option in the other C source window too.
However, if you start editing a Perl file in a new window, you want to use
another 'makeprg' for it, without changing the value used for the C source
files. You use this command:
:setlocal makeprg=perlmake
You can switch back to using the global value by making the local value empty:
:setlocal makeprg=
This only works for a string option. For a boolean option you need to use the
"<" flag, like this:
:setlocal autoread<
Note that for non-boolean options using "<" copies the global value to the
local value, it doesn't switch back to using the global value (that matters
when the global value changes later). You can also use:
:set path<
This will make the local value of 'path' empty, so that the global value is
used. Thus it does the same as:
:setlocal path=
Note: In the future more global options can be made global-local. Using
":setlocal" on a global option might work differently then.

Setting the filetype

:setf[iletype] [FALLBACK] {filetype} :setf :setfiletype
Set the 'filetype' option to {filetype}, but only if
not done yet in a sequence of (nested) autocommands.
This is short for:
```
:if !did_filetype()
:  setlocal filetype={filetype}
```

```
                        :endif
                    This command is used in a filetype.vim file to avoid
                     setting the 'filetype' option twice, causing different
                     settings and syntax files to be loaded.

                     When the optional FALLBACK argument is present, a
                     later :setfiletype command will override the
                     'filetype'.  This is to used for filetype detections
                     that are just a guess.   did_filetype()  will return
                     false after this command.

                     {not in Vi}

                              option-window   optwin
:bro[wse] se[t]               :set-browse   :browse-set   :opt   :options
:opt[ions]           Open a window for viewing and setting all options.
                     Options are grouped by function.
                     Offers short help for each option.  Hit <CR> on the
                     short help to open a help window with more help for
                     the option.
                     Modify the value of the option and hit <CR> on the
                     "set" line to set the new value.  For window and
                     buffer specific options, the last accessed window is
                     used to set the option value in, unless this is a help
                     window, in which case the window below help window is
                     used (skipping the option-window).
                     {not available when compiled without the  +eval
                     feature}

                                                                  $HOME
Using "~" is like using "$HOME", but it is only recognized at the start of an
option and after a space or comma.

On Unix systems "~user" can be used too.  It is replaced by the home directory
of user "user".  Example:
    :set path=~mool/include,/usr/include,.

On Unix systems the form "${HOME}" can be used too.  The name between {} can
contain non-id characters then.  Note that if you want to use this for the
"gf" command, you need to add the '{' and '}' characters to 'isfname'.

NOTE: expanding environment variables and "~/" is only done with the ":set"
command, not when assigning a value to an option with ":let".

                                                        $HOME-windows
On MS-Windows, if $HOME is not defined as an environment variable, then
at runtime Vim will set it to the expansion of $HOMEDRIVE$HOMEPATH.
If $HOMEDRIVE is not set then $USERPROFILE is used.

This expanded value is not exported to the environment, this matters when
running an external command:
        :echo system('set | findstr ^HOME=')
and
        :echo luaeval('os.getenv("HOME")')
```

should echo nothing (an empty string) despite exists('$HOME') being true.
When setting $HOME to a non-empty string it will be exported to the
subprocesses.

Note the maximum length of an expanded option is limited. How much depends on
the system, mostly it is something like 256 or 1024 characters.

:fix[del] :fix :fixdel

:fix[del] Set the value of 't_kD':

't_kb' is	't_kD' becomes
CTRL-?	CTRL-H
not CTRL-?	CTRL-?

(CTRL-? is 0177 octal, 0x7f hex) {not in Vi}

If your delete key terminal code is wrong, but the code for backspace is alright, you can put this in your .vimrc:

```
:fixdel
```

This works no matter what the actual code for backspace is.

If the backspace key terminal code is wrong you can use this:

```
:if &term == "termname"
:  set t_kb=^V<BS>
:  fixdel
:endif
```

Where "^V" is CTRL-V and "<BS>" is the backspace key (don't type four characters!). Replace "termname" with your terminal name.

If your <Delete> key sends a strange key sequence (not CTRL-? or CTRL-H) you cannot use ":fixdel". Then use:

```
:if &term == "termname"
:  set t_kD=^V<Delete>
:endif
```

Where "^V" is CTRL-V and "<Delete>" is the delete key (don't type eight characters!). Replace "termname" with your terminal name.

Linux-backspace

Note about Linux: By default the backspace key produces CTRL-?, which is wrong. You can fix it by putting this line in your rc.local:

```
echo "keycode 14 = BackSpace" | loadkeys
```

NetBSD-backspace

Note about NetBSD: If your backspace doesn't produce the right code, try this:

```
xmodmap -e "keycode 22 = BackSpace"
```

If this works, add this in your .Xmodmap file:

```
keysym 22 = BackSpace
```

You need to restart for this to take effect.

==
2. Automatically setting options   auto-setting

Besides changing options with the ":set" command, there are three alternatives
to set options automatically for one or more files:

1. When starting Vim initializations are read from various places. See
    initialization . Most of them are performed for all editing sessions,
   and some of them depend on the directory where Vim is started.
   You can create an initialization file with :mkvimrc , :mkview and
    :mksession .
2. If you start editing a new file, the automatic commands are executed.
   This can be used to set options for files matching a particular pattern and
   many other things. See autocommand .
3. If you start editing a new file, and the 'modeline' option is on, a
   number of lines at the beginning and end of the file are checked for
   modelines. This is explained here.

                                        modeline   vim: vi: ex: E520
There are two forms of modelines. The first form:
        [text]{white}{vi:|vim:|ex:}[white]{options}

[text]   any text or empty
{white}   at least one blank character (<Space> or <Tab>)
{vi:|vim:|ex:}   the string "vi:", "vim:" or "ex:"
[white]   optional white space
{options}   a list of option settings, separated with white space
                        or ':', where each part between ':' is the argument
                        for a ":set" command (can be empty)

Examples:
   vi:noai:sw=3 ts=6
   vim: tw=77

The second form (this is compatible with some versions of Vi):

        [text]{white}{vi:|vim:|Vim:|ex:}[white]se[t] {options}:[text]

[text]   any text or empty
{white}   at least one blank character (<Space> or <Tab>)
{vi:|vim:|Vim:|ex:}   the string "vi:", "vim:", "Vim:" or "ex:"
[white]   optional white space
se[t]   the string "set " or "se " (note the space); When
                        "Vim" is used it must be "set".
{options}   a list of options, separated with white space, which
                        is the argument for a ":set" command
:   a colon
[text]   any text or empty

Examples:
   /* vim: set ai tw=75: */
   /* Vim: set ai tw=75: */

The white space before {vi:|vim:|Vim:|ex:} is required. This minimizes the chance that a normal word like "lex:" is caught. There is one exception: "vi:" and "vim:" can also be at the start of the line (for compatibility with version 3.0). Using "ex:" at the start of the line will be ignored (this could be short for "example:").

modeline-local

The options are set like with ":setlocal": The new value only applies to the buffer and window that contain the file. Although it's possible to set global options from a modeline, this is unusual. If you have two windows open and the files in it set the same global option to a different value, the result depends on which one was opened last.

When editing a file that was already loaded, only the window-local options from the modeline are used. Thus if you manually changed a buffer-local option after opening the file, it won't be changed if you edit the same buffer in another window. But window-local options will be set.

modeline-version

If the modeline is only to be used for some versions of Vim, the version number can be specified where "vim:" or "Vim:" is used:
```
        vim{vers}:      version {vers} or later
        vim<{vers}:     version before {vers}
        vim={vers}:     version {vers}
        vim>{vers}:     version after {vers}
```
{vers} is 700 for Vim 7.0 (hundred times the major version plus minor).
For example, to use a modeline only for Vim 7.0:
```
        /* vim700: set foldmethod=marker */
```
To use a modeline for Vim after version 7.2:
```
        /* vim>702: set cole=2: */
```
There can be no blanks between "vim" and the ":".

The number of lines that are checked can be set with the 'modelines' option.
If 'modeline' is off or 'modelines' is 0 no lines are checked.

Note that for the first form all of the rest of the line is used, thus a line like:
```
   /* vi:ts=4: */
```
will give an error message for the trailing "*/". This line is OK:
```
   /* vi:set ts=4: */
```

If an error is detected the rest of the line is skipped.

If you want to include a ':' in a set command precede it with a '\'. The backslash in front of the ':' will be removed. Example:
```
   /* vi:set dir=c\:\tmp: */
```
This sets the 'dir' option to "c:\tmp". Only a single backslash before the ':' is removed. Thus to include "\:" you have to specify "\\:".

No other commands than "set" are supported, for security reasons (somebody might create a Trojan horse text file with modelines). And not all options can be set. For some options a flag is set, so that when it's used the

sandbox is effective. Still, there is always a small risk that a modeline causes trouble. E.g., when some joker sets 'textwidth' to 5 all your lines are wrapped unexpectedly. So disable modelines before editing untrusted text. The mail ftplugin does this, for example.

Hint: If you would like to do something else than setting an option, you could define an autocommand that checks the file for a specific string. For example:

```
au BufReadPost * if getline(1) =~ "VAR" | call SetVar() | endif
```

And define a function SetVar() that does something with the line containing "VAR".

==

3. Options summary option-summary

In the list below all the options are mentioned with their full name and with an abbreviation if there is one. Both forms may be used.

In this document when a boolean option is "set" that means that ":set option" is entered. When an option is "reset", ":set nooption" is used.

For some options there are two default values: The "Vim default", which is used when 'compatible' is not set, and the "Vi default", which is used when 'compatible' is set.

Most options are the same in all windows and buffers. There are a few that are specific to how the text is presented in a window. These can be set to a different value in each window. For example the 'list' option can be set in one window and reset in another for the same text, giving both types of view at the same time. There are a few options that are specific to a certain file. These can have a different value for each file or buffer. For example the 'textwidth' option can be 78 for a normal text file and 0 for a C program.

global	one option for all buffers and windows
local to window	each window has its own copy of this option
local to buffer	each buffer has its own copy of this option

When creating a new window the option values from the currently active window are used as a default value for the window-specific options. For the buffer-specific options this depends on the 's' and 'S' flags in the 'cpoptions' option. If 's' is included (which is the default) the values for buffer options are copied from the currently active buffer when a buffer is first entered. If 'S' is present the options are copied each time the buffer is entered, this is almost like having global options. If 's' and 'S' are not present, the options are copied from the currently active buffer when the buffer is created.

Hidden options hidden-options

Not all options are supported in all versions. This depends on the supported features and sometimes on the system. A remark about this is in curly braces below. When an option is not supported it may still be set without getting an error, this is called a hidden option. You can't get the value of a hidden

option though, it is not stored.

To test if option "foo" can be used with ":set" use something like this:
	if exists('&foo')
This also returns true for a hidden option. To test if option "foo" is really supported use something like this:
	if exists('+foo')

E355
A jump table for the options with a short description can be found at Q_op .

'aleph' 'al' aleph Aleph
'aleph' 'al'		number (default 128 for MS-DOS, 224 otherwise)
			global
			{not in Vi}
			{only available when compiled with the +rightleft
			feature}
	The ASCII code for the first letter of the Hebrew alphabet. The routine that maps the keyboard in Hebrew mode, both in Insert mode (when hkmap is set) and on the command-line (when hitting CTRL-_) outputs the Hebrew characters in the range [aleph..aleph+26]. aleph=128 applies to PC code, and aleph=224 applies to ISO 8859-8. See rileft.txt .

'allowrevins' 'ari' 'noallowrevins' 'noari'
'allowrevins' 'ari'	boolean (default off)
			global
			{not in Vi}
			{only available when compiled with the +rightleft
			feature}
	Allow CTRL-_ in Insert and Command-line mode. This is default off, to avoid that users that accidentally type CTRL-_ instead of SHIFT-_ get into reverse Insert mode, and don't know how to get out. See 'revins'.
	NOTE: This option is reset when 'compatible' is set.

'altkeymap' 'akm' 'noaltkeymap' 'noakm'
'altkeymap' 'akm'	boolean (default off)
			global
			{not in Vi}
			{only available when compiled with the +farsi
			feature}
	When on, the second language is Farsi. In editing mode CTRL-_ toggles the keyboard map between Farsi and English, when 'allowrevins' set.

	When off, the keyboard map toggles between Hebrew and English. This is useful to start the Vim in native mode i.e. English (left-to-right mode) and have default second language Farsi or Hebrew (right-to-left mode). See farsi.txt .

'ambiwidth' 'ambw'
'ambiwidth' 'ambw'	string (default: "single")
			global
			{not in Vi}

{only available when compiled with the +multi_byte feature}
Only effective when 'encoding' is "utf-8" or another Unicode encoding. Tells Vim what to do with characters with East Asian Width Class Ambiguous (such as Euro, Registered Sign, Copyright Sign, Greek letters, Cyrillic letters).

There are currently two possible values:
"single": Use the same width as characters in US-ASCII. This is expected by most users.
"double": Use twice the width of ASCII characters.
E834 E835
The value "double" cannot be used if 'listchars' or 'fillchars' contains a character that would be double width.

There are a number of CJK fonts for which the width of glyphs for those characters are solely based on how many octets they take in legacy/traditional CJK encodings. In those encodings, Euro, Registered sign, Greek/Cyrillic letters are represented by two octets, therefore those fonts have "wide" glyphs for them. This is also true of some line drawing characters used to make tables in text file. Therefore, when a CJK font is used for GUI Vim or Vim is running inside a terminal (emulators) that uses a CJK font (or Vim is run inside an xterm invoked with "-cjkwidth" option.), this option should be set to "double" to match the width perceived by Vim with the width of glyphs in the font. Perhaps it also has to be set to "double" under CJK Windows 9x/ME or Windows 2k/XP when the system locale is set to one of CJK locales. See Unicode Standard Annex #11 (http://www.unicode.org/reports/tr11).

Vim may set this option automatically at startup time when Vim is compiled with the +termresponse feature and if t_u7 is set to the escape sequence to request cursor position report. The response can be found in v:termu7resp .

'antialias' 'anti' 'noantialias' 'noanti'
'antialias' 'anti' boolean (default: off)
global
{not in Vi}
{only available when compiled with GUI enabled on Mac OS X}
This option only has an effect in the GUI version of Vim on Mac OS X v10.2 or later. When on, Vim will use smooth ("antialiased") fonts, which can be easier to read at certain sizes on certain displays. Setting this option can sometimes cause problems if 'guifont' is set to its default (empty string).
NOTE: This option is reset when 'compatible' is set.

'autochdir' 'acd' 'noautochdir' 'noacd'
'autochdir' 'acd' boolean (default off)
global
{not in Vi}
{only available when compiled with it, use exists("+autochdir") to check}

When on, Vim will change the current working directory whenever you
open a file, switch buffers, delete a buffer or open/close a window.
It will change to the directory containing the file which was opened
or selected.
Note: When this option is on some plugins may not work.

                                'arabic'   'arab'   'noarabic'   'noarab'
'arabic' 'arab'   boolean (default off)
                        local to window
                        {not in Vi}
                        {only available when compiled with the +arabic
                        feature}
This option can be set to start editing Arabic text.
Setting this option will:
- Set the 'rightleft' option, unless 'termbidi' is set.
- Set the 'arabicshape' option, unless 'termbidi' is set.
- Set the 'keymap' option to "arabic"; in Insert mode CTRL-^ toggles
  between typing English and Arabic key mapping.
- Set the 'delcombine' option
Note that 'encoding' must be "utf-8" for working with Arabic text.

Resetting this option will:
- Reset the 'rightleft' option.
- Disable the use of 'keymap' (without changing its value).
Note that 'arabicshape' and 'delcombine' are not reset (it is a global
option).
NOTE: This option is reset when 'compatible' is set.
Also see arabic.txt .

                                        'arabicshape'   'arshape'
                                        'noarabicshape'   'noarshape'
'arabicshape' 'arshape' boolean (default on)
                        global
                        {not in Vi}
                        {only available when compiled with the +arabic
                        feature}
When on and 'termbidi' is off, the required visual character
corrections that need to take place for displaying the Arabic language
take effect. Shaping, in essence, gets enabled; the term is a broad
one which encompasses:
  a) the changing/morphing of characters based on their location
     within a word (initial, medial, final and stand-alone).
  b) the enabling of the ability to compose characters
  c) the enabling of the required combining of some characters
When disabled the display shows each character's true stand-alone
form.
Arabic is a complex language which requires other settings, for
further details see arabic.txt .
NOTE: This option is set when 'compatible' is set.

                         'autoindent'   'ai'   'noautoindent'   'noai'
'autoindent' 'ai'   boolean (default off)
                        local to buffer
Copy indent from current line when starting a new line (typing <CR>

in Insert mode or when using the "o" or "O" command). If you do not type anything on the new line except <BS> or CTRL-D and then type <Esc>, CTRL-O or <CR>, the indent is deleted again. Moving the cursor to another line has the same effect, unless the 'I' flag is included in 'cpoptions'.
When autoindent is on, formatting (with the "gq" command or when you reach 'textwidth' in Insert mode) uses the indentation of the first line.
When 'smartindent' or 'cindent' is on the indent is changed in a different way.
The 'autoindent' option is reset when the 'paste' option is set and restored when 'paste' is reset.
{small difference from Vi: After the indent is deleted when typing <Esc> or <CR>, the cursor position when moving up or down is after the deleted indent; Vi puts the cursor somewhere in the deleted indent}.

'autoread' 'ar' 'noautoread' 'noar'
'autoread' 'ar' boolean (default off)
global or local to buffer global-local
{not in Vi}
When a file has been detected to have been changed outside of Vim and it has not been changed inside of Vim, automatically read it again. When the file has been deleted this is not done, so you have the text from before it was deleted. When it appears again then it is read. timestamp
If this option has a local value, use this command to switch back to using the global value:
:set autoread<

'autowrite' 'aw' 'noautowrite' 'noaw'
'autowrite' 'aw' boolean (default off)
global
Write the contents of the file, if it has been modified, on each :next, :rewind, :last, :first, :previous, :stop, :suspend, :tag, :!, :make, CTRL-] and CTRL-^ command; and when a :buffer, CTRL-O, CTRL-I, '{A-Z0-9}, or `{A-Z0-9} command takes one to another file.
Note that for some commands the 'autowrite' option is not used, see 'autowriteall' for that.

'autowriteall' 'awa' 'noautowriteall' 'noawa'
'autowriteall' 'awa' boolean (default off)
global
{not in Vi}
Like 'autowrite', but also used for commands ":edit", ":enew", ":quit", ":qall", ":exit", ":xit", ":recover" and closing the Vim window.
Setting this option also implies that Vim behaves like 'autowrite' has been set.

'background' 'bg'
'background' 'bg' string (default "dark" or "light", see below)
global
{not in Vi}
When set to "dark", Vim will try to use colors that look good on a dark background. When set to "light", Vim will try to use colors that

look good on a light background. Any other value is illegal.
Vim tries to set the default value according to the terminal used.
This will not always be correct.
Setting this option does not change the background color, it tells Vim
what the background color looks like. For changing the background
color, see :hi-normal .

When 'background' is set Vim will adjust the default color groups for
the new value. But the colors used for syntax highlighting will not
change.   g:colors_name
When a color scheme is loaded (the "g:colors_name" variable is set)
setting 'background' will cause the color scheme to be reloaded. If
the color scheme adjusts to the value of 'background' this will work.
However, if the color scheme sets 'background' itself the effect may
be undone. First delete the "g:colors_name" variable when needed.

When setting 'background' to the default value with:
        :set background&
Vim will guess the value. In the GUI this should work correctly,
in other cases Vim might not be able to guess the right value.

When the t_RB option is set, Vim will use it to request the background
color from the terminal. If the returned RGB value is dark/light and
'background' is not dark/light, 'background' will be set and the
screen is redrawn. This may have side effects, make t_BG empty in
your .vimrc if you suspect this problem. The response to t_RB can
be found in v:termrbgresp .

When starting the GUI, the default value for 'background' will be
"light". When the value is not set in the .gvimrc, and Vim detects
that the background is actually quite dark, 'background' is set to
"dark". But this happens only AFTER the .gvimrc file has been read
(because the window needs to be opened to find the actual background
color). To get around this, force the GUI window to be opened by
putting a ":gui" command in the .gvimrc file, before where the value
of 'background' is used (e.g., before ":syntax on").

For MS-DOS, Windows and OS/2 the default is "dark".
For other systems "dark" is used when 'term' is "linux",
"screen.linux", "cygwin" or "putty", or $COLORFGBG suggests a dark
background. Otherwise the default is "light".

The :terminal command and the term_start() function use the
'background' value to decide whether the terminal window will start
with a white or black background.

Normally this option would be set in the .vimrc file. Possibly
depending on the terminal name. Example:
        :if &term == "pcterm"
        : set background=dark
        :endif
When this option is set, the default settings for the highlight groups
will change. To use other settings, place ":highlight" commands AFTER
the setting of the 'background' option.

This option is also used in the "$VIMRUNTIME/syntax/syntax.vim" file to select the colors for syntax highlighting. After changing this option, you must load syntax.vim again to see the result. This can be done with ":syntax on".

'backspace' 'bs'

'backspace' 'bs' string (default "", set to "indent,eol,start" in defaults.vim)
global
{not in Vi}

Influences the working of <BS>, <Del>, CTRL-W and CTRL-U in Insert mode. This is a list of items, separated by commas. Each item allows a way to backspace over something:

value	effect
indent	allow backspacing over autoindent
eol	allow backspacing over line breaks (join lines)
start	allow backspacing over the start of insert; CTRL-W and CTRL-U stop once at the start of insert.

When the value is empty, Vi compatible backspacing is used.

For backwards compatibility with version 5.4 and earlier:

value	effect
0	same as ":set backspace=" (Vi compatible)
1	same as ":set backspace=indent,eol"
2	same as ":set backspace=indent,eol,start"

See :fixdel if your <BS> or <Del> key does not do what you want.
NOTE: This option is set to "" when 'compatible' is set.

'backup' 'bk' 'nobackup' 'nobk'

'backup' 'bk' boolean (default off)
global
{not in Vi}

Make a backup before overwriting a file. Leave it around after the file has been successfully written. If you do not want to keep the backup file, but you do want a backup while the file is being written, reset this option and set the 'writebackup' option (this is the default). If you do not want a backup file at all reset both options (use this if your file system is almost full). See the backup-table for more explanations.
When the 'backupskip' pattern matches, a backup is not made anyway.
When 'patchmode' is set, the backup may be renamed to become the oldest version of a file.
NOTE: This option is reset when 'compatible' is set.

'backupcopy' 'bkc'

'backupcopy' 'bkc' string (Vi default for Unix: "yes", otherwise: "auto")
global or local to buffer global-local
{not in Vi}

When writing a file and a backup is made, this option tells how it's done. This is a comma separated list of words.

The main values are:

"yes"   make a copy of the file and overwrite the original one
"no"   rename the file and write a new one
"auto" one of the previous, what works best

Extra values that can be combined with the ones above are:
"breaksymlink" always break symlinks when writing
"breakhardlink" always break hardlinks when writing

Making a copy and overwriting the original file:
- Takes extra time to copy the file.
+ When the file has special attributes, is a (hard/symbolic) link or
  has a resource fork, all this is preserved.
- When the file is a link the backup will have the name of the link,
  not of the real file.

Renaming the file and writing a new one:
+ It's fast.
- Sometimes not all attributes of the file can be copied to the new
  file.
- When the file is a link the new file will not be a link.

The "auto" value is the middle way: When Vim sees that renaming file
is possible without side effects (the attributes can be passed on and
the file is not a link) that is used. When problems are expected, a
copy will be made.

The "breaksymlink" and "breakhardlink" values can be used in
combination with any of "yes", "no" and "auto". When included, they
force Vim to always break either symbolic or hard links by doing
exactly what the "no" option does, renaming the original file to
become the backup and writing a new file in its place. This can be
useful for example in source trees where all the files are symbolic or
hard links and any changes should stay in the local source tree, not
be propagated back to the original source.
                                                        crontab
One situation where "no" and "auto" will cause problems: A program
that opens a file, invokes Vim to edit that file, and then tests if
the open file was changed (through the file descriptor) will check the
backup file instead of the newly created file. "crontab -e" is an
example.

When a copy is made, the original file is truncated and then filled
with the new text. This means that protection bits, owner and
symbolic links of the original file are unmodified. The backup file
however, is a new file, owned by the user who edited the file. The
group of the backup is set to the group of the original file. If this
fails, the protection bits for the group are made the same as for
others.

When the file is renamed this is the other way around: The backup has
the same attributes of the original file, and the newly written file
is owned by the current user. When the file was a (hard/symbolic)
link, the new file will not! That's why the "auto" value doesn't
rename when the file is a link. The owner and group of the newly

written file will be set to the same ones as the original file, but the system may refuse to do this. In that case the "auto" value will again not rename the file.

NOTE: This option is set to the Vi default value when 'compatible' is set and to the Vim default value when 'compatible' is reset.

'backupdir' 'bdir' string (default for Amiga: ".,t:",
for MS-DOS and Win32: ".,$TEMP,c:/tmp,c:/temp"
for Unix: ".,~/tmp,~/")
global
{not in Vi}

List of directories for the backup file, separated with commas.
- The backup file will be created in the first directory in the list where this is possible. The directory must exist, Vim will not create it for you.
- Empty means that no backup file will be created ('patchmode' is impossible!). Writing may fail because of this.
- A directory "." means to put the backup file in the same directory as the edited file.
- A directory starting with "./" (or ".\" for MS-DOS et al.) means to put the backup file relative to where the edited file is. The leading "." is replaced with the path name of the edited file. ("." inside a directory name has no special meaning).
- Spaces after the comma are ignored, other spaces are considered part of the directory name. To have a space at the start of a directory name, precede it with a backslash.
- To include a comma in a directory name precede it with a backslash.
- A directory name may end in an '/'.
- For Unix and Win32, if a directory ends in two path separators "//", the swap file name will be built from the complete path to the file with all path separators changed to percent '%' signs. This will ensure file name uniqueness in the backup directory.
On Win32, it is also possible to end with "\\". However, When a separating comma is following, you must use "//", since "\\" will include the comma in the file name. Therefore it is recommended to use '//', instead of '\\'.
- Environment variables are expanded :set_env .
- Careful with '\' characters, type one before a space, type two to get one in the option (see option-backslash), for example:
:set bdir=c:\\tmp,\ dir\\,with\\,commas,\\\ dir\ with\ spaces
- For backwards compatibility with Vim version 3.0 a '>' at the start of the option is removed.

See also 'backup' and 'writebackup' options.
If you want to hide your backup files on Unix, consider this value:
:set backupdir=./.backup,~/.backup,.,/tmp
You must create a ".backup" directory in each directory and in your home directory for this to work properly.
The use of :set+= and :set-= is preferred when adding or removing directories from the list. This avoids problems when a future version uses another default.
This option cannot be set from a modeline or in the sandbox , for security reasons.

'backupext' 'bex' E589
'backupext' 'bex'	string (default "~", for VMS: "_")
			global
			{not in Vi}
	String which is appended to a file name to make the name of the
	backup file. The default is quite unusual, because this avoids
	accidentally overwriting existing files with a backup file. You might
	prefer using ".bak", but make sure that you don't have files with
	".bak" that you want to keep.
	Only normal file name characters can be used, "/*?[|<>" are illegal.

	If you like to keep a lot of backups, you could use a BufWritePre
	autocommand to change 'backupext' just before writing the file to
	include a timestamp.
		:au BufWritePre * let &bex = '-' . strftime("%Y%b%d%X") . '~'
      Use 'backupdir' to put the backup in a different directory.

'backupskip' 'bsk'
'backupskip' 'bsk'	string (default: "$TMPDIR/*,$TMP/*,$TEMP/*"
			 Unix: "/tmp/*,$TMPDIR/*,$TMP/*,$TEMP/*"
			 Mac: "/private/tmp/*,$TMPDIR/*,$TMP/*,$TEMP/*")
			global
			{not in Vi}
			{not available when compiled without the +wildignore
			feature}
	A list of file patterns. When one of the patterns matches with the
	name of the file which is written, no backup file is created. Both
	the specified file name and the full path name of the file are used.
	The pattern is used like with :autocmd , see autocmd-patterns .
	Watch out for special characters, see option-backslash .
	When $TMPDIR, $TMP or $TEMP is not defined, it is not used for the
	default value. "/tmp/*" is only used for Unix.

	WARNING: Not having a backup file means that when Vim fails to write
	your buffer correctly and then, for whatever reason, Vim exits, you
	lose both the original file and what you were writing. Only disable
	backups if you don't care about losing the file.

	Note that environment variables are not expanded. If you want to use
	$HOME you must expand it explicitly, e.g.:
		:let &backupskip = escape(expand('$HOME'), '\') . '/tmp/*'

      Note that the default also makes sure that "crontab -e" works (when a
	backup would be made by renaming the original file crontab won't see
	the newly created file). Also see 'backupcopy' and crontab .

'balloondelay' 'bdlay'
'balloondelay' 'bdlay'	number (default: 600)
			global
			{not in Vi}
			{only available when compiled with the +balloon_eval
			feature}
	Delay in milliseconds before a balloon may pop up. See balloon-eval .

```
                        'balooneval'   'beval'   'noballooneval'   'nobeval'
'balooneval' 'beval'    boolean (default off)
                        global
                        {not in Vi}
                        {only available when compiled with the  +balloon_eval
                        feature}
        Switch on the  balloon-eval  functionality for the GUI.

                        'balloonevalterm'   'bevalterm'   'noballoonevalterm'
                        'nobevalterm'
'balloonevalterm' 'bevalterm'   boolean (default off)
                        global
                        {not in Vi}
                        {only available when compiled with the
                         +balloon_eval_term  feature}
        Switch on the  balloon-eval  functionality for the terminal.

                                                        'balloonexpr'   'bexpr'
'balloonexpr' 'bexpr'   string  (default "")
                        global or local to buffer  global-local
                        {not in Vi}
                        {only available when compiled with the  +balloon_eval
                        feature}
        Expression for text to show in evaluation balloon.  It is only used
        when 'balooneval' is on.  These variables can be used:

        v:beval_bufnr   number of the buffer in which balloon is going to show
        v:beval_winnr   number of the window
        v:beval_winid   ID of the window
        v:beval_lnum    line number
        v:beval_col     column number (byte index)
        v:beval_text    word under or after the mouse pointer

        The evaluation of the expression must not have side effects!
        Example:
    function! MyBalloonExpr()
        return 'Cursor is at line ' . v:beval_lnum .
                \', column ' . v:beval_col .
                \ ' of file ' .  bufname(v:beval_bufnr) .
                \ ' on word "' . v:beval_text . '"'
    endfunction
    set bexpr=MyBalloonExpr()
    set balooneval

        Also see  balloon_show() , can be used if the content of the balloon
        is to be fetched asynchronously.

        NOTE: The balloon is displayed only if the cursor is on a text
        character.  If the result of evaluating 'balloonexpr' is not empty,
        Vim does not try to send a message to an external debugger (Netbeans
        or Sun Workshop).

        The expression will be evaluated in the  sandbox  when set from a
```

modeline, see sandbox-option .

It is not allowed to change text or jump to another window while evaluating 'balloonexpr' textlock .

To check whether line breaks in the balloon text work use this check:

```
if has("balloon_multiline")
```

When they are supported "\n" characters will start a new line. If the expression evaluates to a List this is equal to using each List item as a string and putting "\n" in between them.
NOTE: This option is set to "" when 'compatible' is set.

'belloff' 'bo'

'belloff' 'bo' string (default "")
global
{not in Vi}

Specifies for which events the bell will not be rung. It is a comma separated list of items. For each item that is present, the bell will be silenced. This is most useful to specify specific events in insert mode to be silenced.

item	meaning when present
all	All events.
backspace	When hitting <BS> or <Del> and deleting results in an error.
cursor	Fail to move around using the cursor keys or <PageUp>/<PageDown> in Insert-mode .
complete	Error occurred when using i_CTRL-X_CTRL-K or i_CTRL-X_CTRL-T .
copy	Cannot copy char from insert mode using i_CTRL-Y or i_CTRL-E .
ctrlg	Unknown Char after <C-G> in Insert mode.
error	Other Error occurred (e.g. try to join last line) (mostly used in Normal-mode or Cmdline-mode).
esc	hitting <Esc> in Normal-mode .
ex	In Visual-mode , hitting Q results in an error.
hangul	Error occurred when using hangul input.
insertmode	Pressing <Esc> in 'insertmode'.
lang	Calling the beep module for Lua/Mzscheme/TCL.
mess	No output available for g< .
showmatch	Error occurred for 'showmatch' function.
operator	Empty region error cpo-E .
register	Unknown register after <C-R> in Insert-mode .
shell	Bell from shell output :! .
spell	Error happened on spell suggest.
wildmode	More matches in cmdline-completion available (depends on the 'wildmode' setting).

This is most useful to fine tune when in Insert mode the bell should be rung. For Normal mode and Ex commands, the bell is often rung to indicate that an error occurred. It can be silenced by adding the "error" keyword.

'binary' 'bin' 'nobinary' 'nobin'

'binary' 'bin'		boolean (default off)
			local to buffer
			{not in Vi}
	This option should be set before editing a binary file. You can also
	use the -b Vim argument. When this option is switched on a few
	options will be changed (also when it already was on):
		'textwidth' will be set to 0
		'wrapmargin' will be set to 0
		'modeline' will be off
		'expandtab' will be off
	Also, 'fileformat' and 'fileformats' options will not be used, the
	file is read and written like 'fileformat' was "unix" (a single <NL>
	separates lines).
	The 'fileencoding' and 'fileencodings' options will not be used, the
	file is read without conversion.
	NOTE: When you start editing a(nother) file while the 'bin' option is
	on, settings from autocommands may change the settings again (e.g.,
	'textwidth'), causing trouble when editing. You might want to set
	'bin' again when the file has been loaded.
	The previous values of these options are remembered and restored when
	'bin' is switched from on to off. Each buffer has its own set of
	saved option values.
	To edit a file with 'binary' set you can use the ++bin argument.
	This avoids you have to do ":set bin", which would have effect for all
	files you edit.
	When writing a file the <EOL> for the last line is only written if
	there was one in the original file (normally Vim appends an <EOL> to
	the last line if there is none; this would make the file longer). See
	the 'endofline' option.

			 'bioskey' 'biosk' 'nobioskey' 'nobiosk'
'bioskey' 'biosk'	boolean (default on)
			global
			{not in Vi} {only for MS-DOS}
	This was for MS-DOS and is no longer supported.

							'bomb' 'nobomb'
'bomb'			boolean (default off)
			local to buffer
			{not in Vi}
			{only available when compiled with the +multi_byte
			feature}
	When writing a file and the following conditions are met, a BOM (Byte
	Order Mark) is prepended to the file:
	- this option is on
	- the 'binary' option is off
	- 'fileencoding' is "utf-8", "ucs-2", "ucs-4" or one of the little/big
	  endian variants.
	Some applications use the BOM to recognize the encoding of the file.
	Often used for UCS-2 files on MS-Windows. For other applications it
	causes trouble, for example: "cat file1 file2" makes the BOM of file2
	appear halfway the resulting file. Gcc doesn't accept a BOM.
	When Vim reads a file and 'fileencodings' starts with "ucs-bom", a
	check for the presence of the BOM is done and 'bomb' set accordingly.

Unless 'binary' is set, it is removed from the first line, so that you don't see it when editing. When you don't change the options, the BOM will be restored when writing the file.

'breakat' 'brk'

'breakat' 'brk' string (default " ^I!@*-+;:,./?")
global
{not in Vi}
{not available when compiled without the +linebreak feature}
This option lets you choose which characters might cause a line break if 'linebreak' is on. Only works for ASCII and also for 8-bit characters when 'encoding' is an 8-bit encoding.

'breakindent' 'bri' 'nobreakindent' 'nobri'

'breakindent' 'bri' boolean (default off)
local to window
{not in Vi}
{not available when compiled without the +linebreak feature}
Every wrapped line will continue visually indented (same amount of space as the beginning of that line), thus preserving horizontal blocks of text.
NOTE: This option is reset when 'compatible' is set.

'breakindentopt' 'briopt'

'breakindentopt' 'briopt' string (default empty)
local to window
{not in Vi}
{not available when compiled without the +linebreak feature}
Settings for 'breakindent'. It can consist of the following optional items and must be separated by a comma:

min:{n}	Minimum text width that will be kept after applying 'breakindent', even if the resulting text should normally be narrower. This prevents text indented almost to the right window border occupying lot of vertical space when broken.
shift:{n}	After applying 'breakindent', the wrapped line's beginning will be shifted by the given number of characters. It permits dynamic French paragraph indentation (negative) or emphasizing the line continuation (positive).
sbr	Display the 'showbreak' value before applying the additional indent.

The default value for min is 20 and shift is 0.

'browsedir' 'bsdir'

'browsedir' 'bsdir' string (default: "last")
global
{not in Vi} {only for Motif, Athena, GTK, Mac and Win32 GUI}
Which directory to use for the file browser:

last	Use same directory as with last file browser, where a

```
                        file was opened or saved.
            buffer      Use the directory of the related buffer.
            current     Use the current directory.
            {path}      Use the specified directory

                                                    'bufhidden'   'bh'
'bufhidden' 'bh'        string (default: "")
                        local to buffer
                        {not in Vi}
        This option specifies what happens when a buffer is no longer
        displayed in a window:
          <empty>       follow the global 'hidden' option
          hide          hide the buffer (don't unload it), also when 'hidden'
                        is not set
          unload        unload the buffer, also when 'hidden' is set or using
                         :hide
          delete        delete the buffer from the buffer list, also when
                        'hidden' is set or using  :hide , like using
                         :bdelete
          wipe          wipe out the buffer from the buffer list, also when
                        'hidden' is set or using  :hide , like using
                         :bwipeout

        CAREFUL: when "unload", "delete" or "wipe" is used changes in a buffer
        are lost without a warning.  Also, these values may break autocommands
        that switch between buffers temporarily.
        This option is used together with 'buftype' and 'swapfile' to specify
        special kinds of buffers.   See  special-buffers .

                         'buflisted'   'bl'   'nobuflisted'   'nobl'   E85
'buflisted' 'bl'        boolean (default: on)
                        local to buffer
                        {not in Vi}
        When this option is set, the buffer shows up in the buffer list.  If
        it is reset it is not used for ":bnext", "ls", the Buffers menu, etc.
        This option is reset by Vim for buffers that are only used to remember
        a file name or marks.  Vim sets it when starting to edit a buffer.
        But not when moving to a buffer with ":buffer".

                                                    'buftype'   'bt'   E382
'buftype' 'bt'          string (default: "")
                        local to buffer
                        {not in Vi}
        The value of this option specifies the type of a buffer:
          <empty>       normal buffer
          nofile        buffer which is not related to a file and will not be
                        written
          nowrite       buffer which will not be written
          acwrite       buffer which will always be written with BufWriteCmd
                        autocommands.
          quickfix      quickfix buffer, contains list of errors  :cwindow
                        or list of locations  :lwindow
          help          help buffer (you are not supposed to set this
                        manually)
```

terminal buffer for a terminal (you are not supposed to set this manually)
prompt buffer where only the last line can be edited, meant to be used by a plugin, see prompt-buffer {only when compiled with the |+channel| feature}

This option is used together with 'bufhidden' and 'swapfile' to specify special kinds of buffers. See special-buffers .

Be careful with changing this option, it can have many side effects!

A "quickfix" buffer is only used for the error list and the location list. This value is set by the :cwindow and :lwindow commands and you are not supposed to change it.

"nofile" and "nowrite" buffers are similar:
both: The buffer is not to be written to disk, ":w" doesn't work (":w filename" does work though).
both: The buffer is never considered to be 'modified' . There is no warning when the changes will be lost, for example when you quit Vim.
both: A swap file is only created when using too much memory (when 'swapfile' has been reset there is never a swap file).
nofile only: The buffer name is fixed, it is not handled like a file name. It is not modified in response to a :cd command.
both: When using ":e bufname" and already editing "bufname" the buffer is made empty and autocommands are triggered as usual for :edit . E676
"acwrite" implies that the buffer name is not related to a file, like "nofile", but it will be written. Thus, in contrast to "nofile" and "nowrite", ":w" does work and a modified buffer can't be abandoned without saving. For writing there must be matching BufWriteCmd , FileWriteCmd or FileAppendCmd autocommands.

'casemap' 'cmp'
'casemap' 'cmp' string (default: "internal,keepascii")
global
{not in Vi}
{only available when compiled with the +multi_byte feature}
Specifies details about changing the case of letters. It may contain these words, separated by a comma:
internal Use internal case mapping functions, the current locale does not change the case mapping. This only matters when 'encoding' is a Unicode encoding, "latin1" or "iso-8859-15". When "internal" is omitted, the towupper() and towlower() system library functions are used when available.
keepascii For the ASCII characters (0x00 to 0x7f) use the US case mapping, the current locale is not effective. This probably only matters for Turkish.

'cdpath' 'cd'

'cdpath' 'cd' E344 E346

'cdpath' 'cd' string (default: equivalent to $CDPATH or ",,")
global
{not in Vi}
{not available when compiled without the
+file_in_path feature}
This is a list of directories which will be searched when using the
:cd and :lcd commands, provided that the directory being searched
for has a relative path, not an absolute part starting with "/", "./"
or "../", the 'cdpath' option is not used then.
The 'cdpath' option's value has the same form and semantics as
'path' . Also see file-searching .
The default value is taken from $CDPATH, with a "," prepended to look
in the current directory first.
If the default value taken from $CDPATH is not what you want, include
a modified version of the following command in your vimrc file to
override it:
:let &cdpath = ',' . substitute(substitute($CDPATH, '[,]', '\\\0', 'g'), ':', '
This option cannot be set from a modeline or in the sandbox , for
security reasons.
(parts of 'cdpath' can be passed to the shell to expand file names).

'cedit'

'cedit' string (Vi default: "", Vim default: CTRL-F)
global
{not in Vi}
{not available when compiled without the +vertsplit
feature}
The key used in Command-line Mode to open the command-line window.
The default is CTRL-F when 'compatible' is off.
Only non-printable keys are allowed.
The key can be specified as a single character, but it is difficult to
type. The preferred way is to use the <> notation. Examples:
:exe "set cedit=\<C-Y>"
:exe "set cedit=\<Esc>"
Nvi also has this option, but it only uses the first character.
See cmdwin .
NOTE: This option is set to the Vim default value when 'compatible'
is reset.

'charconvert' 'ccv' E202 E214 E513

'charconvert' 'ccv' string (default "")
global
{only available when compiled with the +multi_byte
and +eval features}
{not in Vi}
An expression that is used for character encoding conversion. It is
evaluated when a file that is to be read or has been written has a
different encoding from what is desired.
'charconvert' is not used when the internal iconv() function is
supported and is able to do the conversion. Using iconv() is
preferred, because it is much faster.
'charconvert' is not used when reading stdin -- , because there is no

```
        file to convert from.  You will have to save the text in a file first.
        The expression must return zero or an empty string for success,
        non-zero for failure.
        The possible encoding names encountered are in 'encoding'.
        Additionally, names given in 'fileencodings' and 'fileencoding' are
        used.
        Conversion between "latin1", "unicode", "ucs-2", "ucs-4" and "utf-8"
        is done internally by Vim, 'charconvert' is not used for this.
        'charconvert' is also used to convert the viminfo file, if the 'c'
        flag is present in 'viminfo'.  Also used for Unicode conversion.
        Example:
                set charconvert=CharConvert()
                fun CharConvert()
                  system("recode "
                        \ . v:charconvert_from . ".." . v:charconvert_to
                        \ . " <" . v:fname_in . " >" v:fname_out)
                  return v:shell_error
                endfun
      The related Vim variables are:
                v:charconvert_from      name of the current encoding
                v:charconvert_to        name of the desired encoding
                v:fname_in              name of the input file
                v:fname_out             name of the output file
        Note that v:fname_in and v:fname_out will never be the same.
        Note that v:charconvert_from and v:charconvert_to may be different
        from 'encoding'.  Vim internally uses UTF-8 instead of UCS-2 or UCS-4.
        Encryption is not done by Vim when using 'charconvert'.  If you want
        to encrypt the file after conversion, 'charconvert' should take care
        of this.
        This option cannot be set from a  modeline  or in the  sandbox , for
        security reasons.

                                        'cindent'   'cin'   'nocindent'   'nocin'
'cindent' 'cin'         boolean (default off)
                        local to buffer
                        {not in Vi}
                        {not available when compiled without the  +cindent
                        feature}
        Enables automatic C program indenting.  See 'cinkeys' to set the keys
        that trigger reindenting in insert mode and 'cinoptions' to set your
        preferred indent style.
        If 'indentexpr' is not empty, it overrules 'cindent'.
        If 'lisp' is not on and both 'indentexpr' and 'equalprg' are empty,
        the "=" operator indents using this algorithm rather than calling an
        external program.
        See  C-indenting .
        When you don't like the way 'cindent' works, try the 'smartindent'
        option or 'indentexpr'.
        This option is not used when 'paste' is set.
        NOTE: This option is reset when 'compatible' is set.

                                                        'cinkeys'   'cink'
'cinkeys' 'cink'        string  (default "0{,0},0),:,0#,!^F,o,O,e")
                        local to buffer
```

{not in Vi}
{not available when compiled without the +cindent feature}

A list of keys that, when typed in Insert mode, cause reindenting of the current line. Only used if 'cindent' is on and 'indentexpr' is empty.
For the format of this option see cinkeys-format .
See C-indenting .

'cinoptions' 'cino'

'cinoptions' 'cino' string (default "")
local to buffer
{not in Vi}
{not available when compiled without the +cindent feature}

The 'cinoptions' affect the way 'cindent' reindents lines in a C program. See cinoptions-values for the values of this option, and C-indenting for info on C indenting in general.

'cinwords' 'cinw'

'cinwords' 'cinw' string (default "if,else,while,do,for,switch")
local to buffer
{not in Vi}
{not available when compiled without both the +cindent and the +smartindent features}

These keywords start an extra indent in the next line when 'smartindent' or 'cindent' is set. For 'cindent' this is only done at an appropriate place (inside {}).
Note that 'ignorecase' isn't used for 'cinwords'. If case doesn't matter, include the keyword both the uppercase and lowercase: "if,If,IF".

'clipboard' 'cb'

'clipboard' 'cb' string (default "autoselect,exclude:cons\|linux" for X-windows, "" otherwise)
global
{not in Vi}
{only in GUI versions or when the +xterm_clipboard feature is included}

This option is a list of comma separated names.
These names are recognized:

clipboard-unnamed

unnamed When included, Vim will use the clipboard register '*' for all yank, delete, change and put operations which would normally go to the unnamed register. When a register is explicitly specified, it will always be used regardless of whether "unnamed" is in 'clipboard' or not. The clipboard register can always be explicitly accessed using the "* notation. Also see gui-clipboard .

clipboard-unnamedplus

unnamedplus	A variant of the "unnamed" flag which uses the
		clipboard register '+' (quoteplus) instead of
		register '*' for all yank, delete, change and put
		operations which would normally go to the unnamed
		register. When "unnamed" is also included to the
		option, yank operations (but not delete, change or
		put) will additionally copy the text into register
		'*'.
		Only available with the +X11 feature.
		Availability can be checked with:
			if has('unnamedplus')

clipboard-autoselect
autoselect	Works like the 'a' flag in 'guioptions': If present,
		then whenever Visual mode is started, or the Visual
		area extended, Vim tries to become the owner of the
		windowing system's global selection or put the
		selected text on the clipboard used by the selection
		register "*. See guioptions_a and quotestar for
		details. When the GUI is active, the 'a' flag in
		'guioptions' is used, when the GUI is not active, this
		"autoselect" flag is used.
		Also applies to the modeless selection.

clipboard-autoselectplus
autoselectplus	Like "autoselect" but using the + register instead of
		the * register. Compare to the 'P' flag in
		'guioptions'.

clipboard-autoselectml
autoselectml	Like "autoselect", but for the modeless selection
		only. Compare to the 'A' flag in 'guioptions'.

clipboard-html
html		When the clipboard contains HTML, use this when
		pasting. When putting text on the clipboard, mark it
		as HTML. This works to copy rendered HTML from
		Firefox, paste it as raw HTML in Vim, select the HTML
		in Vim and paste it in a rich edit box in Firefox.
		You probably want to add this only temporarily,
		possibly use BufEnter autocommands.
		Only supported for GTK version 2 and later.
		Only available with the +multi_byte feature.

clipboard-exclude
exclude:{pattern}
		Defines a pattern that is matched against the name of
		the terminal 'term'. If there is a match, no
		connection will be made to the X server. This is
		useful in this situation:
		- Running Vim in a console.
		- $DISPLAY is set to start applications on another
		  display.
		- You do not want to connect to the X server in the

console, but do want this in a terminal emulator.
To never connect to the X server use:
exclude:.*
This has the same effect as using the -X argument.
Note that when there is no connection to the X server
the window title won't be restored and the clipboard
cannot be accessed.
The value of 'magic' is ignored, {pattern} is
interpreted as if 'magic' was on.
The rest of the option value will be used for
{pattern}, this must be the last entry.

'cmdheight' 'ch'

'cmdheight' 'ch' number (default 1)
global
{not in Vi}
Number of screen lines to use for the command-line. Helps avoiding hit-enter prompts.
The value of this option is stored with the tab page, so that each tab page can have a different value.

'cmdwinheight' 'cwh'

'cmdwinheight' 'cwh' number (default 7)
global
{not in Vi}
{not available when compiled without the +vertsplit feature}
Number of screen lines to use for the command-line window. cmdwin

'colorcolumn' 'cc'

'colorcolumn' 'cc' string (default "")
local to window
{not in Vi}
{not available when compiled without the +syntax feature}
'colorcolumn' is a comma separated list of screen columns that are highlighted with ColorColumn hl-ColorColumn . Useful to align text. Will make screen redrawing slower.
The screen column can be an absolute number, or a number preceded with '+' or '-', which is added to or subtracted from 'textwidth'.

```
:set cc=+1  " highlight column after 'textwidth'
:set cc=+1,+2,+3  " highlight three columns after 'textwidth'
:hi ColorColumn ctermbg=lightgrey guibg=lightgrey
```

When 'textwidth' is zero then the items with '-' and '+' are not used.
A maximum of 256 columns are highlighted.

'columns' 'co' E594

'columns' 'co' number (default 80 or terminal width)
global
{not in Vi}
Number of columns of the screen. Normally this is set by the terminal initialization and does not have to be set by hand. Also see

posix-screen-size .
When Vim is running in the GUI or in a resizable window, setting this option will cause the window size to be changed. When you only want to use the size for the GUI, put the command in your gvimrc file. When you set this option and Vim is unable to change the physical number of columns of the display, the display may be messed up. For the GUI it is always possible and Vim limits the number of columns to what fits on the screen. You can use this command to get the widest window possible:

```
:set columns=9999
```

Minimum value is 12, maximum value is 10000.

'comments' 'com' 'comments' 'com' E524 E525

'comments' 'com' string (default "s1:/*,mb:*,ex:*/,://,b:#,:%,:XCOMM,n:>,fb:-")
local to buffer
{not in Vi}
{not available when compiled without the +comments feature}

A comma separated list of strings that can start a comment line. See format-comments . See option-backslash about using backslashes to insert a space.

'commentstring' 'cms' 'commentstring' 'cms' E537

'commentstring' 'cms' string (default "/*%s*/")
local to buffer
{not in Vi}
{not available when compiled without the +folding feature}

A template for a comment. The "%s" in the value is replaced with the comment text. Currently only used to add markers for folding, see fold-marker .

'compatible' 'cp' 'nocompatible' 'nocp'

'compatible' 'cp' boolean (default on, off when a vimrc or gvimrc file is found, reset in defaults.vim)
global
{not in Vi}

This option has the effect of making Vim either more Vi-compatible, or make Vim behave in a more useful way.

This is a special kind of option, because when it's set or reset, other options are also changed as a side effect.
NOTE: Setting or resetting this option can have a lot of unexpected effects: Mappings are interpreted in another way, undo behaves differently, etc. If you set this option in your vimrc file, you should probably put it at the very start.

By default this option is on and the Vi defaults are used for the options. This default was chosen for those people who want to use Vim just like Vi, and don't even (want to) know about the 'compatible' option.
When a vimrc or gvimrc file is found while Vim is starting up, this option is switched off, and all options that have not been

modified will be set to the Vim defaults. Effectively, this means that when a vimrc or gvimrc file exists, Vim will use the Vim defaults, otherwise it will use the Vi defaults. (Note: This doesn't happen for the system-wide vimrc or gvimrc file, nor for a file given with the -u argument). Also see compatible-default and posix-compliance .
You can also set this option with the "-C" argument, and reset it with "-N". See -C and -N .
See 'cpoptions' for more fine tuning of Vi compatibility.

When this option is set, numerous other options are set to make Vim as Vi-compatible as possible. When this option is unset, various options are set to make Vim more useful. The table below lists all the options affected.
The {?} column indicates when the options are affected:
+ Means that the option is set to the value given in {set value} when 'compatible' is set.
& Means that the option is set to the value given in {set value} when 'compatible' is set AND is set to its Vim default value when 'compatible' is unset.
- Means the option is NOT changed when setting 'compatible' but IS set to its Vim default when 'compatible' is unset.
The {effect} column summarises the change when 'compatible' is set.

option	?	set value	effect
'allowrevins'	+	off	no CTRL-_ command
'antialias'	+	off	don't use antialiased fonts
'arabic'	+	off	reset arabic-related options
'arabicshape'	+	on	correct character shapes
'backspace'	+	""	normal backspace
'backup'	+	off	no backup file
'backupcopy'	&	Unix: "yes"	backup file is a copy
		else: "auto"	copy or rename backup file
'balloonexpr'	+	""	text to show in evaluation balloon
'breakindent'	+	off	don't indent when wrapping lines
'cedit'	-	{unchanged}	{set vim default only on resetting 'cp'}
'cindent'	+	off	no C code indentation
'compatible'	-	{unchanged}	{set vim default only on resetting 'cp'}
'copyindent'	+	off	don't copy indent structure
'cpoptions'	&	(all flags)	Vi-compatible flags
'cscopepathcomp'	+	0	don't show directories in tags list
'cscoperelative'	+	off	don't use basename of path as prefix
'cscopetag'	+	off	don't use cscope for ":tag"
'cscopetagorder'	+	0	see cscopetagorder
'cscopeverbose'	+	off	see cscopeverbose
'delcombine'	+	off	unicode: delete whole char combination
'digraph'	+	off	no digraphs
'esckeys'	&	off	no <Esc>-keys in Insert mode
'expandtab'	+	off	tabs not expanded to spaces
'fileformats'	&	""	no automatic file format detection,
		"dos,unix"	except for DOS, Windows and OS/2
'formatexpr'	+	""	use 'formatprg' for auto-formatting
'formatoptions'	&	"vt"	Vi compatible formatting

```
        'gdefault'      + off           no default 'g' flag for ":s"
        'history'       & 0             no commandline history
        'hkmap'         + off           no Hebrew keyboard mapping
        'hkmapp'        + off           no phonetic Hebrew keyboard mapping
        'hlsearch'      + off           no highlighting of search matches
        'incsearch'     + off           no incremental searching
        'indentexpr'    + ""            no indenting by expression
        'insertmode'    + off           do not start in Insert mode
        'iskeyword'     & "@,48-57,_"   keywords contain alphanumeric
                                                characters and '_'
        'joinspaces'    + on            insert 2 spaces after period
        'modeline'      & off           no modelines
        'more'          & off           no pauses in listings
        'mzquantum'     - {unchanged}   {set vim default only on resetting 'cp'}
        'numberwidth'   & 8             min number of columns for line number
        'preserveindent'+ off           don't preserve current indent structure
                                                when changing it
        'revins'        + off           no reverse insert
        'ruler'         + off           no ruler
        'scrolljump'    + 1             no jump scroll
        'scrolloff'     + 0             no scroll offset
        'shelltemp'     - {unchanged}   {set vim default only on resetting 'cp'}
        'shiftround'    + off           indent not rounded to shiftwidth
        'shortmess'     & ""            no shortening of messages
        'showcmd'       & off           command characters not shown
        'showmode'      & off           current mode not shown
        'sidescrolloff' + 0             cursor moves to edge of screen in scroll
        'smartcase'     + off           no automatic ignore case switch
        'smartindent'   + off           no smart indentation
        'smarttab'      + off           no smart tab size
        'softtabstop'   + 0             tabs are always 'tabstop' positions
        'startofline'   + on            goto startofline with some commands
        'tagcase'       & "followic"    'ignorecase' when searching tags file
        'tagrelative'   & off           tag file names are not relative
        'termguicolors' + off           don't use highlight-(guifg|guibg)
        'textauto'      & off           no automatic textmode detection
        'textwidth'     + 0             no automatic line wrap
        'tildeop'       + off           tilde is not an operator
        'ttimeout'      + off           no terminal timeout
        'undofile'      + off           don't use an undo file
        'viminfo'       - {unchanged}   {set Vim default only on resetting 'cp'}
        'virtualedit'   + ""            cursor can only be placed on characters
        'whichwrap'     & ""            left-right movements don't wrap
        'wildchar'      & CTRL-E        only when the current value is <Tab>
                                        use CTRL-E for cmdline completion
        'writebackup'   + on or off     depends on the  +writebackup  feature

                                                'complete'   'cpt'   E535
'complete' 'cpt'        string  (default: ".,w,b,u,t,i")
                        local to buffer
                        {not in Vi}
        This option specifies how keyword completion  ins-completion  works
        when CTRL-P or CTRL-N are used.  It is also used for whole-line
        completion  i_CTRL-X_CTRL-L .  It indicates the type of completion
```

```
        and the places to scan.  It is a comma separated list of flags:
        .       scan the current buffer ('wrapscan' is ignored)
        w       scan buffers from other windows
        b       scan other loaded buffers that are in the buffer list
        u       scan the unloaded buffers that are in the buffer list
        U       scan the buffers that are not in the buffer list
        k       scan the files given with the 'dictionary' option
        kspell  use the currently active spell checking  spell
        k{dict} scan the file {dict}.  Several "k" flags can be given,
                patterns are valid too.  For example:
                        :set cpt=k/usr/dict/*,k~/spanish
       s       scan the files given with the 'thesaurus' option
        s{tsr}  scan the file {tsr}.  Several "s" flags can be given, patterns
                are valid too.
        i       scan current and included files
        d       scan current and included files for defined name or macro
                 i_CTRL-X_CTRL-D
        ]       tag completion
        t       same as "]"

        Unloaded buffers are not loaded, thus their autocmds  :autocmd  are
        not executed, this may lead to unexpected completions from some files
        (gzipped files for example).  Unloaded buffers are not scanned for
        whole-line completion.

        The default is ".,w,b,u,t,i", which means to scan:
           1. the current buffer
           2. buffers in other windows
           3. other loaded buffers
           4. unloaded buffers
           5. tags
           6. included files

        As you can see, CTRL-N and CTRL-P can be used to do any 'iskeyword'-
        based expansion (e.g., dictionary  i_CTRL-X_CTRL-K , included patterns
         i_CTRL-X_CTRL-I , tags  i_CTRL-X_CTRL-]  and normal expansions).

                                                    'completefunc'   'cfu'
'completefunc' 'cfu'    string  (default: empty)
                        local to buffer
                        {not in Vi}
                        {not available when compiled without the  +eval
                        or  +insert_expand  features}
        This option specifies a function to be used for Insert mode completion
        with CTRL-X CTRL-U.  i_CTRL-X_CTRL-U
        See  complete-functions  for an explanation of how the function is
        invoked and what it should return.
        This option cannot be set from a  modeline  or in the  sandbox , for
        security reasons.

                                                    'completeopt'   'cot'
'completeopt' 'cot'     string  (default: "menu,preview")
                        global
                        {not available when compiled without the
```

+insert_expand feature}
{not in Vi}
A comma separated list of options for Insert mode completion
ins-completion . The supported values are:

menu Use a popup menu to show the possible completions. The
menu is only shown when there is more than one match and
sufficient colors are available. ins-completion-menu

menuone Use the popup menu also when there is only one match.
Useful when there is additional information about the
match, e.g., what file it comes from.

longest Only insert the longest common text of the matches. If
the menu is displayed you can use CTRL-L to add more
characters. Whether case is ignored depends on the kind
of completion. For buffer text the 'ignorecase' option is
used.

preview Show extra information about the currently selected
completion in the preview window. Only works in
combination with "menu" or "menuone".

noinsert Do not insert any text for a match until the user selects
a match from the menu. Only works in combination with
"menu" or "menuone". No effect if "longest" is present.

noselect Do not select a match in the menu, force the user to
select one from the menu. Only works in combination with
"menu" or "menuone".

'concealcursor' 'cocu'
'concealcursor' 'cocu' string (default: "")
local to window
{not in Vi}
{not available when compiled without the +conceal
feature}
Sets the modes in which text in the cursor line can also be concealed.
When the current mode is listed then concealing happens just like in
other lines.
n Normal mode
v Visual mode
i Insert mode
c Command line editing, for 'incsearch'

'v' applies to all lines in the Visual area, not only the cursor.
A useful value is "nc". This is used in help files. So long as you
are moving around text is concealed, but when starting to insert text
or selecting a Visual area the concealed text is displayed, so that
you can see what you are doing.
Keep in mind that the cursor position is not always where it's
displayed. E.g., when moving vertically it may change column.

'conceallevel' 'cole' 'conceallevel' 'cole'
number (default 0)
local to window
{not in Vi}
{not available when compiled without the +conceal feature}

Determine how text with the "conceal" syntax attribute :syn-conceal is shown:

Value	Effect
0	Text is shown normally
1	Each block of concealed text is replaced with one character. If the syntax item does not have a custom replacement character defined (see :syn-cchar) the character defined in 'listchars' is used (default is a space). It is highlighted with the "Conceal" highlight group.
2	Concealed text is completely hidden unless it has a custom replacement character defined (see :syn-cchar).
3	Concealed text is completely hidden.

Note: in the cursor line concealed text is not hidden, so that you can edit and copy the text. This can be changed with the 'concealcursor' option.

'confirm' 'cf' 'confirm' 'cf' 'noconfirm' 'nocf'
boolean (default off)
global
{not in Vi}

When 'confirm' is on, certain operations that would normally fail because of unsaved changes to a buffer, e.g. ":q" and ":e", instead raise a dialog asking if you wish to save the current file(s). You can still use a ! to unconditionally abandon a buffer. If 'confirm' is off you can still activate confirmation for one command only (this is most useful in mappings) with the :confirm command.
Also see the confirm() function and the 'v' flag in 'guioptions'.

'conskey' 'consk' 'conskey' 'consk' 'noconskey' 'noconsk'
boolean (default off)
global
{not in Vi} {only for MS-DOS}

This was for MS-DOS and is no longer supported.

'copyindent' 'ci' 'copyindent' 'ci' 'nocopyindent' 'noci'
boolean (default off)
local to buffer
{not in Vi}

Copy the structure of the existing lines indent when autoindenting a new line. Normally the new indent is reconstructed by a series of tabs followed by spaces as required (unless 'expandtab' is enabled, in which case only spaces are used). Enabling this option makes the

new line copy whatever characters were used for indenting on the existing line. 'expandtab' has no effect on these characters, a Tab remains a Tab. If the new indent is greater than on the existing line, the remaining space is filled in the normal manner.
NOTE: This option is reset when 'compatible' is set.
Also see 'preserveindent'.

'cpoptions' 'cpo' 'cpoptions' 'cpo' 'cpoptions' 'cpo' cpo

'cpoptions' 'cpo' string (Vim default: "aABceFs", Vi default: all flags)
global
{not in Vi}

A sequence of single character flags. When a character is present this indicates Vi-compatible behavior. This is used for things where not being Vi-compatible is mostly or sometimes preferred.
'cpoptions' stands for "compatible-options".
Commas can be added for readability.
To avoid problems with flags that are added in the future, use the "+=" and "-=" feature of ":set" add-option-flags .
NOTE: This option is set to the Vi default value when 'compatible' is set and to the Vim default value when 'compatible' is reset.
NOTE: This option is set to the POSIX default value at startup when the Vi default value would be used and the $VIM_POSIX environment variable exists posix . This means Vim tries to behave like the POSIX specification.

contains behavior

cpo-a
a When included, a ":read" command with a file name argument will set the alternate file name for the current window.

cpo-A
A When included, a ":write" command with a file name argument will set the alternate file name for the current window.

cpo-b
b "\|" in a ":map" command is recognized as the end of the map command. The '\' is included in the mapping, the text after the '|' is interpreted as the next command. Use a CTRL-V instead of a backslash to include the '|' in the mapping. Applies to all mapping, abbreviation, menu and autocmd commands. See also map_bar .

cpo-B
B A backslash has no special meaning in mappings, abbreviations, user commands and the "to" part of the menu commands. Remove this flag to be able to use a backslash like a CTRL-V. For example, the command ":map X \<Esc>" results in X being mapped to:
'B' included: "\^[" (^[is a real <Esc>)
'B' excluded: "<Esc>" (5 characters)
('<' excluded in both cases)

cpo-c
c Searching continues at the end of any match at the

cursor position, but not further than the start of the next line. When not present searching continues one character from the cursor position. With 'c' "abababababab" only gets three matches when repeating "/abab", without 'c' there are five matches.

cpo-C

C Do not concatenate sourced lines that start with a backslash. See line-continuation .

cpo-d

d Using "./" in the 'tags' option doesn't mean to use the tags file relative to the current file, but the tags file in the current directory.

cpo-D

D Can't use CTRL-K to enter a digraph after Normal mode commands with a character argument, like r , f and t .

cpo-e

e When executing a register with ":@r", always add a <CR> to the last line, also when the register is not linewise. If this flag is not present, the register is not linewise and the last line does not end in a <CR>, then the last line is put on the command-line and can be edited before hitting <CR>.

cpo-E

E It is an error when using "y", "d", "c", "g~", "gu" or "gU" on an Empty region. The operators only work when at least one character is to be operated on. Example: This makes "y0" fail in the first column.

cpo-f

f When included, a ":read" command with a file name argument will set the file name for the current buffer, if the current buffer doesn't have a file name yet.

cpo-F

F When included, a ":write" command with a file name argument will set the file name for the current buffer, if the current buffer doesn't have a file name yet. Also see cpo-P .

cpo-g

g Goto line 1 when using ":edit" without argument.

cpo-H

H When using "I" on a line with only blanks, insert before the last blank. Without this flag insert after the last blank.

cpo-i

i When included, interrupting the reading of a file will leave it modified.

cpo-I

I When moving the cursor up or down just after inserting indent for 'autoindent', do not delete the indent.

cpo-j

j When joining lines, only add two spaces after a '.', not after '!' or '?'. Also see 'joinspaces'.

cpo-J

J A sentence has to be followed by two spaces after

the '.', '!' or '?'. A <Tab> is not recognized as white space.

cpo-k

k	Disable the recognition of raw key codes in mappings, abbreviations, and the "to" part of menu commands. For example, if <Key> sends ^[OA (where ^[is <Esc>), the command ":map X ^[OA" results in X being mapped to:
		'k' included: "^[OA" (3 characters)
		'k' excluded: "<Key>" (one key code)
	Also see the '<' flag below.

cpo-K

K	Don't wait for a key code to complete when it is halfway a mapping. This breaks mapping <F1><F1> when only part of the second <F1> has been read. It enables cancelling the mapping by typing <F1><Esc>.

cpo-l

l	Backslash in a [] range in a search pattern is taken literally, only "\]", "\^", "\-" and "\\" are special. See /[]
	   'l' included: "/[\t]" finds <Space>, '\' and 't'
	   'l' excluded: "/[\t]" finds <Space> and <Tab>
	Also see cpo-\ .

cpo-L

L	When the 'list' option is set, 'wrapmargin', 'textwidth', 'softtabstop' and Virtual Replace mode (see gR) count a <Tab> as two characters, instead of the normal behavior of a <Tab>.

cpo-m

m	When included, a showmatch will always wait half a second. When not included, a showmatch will wait half a second or until a character is typed. 'showmatch'

cpo-M

M	When excluded, "%" matching will take backslashes into account. Thus in "(\( )" and "\((\)" the outer parenthesis match. When included "%" ignores backslashes, which is Vi compatible.

cpo-n

n	When included, the column used for 'number' and 'relativenumber' will also be used for text of wrapped lines.

cpo-o

o	Line offset to search command is not remembered for next search.

cpo-O

O	Don't complain if a file is being overwritten, even when it didn't exist when editing it. This is a protection against a file unexpectedly created by someone else. Vi didn't complain about this.

cpo-p

p	Vi compatible Lisp indenting. When not present, a slightly better algorithm is used.

cpo-P

P	When included, a ":write" command that appends to a

file will set the file name for the current buffer, if the current buffer doesn't have a file name yet and the 'F' flag is also included cpo-F .

cpo-q

q When joining multiple lines leave the cursor at the position where it would be when joining two lines.

cpo-r

r Redo ("." command) uses "/" to repeat a search command, instead of the actually used search string.

cpo-R

R Remove marks from filtered lines. Without this flag marks are kept like :keepmarks was used.

cpo-s

s Set buffer options when entering the buffer for the first time. This is like it is in Vim version 3.0. And it is the default. If not present the options are set when the buffer is created.

cpo-S

S Set buffer options always when entering a buffer (except 'readonly', 'fileformat', 'filetype' and 'syntax'). This is the (most) Vi compatible setting. The options are set to the values in the current buffer. When you change an option and go to another buffer, the value is copied. Effectively makes the buffer options global to all buffers.

's'	'S'	copy buffer options
no	no	when buffer created
yes	no	when buffer first entered (default)
X	yes	each time when buffer entered (vi comp.)

cpo-t

t Search pattern for the tag command is remembered for "n" command. Otherwise Vim only puts the pattern in the history for search pattern, but doesn't change the last used search pattern.

cpo-u

u Undo is Vi compatible. See undo-two-ways .

cpo-v

v Backspaced characters remain visible on the screen in Insert mode. Without this flag the characters are erased from the screen right away. With this flag the screen newly typed text overwrites backspaced characters.

cpo-w

w When using "cw" on a blank character, only change one character and not all blanks until the start of the next word.

cpo-W

W Don't overwrite a readonly file. When omitted, ":w!" overwrites a readonly file, if possible.

cpo-x

x <Esc> on the command-line executes the command-line. The default in Vim is to abandon the command-line, because <Esc> normally aborts a command. c_<Esc>

cpo-X

X	When using a count with "R" the replaced text is
	deleted only once. Also when repeating "R" with "."
	and a count.

cpo-y

y	A yank command can be redone with ".".

cpo-Z

Z	When using "w!" while the 'readonly' option is set,
	don't reset 'readonly'.

cpo-!

!	When redoing a filter command, use the last used
	external command, whatever it was. Otherwise the last
	used -filter- command is used.

cpo-$

$	When making a change to one line, don't redisplay the
	line, but put a '$' at the end of the changed text.
	The changed text will be overwritten when you type the
	new text. The line is redisplayed if you type any
	command that moves the cursor from the insertion
	point.

cpo-%

%	Vi-compatible matching is done for the "%" command.
	Does not recognize "#if", "#endif", etc.
	Does not recognize "/*" and "*/".
	Parens inside single and double quotes are also
	counted, causing a string that contains a paren to
	disturb the matching. For example, in a line like
	"if (strcmp("foo(", s))" the first paren does not
	match the last one. When this flag is not included,
	parens inside single and double quotes are treated
	specially. When matching a paren outside of quotes,
	everything inside quotes is ignored. When matching a
	paren inside quotes, it will find the matching one (if
	there is one). This works very well for C programs.
	This flag is also used for other features, such as
	C-indenting.

cpo--

-	When included, a vertical movement command fails when
	it would go above the first line or below the last
	line. Without it the cursor moves to the first or
	last line, unless it already was in that line.
	Applies to the commands "-", "k", CTRL-P, "+", "j",
	CTRL-N, CTRL-J and ":1234".

cpo-+

+	When included, a ":write file" command will reset the
	'modified' flag of the buffer, even though the buffer
	itself may still be different from its file.

cpo-star

*	Use ":*" in the same way as ":@". When not included,
	":*" is an alias for ":'<,'>", select the Visual area.

cpo-<

<	Disable the recognition of special key codes in |<>|
	form in mappings, abbreviations, and the "to" part of
	menu commands. For example, the command

":map X <Tab>" results in X being mapped to:
'<' included: "<Tab>" (5 characters)
'<' excluded: "^I" (^I is a real <Tab>)
Also see the 'k' flag above.

cpo->

> When appending to a register, put a line break before the appended text.

cpo-;

; When using , or ; to repeat the last t search and the cursor is right in front of the searched character, the cursor won't move. When not included, the cursor would skip over it and jump to the following occurrence.

POSIX flags. These are not included in the Vi default value, except when $VIM_POSIX was set on startup. posix

contains behavior

cpo-#

A count before "D", "o" and "O" has no effect.

cpo-&

& When ":preserve" was used keep the swap file when exiting normally while this buffer is still loaded. This flag is tested when exiting.

cpo-\

\ Backslash in a [] range in a search pattern is taken literally, only "\]" is special See /[]
'\' included: "/[\-]" finds <Space>, '\' and '-'
'\' excluded: "/[\-]" finds <Space> and '-'
Also see cpo-l .

cpo-/

/ When "%" is used as the replacement string in a :s command, use the previous replacement string. :s%

cpo-{

{ The |{| and |}| commands also stop at a "{" character at the start of a line.

cpo-.

. The ":chdir" and ":cd" commands fail if the current buffer is modified, unless ! is used. Vim doesn't need this, since it remembers the full path of an opened file.

cpo-bar

| The value of the $LINES and $COLUMNS environment variables overrule the terminal size values obtained with system specific functions.

'cryptmethod' 'cm'

'cryptmethod' 'cm' string (default "zip")
global or local to buffer global-local
{not in Vi}
Method used for encryption when the buffer is written to a file:

pkzip

zip PkZip compatible method. A weak kind of encryption.

Backwards compatible with Vim 7.2 and older.
blowfish

blowfish Blowfish method. Medium strong encryption but it has an implementation flaw. Requires Vim 7.3 or later, files can NOT be read by Vim 7.2 and older. This adds a "seed" to the file, every time you write the file the encrypted bytes will be different.
blowfish2

blowfish2 Blowfish method. Medium strong encryption. Requires Vim 7.4.401 or later, files can NOT be read by Vim 7.3 and older. This adds a "seed" to the file, every time you write the file the encrypted bytes will be different. The whole undo file is encrypted, not just the pieces of text.

You should use "blowfish2", also to re-encrypt older files.

When reading an encrypted file 'cryptmethod' will be set automatically to the detected method of the file being read. Thus if you write it without changing 'cryptmethod' the same method will be used. Changing 'cryptmethod' does not mark the file as modified, you have to explicitly write it, you don't get a warning unless there are other modifications. Also see :X .

When setting the global value to an empty string, it will end up with the value "zip". When setting the local value to an empty string the buffer will use the global value.

When a new encryption method is added in a later version of Vim, and the current version does not recognize it, you will get E821 . You need to edit this file with the later version of Vim.

'cscopepathcomp' *'cspc'*
'cscopepathcomp' 'cspc' number (default 0)
global
{not available when compiled without the +cscope feature}
{not in Vi}

Determines how many components of the path to show in a list of tags. See cscopepathcomp .
NOTE: This option is set to 0 when 'compatible' is set.

'cscopeprg' *'csprg'*
'cscopeprg' 'csprg' string (default "cscope")
global
{not available when compiled without the +cscope feature}
{not in Vi}

Specifies the command to execute cscope. See cscopeprg .
This option cannot be set from a modeline or in the sandbox , for security reasons.

'cscopequickfix' *'csqf'*

'cscopequickfix' 'csqf' string (default "")
                        global
                        {not available when compiled without the +cscope
                        or +quickfix features}
                        {not in Vi}
        Specifies whether to use quickfix window to show cscope results.
        See cscopequickfix .

                'cscoperelative'   'csre'   'nocscoperelative'   'nocsre'
'cscoperelative' 'csre' boolean (default off)
                        global
                        {not available when compiled without the +cscope
                        feature}
                        {not in Vi}
        In the absence of a prefix (-P) for cscope. setting this option enables
        to use the basename of cscope.out path as the prefix.
        See cscoperelative .
        NOTE: This option is reset when 'compatible' is set.

                                'cscopetag'   'cst'   'nocscopetag'   'nocst'
'cscopetag' 'cst'   boolean (default off)
                        global
                        {not available when compiled without the +cscope
                        feature}
                        {not in Vi}
        Use cscope for tag commands. See cscope-options .
        NOTE: This option is reset when 'compatible' is set.

                                                'cscopetagorder'   'csto'
'cscopetagorder' 'csto' number (default 0)
                        global
                        {not available when compiled without the +cscope
                        feature}
                        {not in Vi}
        Determines the order in which ":cstag" performs a search. See
         cscopetagorder .
        NOTE: This option is set to 0 when 'compatible' is set.

                                        'cscopeverbose'   'csverb'
                                        'nocscopeverbose'   'nocsverb'
'cscopeverbose' 'csverb' boolean (default off)
                        global
                        {not available when compiled without the +cscope
                        feature}
                        {not in Vi}
        Give messages when adding a cscope database. See cscopeverbose .
        NOTE: This option is reset when 'compatible' is set.

                         'cursorbind'   'crb'   'nocursorbind'   'nocrb'
'cursorbind' 'crb'   boolean (default off)
                        local to window
                        {not in Vi}
        When this option is set, as the cursor in the current
        window moves other cursorbound windows (windows that also have

this option set) move their cursors to the corresponding line and column. This option is useful for viewing the differences between two versions of a file (see 'diff'); in diff mode, inserted and deleted lines (though not characters within a line) are taken into account.

'cursorcolumn' *'cuc'* *'nocursorcolumn'* *'nocuc'*
'cursorcolumn' 'cuc' boolean (default off)
local to window
{not in Vi}
{not available when compiled without the +syntax feature}
Highlight the screen column of the cursor with CursorColumn hl-CursorColumn . Useful to align text. Will make screen redrawing slower.
If you only want the highlighting in the current window you can use these autocommands:

```
au WinLeave * set nocursorline nocursorcolumn
au WinEnter * set cursorline cursorcolumn
```

'cursorline' *'cul'* *'nocursorline'* *'nocul'*
'cursorline' 'cul' boolean (default off)
local to window
{not in Vi}
{not available when compiled without the +syntax feature}
Highlight the screen line of the cursor with CursorLine hl-CursorLine . Useful to easily spot the cursor. Will make screen redrawing slower.
When Visual mode is active the highlighting isn't used to make it easier to see the selected text.

'debug'
'debug' string (default "")
global
{not in Vi}
These values can be used:

msg	Error messages that would otherwise be omitted will be given anyway.
throw	Error messages that would otherwise be omitted will be given anyway and also throw an exception and set v:errmsg .
beep	A message will be given when otherwise only a beep would be produced.

The values can be combined, separated by a comma.
"msg" and "throw" are useful for debugging 'foldexpr', 'formatexpr' or 'indentexpr'.

'define' *'def'*
'define' 'def' string (default "^\s*#\s*define")
global or local to buffer global-local
{not in Vi}

Pattern to be used to find a macro definition. It is a search pattern, just like for the "/" command. This option is used for the commands like "[i" and "[d" include-search . The 'isident' option is used to recognize the defined name after the match:
{match with 'define'}{non-ID chars}{defined name}{non-ID char}
See option-backslash about inserting backslashes to include a space or backslash.
The default value is for C programs. For C++ this value would be useful, to include const type declarations:
^\(#\s*define\|[a-z]*\s*const\s*[a-z]*\)
When using the ":set" command, you need to double the backslashes!

'delcombine' 'deco' 'nodelcombine' 'nodeco'
'delcombine' 'deco' boolean (default off)
global
{not in Vi}
{only available when compiled with the +multi_byte feature}
If editing Unicode and this option is set, backspace and Normal mode "x" delete each combining character on its own. When it is off (the default) the character along with its combining characters are deleted.
Note: When 'delcombine' is set "xx" may work different from "2x"!

This is useful for Arabic, Hebrew and many other languages where one may have combining characters overtop of base characters, and want to remove only the combining ones.
NOTE: This option is reset when 'compatible' is set.

'dictionary' 'dict'
'dictionary' 'dict' string (default "")
global or local to buffer global-local
{not in Vi}
List of file names, separated by commas, that are used to lookup words for keyword completion commands i_CTRL-X_CTRL-K . Each file should contain a list of words. This can be one word per line, or several words per line, separated by non-keyword characters (white space is preferred). Maximum line length is 510 bytes.

When this option is empty or an entry "spell" is present, and spell checking is enabled, words in the word lists for the currently active 'spelllang' are used. See spell .

To include a comma in a file name precede it with a backslash. Spaces after a comma are ignored, otherwise spaces are included in the file name. See option-backslash about using backslashes.
This has nothing to do with the Dictionary variable type.
Where to find a list of words?
- On FreeBSD, there is the file "/usr/share/dict/words".
- In the Simtel archive, look in the "msdos/linguist" directory.
- In "miscfiles" of the GNU collection.
The use of :set+= and :set-= is preferred when adding or removing directories from the list. This avoids problems when a future version uses another default.

Backticks cannot be used in this option for security reasons.

'diff' 'nodiff'

'diff' boolean (default off)
local to window
{not in Vi}
{not available when compiled without the +diff feature}
Join the current window in the group of windows that shows differences between files. See vimdiff .

'dex' 'diffexpr'

'diffexpr' 'dex' string (default "")
global
{not in Vi}
{not available when compiled without the +diff feature}
Expression which is evaluated to obtain an ed-style diff file from two versions of a file. See diff-diffexpr .
This option cannot be set from a modeline or in the sandbox , for security reasons.

'dip' 'diffopt'

'diffopt' 'dip' string (default "filler")
global
{not in Vi}
{not available when compiled without the +diff feature}
Option settings for diff mode. It can consist of the following items. All are optional. Items must be separated by a comma.

filler	Show filler lines, to keep the text synchronized with a window that has inserted lines at the same position. Mostly useful when windows are side-by-side and 'scrollbind' is set.
context:{n}	Use a context of {n} lines between a change and a fold that contains unchanged lines. When omitted a context of six lines is used. See fold-diff .
icase	Ignore changes in case of text. "a" and "A" are considered the same. Adds the "-i" flag to the "diff" command if 'diffexpr' is empty.
iwhite	Ignore changes in amount of white space. Adds the "-b" flag to the "diff" command if 'diffexpr' is empty. Check the documentation of the "diff" command for what this does exactly. It should ignore adding trailing white space, but not leading white space.
horizontal	Start diff mode with horizontal splits (unless

```
                                explicitly specified otherwise).

                vertical        Start diff mode with vertical splits (unless
                                explicitly specified otherwise).

                hiddenoff       Do not use diff mode for a buffer when it
                                becomes hidden.

                foldcolumn:{n}  Set the 'foldcolumn' option to {n} when
                                starting diff mode.  Without this 2 is used.

        Examples:

                :set diffopt=filler,context:4
                :set diffopt=
                :set diffopt=filler,foldcolumn:3

                                                'digraph'   'dg'   'nodigraph'   'nodg'
'digraph' 'dg'          boolean (default off)
                        global
                        {not in Vi}
                        {not available when compiled without the  +digraphs
                        feature}
        Enable the entering of digraphs in Insert mode with {char1} <BS>
        {char2}.  See  digraphs .
        NOTE: This option is reset when 'compatible' is set.

                                                        'directory'   'dir'
'directory' 'dir'       string  (default for Amiga: ".,t:",
                                 for MS-DOS and Win32: ".,$TEMP,c:\tmp,c:\temp"
                                 for Unix: ".,~/tmp,/var/tmp,/tmp")
                        global
        List of directory names for the swap file, separated with commas.
        - The swap file will be created in the first directory where this is
          possible.
        - Empty means that no swap file will be used (recovery is
          impossible!).
        - A directory "." means to put the swap file in the same directory as
          the edited file.  On Unix, a dot is prepended to the file name, so
          it doesn't show in a directory listing.  On MS-Windows the "hidden"
          attribute is set and a dot prepended if possible.
        - A directory starting with "./" (or ".\" for MS-DOS et al.) means to
          put the swap file relative to where the edited file is.  The leading
          "." is replaced with the path name of the edited file.
        - For Unix and Win32, if a directory ends in two path separators "//",
          the swap file name will be built from the complete path to the file
          with all path separators substituted to percent '%' signs. This will
          ensure file name uniqueness in the preserve directory.
          On Win32, it is also possible to end with "\\".  However, When a
          separating comma is following, you must use "//", since "\\" will
          include the comma in the file name. Therefore it is recommended to
          use '//', instead of '\\'.
        - Spaces after the comma are ignored, other spaces are considered part
          of the directory name.  To have a space at the start of a directory
```

```
          name, precede it with a backslash.
        - To include a comma in a directory name precede it with a backslash.
        - A directory name may end in an ':' or '/'.
        - Environment variables are expanded  :set_env .
        - Careful with '\' characters, type one before a space, type two to
          get one in the option (see  option-backslash ), for example:
            :set dir=c:\\tmp,\ dir\\,with\\,commas,\\\ dir\ with\ spaces
      - For backwards compatibility with Vim version 3.0 a '>' at the start
        of the option is removed.
      Using "." first in the list is recommended.  This means that editing
      the same file twice will result in a warning.  Using "/tmp" on Unix is
      discouraged: When the system crashes you lose the swap file.
      "/var/tmp" is often not cleared when rebooting, thus is a better
      choice than "/tmp".  But it can contain a lot of files, your swap
      files get lost in the crowd.  That is why a "tmp" directory in your
      home directory is tried first.
      The use of  :set+=  and  :set-=  is preferred when adding or removing
      directories from the list.  This avoids problems when a future version
      uses another default.
      This option cannot be set from a  modeline  or in the  sandbox , for
      security reasons.
      {Vi: directory to put temp file in, defaults to "/tmp"}

                                          'display'   'dy'
'display' 'dy'          string  (default "", set to "truncate" in
                                                          defaults.vim )
                        global
                        {not in Vi}
      Change the way text is displayed.  This is comma separated list of
      flags:
      lastline          When included, as much as possible of the last line
                        in a window will be displayed.  "@@@" is put in the
                        last columns of the last screen line to indicate the
                        rest of the line is not displayed.
      truncate          Like "lastline", but "@@@" is displayed in the first
                        column of the last screen line.  Overrules "lastline".
      uhex              Show unprintable characters hexadecimal as <xx>
                        instead of using ^C and ~C.

      When neither "lastline" nor "truncate" is included, a last line that
      doesn't fit is replaced with "@" lines.

                                                 'eadirection'   'ead'
'eadirection' 'ead'     string  (default "both")
                        global
                        {not in Vi}
                        {not available when compiled without the  +vertsplit
                        feature}
      Tells when the 'equalalways' option applies:
              ver       vertically, width of windows is not affected
              hor       horizontally, height of windows is not affected
              both      width and height of windows is affected

                            'ed'   'edcompatible'   'noed'   'noedcompatible'
```

'edcompatible' 'ed'	boolean (default off)
		global
	Makes the 'g' and 'c' flags of the ":substitute" command to be
	toggled each time the flag is given. See complex-change . See
	also 'gdefault' option.
	Switching this option on may break plugins!

'emoji' 'emo' 'noemoji' 'noemo'
'emoji' 'emo'	boolean (default: on)
		global
		{not in Vi}
		{only available when compiled with the +multi_byte
		feature}
	When on all Unicode emoji characters are considered to be full width.

'encoding' 'enc' E543
'encoding' 'enc'	string (default: "latin1" or value from $LANG)
		global
		{only available when compiled with the +multi_byte
		feature}
		{not in Vi}
	Sets the character encoding used inside Vim. It applies to text in
	the buffers, registers, Strings in expressions, text stored in the
	viminfo file, etc. It sets the kind of characters which Vim can work
	with. See encoding-names for the possible values.

	NOTE: Changing this option will not change the encoding of the
	existing text in Vim. It may cause non-ASCII text to become invalid.
	It should normally be kept at its default value, or set when Vim
	starts up. See multibyte . To reload the menus see :menutrans .

	This option cannot be set from a modeline . It would most likely
	corrupt the text.

	NOTE: For GTK+ 2 or later, it is highly recommended to set 'encoding'
	to "utf-8". Although care has been taken to allow different values of
	'encoding', "utf-8" is the natural choice for the environment and
	avoids unnecessary conversion overhead. "utf-8" has not been made
	the default to prevent different behavior of the GUI and terminal
	versions, and to avoid changing the encoding of newly created files
	without your knowledge (in case 'fileencodings' is empty).

	The character encoding of files can be different from 'encoding'.
	This is specified with 'fileencoding'. The conversion is done with
	iconv() or as specified with 'charconvert'.

	If you need to know whether 'encoding' is a multi-byte encoding, you
	can use:
		if has("multi_byte_encoding")

	Normally 'encoding' will be equal to your current locale. This will
	be the default if Vim recognizes your environment settings. If
	'encoding' is not set to the current locale, 'termencoding' must be

set to convert typed and displayed text. See encoding-table .

When you set this option, it fires the EncodingChanged autocommand event so that you can set up fonts if necessary.

When the option is set, the value is converted to lowercase. Thus you can set it with uppercase values too. Underscores are translated to '-' signs.
When the encoding is recognized, it is changed to the standard name. For example "Latin-1" becomes "latin1", "ISO_88592" becomes "iso-8859-2" and "utf8" becomes "utf-8".

Note: "latin1" is also used when the encoding could not be detected. This only works when editing files in the same encoding! When the actual character set is not latin1, make sure 'fileencoding' and 'fileencodings' are empty. When conversion is needed, switch to using utf-8.

When "unicode", "ucs-2" or "ucs-4" is used, Vim internally uses utf-8. You don't notice this while editing, but it does matter for the viminfo-file . And Vim expects the terminal to use utf-8 too. Thus setting 'encoding' to one of these values instead of utf-8 only has effect for encoding used for files when 'fileencoding' is empty.

When 'encoding' is set to a Unicode encoding, and 'fileencodings' was not set yet, the default for 'fileencodings' is changed.

'endofline' 'eol' 'noendofline' 'noeol'
'endofline' 'eol' boolean (default on)
local to buffer
{not in Vi}
When writing a file and this option is off and the 'binary' option is on, or 'fixeol' option is off, no <EOL> will be written for the last line in the file. This option is automatically set or reset when starting to edit a new file, depending on whether file has an <EOL> for the last line in the file. Normally you don't have to set or reset this option.
When 'binary' is off and 'fixeol' is on the value is not used when writing the file. When 'binary' is on or 'fixeol' is off it is used to remember the presence of a <EOL> for the last line in the file, so that when you write the file the situation from the original file can be kept. But you can change it if you want to.

'equalalways' 'ea' 'noequalalways' 'noea'
'equalalways' 'ea' boolean (default on)
global
{not in Vi}
When on, all the windows are automatically made the same size after splitting or closing a window. This also happens the moment the option is switched on. When off, splitting a window will reduce the size of the current window and leave the other windows the same. When closing a window the extra lines are given to the window next to it (depending on 'splitbelow' and 'splitright').
When mixing vertically and horizontally split windows, a minimal size

is computed and some windows may be larger if there is room. The 'eadirection' option tells in which direction the size is affected. Changing the height and width of a window can be avoided by setting 'winfixheight' and 'winfixwidth', respectively.
If a window size is specified when creating a new window sizes are currently not equalized (it's complicated, but may be implemented in the future).

'equalprg' 'ep'

'equalprg' 'ep' string (default "")
global or local to buffer global-local
{not in Vi}
External program to use for "=" command. When this option is empty the internal formatting functions are used; either 'lisp', 'cindent' or 'indentexpr'. When Vim was compiled without internal formatting, the "indent" program is used.
Environment variables are expanded :set_env . See option-backslash about including spaces and backslashes.
This option cannot be set from a modeline or in the sandbox , for security reasons.

'errorbells' 'eb' 'noerrorbells' 'noeb'

'errorbells' 'eb' boolean (default off)
global
Ring the bell (beep or screen flash) for error messages. This only makes a difference for error messages, the bell will be used always for a lot of errors without a message (e.g., hitting <Esc> in Normal mode). See 'visualbell' on how to make the bell behave like a beep, screen flash or do nothing. See 'belloff' to finetune when to ring the bell.

'errorfile' 'ef'

'errorfile' 'ef' string (Amiga default: "AztecC.Err",
others: "errors.err")
global
{not in Vi}
{not available when compiled without the +quickfix feature}
Name of the errorfile for the QuickFix mode (see :cf).
When the "-q" command-line argument is used, 'errorfile' is set to the following argument. See -q .
NOT used for the ":make" command. See 'makeef' for that.
Environment variables are expanded :set_env .
See option-backslash about including spaces and backslashes.
This option cannot be set from a modeline or in the sandbox , for security reasons.

'errorformat' 'efm'

'errorformat' 'efm' string (default is very long)
global or local to buffer global-local
{not in Vi}
{not available when compiled without the +quickfix feature}
Scanf-like description of the format for the lines in the error file

(see errorformat).

'esckeys' 'ek' 'noesckeys' 'noek'
'esckeys' 'ek' boolean (Vim default: on, Vi default: off)
global
{not in Vi}
Function keys that start with an <Esc> are recognized in Insert mode. When this option is off, the cursor and function keys cannot be used in Insert mode if they start with an <Esc>. The advantage of this is that the single <Esc> is recognized immediately, instead of after one second. Instead of resetting this option, you might want to try changing the values for 'timeoutlen' and 'ttimeoutlen'. Note that when 'esckeys' is off, you can still map anything, but the cursor keys won't work by default.
NOTE: This option is set to the Vi default value when 'compatible' is set and to the Vim default value when 'compatible' is reset.

'eventignore' 'ei'
'eventignore' 'ei' string (default "")
global
{not in Vi}
A list of autocommand event names, which are to be ignored.
When set to "all" or when "all" is one of the items, all autocommand events are ignored, autocommands will not be executed.
Otherwise this is a comma separated list of event names. Example:
:set ei=WinEnter,WinLeave

'expandtab' 'et' 'noexpandtab' 'noet'
'expandtab' 'et' boolean (default off)
local to buffer
{not in Vi}
In Insert mode: Use the appropriate number of spaces to insert a <Tab>. Spaces are used in indents with the '>' and '<' commands and when 'autoindent' is on. To insert a real tab when 'expandtab' is on, use CTRL-V<Tab>. See also :retab and ins-expandtab .
This option is reset when the 'paste' option is set and restored when the 'paste' option is reset.
NOTE: This option is reset when 'compatible' is set.

'exrc' 'ex' 'noexrc' 'noex'
'exrc' 'ex' boolean (default off)
global
{not in Vi}
Enables the reading of .vimrc, .exrc and .gvimrc in the current directory.

Setting this option is a potential security leak. E.g., consider unpacking a package or fetching files from github, a .vimrc in there might be a trojan horse. BETTER NOT SET THIS OPTION!
Instead, define an autocommand in your .vimrc to set options for a matching directory.

If you do switch this option on you should also consider setting the 'secure' option (see initialization).

Also see .vimrc and gui-init .
This option cannot be set from a modeline or in the sandbox , for
security reasons.

'fileencoding' 'fenc' E213
'fileencoding' 'fenc' string (default: "")
local to buffer
{only available when compiled with the +multi_byte
feature}
{not in Vi}
Sets the character encoding for the file of this buffer.

When 'fileencoding' is different from 'encoding', conversion will be
done when writing the file. For reading see below.
When 'fileencoding' is empty, the same value as 'encoding' will be
used (no conversion when reading or writing a file).
No error will be given when the value is set, only when it is used,
only when writing a file.
Conversion will also be done when 'encoding' and 'fileencoding' are
both a Unicode encoding and 'fileencoding' is not utf-8. That's
because internally Unicode is always stored as utf-8.
WARNING: Conversion can cause loss of information! When
'encoding' is "utf-8" or another Unicode encoding, conversion
is most likely done in a way that the reverse conversion
results in the same text. When 'encoding' is not "utf-8" some
characters may be lost!

See 'encoding' for the possible values. Additionally, values may be
specified that can be handled by the converter, see
mbyte-conversion .

When reading a file 'fileencoding' will be set from 'fileencodings'.
To read a file in a certain encoding it won't work by setting
'fileencoding', use the ++enc argument. One exception: when
'fileencodings' is empty the value of 'fileencoding' is used.
For a new file the global value of 'fileencoding' is used.

Prepending "8bit-" and "2byte-" has no meaning here, they are ignored.
When the option is set, the value is converted to lowercase. Thus
you can set it with uppercase values too. '_' characters are
replaced with '-'. If a name is recognized from the list for
'encoding', it is replaced by the standard name. For example
"ISO8859-2" becomes "iso-8859-2".

When this option is set, after starting to edit a file, the 'modified'
option is set, because the file would be different when written.

Keep in mind that changing 'fenc' from a modeline happens
AFTER the text has been read, thus it applies to when the file will be
written. If you do set 'fenc' in a modeline, you might want to set
'nomodified' to avoid not being able to ":q".

This option can not be changed when 'modifiable' is off.

'fe'
NOTE: Before version 6.0 this option specified the encoding for the whole of Vim, this was a mistake. Now use 'encoding' instead. The old short name was 'fe', which is no longer used.

'fileencodings' 'fencs'
'fileencodings' 'fencs' string (default: "ucs-bom",
"ucs-bom,utf-8,default,latin1" when
'encoding' is set to a Unicode value)
global
{only available when compiled with the +multi_byte feature}
{not in Vi}
This is a list of character encodings considered when starting to edit an existing file. When a file is read, Vim tries to use the first mentioned character encoding. If an error is detected, the next one in the list is tried. When an encoding is found that works, 'fileencoding' is set to it. If all fail, 'fileencoding' is set to an empty string, which means the value of 'encoding' is used.
WARNING: Conversion can cause loss of information! When 'encoding' is "utf-8" (or one of the other Unicode variants) conversion is most likely done in a way that the reverse conversion results in the same text. When 'encoding' is not "utf-8" some non-ASCII characters may be lost! You can use the ++bad argument to specify what is done with characters that can't be converted.
For an empty file or a file with only ASCII characters most encodings will work and the first entry of 'fileencodings' will be used (except "ucs-bom", which requires the BOM to be present). If you prefer another encoding use an BufReadPost autocommand event to test if your preferred encoding is to be used. Example:
```
au BufReadPost * if search('\S', 'w') == 0 |
\ set fenc=iso-2022-jp | endif
```
This sets 'fileencoding' to "iso-2022-jp" if the file does not contain non-blank characters.
When the ++enc argument is used then the value of 'fileencodings' is not used.
Note that 'fileencodings' is not used for a new file, the global value of 'fileencoding' is used instead. You can set it with:
```
:setglobal fenc=iso-8859-2
```
This means that a non-existing file may get a different encoding than an empty file.
The special value "ucs-bom" can be used to check for a Unicode BOM (Byte Order Mark) at the start of the file. It must not be preceded by "utf-8" or another Unicode encoding for this to work properly.
An entry for an 8-bit encoding (e.g., "latin1") should be the last, because Vim cannot detect an error, thus the encoding is always accepted.
The special value "default" can be used for the encoding from the environment. This is the default value for 'encoding'. It is useful when 'encoding' is set to "utf-8" and your environment uses a non-latin1 encoding, such as Russian.
When 'encoding' is "utf-8" and a file contains an illegal byte sequence it won't be recognized as UTF-8. You can use the 8g8

command to find the illegal byte sequence.
WRONG VALUES: WHAT'S WRONG:
latin1,utf-8 "latin1" will always be used
utf-8,ucs-bom,latin1 BOM won't be recognized in an utf-8 file
cp1250,latin1 "cp1250" will always be used
If 'fileencodings' is empty, 'fileencoding' is not modified.
See 'fileencoding' for the possible values.
Setting this option does not have an effect until the next time a file is read.

'fileformat' 'ff'

'fileformat' 'ff' string (MS-DOS, MS-Windows, OS/2 default: "dos",
Unix default: "unix",
Macintosh default: "mac")
local to buffer
{not in Vi}
This gives the <EOL> of the current buffer, which is used for reading/writing the buffer from/to a file:
dos <CR> <NL>
unix <NL>
mac <CR>
When "dos" is used, CTRL-Z at the end of a file is ignored.
See file-formats and file-read .
For the character encoding of the file see 'fileencoding'.
When 'binary' is set, the value of 'fileformat' is ignored, file I/O works like it was set to "unix".
This option is set automatically when starting to edit a file and 'fileformats' is not empty and 'binary' is off.
When this option is set, after starting to edit a file, the 'modified' option is set, because the file would be different when written.
This option can not be changed when 'modifiable' is off.
For backwards compatibility: When this option is set to "dos", 'textmode' is set, otherwise 'textmode' is reset.

'fileformats' 'ffs'

'fileformats' 'ffs' string (default:
Vim+Vi MS-DOS, MS-Windows OS/2: "dos,unix",
Vim Unix: "unix,dos",
Vim Mac: "mac,unix,dos",
Vi Cygwin: "unix,dos",
Vi others: "")
global
{not in Vi}
This gives the end-of-line (<EOL>) formats that will be tried when starting to edit a new buffer and when reading a file into an existing buffer:
- When empty, the format defined with 'fileformat' will be used always. It is not set automatically.
- When set to one name, that format will be used whenever a new buffer is opened. 'fileformat' is set accordingly for that buffer. The 'fileformats' name will be used when a file is read into an existing buffer, no matter what 'fileformat' for that buffer is set to.
- When more than one name is present, separated by commas, automatic

<EOL> detection will be done when reading a file. When starting to
edit a file, a check is done for the <EOL>:
1. If all lines end in <CR><NL>, and 'fileformats' includes "dos",
'fileformat' is set to "dos".
2. If a <NL> is found and 'fileformats' includes "unix", 'fileformat'
is set to "unix". Note that when a <NL> is found without a
preceding <CR>, "unix" is preferred over "dos".
3. If 'fileformat' has not yet been set, and if a <CR> is found, and
if 'fileformats' includes "mac", 'fileformat' is set to "mac".
This means that "mac" is only chosen when:
"unix" is not present or no <NL> is found in the file, and
"dos" is not present or no <CR><NL> is found in the file.
Except: if "unix" was chosen, but there is a <CR> before
the first <NL>, and there appear to be more <CR>s than <NL>s in
the first few lines, "mac" is used.
4. If 'fileformat' is still not set, the first name from
'fileformats' is used.
When reading a file into an existing buffer, the same is done, but
this happens like 'fileformat' has been set appropriately for that
file only, the option is not changed.
When 'binary' is set, the value of 'fileformats' is not used.

When Vim starts up with an empty buffer the first item is used. You
can overrule this by setting 'fileformat' in your .vimrc.

For systems with a Dos-like <EOL> (<CR><NL>), when reading files that
are ":source"ed and for vimrc files, automatic <EOL> detection may be
done:
- When 'fileformats' is empty, there is no automatic detection. Dos
format will be used.
- When 'fileformats' is set to one or more names, automatic detection
is done. This is based on the first <NL> in the file: If there is a
<CR> in front of it, Dos format is used, otherwise Unix format is
used.
Also see file-formats .
For backwards compatibility: When this option is set to an empty
string or one format (no comma is included), 'textauto' is reset,
otherwise 'textauto' is set.
NOTE: This option is set to the Vi default value when 'compatible' is
set and to the Vim default value when 'compatible' is reset.

'fileignorecase' 'fic' 'nofileignorecase' 'nofic'
'fileignorecase' 'fic' boolean (default on for systems where case in file
names is normally ignored)
global
{not in Vi}
When set case is ignored when using file names and directories.
See 'wildignorecase' for only ignoring case when doing completion.

'filetype' 'ft'
'filetype' 'ft' string (default: "")
local to buffer
{not in Vi}
When this option is set, the FileType autocommand event is triggered.

All autocommands that match with the value of this option will be executed. Thus the value of 'filetype' is used in place of the file name.
Otherwise this option does not always reflect the current file type. This option is normally set when the file type is detected. To enable this use the ":filetype on" command. :filetype
Setting this option to a different value is most useful in a modeline, for a file for which the file type is not automatically recognized. Example, for in an IDL file:
```
	/* vim: set filetype=idl : */
```
FileType filetypes
When a dot appears in the value then this separates two filetype names. Example:
```
	/* vim: set filetype=c.doxygen : */
```
This will use the "c" filetype first, then the "doxygen" filetype. This works both for filetype plugins and for syntax files. More than one dot may appear.
This option is not copied to another buffer, independent of the 's' or 'S' flag in 'cpoptions'.
Only normal file name characters can be used, "/*?[|<>" are illegal.

'fillchars' 'fcs' 'fillchars' 'fcs'

string (default "vert:|,fold:-")
global
{not in Vi}
{not available when compiled without the +windows and +folding features}

Characters to fill the statuslines and vertical separators. It is a comma separated list of items:

item	default	Used for
stl:c	' ' or '^'	statusline of the current window
stlnc:c	' ' or '='	statusline of the non-current windows
vert:c	'|'	vertical separators :vsplit
fold:c	'-'	filling 'foldtext'
diff:c	'-'	deleted lines of the 'diff' option

Any one that is omitted will fall back to the default. For "stl" and "stlnc" the space will be used when there is highlighting, '^' or '=' otherwise.

Example:
```
    :set fillchars=stl:^,stlnc:=,vert:\|,fold:-,diff:-
```
This is similar to the default, except that these characters will also be used when there is highlighting.

for "stl" and "stlnc" only single-byte values are supported.

The highlighting used for these items:

item	highlight group	
stl:c	StatusLine	hl-StatusLine
stlnc:c	StatusLineNC	hl-StatusLineNC
vert:c	VertSplit	hl-VertSplit
fold:c	Folded	hl-Folded

```
          diff:c        DiffDelete              hl-DiffDelete

                  'fixendofline'   'fixeol'   'nofixendofline'   'nofixeol'
'fixendofline' 'fixeol' boolean (default on)
                        local to buffer
                        {not in Vi}
        When writing a file and this option is on, <EOL> at the end of file
        will be restored if missing. Turn this option off if you want to
        preserve the situation from the original file.
        When the 'binary' option is set the value of this option doesn't
        matter.
        See the 'endofline' option.

                                             'fkmap'   'fk'   'nofkmap'   'nofk'
'fkmap' 'fk'            boolean (default off)                    E198
                        global
                        {not in Vi}
                        {only available when compiled with the  +rightleft
                        feature}
        When on, the keyboard is mapped for the Farsi character set.
        Normally you would set 'allowrevins' and use CTRL-_ in insert mode to
        toggle this option  i_CTRL-_ .  See  farsi.txt .

                                                 'foldclose'   'fcl'
'foldclose' 'fcl'       string (default "")
                        global
                        {not in Vi}
                        {not available when compiled without the  +folding
                        feature}
        When set to "all", a fold is closed when the cursor isn't in it and
        its level is higher than 'foldlevel'.  Useful if you want folds to
        automatically close when moving out of them.

                                                 'foldcolumn'   'fdc'
'foldcolumn' 'fdc'      number (default 0)
                        local to window
                        {not in Vi}
                        {not available when compiled without the  +folding
                        feature}
        When non-zero, a column with the specified width is shown at the side
        of the window which indicates open and closed folds.  The maximum
        value is 12.
        See  folding .

                         'foldenable'   'fen'   'nofoldenable'   'nofen'
'foldenable' 'fen'      boolean (default on)
                        local to window
                        {not in Vi}
                        {not available when compiled without the  +folding
                        feature}
        When off, all folds are open.  This option can be used to quickly
        switch between showing all text unfolded and viewing the text with
        folds (including manually opened or closed folds).  It can be toggled
        with the  zi  command.  The 'foldcolumn' will remain blank when
```

'foldenable' is off.
This option is set by commands that create a new fold or close a fold.
See folding .

'foldexpr' 'fde'
'foldexpr' 'fde' string (default: "0")
local to window
{not in Vi}
{not available when compiled without the +folding or +eval features}
The expression used for when 'foldmethod' is "expr". It is evaluated for each line to obtain its fold level. See fold-expr .

The expression will be evaluated in the sandbox if set from a modeline, see sandbox-option .
This option can't be set from a modeline when the 'diff' option is on.

It is not allowed to change text or jump to another window while evaluating 'foldexpr' textlock .

'foldignore' 'fdi'
'foldignore' 'fdi' string (default: "#")
local to window
{not in Vi}
{not available when compiled without the +folding feature}
Used only when 'foldmethod' is "indent". Lines starting with characters in 'foldignore' will get their fold level from surrounding lines. White space is skipped before checking for this character.
The default "#" works well for C programs. See fold-indent .

'foldlevel' 'fdl'
'foldlevel' 'fdl' number (default: 0)
local to window
{not in Vi}
{not available when compiled without the +folding feature}
Sets the fold level: Folds with a higher level will be closed.
Setting this option to zero will close all folds. Higher numbers will close fewer folds.
This option is set by commands like zm , zM and zR .
See fold-foldlevel .

'foldlevelstart' 'fdls'
'foldlevelstart' 'fdls' number (default: -1)
global
{not in Vi}
{not available when compiled without the +folding feature}
Sets 'foldlevel' when starting to edit another buffer in a window. Useful to always start editing with all folds closed (value zero), some folds closed (one) or no folds closed (99).
This is done before reading any modeline, thus a setting in a modeline

overrules this option. Starting to edit a file for diff-mode also
ignores this option and closes all folds.
It is also done before BufReadPre autocommands, to allow an autocmd to
overrule the 'foldlevel' value for specific files.
When the value is negative, it is not used.

                                                    'foldmarker'   'fmr'   E536
'foldmarker' 'fmr'   string (default: "{{{,}}}")
                        local to window
                        {not in Vi}
                        {not available when compiled without the +folding
                        feature}
The start and end marker used when 'foldmethod' is "marker". There
must be one comma, which separates the start and end marker. The
marker is a literal string (a regular expression would be too slow).
See fold-marker .

                                                    'foldmethod'   'fdm'
'foldmethod' 'fdm'   string (default: "manual")
                        local to window
                        {not in Vi}
                        {not available when compiled without the +folding
                        feature}
The kind of folding used for the current window. Possible values:
 fold-manual   manual   Folds are created manually.
 fold-indent   indent   Lines with equal indent form a fold.
 fold-expr   expr   'foldexpr' gives the fold level of a line.
 fold-marker   marker   Markers are used to specify folds.
 fold-syntax   syntax   Syntax highlighting items specify folds.
 fold-diff   diff   Fold text that is not changed.

                                                    'foldminlines'   'fml'
'foldminlines' 'fml'   number (default: 1)
                        local to window
                        {not in Vi}
                        {not available when compiled without the +folding
                        feature}
Sets the number of screen lines above which a fold can be displayed
closed. Also for manually closed folds. With the default value of
one a fold can only be closed if it takes up two or more screen lines.
Set to zero to be able to close folds of just one screen line.
Note that this only has an effect on what is displayed. After using
"zc" to close a fold, which is displayed open because it's smaller
than 'foldminlines', a following "zc" may close a containing fold.

                                                    'foldnestmax'   'fdn'
'foldnestmax' 'fdn'   number (default: 20)
                        local to window
                        {not in Vi}
                        {not available when compiled without the +folding
                        feature}
Sets the maximum nesting of folds for the "indent" and "syntax"
methods. This avoids that too many folds will be created. Using more
than 20 doesn't work, because the internal limit is 20.

'foldopen' 'fdo'

'foldopen' 'fdo'	string (default: "block,hor,mark,percent,quickfix,
search,tag,undo")
global
{not in Vi}
{not available when compiled without the +folding
feature}
Specifies for which type of commands folds will be opened, if the
command moves the cursor into a closed fold. It is a comma separated
list of items.
NOTE: When the command is part of a mapping this option is not used.
Add the zv command to the mapping to get the same effect.
(rationale: the mapping may want to control opening folds itself)

item	commands
all	any
block	"(", "{", "[[", "[{", etc.
hor	horizontal movements: "l", "w", "fx", etc.
insert	any command in Insert mode
jump	far jumps: "G", "gg", etc.
mark	jumping to a mark: "'m", CTRL-O, etc.
percent	"%"
quickfix	":cn", ":crew", ":make", etc.
search	search for a pattern: "/", "n", "*", "gd", etc. (not for a search pattern in a ":" command) Also for [s and]s .
tag	jumping to a tag: ":ta", CTRL-T, etc.
undo	undo or redo: "u" and CTRL-R

When a movement command is used for an operator (e.g., "dl" or "y%")
this option is not used. This means the operator will include the
whole closed fold.
Note that vertical movements are not here, because it would make it
very difficult to move onto a closed fold.
In insert mode the folds containing the cursor will always be open
when text is inserted.
To close folds you can re-apply 'foldlevel' with the zx command or
set the 'foldclose' option to "all".

'foldtext' 'fdt'

'foldtext' 'fdt'	string (default: "foldtext()")
local to window
{not in Vi}
{not available when compiled without the +folding
feature}
An expression which is used to specify the text displayed for a closed
fold. See fold-foldtext .

The expression will be evaluated in the sandbox if set from a
modeline, see sandbox-option .

It is not allowed to change text or jump to another window while
evaluating 'foldtext' textlock .

'formatexpr' 'fex'

'formatexpr' 'fex'	string (default "")
local to buffer
{not in Vi}
{not available when compiled without the +eval feature}

Expression which is evaluated to format a range of lines for the gq operator or automatic formatting (see 'formatoptions'). When this option is empty 'formatprg' is used.

The v:lnum variable holds the first line to be formatted.
The v:count variable holds the number of lines to be formatted.
The v:char variable holds the character that is going to be inserted if the expression is being evaluated due to automatic formatting. This can be empty. Don't insert it yet!

Example:

```
:set formatexpr=mylang#Format()
```

This will invoke the mylang#Format() function in the autoload/mylang.vim file in 'runtimepath'. autoload

The expression is also evaluated when 'textwidth' is set and adding text beyond that limit. This happens under the same conditions as when internal formatting is used. Make sure the cursor is kept in the same spot relative to the text then! The mode() function will return "i" or "R" in this situation.

When the expression evaluates to non-zero Vim will fall back to using the internal format mechanism.

The expression will be evaluated in the sandbox when set from a modeline, see sandbox-option . That stops the option from working, since changing the buffer text is not allowed.
NOTE: This option is set to "" when 'compatible' is set.

'formatoptions' 'fo'

'formatoptions' 'fo'	string (Vim default: "tcq", Vi default: "vt")
local to buffer
{not in Vi}

This is a sequence of letters which describes how automatic formatting is to be done. See fo-table . When the 'paste' option is on, no formatting is done (like 'formatoptions' is empty). Commas can be inserted for readability.
To avoid problems with flags that are added in the future, use the "+=" and "-=" feature of ":set" add-option-flags .
NOTE: This option is set to the Vi default value when 'compatible' is set and to the Vim default value when 'compatible' is reset.

'formatlistpat' 'flp'

'formatlistpat' 'flp'	string (default: "^\s*\d\+[\]:.)}\t]\s*")
local to buffer
{not in Vi}

A pattern that is used to recognize a list header. This is used for

the "n" flag in 'formatoptions'.
The pattern must match exactly the text that will be the indent for the line below it. You can use /\ze to mark the end of the match while still checking more characters. There must be a character following the pattern, when it matches the whole line it is handled like there is no match.
The default recognizes a number, followed by an optional punctuation character and white space.

'formatprg' 'fp'

'formatprg' 'fp' string (default "")
global or local to buffer global-local
{not in Vi}

The name of an external program that will be used to format the lines selected with the gq operator. The program must take the input on stdin and produce the output on stdout. The Unix program "fmt" is such a program.
If the 'formatexpr' option is not empty it will be used instead. Otherwise, if 'formatprg' option is an empty string, the internal format function will be used C-indenting .
Environment variables are expanded :set_env . See option-backslash about including spaces and backslashes.
This option cannot be set from a modeline or in the sandbox , for security reasons.

'fsync' 'fs' 'nofsync' 'nofs'

'fsync' 'fs' boolean (default on)
global
{not in Vi}

When on, the library function fsync() will be called after writing a file. This will flush a file to disk, ensuring that it is safely written even on filesystems which do metadata-only journaling. This will force the harddrive to spin up on Linux systems running in laptop mode, so it may be undesirable in some situations. Be warned that turning this off increases the chances of data loss after a crash. On systems without an fsync() implementation, this variable is always off.
Also see 'swapsync' for controlling fsync() on swap files.
'fsync' also applies to writefile() , unless a flag is used to overrule it.

'gdefault' 'gd' 'nogdefault' 'nogd'

'gdefault' 'gd' boolean (default off)
global
{not in Vi}

When on, the ":substitute" flag 'g' is default on. This means that all matches in a line are substituted instead of one. When a 'g' flag is given to a ":substitute" command, this will toggle the substitution of all or one match. See complex-change .

command	'gdefault' on	'gdefault' off
:s///	subst. all	subst. one
:s///g	subst. one	subst. all
:s///gg	subst. all	subst. one

NOTE: This option is reset when 'compatible' is set.
DEPRECATED: Setting this option may break plugins that are not aware of this option. Also, many users get confused that adding the /g flag has the opposite effect of that it normally does.

'grepformat' 'gfm'

'grepformat' 'gfm' string (default "%f:%l:%m,%f:%l%m,%f %l%m")
global
{not in Vi}
Format to recognize for the ":grep" command output.
This is a scanf-like string that uses the same format as the 'errorformat' option: see errorformat .

'grepprg' 'gp'

'grepprg' 'gp' string (default "grep -n ",
Unix: "grep -n $* /dev/null",
Win32: "findstr /n" or "grep -n",
VMS: "SEARCH/NUMBERS ")
global or local to buffer global-local
{not in Vi}
Program to use for the :grep command. This option may contain '%' and '#' characters, which are expanded like when used in a command-line. The placeholder "$*" is allowed to specify where the arguments will be included. Environment variables are expanded :set_env . See option-backslash about including spaces and backslashes.
When your "grep" accepts the "-H" argument, use this to make ":grep" also work well with a single file:

```
:set grepprg=grep\ -nH
```

Special value: When 'grepprg' is set to "internal" the :grep command works like :vimgrep , :lgrep like :lvimgrep , :grepadd like :vimgrepadd and :lgrepadd like :lvimgrepadd .
See also the section :make_makeprg , since most of the comments there apply equally to 'grepprg'.
For Win32, the default is "findstr /n" if "findstr.exe" can be found, otherwise it's "grep -n".
This option cannot be set from a modeline or in the sandbox , for security reasons.

'guicursor' 'gcr' E545 E546 E548 E549

'guicursor' 'gcr' string (default "n-v-c:block-Cursor/lCursor,
ve:ver35-Cursor,
o:hor50-Cursor,
i-ci:ver25-Cursor/lCursor,
r-cr:hor20-Cursor/lCursor,
sm:block-Cursor
-blinkwait175-blinkoff150-blinkon175",
for MS-DOS and Win32 console:
"n-v-c:block,o:hor50,i-ci:hor15,
r-cr:hor30,sm:block")
global
{not in Vi}
{only available when compiled with GUI enabled, and for MS-DOS and Win32 console}

This option tells Vim what the cursor should look like in different
modes. It fully works in the GUI. In an MSDOS or Win32 console, only
the height of the cursor can be changed. This can be done by
specifying a block cursor, or a percentage for a vertical or
horizontal cursor.
For a console the 't_SI', 't_SR', and 't_EI' escape sequences are
used.

The option is a comma separated list of parts. Each part consist of a
mode-list and an argument-list:
        mode-list:argument-list,mode-list:argument-list,..
The mode-list is a dash separated list of these modes:
        n   Normal mode
        v   Visual mode
        ve   Visual mode with 'selection' "exclusive" (same as 'v',
                if not specified)
        o   Operator-pending mode
        i   Insert mode
        r   Replace mode
        c   Command-line Normal (append) mode
        ci   Command-line Insert mode
        cr   Command-line Replace mode
        sm   showmatch in Insert mode
        a   all modes
The argument-list is a dash separated list of these arguments:
        hor{N} horizontal bar, {N} percent of the character height
        ver{N} vertical bar, {N} percent of the character width
        block   block cursor, fills the whole character
                [only one of the above three should be present]
        blinkwait{N}   cursor-blinking
        blinkon{N}
        blinkoff{N}
                blink times for cursor: blinkwait is the delay before
                the cursor starts blinking, blinkon is the time that
                the cursor is shown and blinkoff is the time that the
                cursor is not shown. The times are in msec. When one
                of the numbers is zero, there is no blinking. The
                default is: "blinkwait700-blinkon400-blinkoff250".
                These numbers are used for a missing entry. This
                means that blinking is enabled by default. To switch
                blinking off you can use "blinkon0". The cursor only
                blinks when Vim is waiting for input, not while
                executing a command.
                To make the cursor blink in an xterm, see
                 xterm-blink .
        {group-name}
                a highlight group name, that sets the color and font
                for the cursor
        {group-name}/{group-name}
                Two highlight group names, the first is used when
                no language mappings are used, the other when they
                are. language-mapping

Examples of parts:

```
      n-c-v:block-nCursor  in Normal, Command-line and Visual mode, use a
                           block cursor with colors from the "nCursor"
                           highlight group
      i-ci:ver30-iCursor-blinkwait300-blinkon200-blinkoff150
                           In Insert and Command-line Insert mode, use a
                           30% vertical bar cursor with colors from the
                           "iCursor" highlight group.  Blink a bit
                           faster.

    The 'a' mode is different.  It will set the given argument-list for
    all modes.  It does not reset anything to defaults.  This can be used
    to do a common setting for all modes.  For example, to switch off
    blinking: "a:blinkon0"

    Examples of cursor highlighting:
        :highlight Cursor gui=reverse guifg=NONE guibg=NONE
        :highlight Cursor gui=NONE guifg=bg guibg=fg

                                        'guifont'   'gfn'
                                                  E235   E596
'guifont' 'gfn'         string  (default "")
                        global
                        {not in Vi}
                        {only available when compiled with GUI enabled}
    This is a list of fonts which will be used for the GUI version of Vim.
    In its simplest form the value is just one font name.  When
    the font cannot be found you will get an error message.  To try other
    font names a list can be specified, font names separated with commas.
    The first valid font is used.

    On systems where 'guifontset' is supported (X11) and 'guifontset' is
    not empty, then 'guifont' is not used.

    Note: As to the GTK GUIs, no error is given against any invalid names,
    and the first element of the list is always picked up and made use of.
    This is because, instead of identifying a given name with a font, the
    GTK GUIs use it to construct a pattern and try to look up a font which
    best matches the pattern among available fonts, and this way, the
    matching never fails.  An invalid name doesn't matter because a number
    of font properties other than name will do to get the matching done.

    Spaces after a comma are ignored.  To include a comma in a font name
    precede it with a backslash.  Setting an option requires an extra
    backslash before a space and a backslash.  See also
     option-backslash .  For example:
        :set guifont=Screen15,\ 7x13,font\\,with\\,commas
   will make Vim try to use the font "Screen15" first, and if it fails it
    will try to use "7x13" and then "font,with,commas" instead.

    If none of the fonts can be loaded, Vim will keep the current setting.
    If an empty font list is given, Vim will try using other resource
    settings (for X, it will use the Vim.font resource), and finally it
    will try some builtin default which should always be there ("7x13" in
    the case of X).  The font names given should be "normal" fonts.  Vim
```

will try to find the related bold and italic fonts.

For Win32, GTK, Motif, Mac OS and Photon:
    :set guifont=*
will bring up a font requester, where you can pick the font you want.

The font name depends on the GUI used. See setting-guifont for a way to set 'guifont' for various systems.

For the GTK+ 2 and 3 GUIs, the font name looks like this:
    :set guifont=Andale\ Mono\ 11
That's all. XLFDs are not used. For Chinese this is reported to work well:
    if has("gui_gtk2")
      set guifont=Bitstream\ Vera\ Sans\ Mono\ 12,Fixed\ 12
      set guifontwide=Microsoft\ Yahei\ 12,WenQuanYi\ Zen\ Hei\ 12
    endif

(Replace gui_gtk2 with gui_gtk3 for the GTK+ 3 GUI)

For Mac OSX you can use something like this:
    :set guifont=Monaco:h10
Also see 'macatsui', it can help fix display problems.
                                                                E236
Note that the fonts must be mono-spaced (all characters have the same width). An exception is GTK: all fonts are accepted, but mono-spaced fonts look best.

To preview a font on X11, you might be able to use the "xfontsel" program. The "xlsfonts" program gives a list of all available fonts.

For the Win32 GUI   E244 E245
- takes these options in the font name:
        hXX - height is XX (points, can be floating-point)
        wXX - width is XX (points, can be floating-point)
        b   - bold
        i   - italic
        u   - underline
        s   - strikeout
        cXX - character set XX. Valid charsets are: ANSI, ARABIC,
              BALTIC, CHINESEBIG5, DEFAULT, EASTEUROPE, GB2312, GREEK,
              HANGEUL, HEBREW, JOHAB, MAC, OEM, RUSSIAN, SHIFTJIS,
              SYMBOL, THAI, TURKISH, VIETNAMESE ANSI and BALTIC.
              Normally you would use "cDEFAULT".
        qXX - quality XX. Valid quality names are: PROOF, DRAFT,
              ANTIALIASED, NONANTIALIASED, CLEARTYPE, DEFAULT.
              Normally you would use "qDEFAULT".
              Some quality values are not supported in legacy OSs.

  Use a ':' to separate the options.
- A '_' can be used in the place of a space, so you don't need to use
  backslashes to escape the spaces.
- Examples:
    :set guifont=courier_new:h12:w5:b:cRUSSIAN

```
            :set guifont=Andale_Mono:h7.5:w4.5
        See also  font-sizes .

                                            'guifontset'   'gfs'
                                            E250   E252   E234   E597   E598
'guifontset' 'gfs'      string  (default "")
                        global
                        {not in Vi}
                        {only available when compiled with GUI enabled and
                        with the  +xfontset  feature}
                        {not available in the GTK+ GUI}
        When not empty, specifies two (or more) fonts to be used.  The first
        one for normal English, the second one for your special language.  See
         xfontset .
        Setting this option also means that all font names will be handled as
        a fontset name.  Also the ones used for the "font" argument of the
         :highlight  command.
        The fonts must match with the current locale.  If fonts for the
        character sets that the current locale uses are not included, setting
        'guifontset' will fail.
        Note the difference between 'guifont' and 'guifontset': In 'guifont'
        the comma-separated names are alternative names, one of which will be
        used.  In 'guifontset' the whole string is one fontset name,
        including the commas.  It is not possible to specify alternative
        fontset names.
        This example works on many X11 systems:
                :set guifontset=-*-*-medium-r-normal--16-*-*-*-c-*-*-*

                                    'guifontwide'   'gfw'   E231   E533   E534
'guifontwide' 'gfw'     string  (default "")
                        global
                        {not in Vi}
                        {only available when compiled with GUI enabled}
        When not empty, specifies a comma-separated list of fonts to be used
        for double-width characters.  The first font that can be loaded is
        used.
        Note: The size of these fonts must be exactly twice as wide as the one
        specified with 'guifont' and the same height.

        All GUI versions but GTK+:

        'guifontwide' is only used when 'encoding' is set to "utf-8" and
        'guifontset' is empty or invalid.
        When 'guifont' is set and a valid font is found in it and
        'guifontwide' is empty Vim will attempt to find a matching
        double-width font and set 'guifontwide' to it.

        GTK+ GUI only:                              guifontwide_gtk

        If set and valid, 'guifontwide' is always used for double width
        characters, even if 'encoding' is not set to "utf-8".
        Vim does not attempt to find an appropriate value for 'guifontwide'
        automatically.  If 'guifontwide' is empty Pango/Xft will choose the
        font for characters not available in 'guifont'.  Thus you do not need
```

to set 'guifontwide' at all unless you want to override the choice made by Pango/Xft.

Windows +multibyte only: guifontwide_win_mbyte

If set and valid, 'guifontwide' is used for IME instead of 'guifont'.

'guiheadroom' 'ghr'

'guiheadroom' 'ghr' number (default 50)
global
{not in Vi} {only for GTK and X11 GUI}

The number of pixels subtracted from the screen height when fitting the GUI window on the screen. Set this before the GUI is started, e.g., in your gvimrc file. When zero, the whole screen height will be used by the window. When positive, the specified number of pixel lines will be left for window decorations and other items on the screen. Set it to a negative value to allow windows taller than the screen.

'guioptions' 'go'

'guioptions' 'go' string (default "egmrLtT" (MS-Windows, "t" is removed in defaults.vim), "aegimrLtT" (GTK, Motif and Athena),)
global
{not in Vi}
{only available when compiled with GUI enabled}

This option only has an effect in the GUI version of Vim. It is a sequence of letters which describes what components and options of the GUI should be used.
To avoid problems with flags that are added in the future, use the "+=" and "-=" feature of ":set" add-option-flags .

Valid characters are as follows:

'go-!'

'!' External commands are executed in a terminal window. Without this flag the MS-Windows GUI will open a console window to execute the command. The Unix GUI will simulate a dumb terminal to list the command output.
The terminal window will be positioned at the bottom, and grow upwards as needed.

guioptions_a 'go-a'

'a' Autoselect: If present, then whenever VISUAL mode is started, or the Visual area extended, Vim tries to become the owner of the windowing system's global selection. This means that the Visually highlighted text is available for pasting into other applications as well as into Vim itself. When the Visual mode ends, possibly due to an operation on the text, or when an application wants to paste the selection, the highlighted text is automatically yanked into the "* selection register.
Thus the selection is still available for pasting into other applications after the VISUAL mode has ended.
If not present, then Vim won't become the owner of the windowing system's global selection unless explicitly told to

by a yank or delete operation for the "* register.
The same applies to the modeless selection.
'go-P'

'P' Like autoselect but using the "+ register instead of the "* register.
'go-A'

'A' Autoselect for the modeless selection. Like 'a', but only applies to the modeless selection.

'guioptions'	autoselect Visual	autoselect modeless
""	-	-
"a"	yes	yes
"A"	-	yes
"aA"	yes	yes

'go-c'

'c' Use console dialogs instead of popup dialogs for simple choices.
'go-e'

'e' Add tab pages when indicated with 'showtabline'.
'guitablabel' can be used to change the text in the labels.
When 'e' is missing a non-GUI tab pages line may be used.
The GUI tabs are only supported on some systems, currently GTK, Motif, Mac OS/X and MS-Windows.
'go-f'

'f' Foreground: Don't use fork() to detach the GUI from the shell where it was started. Use this for programs that wait for the editor to finish (e.g., an e-mail program). Alternatively you can use "gvim -f" or ":gui -f" to start the GUI in the foreground. gui-fork
Note: Set this option in the vimrc file. The forking may have happened already when the gvimrc file is read.
'go-i'

'i' Use a Vim icon. For GTK with KDE it is used in the left-upper corner of the window. It's black&white on non-GTK, because of limitations of X11. For a color icon, see X11-icon .
'go-m'

'm' Menu bar is present.
'go-M'

'M' The system menu "$VIMRUNTIME/menu.vim" is not sourced. Note that this flag must be added in the .vimrc file, before switching on syntax or filetype recognition (when the gvimrc file is sourced the system menu has already been loaded; the `:syntax on` and `:filetype on` commands load the menu too).
'go-g'

'g' Grey menu items: Make menu items that are not active grey. If 'g' is not included inactive menu items are not shown at all. Exception: Athena will always use grey menu items.
'go-t'

't' Include tearoff menu items. Currently only works for Win32, GTK+, and Motif 1.2 GUI.
'go-T'

'T' Include Toolbar. Currently only in Win32, GTK+, Motif, Photon and Athena GUIs.

'go-r'
'r'	Right-hand scrollbar is always present.
'go-R'
'R'	Right-hand scrollbar is present when there is a vertically
	split window.
'go-l'
'l'	Left-hand scrollbar is always present.
'go-L'
'L'	Left-hand scrollbar is present when there is a vertically
	split window.
'go-b'
'b'	Bottom (horizontal) scrollbar is present. Its size depends on
	the longest visible line, or on the cursor line if the 'h'
	flag is included. gui-horiz-scroll
'go-h'
'h'	Limit horizontal scrollbar size to the length of the cursor
	line. Reduces computations. gui-horiz-scroll

And yes, you may even have scrollbars on the left AND the right if
you really want to :-). See gui-scrollbars for more information.

'go-v'
'v'	Use a vertical button layout for dialogs. When not included,
	a horizontal layout is preferred, but when it doesn't fit a
	vertical layout is used anyway.
'go-p'
'p'	Use Pointer callbacks for X11 GUI. This is required for some
	window managers. If the cursor is not blinking or hollow at
	the right moment, try adding this flag. This must be done
	before starting the GUI. Set it in your gvimrc . Adding or
	removing it after the GUI has started has no effect.
'go-F'
'F'	Add a footer. Only for Motif. See gui-footer .
'go-k'
'k'	Keep the GUI window size when adding/removing a scrollbar, or
	toolbar, tabline, etc. Instead, the behavior is similar to
	when the window is maximized and will adjust 'lines' and
	'columns' to fit to the window. Without the 'k' flag Vim will
	try to keep 'lines' and 'columns' the same when adding and
	removing GUI components.

'guipty'	'noguipty'
'guipty'		boolean (default on)
			global
			{not in Vi}
			{only available when compiled with GUI enabled}
Only in the GUI: If on, an attempt is made to open a pseudo-tty for
I/O to/from shell commands. See gui-pty .

'guitablabel'	'gtl'
'guitablabel' 'gtl'	string (default empty)
			global
			{not in Vi}
			{only available when compiled with GUI enabled and

with the +windows feature}
When nonempty describes the text to use in a label of the GUI tab pages line. When empty and when the result is empty Vim will use a default label. See setting-guitablabel for more info.

The format of this option is like that of 'statusline'.
'guitabtooltip' is used for the tooltip, see below.
The expression will be evaluated in the sandbox when set from a modeline, see sandbox-option .

Only used when the GUI tab pages line is displayed. 'e' must be present in 'guioptions'. For the non-GUI tab pages line 'tabline' is used.

'guitabtooltip' 'gtt'

'guitabtooltip' 'gtt' string (default empty)
global
{not in Vi}
{only available when compiled with GUI enabled and with the +windows feature}
When nonempty describes the text to use in a tooltip for the GUI tab pages line. When empty Vim will use a default tooltip.
This option is otherwise just like 'guitablabel' above.
You can include a line break. Simplest method is to use :let :

```
:let &guitabtooltip = "line one\nline two"
```

'helpfile' 'hf'

'helpfile' 'hf' string (default (MSDOS) "$VIMRUNTIME\doc\help.txt"
(others) "$VIMRUNTIME/doc/help.txt")
global
{not in Vi}
Name of the main help file. All distributed help files should be placed together in one directory. Additionally, all "doc" directories in 'runtimepath' will be used.
Environment variables are expanded :set_env . For example: "$VIMRUNTIME/doc/help.txt". If $VIMRUNTIME is not set, $VIM is also tried. Also see $VIMRUNTIME and option-backslash about including spaces and backslashes.
This option cannot be set from a modeline or in the sandbox , for security reasons.

'helpheight' 'hh'

'helpheight' 'hh' number (default 20)
global
{not in Vi}
{not available when compiled without the +windows feature}
Minimal initial height of the help window when it is opened with the ":help" command. The initial height of the help window is half of the current window, or (when the 'ea' option is on) the same as other windows. When the height is less than 'helpheight', the height is set to 'helpheight'. Set to zero to disable.

'helplang' 'hlg'

'helplang' 'hlg' string (default: messages language or empty)
global
{only available when compiled with the +multi_lang
feature}
{not in Vi}
Comma separated list of languages. Vim will use the first language
for which the desired help can be found. The English help will always
be used as a last resort. You can add "en" to prefer English over
another language, but that will only find tags that exist in that
language and not in the English help.
Example:
:set helplang=de,it
This will first search German, then Italian and finally English help
files.
When using CTRL-] and ":help!" in a non-English help file Vim will
try to find the tag in the current language before using this option.
See help-translated .

'hidden' 'hid' 'nohidden' 'nohid'

'hidden' 'hid' boolean (default off)
global
{not in Vi}
When off a buffer is unloaded when it is abandon ed. When on a
buffer becomes hidden when it is abandon ed. If the buffer is still
displayed in another window, it does not become hidden, of course.
The commands that move through the buffer list sometimes make a buffer
hidden although the 'hidden' option is off: When the buffer is
modified, 'autowrite' is off or writing is not possible, and the '!'
flag was used. See also windows.txt .
To only make one buffer hidden use the 'bufhidden' option.
This option is set for one command with ":hide {command}" :hide .
WARNING: It's easy to forget that you have changes in hidden buffers.
Think twice when using ":q!" or ":qa!".

'highlight' 'hl'

'highlight' 'hl' string (default (as a single string):
"8:SpecialKey,~:EndOfBuffer,@:NonText,
d:Directory,e:ErrorMsg,i:IncSearch,
l:Search,m:MoreMsg,M:ModeMsg,n:LineNr,
N:CursorLineNr,r:Question,s:StatusLine,
S:StatusLineNC,c:VertSplit,t:Title,
v:Visual,w:WarningMsg,W:WildMenu,f:Folded,
F:FoldColumn,A:DiffAdd,C:DiffChange,
D:DiffDelete,T:DiffText,>:SignColumn,
B:SpellBad,P:SpellCap,R:SpellRare,
L:SpellLocal,-:Conceal,+:Pmenu,=:PmenuSel,
x:PmenuSbar,X:PmenuThumb,*:TabLine,
#:TabLineSel,_:TabLineFill,!:CursorColumn,
.:CursorLine,o:ColorColumn,q:QuickFixLine,
z:StatusLineTerm,Z:StatusLineTermNC")
global
{not in Vi}
This option can be used to set highlighting mode for various

occasions. It is a comma separated list of character pairs. The
first character in a pair gives the occasion, the second the mode to
use for that occasion. The occasions are:
 hl-SpecialKey   8 Meta and special keys listed with ":map"
 hl-EndOfBuffer   ~ lines after the last line in the buffer
 hl-NonText   @ '@' at the end of the window and
                    characters from 'showbreak'
 hl-Directory   d directories in CTRL-D listing and other special
                    things in listings
 hl-ErrorMsg   e error messages
                 h (obsolete, ignored)
 hl-IncSearch   i 'incsearch' highlighting
 hl-Search   l last search pattern highlighting (see 'hlsearch')
 hl-MoreMsg   m   more-prompt
 hl-ModeMsg   M Mode (e.g., "-- INSERT --")
 hl-LineNr   n line number for ":number" and ":#" commands, and
                    when 'number' or 'relativenumber' option is set.
 hl-CursorLineNr   N like n for when 'cursorline' or 'relativenumber' is
                    set.
 hl-Question   r   hit-enter prompt and yes/no questions
 hl-StatusLine   s status line of current window status-line
 hl-StatusLineNC   S status lines of not-current windows
 hl-Title   t Titles for output from ":set all", ":autocmd" etc.
 hl-VertSplit   c column used to separate vertically split windows
 hl-Visual   v Visual mode
 hl-VisualNOS   V Visual mode when Vim does is "Not Owning the
                    Selection" Only X11 Gui's gui-x11 and
                     xterm-clipboard .
 hl-WarningMsg   w warning messages
 hl-WildMenu   W wildcard matches displayed for 'wildmenu'
 hl-Folded   f line used for closed folds
 hl-FoldColumn   F 'foldcolumn'
 hl-DiffAdd   A added line in diff mode
 hl-DiffChange   C changed line in diff mode
 hl-DiffDelete   D deleted line in diff mode
 hl-DiffText   T inserted text in diff mode
 hl-SignColumn   > column used for signs
 hl-SpellBad   B misspelled word spell
 hl-SpellCap   P word that should start with capital spell
 hl-SpellRare   R rare word spell
 hl-SpellLocal   L word from other region spell
 hl-Conceal   - the placeholders used for concealed characters
                    (see 'conceallevel')
 hl-Pmenu   + popup menu normal line
 hl-PmenuSel   = popup menu normal line
 hl-PmenuSbar   x popup menu scrollbar
 hl-PmenuThumb   X popup menu scrollbar thumb

The display modes are:
        r   reverse   (termcap entry "mr" and "me")
        i   italic   (termcap entry "ZH" and "ZR")
        b   bold   (termcap entry "md" and "me")
        s   standout   (termcap entry "so" and "se")
        u   underline   (termcap entry "us" and "ue")

```
                c       undercurl       (termcap entry "Cs" and "Ce")
                t       strikethrough   (termcap entry "Ts" and "Te")
                n       no highlighting
                -       no highlighting
                :       use a highlight group
        The default is used for occasions that are not included.
        If you want to change what the display modes do, see  dos-colors
        for an example.
        When using the ':' display mode, this must be followed by the name of
        a highlight group.  A highlight group can be used to define any type
        of highlighting, including using color.  See  :highlight  on how to
        define one.  The default uses a different group for each occasion.
        See  highlight-default  for the default highlight groups.

                                                'history'   'hi'
'history' 'hi'          number  (Vim default: 50, Vi default: 0,
                                                set to 200 in  defaults.vim )
                        global
                        {not in Vi}
        A history of ":" commands, and a history of previous search patterns
        is remembered.  This option decides how many entries may be stored in
        each of these histories (see  cmdline-editing ).
        The maximum value is 10000.
        NOTE: This option is set to the Vi default value when 'compatible' is
        set and to the Vim default value when 'compatible' is reset.

                                            'hkmap'   'hk'   'nohkmap'   'nohk'
'hkmap' 'hk'            boolean (default off)
                        global
                        {not in Vi}
                        {only available when compiled with the  +rightleft
                        feature}
        When on, the keyboard is mapped for the Hebrew character set.
        Normally you would set 'allowrevins' and use CTRL-_ in insert mode to
        toggle this option.  See  rileft.txt .
        NOTE: This option is reset when 'compatible' is set.

                                    'hkmapp'   'hkp'   'nohkmapp'   'nohkp'
'hkmapp' 'hkp'          boolean (default off)
                        global
                        {not in Vi}
                        {only available when compiled with the  +rightleft
                        feature}
        When on, phonetic keyboard mapping is used.  'hkmap' must also be on.
        This is useful if you have a non-Hebrew keyboard.
        See  rileft.txt .
        NOTE: This option is reset when 'compatible' is set.

                                    'hlsearch'   'hls'   'nohlsearch'   'nohls'
'hlsearch' 'hls'        boolean (default off)
                        global
                        {not in Vi}
                        {not available when compiled without the
                         +extra_search  feature}
```

When there is a previous search pattern, highlight all its matches.
The type of highlighting used can be set with the 'l' occasion in the
'highlight' option. This uses the "Search" highlight group by
default. Note that only the matching text is highlighted, any offsets
are not applied.
See also: 'incsearch' and :match .
When you get bored looking at the highlighted matches, you can turn it
off with :nohlsearch . This does not change the option value, as
soon as you use a search command, the highlighting comes back.
'redrawtime' specifies the maximum time spent on finding matches.
When the search pattern can match an end-of-line, Vim will try to
highlight all of the matched text. However, this depends on where the
search starts. This will be the first line in the window or the first
line below a closed fold. A match in a previous line which is not
drawn may not continue in a newly drawn line.
You can specify whether the highlight status is restored on startup
with the 'h' flag in 'viminfo' viminfo-h .
NOTE: This option is reset when 'compatible' is set.

'icon' 'noicon'

'icon' boolean (default off, on when title can be restored)
global
{not in Vi}
{not available when compiled without the +title
feature}
When on, the icon text of the window will be set to the value of
'iconstring' (if it is not empty), or to the name of the file
currently being edited. Only the last part of the name is used.
Overridden by the 'iconstring' option.
Only works if the terminal supports setting window icons (currently
only X11 GUI and terminals with a non-empty 't_IS' option - these are
Unix xterm and iris-ansi by default, where 't_IS' is taken from the
builtin termcap).
When Vim was compiled with HAVE_X11 defined, the original icon will be
restored if possible X11 . See X11-icon for changing the icon on
X11.
For MS-Windows the icon can be changed, see windows-icon .

'iconstring'

'iconstring' string (default "")
global
{not in Vi}
{not available when compiled without the +title
feature}
When this option is not empty, it will be used for the icon text of
the window. This happens only when the 'icon' option is on.
Only works if the terminal supports setting window icon text
(currently only X11 GUI and terminals with a non-empty 't_IS' option).
Does not work for MS Windows.
When Vim was compiled with HAVE_X11 defined, the original icon will be
restored if possible X11 .
When this option contains printf-style '%' items, they will be
expanded according to the rules used for 'statusline'. See
'titlestring' for example settings.

{not available when compiled without the |+statusline| feature}

'ignorecase' 'ic' 'noignorecase' 'noic'
'ignorecase' 'ic' boolean (default off)
global
Ignore case in search patterns. Also used when searching in the tags file.
Also see 'smartcase' and 'tagcase'.
Can be overruled by using "\c" or "\C" in the pattern, see /ignorecase .

'imactivatefunc' 'imaf'
'imactivatefunc' 'imaf' string (default "")
global
{not in Vi}
{only available when compiled with +multi_byte feature}
This option specifies a function that will be called to activate or deactivate the Input Method.
It is not used in the GUI.

Example:

```
function ImActivateFunc(active)
  if a:active
    ... do something
  else
    ... do something
  endif
  " return value is not used
endfunction
set imactivatefunc=ImActivateFunc
```

'imactivatekey' 'imak'
'imactivatekey' 'imak' string (default "")
global
{not in Vi}
{only available when compiled with +xim and +GUI_GTK } E599
Specifies the key that your Input Method in X-Windows uses for activation. When this is specified correctly, vim can fully control IM with 'imcmdline', 'iminsert' and 'imsearch'.
You can't use this option to change the activation key, the option tells Vim what the key is.
Format:

```
[MODIFIER_FLAG-]KEY_STRING
```

These characters can be used for MODIFIER_FLAG (case is ignored):

S	Shift key
L	Lock key
C	Control key
1	Mod1 key
2	Mod2 key
3	Mod3 key
4	Mod4 key

```
                5           Mod5 key
        Combinations are allowed, for example "S-C-space" or "SC-space" are
        both shift+ctrl+space.
        See <X11/keysymdef.h> and XStringToKeysym for KEY_STRING.

        Example:
                :set imactivatekey=S-space
       "S-space" means shift+space.  This is the activation key for kinput2 +
        canna (Japanese), and ami (Korean).

                                        'imcmdline'   'imc'   'noimcmdline'   'noimc'
'imcmdline' 'imc'       boolean (default off)
                        global
                        {not in Vi}
                        {only available when compiled with the  +multi_byte
                        feature}
        When set the Input Method is always on when starting to edit a command
        line, unless entering a search pattern (see 'imsearch' for that).
        Setting this option is useful when your input method allows entering
        English characters directly, e.g., when it's used to type accented
        characters with dead keys.

                                        'imdisable'   'imd'   'noimdisable'   'noimd'
'imdisable' 'imd'       boolean (default off, on for some systems (SGI))
                        global
                        {not in Vi}
                        {only available when compiled with the  +multi_byte
                        feature}
        When set the Input Method is never used.  This is useful to disable
        the IM when it doesn't work properly.
        Currently this option is on by default for SGI/IRIX machines.  This
        may change in later releases.

                                                    'iminsert'   'imi'
'iminsert' 'imi'        number (default 0)
                        local to buffer
                        {not in Vi}
        Specifies whether :lmap or an Input Method (IM) is to be used in
        Insert mode.  Valid values:
                0       :lmap is off and IM is off
                1       :lmap is ON and IM is off
                2       :lmap is off and IM is ON
        To always reset the option to zero when leaving Insert mode with <Esc>
        this can be used:
                :inoremap <ESC> <ESC>:set iminsert=0<CR>
       This makes :lmap and IM turn off automatically when leaving Insert
        mode.
        Note that this option changes when using CTRL-^ in Insert mode
         i_CTRL-^ .
        The value is set to 1 when setting 'keymap' to a valid keymap name.
        It is also used for the argument of commands like "r" and "f".
        The value 0 may not work correctly with Athena and Motif with some XIM
        methods.  Use 'imdisable' to disable XIM then.
```

You can set 'imactivatefunc' and 'imstatusfunc' to handle IME/XIM
via external command if vim is not compiled with the +xim ,
+multi_byte_ime or global-ime .

'imsearch' 'ims' number (default -1)
local to buffer
{not in Vi}
Specifies whether :lmap or an Input Method (IM) is to be used when
entering a search pattern. Valid values:
-1 the value of 'iminsert' is used, makes it look like
'iminsert' is also used when typing a search pattern
0 :lmap is off and IM is off
1 :lmap is ON and IM is off
2 :lmap is off and IM is ON
Note that this option changes when using CTRL-^ in Command-line mode
c_CTRL-^ .
The value is set to 1 when it is not -1 and setting the 'keymap'
option to a valid keymap name.
The value 0 may not work correctly with Athena and Motif with some XIM
methods. Use 'imdisable' to disable XIM then.

'imstatusfunc' 'imsf' string (default "")
global
{not in Vi}
{only available when compiled with the +multi_byte
feature}
This option specifies a function that is called to obtain the status
of Input Method. It must return a positive number when IME is active.
It is not used in the GUI.

Example:

```
function ImStatusFunc()
  let is_active = ...do something
  return is_active ? 1 : 0
endfunction
set imstatusfunc=ImStatusFunc
```

NOTE: This function is invoked very often. Keep it fast.

'imstyle' 'imst' number (default 1)
global
{not in Vi}
{only available when compiled with +xim and
+GUI_GTK }
This option specifies the input style of Input Method:
0 use on-the-spot style
1 over-the-spot style
See: xim-input-style

For a long time on-the-spot style had been used in the GTK version of
vim, however, it is known that it causes troubles when using mappings,

single-repeat , etc. Therefore over-the-spot style becomes the default now. This should work fine for most people, however if you have any problem with it, try using on-the-spot style.

'include' 'inc'

'include' 'inc' string (default "^\s*#\s*include")
global or local to buffer global-local
{not in Vi}
{not available when compiled without the +find_in_path feature}

Pattern to be used to find an include command. It is a search pattern, just like for the "/" command (See pattern). The default value is for C programs. This option is used for the commands "[i", "]I", "[d", etc.
Normally the 'isfname' option is used to recognize the file name that comes after the matched pattern. But if "\zs" appears in the pattern then the text matched from "\zs" to the end, or until "\ze" if it appears, is used as the file name. Use this to include characters that are not in 'isfname', such as a space. You can then use 'includeexpr' to process the matched text.
See option-backslash about including spaces and backslashes.

'includeexpr' 'inex'

'includeexpr' 'inex' string (default "")
local to buffer
{not in Vi}
{not available when compiled without the +find_in_path or +eval features}

Expression to be used to transform the string found with the 'include' option to a file name. Mostly useful to change "." to "/" for Java:

```
:set includeexpr=substitute(v:fname,'\\.','/','g')
```

The "v:fname" variable will be set to the file name that was detected.

Also used for the gf command if an unmodified file name can't be found. Allows doing "gf" on the name after an 'include' statement. Also used for <cfile> .

The expression will be evaluated in the sandbox when set from a modeline, see sandbox-option .

It is not allowed to change text or jump to another window while evaluating 'includeexpr' textlock .

'incsearch' 'is' 'noincsearch' 'nois'

'incsearch' 'is' boolean (default off, set in defaults.vim if the +reltime feature is supported)
global
{not in Vi}
{not available when compiled without the +extra_search features}

While typing a search command, show where the pattern, as it was typed so far, matches. The matched string is highlighted. If the pattern is invalid or not found, nothing is shown. The screen will be updated often, this is only useful on fast terminals.

```
Note that the match will be shown, but the cursor will return to its
original position when no match is found and when pressing <Esc>.  You
still need to finish the search command with <Enter> to move the
cursor to the match.
You can use the CTRL-G and CTRL-T keys to move to the next and
previous match.  c_CTRL-G   c_CTRL-T
When compiled with the  +reltime  feature Vim only searches for about
half a second.  With a complicated pattern and/or a lot of text the
match may not be found.  This is to avoid that Vim hangs while you
are typing the pattern.
The highlighting can be set with the 'i' flag in 'highlight'.
When 'hlsearch' is on, all matched strings are highlighted too while
typing a search command. See also: 'hlsearch'.
If you don't want turn 'hlsearch' on, but want to highlight all matches
while searching, you can turn on and off 'hlsearch' with autocmd.
Example:
        augroup vimrc-incsearch-highlight
          autocmd!
          autocmd CmdlineEnter /,\? :set hlsearch
          autocmd CmdlineLeave /,\? :set nohlsearch
        augroup END

CTRL-L can be used to add one character from after the current match
to the command line.  If 'ignorecase' and 'smartcase' are set and the
command line has no uppercase characters, the added character is
converted to lowercase.
CTRL-R CTRL-W can be used to add the word at the end of the current
match, excluding the characters that were already typed.
NOTE: This option is reset when 'compatible' is set.

                                                 'indentexpr'   'inde'
'indentexpr' 'inde'     string  (default "")
                        local to buffer
                        {not in Vi}
                        {not available when compiled without the  +cindent
                        or  +eval  features}
        Expression which is evaluated to obtain the proper indent for a line.
        It is used when a new line is created, for the  =  operator and
        in Insert mode as specified with the 'indentkeys' option.
        When this option is not empty, it overrules the 'cindent' and
        'smartindent' indenting.  When 'lisp' is set, this option is
        overridden by the Lisp indentation algorithm.
        When 'paste' is set this option is not used for indenting.
        The expression is evaluated with  v:lnum  set to the line number for
        which the indent is to be computed.  The cursor is also in this line
        when the expression is evaluated (but it may be moved around).
        The expression must return the number of spaces worth of indent.  It
        can return "-1" to keep the current indent (this means 'autoindent' is
        used for the indent).
        Functions useful for computing the indent are  indent() ,  cindent()
        and  lispindent() .
        The evaluation of the expression must not have side effects!  It must
        not change the text, jump to another window, etc.  Afterwards the
        cursor position is always restored, thus the cursor may be moved.
```

Normally this option would be set to call a function:
:set indentexpr=GetMyIndent()
Error messages will be suppressed, unless the 'debug' option contains "msg".
See indent-expression .
NOTE: This option is set to "" when 'compatible' is set.

The expression will be evaluated in the sandbox when set from a modeline, see sandbox-option .

It is not allowed to change text or jump to another window while evaluating 'indentexpr' textlock .

'indentkeys' 'indk'

'indentkeys' 'indk' string (default "0{,0},:,0#,!^F,o,O,e")
local to buffer
{not in Vi}
{not available when compiled without the +cindent feature}
A list of keys that, when typed in Insert mode, cause reindenting of the current line. Only happens if 'indentexpr' isn't empty.
The format is identical to 'cinkeys', see indentkeys-format .
See C-indenting and indent-expression .

'infercase' 'inf' 'noinfercase' 'noinf'

'infercase' 'inf' boolean (default off)
local to buffer
{not in Vi}
When doing keyword completion in insert mode ins-completion , and 'ignorecase' is also on, the case of the match is adjusted depending on the typed text. If the typed text contains a lowercase letter where the match has an upper case letter, the completed part is made lowercase. If the typed text has no lowercase letters and the match has a lowercase letter where the typed text has an uppercase letter, and there is a letter before it, the completed part is made uppercase.
With 'noinfercase' the match is used as-is.

'insertmode' 'im' 'noinsertmode' 'noim'

'insertmode' 'im' boolean (default off)
global
{not in Vi}
Makes Vim work in a way that Insert mode is the default mode. Useful if you want to use Vim as a modeless editor. Used for evim .
These Insert mode commands will be useful:
- Use the cursor keys to move around.
- Use CTRL-O to execute one Normal mode command i_CTRL-O . When this is a mapping, it is executed as if 'insertmode' was off. Normal mode remains active until the mapping is finished.
- Use CTRL-L to execute a number of Normal mode commands, then use <Esc> to get back to Insert mode. Note that CTRL-L moves the cursor left, like <Esc> does when 'insertmode' isn't set. i_CTRL-L

These items change when 'insertmode' is set:

- when starting to edit of a file, Vim goes to Insert mode.
- <Esc> in Insert mode is a no-op and beeps.
- <Esc> in Normal mode makes Vim go to Insert mode.
- CTRL-L in Insert mode is a command, it is not inserted.
- CTRL-Z in Insert mode suspends Vim, see CTRL-Z . i_CTRL-Z

However, when <Esc> is used inside a mapping, it behaves like 'insertmode' was not set. This was done to be able to use the same mappings with 'insertmode' set or not set.
When executing commands with :normal 'insertmode' is not used.

NOTE: This option is reset when 'compatible' is set.

'isfname' 'isf' string (default for MS-DOS, Win32 and OS/2: "@,48-57,/,\,.,-,_,+,,,#,$,%,{,},[,],:,@-@,!,~,=" for AMIGA: "@,48-57,/,.,-,_,+,,,$,:" for VMS: "@,48-57,/,.,-,_,+,,,#,$,%,<,>,[,],:,;,~" for OS/390: "@,240-249,/,.,-,_,+,,,#,$,%,~,=" otherwise: "@,48-57,/,.,-,_,+,,,#,$,%,~,=") global {not in Vi}

The characters specified by this option are included in file names and path names. Filenames are used for commands like "gf", "[i" and in the tags file. It is also used for "\f" in a pattern .
Multi-byte characters 256 and above are always included, only the characters up to 255 are specified with this option.
For UTF-8 the characters 0xa0 to 0xff are included as well.
Think twice before adding white space to this option. Although a space may appear inside a file name, the effect will be that Vim doesn't know where a file name starts or ends when doing completion. It most likely works better without a space in 'isfname'.

Note that on systems using a backslash as path separator, Vim tries to do its best to make it work as you would expect. That is a bit tricky, since Vi originally used the backslash to escape special characters. Vim will not remove a backslash in front of a normal file name character on these systems, but it will on Unix and alikes. The '&' and '^' are not included by default, because these are special for cmd.exe.

The format of this option is a list of parts, separated with commas. Each part can be a single character number or a range. A range is two character numbers with '-' in between. A character number can be a decimal number between 0 and 255 or the ASCII character itself (does not work for digits). Example:

```
"_,-,128-140,#-43"      (include '_' and '-' and the range
                         128 to 140 and '#' to 43)
```

If a part starts with '^', the following character number or range will be excluded from the option. The option is interpreted from left to right. Put the excluded character after the range where it is included. To include '^' itself use it as the last character of the option or the end of a range. Example:

```
"^a-z,#,^"      (exclude 'a' to 'z', include '#' and '^')
```

If the character is '@', all characters where isalpha() returns TRUE

are included. Normally these are the characters a to z and A to Z,
plus accented characters. To include '@' itself use "@-@". Examples:
	"@,^a-z"	All alphabetic characters, excluding lower
			case ASCII letters.
	"a-z,A-Z,@-@"	All letters plus the '@' character.
A comma can be included by using it where a character number is
expected. Example:
	"48-57,,,_"	Digits, comma and underscore.
A comma can be excluded by prepending a '^'. Example:
	" -~,^,,9"	All characters from space to '~', excluding
			comma, plus <Tab>.
See option-backslash about including spaces and backslashes.

'isident' 'isi'
'isident' 'isi'		string (default for MS-DOS, Win32 and OS/2:
				    "@,48-57,_,128-167,224-235"
			otherwise: "@,48-57,_,192-255")
			global
			{not in Vi}
The characters given by this option are included in identifiers.
Identifiers are used in recognizing environment variables and after a
match of the 'define' option. It is also used for "\i" in a
 pattern . See 'isfname' for a description of the format of this
option.
Careful: If you change this option, it might break expanding
environment variables. E.g., when '/' is included and Vim tries to
expand "$HOME/.viminfo". Maybe you should change 'iskeyword' instead.

'iskeyword' 'isk'
'iskeyword' 'isk'	string (Vim default for MS-DOS and Win32:
				    "@,48-57,_,128-167,224-235"
			   otherwise: "@,48-57,_,192-255"
			Vi default: "@,48-57,_")
			local to buffer
			{not in Vi}
Keywords are used in searching and recognizing with many commands:
"w", "*", "[i", etc. It is also used for "\k" in a pattern . See
'isfname' for a description of the format of this option. For C
programs you could use "a-z,A-Z,48-57,_,.,-,>".
For a help file it is set to all non-blank printable characters except
'*', '"' and '|' (so that CTRL-] on a command finds the help for that
command).
When the 'lisp' option is on the '-' character is always included.
This option also influences syntax highlighting, unless the syntax
uses :syn-iskeyword .
NOTE: This option is set to the Vi default value when 'compatible' is
set and to the Vim default value when 'compatible' is reset.

'isprint' 'isp'
'isprint' 'isp' string (default for MS-DOS, Win32, OS/2 and Macintosh:
			    "@,~-255"; otherwise: "@,161-255")
			global
			{not in Vi}
The characters given by this option are displayed directly on the

screen. It is also used for "\p" in a pattern . The characters from space (ASCII 32) to '~' (ASCII 126) are always displayed directly, even when they are not included in 'isprint' or excluded. See 'isfname' for a description of the format of this option.

Non-printable characters are displayed with two characters:

```
          0 -  31       "^@" - "^_"
         32 - 126       always single characters
            127         "^?"
        128 - 159       "~@" - "~_"
        160 - 254       "| " - "|~"
            255         "~?"
```

When 'encoding' is a Unicode one, illegal bytes from 128 to 255 are displayed as <xx>, with the hexadecimal value of the byte.
When 'display' contains "uhex" all unprintable characters are displayed as <xx>.
The SpecialKey highlighting will be used for unprintable characters.
 hl-SpecialKey

Multi-byte characters 256 and above are always included, only the characters up to 255 are specified with this option. When a character is printable but it is not available in the current font, a replacement character will be shown.
Unprintable and zero-width Unicode characters are displayed as <xxxx>.
There is no option to specify these characters.

'joinspaces' 'js' 'nojoinspaces' 'nojs'
'joinspaces' 'js' boolean (default on)
global
{not in Vi}

Insert two spaces after a '.', '?' and '!' with a join command.
When 'cpoptions' includes the 'j' flag, only do this after a '.'.
Otherwise only one space is inserted.
NOTE: This option is set when 'compatible' is set.

'key'
'key' string (default "")
local to buffer
{not in Vi}
{only available when compiled with the +cryptv feature}

The key that is used for encrypting and decrypting the current buffer.
See encryption and 'cryptmethod'.
Careful: Do not set the key value by hand, someone might see the typed key. Use the :X command. But you can make 'key' empty:

```
:set key=
```

It is not possible to get the value of this option with ":set key" or "echo &key". This is to avoid showing it to someone who shouldn't know. It also means you cannot see it yourself once you have set it, be careful not to make a typing error!
You can use "&key" in an expression to detect whether encryption is enabled. When 'key' is set it returns "*****" (five stars).

'keymap' 'kmp' E544

'keymap' 'kmp'		string	(default "")
			local to buffer
			{not in Vi}
			{only available when compiled with the +keymap
			feature}
	Name of a keyboard mapping. See mbyte-keymap .
	Setting this option to a valid keymap name has the side effect of
	setting 'iminsert' to one, so that the keymap becomes effective.
	'imsearch' is also set to one, unless it was -1
	Only normal file name characters can be used, "/*?[|<>" are illegal.

'keymodel' 'km'		string	(default "")
			global
			{not in Vi}
	List of comma separated words, which enable special things that keys
	can do. These values can be used:
	   startsel	Using a shifted special key starts selection (either
			Select mode or Visual mode, depending on "key" being
			present in 'selectmode').
	   stopsel	Using a not-shifted special key stops selection.
	Special keys in this context are the cursor keys, <End>, <Home>,
	<PageUp> and <PageDown>.
	The 'keymodel' option is set by the :behave command.

'keywordprg' 'kp'	string	(default "man" or "man -s", DOS: ":help",
				VMS: "help")
			global or local to buffer global-local
			{not in Vi}
	Program to use for the K command. Environment variables are
	expanded :set_env . ":help" may be used to access the Vim internal
	help. (Note that previously setting the global option to the empty
	value did this, which is now deprecated.)
	When the first character is ":", the command is invoked as a Vim
	Ex command prefixed with [count].
	When "man", "man -s" or an Ex command is used, Vim will automatically
	translate a count for the "K" command and pass it as the first
	argument. For "man -s" the "-s" is removed when there is no count.
	See option-backslash about including spaces and backslashes.
	Example:
		:set keywordprg=man\ -s
	This option cannot be set from a modeline or in the sandbox , for
	security reasons.

'langmap' 'lmap'	string	(default "")
			global
			{not in Vi}
			{only available when compiled with the +langmap
			feature}
	This option allows switching your keyboard into a special language
	mode. When you are typing text in Insert mode the characters are
	inserted directly. When in Normal mode the 'langmap' option takes

care of translating these special characters to the original meaning
of the key. This means you don't have to change the keyboard mode to
be able to execute Normal mode commands.
This is the opposite of the 'keymap' option, where characters are
mapped in Insert mode.
Also consider resetting 'langremap' to avoid 'langmap' applies to
characters resulting from a mapping.
This option cannot be set from a modeline or in the sandbox , for
security reasons.

Example (for Greek, in UTF-8):   greek
    :set langmap=AA,BB,ΨC,ΔD,EE,ΦF,ΓG,HH,II,ΞJ,KK,ΛL,MM,NN,OO,ΠP,QQ,PR,ΣS,TT,ΘU,ΩV
Example (exchanges meaning of z and y for commands):
    :set langmap=zy,yz,ZY,YZ

The 'langmap' option is a list of parts, separated with commas. Each
part can be in one of two forms:
1. A list of pairs. Each pair is a "from" character immediately
    followed by the "to" character. Examples: "aA", "aAbBcC".
2. A list of "from" characters, a semi-colon and a list of "to"
    characters. Example: "abc;ABC"
Example: "aA,fgh;FGH,cCdDeE"
Special characters need to be preceded with a backslash. These are
";", ',' and backslash itself.

This will allow you to activate vim actions without having to switch
back and forth between the languages. Your language characters will
be understood as normal vim English characters (according to the
langmap mappings) in the following cases:
 o Normal/Visual mode (commands, buffer/register names, user mappings)
 o Insert/Replace Mode: Register names after CTRL-R
 o Insert/Replace Mode: Mappings
Characters entered in Command-line mode will NOT be affected by
this option.   Note that this option can be changed at any time
allowing to switch between mappings for different languages/encodings.
Use a mapping to avoid having to type it each time!

                                        'langmenu'   'lm'
'langmenu' 'lm'   string (default "")
                        global
                        {not in Vi}
                        {only available when compiled with the +menu and
                         +multi_lang features}
Language to use for menu translation. Tells which file is loaded
from the "lang" directory in 'runtimepath':
        "lang/menu_" . &langmenu . ".vim"
(without the spaces). For example, to always use the Dutch menus, no
matter what $LANG is set to:
        :set langmenu=nl_NL.ISO_8859-1
When 'langmenu' is empty, v:lang is used.
Only normal file name characters can be used, "/*?[|<>" are illegal.
If your $LANG is set to a non-English language but you do want to use
the English menus:
        :set langmenu=none

This option must be set before loading menus, switching on filetype detection or syntax highlighting. Once the menus are defined setting this option has no effect. But you could do this:

```
:source $VIMRUNTIME/delmenu.vim
:set langmenu=de_DE.ISO_8859-1
:source $VIMRUNTIME/menu.vim
```

Warning: This deletes all menus that you defined yourself!

'langnoremap' 'lnr' 'nolangnoremap' 'nolnr'
'langnoremap' 'lnr' boolean (default off, set in defaults.vim)
global
{not in Vi}
{only available when compiled with the +langmap feature}

This is just like 'langremap' but with the value inverted. It only exists for backwards compatibility. When setting 'langremap' then 'langnoremap' is set to the inverted value, and the other way around.

'langremap' 'lrm' 'nolangremap' 'nolrm'
'langremap' 'lrm' boolean (default on, reset in defaults.vim)
global
{not in Vi}
{only available when compiled with the +langmap feature}

When off, setting 'langmap' does not apply to characters resulting from a mapping. This basically means, if you noticed that setting 'langmap' disables some of your mappings, try resetting this option. This option defaults to on for backwards compatibility. Set it off if that works for you to avoid mappings to break.

'laststatus' 'ls'
'laststatus' 'ls' number (default 1)
global
{not in Vi}

The value of this option influences when the last window will have a status line:

```
0: never
1: only if there are at least two windows
2: always
```

The screen looks nicer with a status line if you have several windows, but it takes another screen line. status-line

'lazyredraw' 'lz' 'nolazyredraw' 'nolz'
'lazyredraw' 'lz' boolean (default off)
global
{not in Vi}

When this option is set, the screen will not be redrawn while executing macros, registers and other commands that have not been typed. Also, updating the window title is postponed. To force an update use :redraw .

'linebreak' 'lbr' 'nolinebreak' 'nolbr'
'linebreak' 'lbr' boolean (default off)
local to window

{not in Vi}
{not available when compiled without the +linebreak feature}

If on, Vim will wrap long lines at a character in 'breakat' rather than at the last character that fits on the screen. Unlike 'wrapmargin' and 'textwidth', this does not insert <EOL>s in the file, it only affects the way the file is displayed, not its contents. If 'breakindent' is set, line is visually indented. Then, the value of 'showbreak' is used to put in front of wrapped lines. This option is not used when the 'wrap' option is off.
Note that <Tab> characters after an <EOL> are mostly not displayed with the right amount of white space.

'lines' E593

'lines' number (default 24 or terminal height)
global

Number of lines of the Vim window.
Normally you don't need to set this. It is done automatically by the terminal initialization code. Also see posix-screen-size .
When Vim is running in the GUI or in a resizable window, setting this option will cause the window size to be changed. When you only want to use the size for the GUI, put the command in your gvimrc file.
Vim limits the number of lines to what fits on the screen. You can use this command to get the tallest window possible:

```
:set lines=999
```

Minimum value is 2, maximum value is 1000.
If you get fewer lines than expected, check the 'guiheadroom' option.
When you set this option and Vim is unable to change the physical number of lines of the display, the display may be messed up.

'linespace' 'lsp'

'linespace' 'lsp' number (default 0, 1 for Win32 GUI)
global
{not in Vi}
{only in the GUI}

Number of pixel lines inserted between characters. Useful if the font uses the full character cell height, making lines touch each other. When non-zero there is room for underlining.
With some fonts there can be too much room between lines (to have space for ascents and descents). Then it makes sense to set 'linespace' to a negative value. This may cause display problems though!

'lisp' 'nolisp'

'lisp' boolean (default off)
local to buffer
{not available when compiled without the +lispindent feature}

Lisp mode: When <Enter> is typed in insert mode set the indent for the next line to Lisp standards (well, sort of). Also happens with "cc" or "S". 'autoindent' must also be on for this to work. The 'p' flag in 'cpoptions' changes the method of indenting: Vi compatible or better. Also see 'lispwords'.
The '-' character is included in keyword characters. Redefines the

"=" operator to use this same indentation algorithm rather than
calling an external program if 'equalprg' is empty.
This option is not used when 'paste' is set.
{Vi: Does it a little bit differently}

'lispwords' 'lw'

'lispwords' 'lw'	string (default is very long)
global or local to buffer global-local
{not in Vi}
{not available when compiled without the +lispindent
feature}
Comma separated list of words that influence the Lisp indenting.
'lisp'

'list' 'nolist'

'list'	boolean (default off)
local to window
List mode: Show tabs as CTRL-I is displayed, display $ after end of
line. Useful to see the difference between tabs and spaces and for
trailing blanks. Further changed by the 'listchars' option.

The cursor is displayed at the start of the space a Tab character
occupies, not at the end as usual in Normal mode. To get this cursor
position while displaying Tabs with spaces, use:
:set list lcs=tab:\ \

Note that list mode will also affect formatting (set with 'textwidth'
or 'wrapmargin') when 'cpoptions' includes 'L'. See 'listchars' for
changing the way tabs are displayed.

'listchars' 'lcs'

'listchars' 'lcs'	string (default "eol:$")
global
{not in Vi}
Strings to use in 'list' mode and for the :list command. It is a
comma separated list of string settings.

lcs-eol
eol:c	Character to show at the end of each line. When
omitted, there is no extra character at the end of the
line.

lcs-tab
tab:xy	Two characters to be used to show a tab. The first
char is used once. The second char is repeated to
fill the space that the tab normally occupies.
"tab:>-" will show a tab that takes four spaces as
">---". When omitted, a tab is show as ^I.

lcs-space
space:c	Character to show for a space. When omitted, spaces
are left blank.

lcs-trail
trail:c	Character to show for trailing spaces. When omitted,
trailing spaces are blank. Overrides the "space"
setting for trailing spaces.

lcs-extends

```
            extends:c     Character to show in the last column, when 'wrap' is
                          off and the line continues beyond the right of the
                          screen.
                                                                lcs-precedes
            precedes:c    Character to show in the first column, when 'wrap'
                          is off and there is text preceding the character
                          visible in the first column.
                                                                lcs-conceal
            conceal:c     Character to show in place of concealed text, when
                          'conceallevel' is set to 1.
                                                                lcs-nbsp
            nbsp:c        Character to show for a non-breakable space character
                          (0xA0 (160 decimal) and U+202F).  Left blank when
                          omitted.

          The characters ':' and ',' should not be used.  UTF-8 characters can
          be used when 'encoding' is "utf-8", otherwise only printable
          characters are allowed.  All characters must be single width.

          Examples:
              :set lcs=tab:>-,trail:-
              :set lcs=tab:>-,eol:<,nbsp:%
              :set lcs=extends:>,precedes:<
        The "NonText" highlighting will be used for "eol", "extends" and
         "precedes".  "SpecialKey" for "nbsp", "space", "tab" and "trail".
          hl-NonText   hl-SpecialKey

                                'lpl'   'nolpl'   'loadplugins'   'noloadplugins'
'loadplugins' 'lpl'     boolean (default on)
                        global
                        {not in Vi}
          When on the plugin scripts are loaded when starting up  load-plugins .
          This option can be reset in your  vimrc  file to disable the loading
          of plugins.
          Note that using the "-u NONE", "-u DEFAULTS" and "--noplugin" command
          line arguments reset this option.  See  -u  and  --noplugin .

                                                        'luadll'
'luadll'                string  (default depends on the build)
                        global
                        {not in Vi}
                        {only available when compiled with the  +lua/dyn
                        feature}
          Specifies the name of the Lua shared library. The default is
          DYNAMIC_LUA_DLL, which was specified at compile time.
          Environment variables are expanded  :set_env .
          This option cannot be set from a  modeline  or in the  sandbox , for
          security reasons.

                                                        'macatsui'   'nomacatsui'
'macatsui'              boolean (default on)
                        global
                        {only available in Mac GUI version}
          This is a workaround for when drawing doesn't work properly.  When set
```

and compiled with multi-byte support ATSUI text drawing is used. When not set ATSUI text drawing is not used. Switch this option off when you experience drawing problems. In a future version the problems may be solved and this option becomes obsolete. Therefore use this method to unset it:

```
if exists('&macatsui')
   set nomacatsui
endif
```

Another option to check if you have drawing problems is 'termencoding'.

'magic' 'nomagic'

'magic' boolean (default on)
global

Changes the special characters that can be used in search patterns. See pattern .
WARNING: Switching this option off most likely breaks plugins! That is because many patterns assume it's on and will fail when it's off. Only switch it off when working with old Vi scripts. In any other situation write patterns that work when 'magic' is on. Include "\M" when you want to /\M .

'makeef' 'mef'

'makeef' 'mef' string (default: "")
global
{not in Vi}
{not available when compiled without the +quickfix feature}

Name of the errorfile for the :make command (see :make_makeprg) and the :grep command.
When it is empty, an internally generated temp file will be used. When "##" is included, it is replaced by a number to make the name unique. This makes sure that the ":make" command doesn't overwrite an existing file.
NOT used for the ":cf" command. See 'errorfile' for that.
Environment variables are expanded :set_env .
See option-backslash about including spaces and backslashes.
This option cannot be set from a modeline or in the sandbox , for security reasons.

'makeencoding' 'menc'

'makeencoding' 'menc' string (default "")
global or local to buffer global-local
{only available when compiled with the +multi_byte feature}
{not in Vi}

Encoding used for reading the output of external commands. When empty, encoding is not converted.
This is used for `:make`, `:lmake`, `:grep`, `:lgrep`, `:grepadd`, `:lgrepadd`, `:cfile`, `:cgetfile`, `:caddfile`, `:lfile`, `:lgetfile`, and `:laddfile`.

This would be mostly useful when you use MS-Windows and set 'encoding' to "utf-8". If +iconv is enabled and GNU libiconv is used, setting

'makeencoding' to "char" has the same effect as setting to the system
locale encoding. Example:
	:set encoding=utf-8
	:set makeencoding=char " system locale is used

'makeprg' 'mp'
'makeprg' 'mp'		string (default "make", VMS: "MMS")
			global or local to buffer global-local
			{not in Vi}
Program to use for the ":make" command. See :make_makeprg .
This option may contain '%' and '#' characters (see :_% and :_#),
which are expanded to the current and alternate file name. Use ::S
to escape file names in case they contain special characters.
Environment variables are expanded :set_env . See option-backslash
about including spaces and backslashes.
Note that a '|' must be escaped twice: once for ":set" and once for
the interpretation of a command. When you use a filter called
"myfilter" do it like this:
    :set makeprg=gmake\ \\\|\ myfilter
The placeholder "$*" can be given (even multiple times) to specify
where the arguments will be included, for example:
    :set makeprg=latex\ \\\\nonstopmode\ \\\\input\\{$*}
This option cannot be set from a modeline or in the sandbox , for
security reasons.

'matchpairs' 'mps'
'matchpairs' 'mps'	string (default "(:),{:},[:]")
			local to buffer
			{not in Vi}
Characters that form pairs. The % command jumps from one to the
other.
Only character pairs are allowed that are different, thus you cannot
jump between two double quotes.
The characters must be separated by a colon.
The pairs must be separated by a comma. Example for including '<' and
'>' (HTML):
	:set mps+=<:>

A more exotic example, to jump between the '=' and ';' in an
assignment, useful for languages like C and Java:
	:au FileType c,cpp,java set mps+==:;

For a more advanced way of using "%", see the matchit.vim plugin in
the $VIMRUNTIME/pack/dist/opt/matchit directory. add-local-help

'matchtime' 'mat'
'matchtime' 'mat'	number (default 5)
			global
			{not in Vi}{in Nvi}
Tenths of a second to show the matching paren, when 'showmatch' is
set. Note that this is not in milliseconds, like other options that
set a time. This is to be compatible with Nvi.

'maxcombine' 'mco'

'maxcombine' 'mco'	number (default 2)
			global
			{not in Vi}
			{only available when compiled with the +multi_byte
			feature}
	The maximum number of combining characters supported for displaying.
	Only used when 'encoding' is "utf-8".
	The default is OK for most languages. Hebrew may require 4.
	Maximum value is 6.
	Even when this option is set to 2 you can still edit text with more
	combining characters, you just can't see them. Use g8 or ga .
	See mbyte-combining .

'maxfuncdepth' 'mfd'
'maxfuncdepth' 'mfd'	number (default 100)
			global
			{not in Vi}
			{not available when compiled without the +eval
			feature}
	Maximum depth of function calls for user functions. This normally
	catches endless recursion. When using a recursive function with
	more depth, set 'maxfuncdepth' to a bigger number. But this will use
	more memory, there is the danger of failing when memory is exhausted.
	Increasing this limit above 200 also changes the maximum for Ex
	command recursion, see E169 .
	See also :function .

'maxmapdepth' 'mmd' E223
'maxmapdepth' 'mmd'	number (default 1000)
			global
			{not in Vi}
	Maximum number of times a mapping is done without resulting in a
	character to be used. This normally catches endless mappings, like
	":map x y" with ":map y x". It still does not catch ":map g wg",
	because the 'w' is used before the next mapping is done. See also
	key-mapping .

'maxmem' 'mm'
'maxmem' 'mm'	number (default between 256 to 5120 (system
			dependent) or half the amount of memory
			available)
			global
			{not in Vi}
	Maximum amount of memory (in Kbyte) to use for one buffer. When this
	limit is reached allocating extra memory for a buffer will cause
	other memory to be freed.
	The maximum usable value is about 2000000. Use this to work without a
	limit.
	The value is ignored when 'swapfile' is off.
	Also see 'maxmemtot'.

'maxmempattern' 'mmp'
'maxmempattern' 'mmp'	number (default 1000)
			global

{not in Vi}
Maximum amount of memory (in Kbyte) to use for pattern matching.
The maximum value is about 2000000. Use this to work without a limit.
E363
When Vim runs into the limit it gives an error message and mostly
behaves like CTRL-C was typed.
Running into the limit often means that the pattern is very
inefficient or too complex. This may already happen with the pattern
"\(.\)*" on a very long line. ".*" works much better.
Might also happen on redraw, when syntax rules try to match a complex
text structure.
Vim may run out of memory before hitting the 'maxmempattern' limit, in
which case you get an "Out of memory" error instead.

'maxmemtot' 'mmt'
'maxmemtot' 'mmt' number (default between 2048 and 10240 (system dependent) or half the amount of memory available)
global
{not in Vi}
Maximum amount of memory in Kbyte to use for all buffers together.
The maximum usable value is about 2000000 (2 Gbyte). Use this to work
without a limit.
On 64 bit machines higher values might work. But hey, do you really
need more than 2 Gbyte for text editing? Keep in mind that text is
stored in the swap file, one can edit files > 2 Gbyte anyway. We do
need the memory to store undo info.
Buffers with 'swapfile' off still count to the total amount of memory
used.
Also see 'maxmem'.

'menuitems' 'mis'
'menuitems' 'mis' number (default 25)
global
{not in Vi}
{not available when compiled without the +menu feature}
Maximum number of items to use in a menu. Used for menus that are
generated from a list of items, e.g., the Buffers menu. Changing this
option has no direct effect, the menu must be refreshed first.

'mkspellmem' 'msm'
'mkspellmem' 'msm' string (default "460000,2000,500")
global
{not in Vi}
{not available when compiled without the +syntax feature}
Parameters for :mkspell . This tunes when to start compressing the
word tree. Compression can be slow when there are many words, but
it's needed to avoid running out of memory. The amount of memory used
per word depends very much on how similar the words are, that's why
this tuning is complicated.

There are three numbers, separated by commas:

{start},{inc},{added}

For most languages the uncompressed word tree fits in memory. {start} gives the amount of memory in Kbyte that can be used before any compression is done. It should be a bit smaller than the amount of memory that is available to Vim.

When going over the {start} limit the {inc} number specifies the amount of memory in Kbyte that can be allocated before another compression is done. A low number means compression is done after less words are added, which is slow. A high number means more memory will be allocated.

After doing compression, {added} times 1024 words can be added before the {inc} limit is ignored and compression is done when any extra amount of memory is needed. A low number means there is a smaller chance of hitting the {inc} limit, less memory is used but it's slower.

The languages for which these numbers are important are Italian and Hungarian. The default works for when you have about 512 Mbyte. If you have 1 Gbyte you could use:

```
:set mkspellmem=900000,3000,800
```

If you have less than 512 Mbyte :mkspell may fail for some languages, no matter what you set 'mkspellmem' to.

'modeline' 'ml' 'nomodeline' 'noml'
'modeline' 'ml' boolean (Vim default: on (off for root), Vi default: off)
local to buffer

'modelines' 'mls'
'modelines' 'mls' number (default 5)
global
{not in Vi}

If 'modeline' is on 'modelines' gives the number of lines that is checked for set commands. If 'modeline' is off or 'modelines' is zero no lines are checked. See modeline .
NOTE: 'modeline' is set to the Vi default value when 'compatible' is set and to the Vim default value when 'compatible' is reset.

'modifiable' 'ma' 'nomodifiable' 'noma'
'modifiable' 'ma' boolean (default on)
local to buffer
{not in Vi} E21

When off the buffer contents cannot be changed. The 'fileformat' and 'fileencoding' options also can't be changed.
Can be reset on startup with the -M command line argument.

'modified' 'mod' 'nomodified' 'nomod'
'modified' 'mod' boolean (default off)
local to buffer
{not in Vi}

When on, the buffer is considered to be modified. This option is set when:

1. A change was made to the text since it was last written. Using the undo command to go back to the original text will reset the option. But undoing changes that were made before writing the buffer will set the option again, since the text is different from when it was written.
2. 'fileformat' or 'fileencoding' is different from its original value. The original value is set when the buffer is read or written. A ":set nomodified" command also resets the original values to the current values and the 'modified' option will be reset.
   Similarly for 'eol' and 'bomb'.

This option is not set when a change is made to the buffer as the result of a BufNewFile, BufRead/BufReadPost, BufWritePost, FileAppendPost or VimLeave autocommand event. See gzip-example for an explanation.
When 'buftype' is "nowrite" or "nofile" this option may be set, but will be ignored.
Note that the text may actually be the same, e.g. 'modified' is set when using "rA" on an "A".

'more' 'nomore'

'more' boolean (Vim default: on, Vi default: off)
global
{not in Vi}

When on, listings pause when the whole screen is filled. You will get the more-prompt . When this option is off there are no pauses, the listing continues until finished.
NOTE: This option is set to the Vi default value when 'compatible' is set and to the Vim default value when 'compatible' is reset.

'mouse' E538

'mouse' string (default "", "a" for GUI, MS-DOS and Win32, set to "a" in defaults.vim)
global
{not in Vi}

Enable the use of the mouse. Only works for certain terminals (xterm, MS-DOS, Win32 win32-mouse , QNX pterm, *BSD console with sysmouse and Linux console with gpm). For using the mouse in the GUI, see gui-mouse .
The mouse can be enabled for different modes:

n	Normal mode and Terminal modes
v	Visual mode
i	Insert mode
c	Command-line mode
h	all previous modes when editing a help file
a	all previous modes
r	for hit-enter and more-prompt prompt

Normally you would enable the mouse in all four modes with:

```
:set mouse=a
```

When the mouse is not enabled, the GUI will still use the mouse for modeless selection. This doesn't move the text cursor.

See mouse-using . Also see 'clipboard' .

Note: When enabling the mouse in a terminal, copy/paste will use the "* register if there is access to an X-server. The xterm handling of the mouse buttons can still be used by keeping the shift key pressed. Also see the 'clipboard' option.

'mousefocus' 'mousef' 'nomousefocus' 'nomousef'
'mousefocus' 'mousef' boolean (default off)
global
{not in Vi}
{only works in the GUI}
The window that the mouse pointer is on is automatically activated. When changing the window layout or window focus in another way, the mouse pointer is moved to the window with keyboard focus. Off is the default because it makes using the pull down menus a little goofy, as a pointer transit may activate a window unintentionally.

'mousehide' 'mh' 'nomousehide' 'nomh'
'mousehide' 'mh' boolean (default on)
global
{not in Vi}
{only works in the GUI}
When on, the mouse pointer is hidden when characters are typed. The mouse pointer is restored when the mouse is moved.

'mousemodel' 'mousem'
'mousemodel' 'mousem' string (default "extend", "popup" for MS-DOS and Win32)
global
{not in Vi}
Sets the model to use for the mouse. The name mostly specifies what the right mouse button is used for:

extend	Right mouse button extends a selection. This works like in an xterm.
popup	Right mouse button pops up a menu. The shifted left mouse button extends a selection. This works like with Microsoft Windows.
popup_setpos	Like "popup", but the cursor will be moved to the position where the mouse was clicked, and thus the selected operation will act upon the clicked object. If clicking inside a selection, that selection will be acted upon, i.e. no cursor move. This implies of course, that right clicking outside a selection will end Visual mode.

Overview of what button does what for each model:

mouse	extend	popup(_setpos)
left click	place cursor	place cursor
left drag	start selection	start selection
shift-left	search word	extend selection
right click	extend selection	popup menu (place cursor)
right drag	extend selection	-
middle click	paste	paste

In the "popup" model the right mouse button produces a pop-up menu. You need to define this first, see popup-menu .
In a terminal the popup menu works if Vim is compiled with the

+insert_expand option.

Note that you can further refine the meaning of buttons with mappings.
See gui-mouse-mapping . But mappings are NOT used for modeless
selection (because that's handled in the GUI code directly).

The 'mousemodel' option is set by the :behave command.

'mouseshape' 'mouses' E547
'mouseshape' 'mouses' string (default "i:beam,r:beam,s:updown,sd:cross,
m:no,ml:up-arrow,v:rightup-arrow")
global
{not in Vi}
{only available when compiled with the +mouseshape
feature}
This option tells Vim what the mouse pointer should look like in
different modes. The option is a comma separated list of parts, much
like used for 'guicursor'. Each part consist of a mode/location-list
and an argument-list:
mode-list:shape,mode-list:shape,..
The mode-list is a dash separated list of these modes/locations:
In a normal window:
n Normal mode
v Visual mode
ve Visual mode with 'selection' "exclusive" (same as 'v',
if not specified)
o Operator-pending mode
i Insert mode
r Replace mode

Others:
c appending to the command-line
ci inserting in the command-line
cr replacing in the command-line
m at the 'Hit ENTER' or 'More' prompts
ml idem, but cursor in the last line
e any mode, pointer below last window
s any mode, pointer on a status line
sd any mode, while dragging a status line
vs any mode, pointer on a vertical separator line
vd any mode, while dragging a vertical separator line
a everywhere

The shape is one of the following:

avail	name	looks like
w x	arrow	Normal mouse pointer
w x	blank	no pointer at all (use with care!)
w x	beam	I-beam
w x	updown	up-down sizing arrows
w x	leftright	left-right sizing arrows
w x	busy	The system's usual busy pointer
w x	no	The system's usual 'no input' pointer
x	udsizing	indicates up-down resizing
x	lrsizing	indicates left-right resizing

```
          x     crosshair       like a big thin +
          x     hand1           black hand
          x     hand2           white hand
          x     pencil          what you write with
          x     question        big ?
          x     rightup-arrow   arrow pointing right-up
        w x     up-arrow        arrow pointing up
          x     <number>        any X11 pointer number (see X11/cursorfont.h)

        The "avail" column contains a 'w' if the shape is available for Win32,
        x for X11.
        Any modes not specified or shapes not available use the normal mouse
        pointer.

        Example:
                :set mouseshape=s:udsizing,m:no
       will make the mouse turn to a sizing arrow over the status lines and
        indicate no input when the hit-enter prompt is displayed (since
        clicking the mouse has no effect in this state.)

                                                        'mousetime'   'mouset'
'mousetime' 'mouset'    number  (default 500)
                        global
                        {not in Vi}
        Only for GUI, MS-DOS, Win32 and Unix with xterm.  Defines the maximum
        time in msec between two mouse clicks for the second click to be
        recognized as a multi click.

                                                        'mzschemedll'
'mzschemedll'           string  (default depends on the build)
                        global
                        {not in Vi}
                        {only available when compiled with the  +mzscheme/dyn
                        feature}
        Specifies the name of the MzScheme shared library. The default is
        DYNAMIC_MZSCH_DLL which was specified at compile time.
        Environment variables are expanded  :set_env .
        The value must be set in the  vimrc  script or earlier.  In the
        startup, before the  load-plugins  step.
        This option cannot be set from a  modeline  or in the  sandbox , for
        security reasons.

                                                        'mzschemegcdll'
'mzschemegcdll'         string  (default depends on the build)
                        global
                        {not in Vi}
                        {only available when compiled with the  +mzscheme/dyn
                        feature}
        Specifies the name of the MzScheme GC shared library. The default is
        DYNAMIC_MZGC_DLL which was specified at compile time.
        The value can be equal to 'mzschemedll' if it includes the GC code.
        Environment variables are expanded  :set_env .
        This option cannot be set from a  modeline  or in the  sandbox , for
        security reasons.
```

'mzquantum' 'mzq'

'mzquantum' 'mzq'	number (default 100)
		global
		{not in Vi}
		{not available when compiled without the +mzscheme
		feature}
	The number of milliseconds between polls for MzScheme threads.
	Negative or zero value means no thread scheduling.
	NOTE: This option is set to the Vim default value when 'compatible'
	is reset.

'nrformats' 'nf'

'nrformats' 'nf'	string (default "bin,octal,hex",
				set to "bin,hex" in defaults.vim)
		local to buffer
		{not in Vi}
	This defines what bases Vim will consider for numbers when using the
	CTRL-A and CTRL-X commands for adding to and subtracting from a number
	respectively; see CTRL-A for more info on these commands.
	alpha	If included, single alphabetical characters will be
		incremented or decremented. This is useful for a list with a
		letter index a), b), etc.		octal-nrformats
	octal	If included, numbers that start with a zero will be considered
		to be octal. Example: Using CTRL-A on "007" results in "010".
	hex	If included, numbers starting with "0x" or "0X" will be
		considered to be hexadecimal. Example: Using CTRL-X on
		"0x100" results in "0x0ff".
	bin	If included, numbers starting with "0b" or "0B" will be
		considered to be binary. Example: Using CTRL-X on
		"0b1000" subtracts one, resulting in "0b0111".
	Numbers which simply begin with a digit in the range 1-9 are always
	considered decimal. This also happens for numbers that are not
	recognized as octal or hex.

'number' 'nu' 'nonumber' 'nonu'

'number' 'nu'		boolean (default off)
		local to window
	Print the line number in front of each line. When the 'n' option is
	excluded from 'cpoptions' a wrapped line will not use the column of
	line numbers (this is the default when 'compatible' isn't set).
	The 'numberwidth' option can be used to set the room used for the line
	number.
	When a long, wrapped line doesn't start with the first character, '-'
	characters are put before the number.
	See hl-LineNr and hl-CursorLineNr for the highlighting used for
	the number.

number_relativenumber

	The 'relativenumber' option changes the displayed number to be
	relative to the cursor. Together with 'number' there are these
	four combinations (cursor in line 3):

		'nonu'		'nu'		'nonu'		'nu'
		'nornu'		'nornu'		'rnu'		'rnu'

```
            |apple          |  1 apple      |  2 apple      |  2 apple
            |pear           |  2 pear       |  1 pear       |  1 pear
            |nobody         |  3 nobody     |  0 nobody     |3   nobody
            |there          |  4 there      |  1 there      |  1 there
```

'numberwidth' *'nuw'*

'numberwidth' *'nuw'* number (Vim default: 4 Vi default: 8)
local to window
{not in Vi}
{only available when compiled with the +linebreak feature}

Minimal number of columns to use for the line number. Only relevant when the 'number' or 'relativenumber' option is set or printing lines with a line number. Since one space is always between the number and the text, there is one less character for the number itself.
The value is the minimum width. A bigger width is used when needed to fit the highest line number in the buffer respectively the number of rows in the window, depending on whether 'number' or 'relativenumber' is set. Thus with the Vim default of 4 there is room for a line number up to 999. When the buffer has 1000 lines five columns will be used.
The minimum value is 1, the maximum value is 10.
NOTE: This option is set to the Vi default value when 'compatible' is set and to the Vim default value when 'compatible' is reset.

'omnifunc' *'ofu'*

'omnifunc' *'ofu'* string (default: empty)
local to buffer
{not in Vi}
{not available when compiled without the +eval or +insert_expand features}

This option specifies a function to be used for Insert mode omni completion with CTRL-X CTRL-O. i_CTRL-X_CTRL-O
See complete-functions for an explanation of how the function is invoked and what it should return.
This option is usually set by a filetype plugin:
:filetype-plugin-on
This option cannot be set from a modeline or in the sandbox , for security reasons.

'opendevice' *'odev'* *'noopendevice'* *'noodev'*

'opendevice' *'odev'* boolean (default off)
global
{not in Vi}
{only for MS-DOS, MS-Windows and OS/2}

Enable reading and writing from devices. This may get Vim stuck on a device that can be opened but doesn't actually do the I/O. Therefore it is off by default.
Note that on MS-Windows editing "aux.h", "lpt1.txt" and the like also result in editing a device.

'operatorfunc' *'opfunc'*

'operatorfunc' 'opfunc' string (default: empty)
                        global
                        {not in Vi}
        This option specifies a function to be called by the g@ operator.
        See :map-operator for more info and an example.

        This option cannot be set from a modeline or in the sandbox , for
        security reasons.

                                              'osfiletype' 'oft'
'osfiletype' 'oft'   string (default: "")
                        local to buffer
                        {not in Vi}
        This option was supported on RISC OS, which has been removed.

                                    'packpath' 'pp'
'packpath' 'pp'   string (default: see 'runtimepath')
                        {not in Vi}
        Directories used to find packages. See packages .

                                                'paragraphs' 'para'
'paragraphs' 'para'   string (default "IPLPPPQPP TPHPLIPpLpItpplpipbp")
                        global
        Specifies the nroff macros that separate paragraphs. These are pairs
        of two letters (see object-motions).

                                                'paste' 'nopaste'
'paste'   boolean (default off)
                        global
                        {not in Vi}
        Put Vim in Paste mode. This is useful if you want to cut or copy
        some text from one window and paste it in Vim. This will avoid
        unexpected effects.
        Setting this option is useful when using Vim in a terminal, where Vim
        cannot distinguish between typed text and pasted text. In the GUI, Vim
        knows about pasting and will mostly do the right thing without 'paste'
        being set. The same is true for a terminal where Vim handles the
        mouse clicks itself.
        This option is reset when starting the GUI. Thus if you set it in
        your .vimrc it will work in a terminal, but not in the GUI. Setting
        'paste' in the GUI has side effects: e.g., the Paste toolbar button
        will no longer work in Insert mode, because it uses a mapping.
        When the 'paste' option is switched on (also when it was already on):
                - mapping in Insert mode and Command-line mode is disabled
                - abbreviations are disabled
                - 'autoindent' is reset
                - 'expandtab' is reset
                - 'formatoptions' is used like it is empty
                - 'revins' is reset
                - 'ruler' is reset
                - 'showmatch' is reset

- 'smartindent' is reset
- 'smarttab' is reset
- 'softtabstop' is set to 0
- 'textwidth' is set to 0
- 'wrapmargin' is set to 0

These options keep their value, but their effect is disabled:
- 'cindent'
- 'indentexpr'
- 'lisp'

NOTE: When you start editing another file while the 'paste' option is on, settings from the modelines or autocommands may change the settings again, causing trouble when pasting text. You might want to set the 'paste' option again.
When the 'paste' option is reset the mentioned options are restored to the value before the moment 'paste' was switched from off to on.
Resetting 'paste' before ever setting it does not have any effect.
Since mapping doesn't work while 'paste' is active, you need to use the 'pastetoggle' option to toggle the 'paste' option with some key.

'pastetoggle' 'pt' string (default "")
global
{not in Vi}

When non-empty, specifies the key sequence that toggles the 'paste' option. This is like specifying a mapping:
```
:map {keys} :set invpaste<CR>
```
Where {keys} is the value of 'pastetoggle'.
The difference is that it will work even when 'paste' is set.
'pastetoggle' works in Insert mode and Normal mode, but not in Command-line mode.
Mappings are checked first, thus overrule 'pastetoggle'. However, when 'paste' is on mappings are ignored in Insert mode, thus you can do this:
```
:map <F10> :set paste<CR>
:map <F11> :set nopaste<CR>
:imap <F10> <C-O>:set paste<CR>
:imap <F11> <nop>
:set pastetoggle=<F11>
```
This will make <F10> start paste mode and <F11> stop paste mode.
Note that typing <F10> in paste mode inserts "<F10>", since in paste mode everything is inserted literally, except the 'pastetoggle' key sequence.
When the value has several bytes 'ttimeoutlen' applies.

'patchexpr' 'pex' string (default "")
global
{not in Vi}
{not available when compiled without the +diff feature}

Expression which is evaluated to apply a patch to a file and generate the resulting new version of the file. See diff-patchexpr .

'patchmode' 'pm' E205 E206

'patchmode' 'pm'		string	(default "")
			global
			{not in Vi}
	When non-empty the oldest version of a file is kept. This can be used
	to keep the original version of a file if you are changing files in a
	source distribution. Only the first time that a file is written a
	copy of the original file will be kept. The name of the copy is the
	name of the original file with the string in the 'patchmode' option
	appended. This option should start with a dot. Use a string like
	".orig" or ".org". 'backupdir' must not be empty for this to work
	(Detail: The backup file is renamed to the patchmode file after the
	new file has been successfully written, that's why it must be possible
	to write a backup file). If there was no file to be backed up, an
	empty file is created.
	When the 'backupskip' pattern matches, a patchmode file is not made.
	Using 'patchmode' for compressed files appends the extension at the
	end (e.g., "file.gz.orig"), thus the resulting name isn't always
	recognized as a compressed file.
	Only normal file name characters can be used, "/*?[|<>" are illegal.

				'path'	'pa'	E343	E345	E347	E854
'path' 'pa'		string	(default on Unix: ".,/usr/include,,"
				  on OS/2:	 ".,/emx/include,,"
				  other systems: ".,,")
			global or local to buffer	global-local
			{not in Vi}
	This is a list of directories which will be searched when using the
	 gf , [f,]f, ^Wf, :find , :sfind , :tabfind and other commands,
	provided that the file being searched for has a relative path (not
	starting with "/", "./" or "../"). The directories in the 'path'
	option may be relative or absolute.
	- Use commas to separate directory names:
		:set path=.,/usr/local/include,/usr/include
      - Spaces can also be used to separate directory names (for backwards
	compatibility with version 3.0). To have a space in a directory
	name, precede it with an extra backslash, and escape the space:
		:set path=.,/dir/with\\\ space
      - To include a comma in a directory name precede it with an extra
	backslash:
		:set path=.,/dir/with\\,comma
      - To search relative to the directory of the current file, use:
		:set path=.
      - To search in the current directory use an empty string between two
	commas:
		:set path=,,
      - A directory name may end in a ':' or '/'.
       - Environment variables are expanded :set_env .
       - When using netrw.vim URLs can be used. For example, adding
	"http://www.vim.org" will make ":find index.html" work.
       - Search upwards and downwards in a directory tree using "*", "**" and
	";". See file-searching for info and syntax.
	{not available when compiled without the |+path_extra| feature}
       - Careful with '\' characters, type two to get one in the option:
		:set path=.,c:\\include

Or just use '/' instead:
:set path=.,c:/include
Don't forget "." or files won't even be found in the same directory as the file!
The maximum length is limited. How much depends on the system, mostly it is something like 256 or 1024 characters.
You can check if all the include files are found, using the value of 'path', see :checkpath .
The use of :set+= and :set-= is preferred when adding or removing directories from the list. This avoids problems when a future version uses another default. To remove the current directory use:
:set path-=
To add the current directory use:
:set path+=
To use an environment variable, you probably need to replace the separator. Here is an example to append $INCL, in which directory names are separated with a semi-colon:
:let &path = &path . "," . substitute($INCL, ';', ',', 'g')
Replace the ';' with a ':' or whatever separator is used. Note that this doesn't work when $INCL contains a comma or white space.

'perldll'
'perldll' string (default depends on the build)
global
{not in Vi}
{only available when compiled with the +perl/dyn feature}
Specifies the name of the Perl shared library. The default is DYNAMIC_PERL_DLL, which was specified at compile time.
Environment variables are expanded :set_env .
This option cannot be set from a modeline or in the sandbox , for security reasons.

'preserveindent' 'pi' 'nopreserveindent' 'nopi'
'preserveindent' 'pi' boolean (default off)
local to buffer
{not in Vi}
When changing the indent of the current line, preserve as much of the indent structure as possible. Normally the indent is replaced by a series of tabs followed by spaces as required (unless 'expandtab' is enabled, in which case only spaces are used). Enabling this option means the indent will preserve as many existing characters as possible for indenting, and only add additional tabs or spaces as required. 'expandtab' does not apply to the preserved white space, a Tab remains a Tab.
NOTE: When using ">>" multiple times the resulting indent is a mix of tabs and spaces. You might not like this.
NOTE: This option is reset when 'compatible' is set.
Also see 'copyindent'.
Use :retab to clean up white space.

'previewheight' 'pvh'
'previewheight' 'pvh' number (default 12)
global

{not in Vi}
{not available when compiled without the +windows or +quickfix features}
Default height for a preview window. Used for :ptag and associated commands. Used for CTRL-W_} when no count is given.

'previewwindow' 'pvw' 'previewwindow' 'nopreviewwindow' 'pvw' 'nopvw' E590
boolean (default off)
local to window
{not in Vi}
{not available when compiled without the +windows or +quickfix features}
Identifies the preview window. Only one window can have this option set. It's normally not set directly, but by using one of the commands :ptag , :pedit , etc.

'printdevice' 'pdev' 'printdevice' 'pdev'
string (default empty)
global
{not in Vi}
{only available when compiled with the +printer feature}
The name of the printer to be used for :hardcopy .
See pdev-option .
This option cannot be set from a modeline or in the sandbox , for security reasons.

'printencoding' 'penc' 'printencoding' 'penc'
String (default empty, except for some systems)
global
{not in Vi}
{only available when compiled with the +printer and +postscript features}
Sets the character encoding used when printing.
See penc-option .

'printexpr' 'pexpr' 'printexpr' 'pexpr'
String (default: see below)
global
{not in Vi}
{only available when compiled with the +printer and +postscript features}
Expression used to print the PostScript produced with :hardcopy .
See pexpr-option .
This option cannot be set from a modeline or in the sandbox , for security reasons.

'printfont' 'pfn' 'printfont' 'pfn'
string (default "courier")
global
{not in Vi}
{only available when compiled with the +printer feature}

The name of the font that will be used for :hardcopy .
See pfn-option .

'printheader' 'pheader'
'printheader' 'pheader' string (default "%<%f%h%m%=Page %N")
global
{not in Vi}
{only available when compiled with the +printer
feature}
The format of the header produced in :hardcopy output.
See pheader-option .

'printmbcharset' 'pmbcs'
'printmbcharset' 'pmbcs' string (default "")
global
{not in Vi}
{only available when compiled with the +printer ,
+postscript and +multi_byte features}
The CJK character set to be used for CJK output from :hardcopy .
See pmbcs-option .

'printmbfont' 'pmbfn'
'printmbfont' 'pmbfn' string (default "")
global
{not in Vi}
{only available when compiled with the +printer ,
+postscript and +multi_byte features}
List of font names to be used for CJK output from :hardcopy .
See pmbfn-option .

'printoptions' 'popt'
'printoptions' 'popt' string (default "")
global
{not in Vi}
{only available when compiled with |+printer| feature}
List of items that control the format of the output of :hardcopy .
See popt-option .

'prompt' 'noprompt'
'prompt' boolean (default on)
global
When on a ":" prompt is used in Ex mode.

'pumheight' 'ph'
'pumheight' 'ph' number (default 0)
global
{not available when compiled without the
+insert_expand feature}
{not in Vi}
Determines the maximum number of items to show in the popup menu for
Insert mode completion. When zero as much space as available is used.
ins-completion-menu .

'pumwidth' 'pw'

'pumwidth' 'pw'		number (default 15)
			global
			{not available when compiled without the
			 +insert_expand feature}
			{not in Vi}
	Determines the minimum width to use for the popup menu for Insert mode
	completion. ins-completion-menu .

'pythondll'
'pythondll'		string (default depends on the build)
			global
			{not in Vi}
			{only available when compiled with the +python/dyn
			feature}
	Specifies the name of the Python 2.x shared library. The default is
	DYNAMIC_PYTHON_DLL, which was specified at compile time.
	Environment variables are expanded :set_env .
	This option cannot be set from a modeline or in the sandbox , for
	security reasons.

'pythonhome'
'pythonhome'		string (default "")
			global
			{not in Vi}
			{only available when compiled with the +python/dyn
			feature}
	Specifies the name of the Python 2.x home directory. When 'pythonhome'
	and the PYTHONHOME environment variable are not set, PYTHON_HOME,
	which was specified at compile time, will be used for the Python 2.x
	home directory.
	Environment variables are expanded :set_env .
	This option cannot be set from a modeline or in the sandbox , for
	security reasons.

'pythonthreedll'
'pythonthreedll'	string (default depends on the build)
			global
			{not in Vi}
			{only available when compiled with the +python3/dyn
			feature}
	Specifies the name of the Python 3 shared library. The default is
	DYNAMIC_PYTHON3_DLL, which was specified at compile time.
	Environment variables are expanded :set_env .
	This option cannot be set from a modeline or in the sandbox , for
	security reasons.

'pythonthreehome'
'pythonthreehome'	string (default "")
			global
			{not in Vi}
			{only available when compiled with the +python3/dyn
			feature}
	Specifies the name of the Python 3 home directory. When
	'pythonthreehome' and the PYTHONHOME environment variable are not set,

PYTHON3_HOME, which was specified at compile time, will be used for the Python 3 home directory.
Environment variables are expanded :set_env .
This option cannot be set from a modeline or in the sandbox , for security reasons.

'pyxversion' 'pyx'

'pyxversion' 'pyx' number (default depends on the build)
global
{not in Vi}
{only available when compiled with the +python or the +python3 feature}

Specifies the python version used for pyx* functions and commands python_x . The default value is as follows:

Compiled with	Default
+python and +python3	0
only +python	2
only +python3	3

Available values are 0, 2 and 3.
If 'pyxversion' is 0, it is set to 2 or 3 after the first execution of any python2/3 commands or functions. E.g. `:py` sets to 2, and `:py3` sets to 3. `:pyx` sets it to 3 if Python 3 is available, otherwise sets to 2 if Python 2 is available.
See also: has-pythonx

If Vim is compiled with only +python or +python3 setting 'pyxversion' has no effect. The pyx* functions and commands are always the same as the compiled version.

This option cannot be set from a modeline or in the sandbox , for security reasons.

'quoteescape' 'qe'

'quoteescape' 'qe' string (default "\")
local to buffer
{not in Vi}

The characters that are used to escape quotes in a string. Used for objects like a', a" and a` a` .
When one of the characters in this option is found inside a string, the following character will be skipped. The default value makes the text "foo\"bar\\" considered to be one string.

'readonly' 'ro' 'noreadonly' 'noro'

'readonly' 'ro' boolean (default off)
local to buffer

If on, writes fail unless you use a '!'. Protects you from accidentally overwriting a file. Default on when Vim is started in read-only mode ("vim -R") or when the executable is called "view".
When using ":w!" the 'readonly' option is reset for the current buffer, unless the 'Z' flag is in 'cpoptions'.
{not in Vi:} When using the ":view" command the 'readonly' option is set for the newly edited buffer.

See 'modifiable' for disallowing changes to the buffer.

'redrawtime' 'rdt' 'redrawtime' 'rdt' number (default 2000)
global
{not in Vi}
{only available when compiled with the +reltime feature}
The time in milliseconds for redrawing the display. This applies to searching for patterns for 'hlsearch', :match highlighting and syntax highlighting.
When redrawing takes more than this many milliseconds no further matches will be highlighted.
For syntax highlighting the time applies per window. When over the limit syntax highlighting is disabled until CTRL-L is used.
This is used to avoid that Vim hangs when using a very complicated pattern.

'regexpengine' 're' 'regexpengine' 're' number (default 0)
global
{not in Vi}
This selects the default regexp engine. two-engines
The possible values are:

0	automatic selection
1	old engine
2	NFA engine

Note that when using the NFA engine and the pattern contains something that is not supported the pattern will not match. This is only useful for debugging the regexp engine.
Using automatic selection enables Vim to switch the engine, if the default engine becomes too costly. E.g., when the NFA engine uses too many states. This should prevent Vim from hanging on a combination of a complex pattern with long text.

'relativenumber' 'rnu' 'norelativenumber' 'nornu' 'relativenumber' 'rnu' boolean (default off)
local to window
{not in Vi}
Show the line number relative to the line with the cursor in front of each line. Relative line numbers help you use the count you can precede some vertical motion commands (e.g. j k + -) with, without having to calculate it yourself. Especially useful in combination with other commands (e.g. y d c < > gq gw =).
When the 'n' option is excluded from 'cpoptions' a wrapped line will not use the column of line numbers (this is the default when 'compatible' isn't set).
The 'numberwidth' option can be used to set the room used for the line number.
When a long, wrapped line doesn't start with the first character, '-' characters are put before the number.
See hl-LineNr and hl-CursorLineNr for the highlighting used for the number.

The number in front of the cursor line also depends on the value of 'number', see number_relativenumber for all combinations of the two options.

'remap' 'noremap'
'remap' boolean (default on)
global
Allows for mappings to work recursively. If you do not want this for a single entry, use the :noremap[!] command.
NOTE: To avoid portability problems with Vim scripts, always keep this option at the default "on". Only switch it off when working with old Vi scripts.

'renderoptions' 'rop'
'renderoptions' 'rop' string (default: empty)
global
{not in Vi}
{only available when compiled with GUI and DIRECTX on MS-Windows}
Select a text renderer and set its options. The options depend on the renderer.

Syntax:
set rop=type:{renderer}(,{name}:{value})*

Currently, only one optional renderer is available.

render behavior
directx Vim will draw text using DirectX (DirectWrite). It makes drawn glyphs more beautiful than default GDI.
It requires 'encoding' is "utf-8", and only works on MS-Windows Vista or newer version.

Options:

name	meaning	type	value
gamma	gamma	float	1.0 - 2.2 (maybe)
contrast	enhancedContrast	float	(unknown)
level	clearTypeLevel	float	(unknown)
geom	pixelGeometry	int	0 - 2 (see below)
renmode	renderingMode	int	0 - 6 (see below)
taamode	textAntialiasMode	int	0 - 3 (see below)
scrlines	Scroll Lines	int	(deprecated)

See this URL for detail (except for scrlines):
https://msdn.microsoft.com/en-us/library/dd368190.aspx

For geom: structure of a device pixel.
0 - DWRITE_PIXEL_GEOMETRY_FLAT
1 - DWRITE_PIXEL_GEOMETRY_RGB
2 - DWRITE_PIXEL_GEOMETRY_BGR

See this URL for detail:
https://msdn.microsoft.com/en-us/library/dd368114.aspx

```
For renmode: method of rendering glyphs.
  0 - DWRITE_RENDERING_MODE_DEFAULT
  1 - DWRITE_RENDERING_MODE_ALIASED
  2 - DWRITE_RENDERING_MODE_GDI_CLASSIC
  3 - DWRITE_RENDERING_MODE_GDI_NATURAL
  4 - DWRITE_RENDERING_MODE_NATURAL
  5 - DWRITE_RENDERING_MODE_NATURAL_SYMMETRIC
  6 - DWRITE_RENDERING_MODE_OUTLINE

See this URL for detail:
  https://msdn.microsoft.com/en-us/library/dd368118.aspx

For taamode: antialiasing mode used for drawing text.
  0 - D2D1_TEXT_ANTIALIAS_MODE_DEFAULT
  1 - D2D1_TEXT_ANTIALIAS_MODE_CLEARTYPE
  2 - D2D1_TEXT_ANTIALIAS_MODE_GRAYSCALE
  3 - D2D1_TEXT_ANTIALIAS_MODE_ALIASED

See this URL for detail:
  https://msdn.microsoft.com/en-us/library/dd368170.aspx

For scrlines:
This was used for optimizing scrolling behavior, however this
is now deprecated.  If specified, it is simply ignored.

Example:
  set encoding=utf-8
  set gfn=Ricty_Diminished:h12
  set rop=type:directx

If select a raster font (Courier, Terminal or FixedSys which
have ".fon" extension in file name) to 'guifont', it will be
drawn by GDI as a fallback.

NOTE: It is known that some fonts and options combination
causes trouble on drawing glyphs.

  - 'renmode:5' and 'renmode:6' will not work with some
    special made fonts (True-Type fonts which includes only
    bitmap glyphs).
  - 'taamode:3' will not work with some vector fonts.

NOTE: With this option, you can display colored emoji
(emoticon) in Windows 8.1 or later.  To display colored emoji,
there are some conditions which you should notice.

  - If your font includes non-colored emoji already, it will
    be used.
  - If your font doesn't have emoji, the system chooses an
    alternative symbol font.  On Windows 10, "Segoe UI Emoji"
    will be used.
  - When this alternative font didn't have fixed width glyph,
    emoji might be rendered beyond the bounding box of drawing
    cell.
```

Other render types are currently not supported.

'report'
'report'		number (default 2)
		global
Threshold for reporting number of lines changed. When the number of
changed lines is more than 'report' a message will be given for most
":" commands. If you want it always, set 'report' to 0.
For the ":substitute" command the number of substitutions is used
instead of the number of lines.

'restorescreen' 'rs' 'norestorescreen' 'nors'
'restorescreen' 'rs'	boolean (default on)
		global
		{not in Vi} {only in Windows 95/NT console version}
When set, the screen contents is restored when exiting Vim. This also
happens when executing external commands.

For non-Windows Vim: You can set or reset the 't_ti' and 't_te'
options in your .vimrc. To disable restoring:
	set t_ti= t_te=
To enable restoring (for an xterm):
	set t_ti=^[7^[[r^[[?47h t_te=^[[?47l^[8
(Where ^[is an <Esc>, type CTRL-V <Esc> to insert it)

'revins' 'ri' 'norevins' 'nori'
'revins' 'ri'		boolean (default off)
		global
		{not in Vi}
		{only available when compiled with the +rightleft
		feature}
Inserting characters in Insert mode will work backwards. See "typing
backwards" ins-reverse . This option can be toggled with the CTRL-_
command in Insert mode, when 'allowrevins' is set.
NOTE: This option is reset when 'compatible' is set.
This option is reset when 'paste' is set and restored when 'paste' is
reset.

'rightleft' 'rl' 'norightleft' 'norl'
'rightleft' 'rl'	boolean (default off)
		local to window
		{not in Vi}
		{only available when compiled with the +rightleft
		feature}
When on, display orientation becomes right-to-left, i.e., characters
that are stored in the file appear from the right to the left.
Using this option, it is possible to edit files for languages that
are written from the right to the left such as Hebrew and Arabic.
This option is per window, so it is possible to edit mixed files
simultaneously, or to view the same file in both ways (this is
useful whenever you have a mixed text file with both right-to-left
and left-to-right strings so that both sets are displayed properly
in different windows). Also see rileft.txt .

'rightleftcmd' 'rlc'
'rightleftcmd' 'rlc'	string (default "search")
local to window
{not in Vi}
{only available when compiled with the +rightleft
feature}
Each word in this option enables the command line editing to work in
right-to-left mode for a group of commands:

search "/" and "?" commands

This is useful for languages such as Hebrew, Arabic and Farsi.
The 'rightleft' option must be set for 'rightleftcmd' to take effect.

'rubydll'
'rubydll'	string (default: depends on the build)
global
{not in Vi}
{only available when compiled with the +ruby/dyn
feature}
Specifies the name of the Ruby shared library. The default is
DYNAMIC_RUBY_DLL, which was specified at compile time.
Environment variables are expanded :set_env .
This option cannot be set from a modeline or in the sandbox , for
security reasons.

'ruler' 'ru' 'noruler' 'noru'
'ruler' 'ru'	boolean (default off, set in defaults.vim)
global
{not in Vi}
{not available when compiled without the
+cmdline_info feature}
Show the line and column number of the cursor position, separated by a
comma. When there is room, the relative position of the displayed
text in the file is shown on the far right:
Top	first line is visible
Bot	last line is visible
All	first and last line are visible
45%	relative position in the file
If 'rulerformat' is set, it will determine the contents of the ruler.
Each window has its own ruler. If a window has a status line, the
ruler is shown there. Otherwise it is shown in the last line of the
screen. If the statusline is given by 'statusline' (i.e. not empty),
this option takes precedence over 'ruler' and 'rulerformat'
If the number of characters displayed is different from the number of
bytes in the text (e.g., for a TAB or a multi-byte character), both
the text column (byte number) and the screen column are shown,
separated with a dash.
For an empty line "0-1" is shown.
For an empty buffer the line number will also be zero: "0,0-1".
This option is reset when 'paste' is set and restored when 'paste' is
reset.
If you don't want to see the ruler all the time but want to know where

```
        you are, use "g CTRL-G"  g_CTRL-G .
        NOTE: This option is reset when 'compatible' is set.

                                                    'rulerformat'   'ruf'
'rulerformat' 'ruf'     string  (default empty)
                        global
                        {not in Vi}
                        {not available when compiled without the  +statusline
                        feature}
        When this option is not empty, it determines the content of the ruler
        string, as displayed for the 'ruler' option.
        The format of this option is like that of 'statusline'.
        The default ruler width is 17 characters.  To make the ruler 15
        characters wide, put "%15(" at the start and "%)" at the end.
        Example:
                :set rulerformat=%15(%c%V\ %p%%)

                                    'runtimepath'   'rtp'   vimfiles
'runtimepath' 'rtp'     string  (default:
                                        Unix: "$HOME/.vim,
                                                $VIM/vimfiles,
                                                $VIMRUNTIME,
                                                $VIM/vimfiles/after,
                                                $HOME/.vim/after"
                                        Amiga: "home:vimfiles,
                                                $VIM/vimfiles,
                                                $VIMRUNTIME,
                                                $VIM/vimfiles/after,
                                                home:vimfiles/after"
                                        PC, OS/2: "$HOME/vimfiles,
                                                $VIM/vimfiles,
                                                $VIMRUNTIME,
                                                $VIM/vimfiles/after,
                                                $HOME/vimfiles/after"
                                        Macintosh: "$VIM:vimfiles,
                                                $VIMRUNTIME,
                                                $VIM:vimfiles:after"
                                        RISC-OS: "Choices:vimfiles,
                                                $VIMRUNTIME,
                                                Choices:vimfiles/after"
                                        VMS: "sys$login:vimfiles,
                                                $VIM/vimfiles,
                                                $VIMRUNTIME,
                                                $VIM/vimfiles/after,
                                                sys$login:vimfiles/after")
                        global
                        {not in Vi}
        This is a list of directories which will be searched for runtime
        files:
          filetype.vim  filetypes by file name  new-filetype
          scripts.vim   filetypes by file contents  new-filetype-scripts
          autoload/     automatically loaded scripts  autoload-functions
          colors/       color scheme files  :colorscheme
          compiler/     compiler files  :compiler
```

```
  doc/          documentation  write-local-help
  ftplugin/     filetype plugins  write-filetype-plugin
  indent/       indent scripts  indent-expression
  keymap/       key mapping files  mbyte-keymap
  lang/         menu translations  :menutrans
  menu.vim      GUI menus  menu.vim
  pack/         packages  :packadd
  plugin/       plugin scripts  write-plugin
  print/        files for printing  postscript-print-encoding
  spell/        spell checking files  spell
  syntax/       syntax files  mysyntaxfile
  tutor/        files for vimtutor  tutor

And any other file searched for with the  :runtime  command.

The defaults for most systems are setup to search five locations:
1. In your home directory, for your personal preferences.
2. In a system-wide Vim directory, for preferences from the system
   administrator.
3. In $VIMRUNTIME, for files distributed with Vim.
                                                    after-directory
4. In the "after" directory in the system-wide Vim directory.  This is
   for the system administrator to overrule or add to the distributed
   defaults (rarely needed)
5. In the "after" directory in your home directory.  This is for
   personal preferences to overrule or add to the distributed defaults
   or system-wide settings (rarely needed).

More entries are added when using  packages .  If it gets very long
then `:set rtp` will be truncated, use `:echo &rtp` to see the full
string.

Note that, unlike 'path', no wildcards like "**" are allowed.  Normal
wildcards are allowed, but can significantly slow down searching for
runtime files.  For speed, use as few items as possible and avoid
wildcards.
See  :runtime .
Example:
        :set runtimepath=~/vimruntime,/mygroup/vim,$VIMRUNTIME
This will use the directory "~/vimruntime" first (containing your
personal Vim runtime files), then "/mygroup/vim" (shared between a
group of people) and finally "$VIMRUNTIME" (the distributed runtime
files).
You probably should always include $VIMRUNTIME somewhere, to use the
distributed runtime files.  You can put a directory before $VIMRUNTIME
to find files which replace a distributed runtime files.  You can put
a directory after $VIMRUNTIME to find files which add to distributed
runtime files.
When Vim is started with  --clean  the home directory entries are not
included.
This option cannot be set from a  modeline  or in the  sandbox , for
security reasons.

                                              'scroll'   'scr'
```

'scroll' 'scr'   number (default: half the window height)
                        local to window
        Number of lines to scroll with CTRL-U and CTRL-D commands. Will be
        set to half the number of lines in the window when the window size
        changes. If you give a count to the CTRL-U or CTRL-D command it will
        be used as the new value for 'scroll'. Reset to half the window
        height with ":set scroll=0".   {Vi is a bit different: 'scroll' gives
        the number of screen lines instead of file lines, makes a difference
        when lines wrap}

                                'scrollbind' 'scb' 'noscrollbind' 'noscb'
'scrollbind' 'scb'   boolean (default off)
                        local to window
                        {not in Vi}
        See also scroll-binding . When this option is set, the current
        window scrolls as other scrollbind windows (windows that also have
        this option set) scroll. This option is useful for viewing the
        differences between two versions of a file, see 'diff'.
        See 'scrollopt' for options that determine how this option should be
        interpreted.
        This option is mostly reset when splitting a window to edit another
        file. This means that ":split | edit file" results in two windows
        with scroll-binding, but ":split file" does not.

                                                'scrolljump' 'sj'
'scrolljump' 'sj'   number (default 1)
                        global
                        {not in Vi}
        Minimal number of lines to scroll when the cursor gets off the
        screen (e.g., with "j"). Not used for scroll commands (e.g., CTRL-E,
        CTRL-D). Useful if your terminal scrolls very slowly.
        When set to a negative number from -1 to -100 this is used as the
        percentage of the window height. Thus -50 scrolls half the window
        height.
        NOTE: This option is set to 1 when 'compatible' is set.

                                                'scrolloff' 'so'
'scrolloff' 'so'   number (default 0, set to 5 in defaults.vim)
                        global
                        {not in Vi}
        Minimal number of screen lines to keep above and below the cursor.
        This will make some context visible around where you are working. If
        you set it to a very large value (999) the cursor line will always be
        in the middle of the window (except at the start or end of the file or
        when long lines wrap).
        For scrolling horizontally see 'sidescrolloff'.
        NOTE: This option is set to 0 when 'compatible' is set.

                                                'scrollopt' 'sbo'
'scrollopt' 'sbo'   string (default "ver,jump")
                        global
                        {not in Vi}
        This is a comma-separated list of words that specifies how
        'scrollbind' windows should behave. 'sbo' stands for ScrollBind

Options.
The following words are available:
    ver   Bind vertical scrolling for 'scrollbind' windows
    hor   Bind horizontal scrolling for 'scrollbind' windows
    jump   Applies to the offset between two windows for vertical
                scrolling. This offset is the difference in the first
                displayed line of the bound windows. When moving
                around in a window, another 'scrollbind' window may
                reach a position before the start or after the end of
                the buffer. The offset is not changed though, when
                moving back the 'scrollbind' window will try to scroll
                to the desired position when possible.
                When now making that window the current one, two
                things can be done with the relative offset:
                1. When "jump" is not included, the relative offset is
                   adjusted for the scroll position in the new current
                   window. When going back to the other window, the
                   new relative offset will be used.
                2. When "jump" is included, the other windows are
                   scrolled to keep the same relative offset. When
                   going back to the other window, it still uses the
                   same relative offset.
Also see scroll-binding .
When 'diff' mode is active there always is vertical scroll binding,
even when "ver" isn't there.

                                                'sections'   'sect'
'sections' 'sect'   string (default "SHNHH HUnhsh")
                        global
Specifies the nroff macros that separate sections. These are pairs of
two letters (See object-motions). The default makes a section start
at the nroff macros ".SH", ".NH", ".H", ".HU", ".nh" and ".sh".

                                                'secure'   'nosecure'   E523
'secure'   boolean (default off)
                        global
                        {not in Vi}
When on, ":autocmd", shell and write commands are not allowed in
".vimrc" and ".exrc" in the current directory and map commands are
displayed. Switch it off only if you know that you will not run into
problems, or when the 'exrc' option is off. On Unix this option is
only used if the ".vimrc" or ".exrc" is not owned by you. This can be
dangerous if the systems allows users to do a "chown". You better set
'secure' at the end of your ~/.vimrc then.
This option cannot be set from a modeline or in the sandbox , for
security reasons.

                                                'selection'   'sel'
'selection' 'sel'   string (default "inclusive")
                        global
                        {not in Vi}
This option defines the behavior of the selection. It is only used
in Visual and Select mode.
Possible values:

```
            value        past line     inclusive
            old             no           yes
            inclusive       yes          yes
            exclusive       yes          no
         "past line" means that the cursor is allowed to be positioned one
         character past the line.
         "inclusive" means that the last character of the selection is included
         in an operation.  For example, when "x" is used to delete the
         selection.
         When "old" is used and 'virtualedit' allows the cursor to move past
         the end of line the line break still isn't included.
         Note that when "exclusive" is used and selecting from the end
         backwards, you cannot include the last character of a line, when
         starting in Normal mode and 'virtualedit' empty.

         The 'selection' option is set by the  :behave  command.

                                                  'selectmode'   'slm'
'selectmode' 'slm'      string  (default "")
                        global
                        {not in Vi}
         This is a comma separated list of words, which specifies when to start
         Select mode instead of Visual mode, when a selection is started.
         Possible values:
            mouse        when using the mouse
            key          when using shifted special keys
            cmd          when using "v", "V" or CTRL-V
         See  Select-mode .
         The 'selectmode' option is set by the  :behave  command.

                                                  'sessionoptions'   'ssop'
'sessionoptions' 'ssop' string  (default: "blank,buffers,curdir,folds,
                                        help,options,tabpages,winsize,terminal")
                        global
                        {not in Vi}
                        {not available when compiled without the  +mksession
                        feature}
         Changes the effect of the  :mksession  command.  It is a comma
         separated list of words.  Each word enables saving and restoring
         something:
            word         save and restore
            blank        empty windows
            buffers      hidden and unloaded buffers, not just those in windows
            curdir       the current directory
            folds        manually created folds, opened/closed folds and local
                         fold options
            globals      global variables that start with an uppercase letter
                         and contain at least one lowercase letter.  Only
                         String and Number types are stored.
            help         the help window
            localoptions options and mappings local to a window or buffer (not
                         global values for local options)
            options      all options and mappings (also global values for local
                         options)
```

```
            resize      size of the Vim window: 'lines' and 'columns'
            sesdir      the directory in which the session file is located
                        will become the current directory (useful with
                        projects accessed over a network from different
                        systems)
            slash       backslashes in file names replaced with forward
                        slashes
            tabpages    all tab pages; without this only the current tab page
                        is restored, so that you can make a session for each
                        tab page separately
            terminal    include terminal windows where the command can be restored
            unix        with Unix end-of-line format (single <NL>), even when
                        on Windows or DOS
            winpos      position of the whole Vim window
            winsize     window sizes

        Don't include both "curdir" and "sesdir".
        When neither "curdir" nor "sesdir" is included, file names are stored
        with absolute paths.
        "slash" and "unix" are useful on Windows when sharing session files
        with Unix.  The Unix version of Vim cannot source dos format scripts,
        but the Windows version of Vim can source unix format scripts.

                                                    'shell'   'sh'   E91
'shell' 'sh'            string  (default $SHELL or "sh",
                                 MS-DOS and Win32: "command.com" or
                                 "cmd.exe", OS/2: "cmd")
                        global
        Name of the shell to use for ! and :! commands.  When changing the
        value also check these options: 'shelltype', 'shellpipe', 'shellslash'
        'shellredir', 'shellquote', 'shellxquote' and 'shellcmdflag'.
        It is allowed to give an argument to the command, e.g.  "csh -f".
        See  option-backslash  about including spaces and backslashes.
        Environment variables are expanded  :set_env .

        If the name of the shell contains a space, you might need to enclose
        it in quotes or escape the space.  Example with quotes:
                :set shell=\"c:\program\ files\unix\sh.exe\"\ -f
      Note the backslash before each quote (to avoid starting a comment) and
        each space (to avoid ending the option value).  Also note that the
        "-f" is not inside the quotes, because it is not part of the command
        name.  Vim automagically recognizes the backslashes that are path
        separators.
        Example with escaped space (Vim will do this when initializing the
        option from $SHELL):
                :set shell=/bin/with\\\ space/sh
      The resulting value of 'shell' is  "/bin/with\ space/sh", two
        backslashes are consumed by `:set`.

        Under MS-Windows, when the executable ends in ".com" it must be
        included.  Thus setting the shell to "command.com" or "4dos.com"
        works, but "command" and "4dos" do not work for all commands (e.g.,
        filtering).
        For unknown reasons, when using "4dos.com" the current directory is
```

changed to "C:\". To avoid this set 'shell' like this:
		:set shell=command.com\ /c\ 4dos
	This option cannot be set from a modeline or in the sandbox , for
	security reasons.

'shellcmdflag' 'shcf'
'shellcmdflag' 'shcf'	string (default: "-c";
				 MS-DOS and Win32, when 'shell' does not
				 contain "sh" somewhere: "/c")
			global
			{not in Vi}
	Flag passed to the shell to execute "!" and ":!" commands; e.g.,
	"bash.exe -c ls" or "command.com /c dir". For the MS-DOS-like
	systems, the default is set according to the value of 'shell', to
	reduce the need to set this option by the user.
	On Unix it can have more than one flag. Each white space separated
	part is passed as an argument to the shell command.
	See option-backslash about including spaces and backslashes.
	Also see dos-shell for MS-DOS and MS-Windows.
	This option cannot be set from a modeline or in the sandbox , for
	security reasons.

'shellpipe' 'sp'
'shellpipe' 'sp'	string (default ">", "| tee", "|& tee" or "2>&1| tee")
			global
			{not in Vi}
			{not available when compiled without the +quickfix
			feature}
	String to be used to put the output of the ":make" command in the
	error file. See also :make_makeprg . See option-backslash about
	including spaces and backslashes.
	The name of the temporary file can be represented by "%s" if necessary
	(the file name is appended automatically if no %s appears in the value
	of this option).
	For the Amiga and MS-DOS the default is ">". The output is directly
	saved in a file and not echoed to the screen.
	For Unix the default it "| tee". The stdout of the compiler is saved
	in a file and echoed to the screen. If the 'shell' option is "csh" or
	"tcsh" after initializations, the default becomes "|& tee". If the
	'shell' option is "sh", "ksh", "mksh", "pdksh", "zsh" or "bash" the
	default becomes "2>&1| tee". This means that stderr is also included.
	Before using the 'shell' option a path is removed, thus "/bin/sh" uses
	"sh".
	The initialization of this option is done after reading the ".vimrc"
	and the other initializations, so that when the 'shell' option is set
	there, the 'shellpipe' option changes automatically, unless it was
	explicitly set before.
	When 'shellpipe' is set to an empty string, no redirection of the
	":make" output will be done. This is useful if you use a 'makeprg'
	that writes to 'makeef' by itself. If you want no piping, but do
	want to include the 'makeef', set 'shellpipe' to a single space.
	Don't forget to precede the space with a backslash: ":set sp=\ ".
	In the future pipes may be used for filtering and this option will
	become obsolete (at least for Unix).

This option cannot be set from a modeline or in the sandbox , for security reasons.

'shellquote' 'shq'
'shellquote' 'shq'	string (default: ""; MS-DOS and Win32, when 'shell' contains "sh" somewhere: "\"")
global
{not in Vi}

Quoting character(s), put around the command passed to the shell, for the "!" and ":!" commands. The redirection is kept outside of the quoting. See 'shellxquote' to include the redirection. It's probably not useful to set both options.
This is an empty string by default. Only known to be useful for third-party shells on MS-DOS-like systems, such as the MKS Korn Shell or bash, where it should be "\"". The default is adjusted according the value of 'shell', to reduce the need to set this option by the user. See dos-shell .
This option cannot be set from a modeline or in the sandbox , for security reasons.

'shellredir' 'srr'
'shellredir' 'srr'	string (default ">", ">&" or ">%s 2>&1")
global
{not in Vi}

String to be used to put the output of a filter command in a temporary file. See also :! . See option-backslash about including spaces and backslashes.
The name of the temporary file can be represented by "%s" if necessary (the file name is appended automatically if no %s appears in the value of this option).
The default is ">". For Unix, if the 'shell' option is "csh", "tcsh" or "zsh" during initializations, the default becomes ">&". If the 'shell' option is "sh", "ksh" or "bash" the default becomes ">%s 2>&1". This means that stderr is also included.
For Win32, the Unix checks are done and additionally "cmd" is checked for, which makes the default ">%s 2>&1". Also, the same names with ".exe" appended are checked for.
The initialization of this option is done after reading the ".vimrc" and the other initializations, so that when the 'shell' option is set there, the 'shellredir' option changes automatically unless it was explicitly set before.
In the future pipes may be used for filtering and this option will become obsolete (at least for Unix).
This option cannot be set from a modeline or in the sandbox , for security reasons.

'shellslash' 'ssl' 'noshellslash' 'nossl'
'shellslash' 'ssl'	boolean (default off)
global
{not in Vi} {only for MSDOS, MS-Windows and OS/2}

When set, a forward slash is used when expanding file names. This is useful when a Unix-like shell is used instead of command.com or cmd.exe. Backward slashes can still be typed, but they are changed to forward slashes by Vim.

Note that setting or resetting this option has no effect for some existing file names, thus this option needs to be set before opening any file for best results. This might change in the future. 'shellslash' only works when a backslash can be used as a path separator. To test if this is so use:
```
if exists('+shellslash')
```

'shelltemp' 'stmp' 'noshelltemp' 'nostmp'
'shelltemp' 'stmp' boolean (Vi default off, Vim default on)
global
{not in Vi}

When on, use temp files for shell commands. When off use a pipe. When using a pipe is not possible temp files are used anyway. Currently a pipe is only supported on Unix and MS-Windows 2K and later. You can check it with:
```
:if has("filterpipe")
```
The advantage of using a pipe is that nobody can read the temp file and the 'shell' command does not need to support redirection. The advantage of using a temp file is that the file type and encoding can be detected. The FilterReadPre, FilterReadPost and FilterWritePre, FilterWritePost autocommands event are not triggered when 'shelltemp' is off. The `system()` function does not respect this option and always uses temp files. NOTE: This option is set to the Vim default value when 'compatible' is reset.

'shelltype' 'st'
'shelltype' 'st' number (default 0)
global
{not in Vi} {only for the Amiga}

On the Amiga this option influences the way how the commands work which use a shell.
0 and 1: always use the shell
2 and 3: use the shell only to filter lines
4 and 5: use shell only for ':sh' command
When not using the shell, the command is executed directly.

0 and 2: use "shell 'shellcmdflag' cmd" to start external commands
1 and 3: use "shell cmd" to start external commands

'shellxescape' 'sxe'
'shellxescape' 'sxe' string (default: "";
for MS-DOS and MS-Windows: "\"&|<>()@^")
global
{not in Vi}

When 'shellxquote' is set to "(" then the characters listed in this option will be escaped with a '^' character. This makes it possible to execute most external commands with cmd.exe.

'shellxquote' 'sxq'
'shellxquote' 'sxq' string (default: "";
for Win32, when 'shell' is cmd.exe: "("

```
                                        for Win32, when 'shell' contains "sh"
                                        somewhere: "\""
                                        for Unix, when using system(): "\"")
                        global
                        {not in Vi}
        Quoting character(s), put around the command passed to the shell, for
        the "!" and ":!" commands.  Includes the redirection.  See
        'shellquote' to exclude the redirection.  It's probably not useful
        to set both options.
        When the value is '(' then ')' is appended. When the value is '"('
        then ')"' is appended.
        When the value is '(' then also see 'shellxescape'.
        This is an empty string by default on most systems, but is known to be
        useful for on Win32 version, either for cmd.exe which automatically
        strips off the first and last quote on a command, or 3rd-party shells
        such as the MKS Korn Shell or bash, where it should be "\"".  The
        default is adjusted according the value of 'shell', to reduce the need
        to set this option by the user.  See  dos-shell .
        This option cannot be set from a  modeline  or in the  sandbox , for
        security reasons.

                         'shiftround'   'sr'   'noshiftround'   'nosr'
'shiftround' 'sr'       boolean (default off)
                        global
                        {not in Vi}
        Round indent to multiple of 'shiftwidth'.  Applies to > and <
        commands.  CTRL-T and CTRL-D in Insert mode always round the indent to
        a multiple of 'shiftwidth' (this is Vi compatible).
        NOTE: This option is reset when 'compatible' is set.

                                                'shiftwidth'   'sw'
'shiftwidth' 'sw'       number  (default 8)
                        local to buffer
        Number of spaces to use for each step of (auto)indent.  Used for
         'cindent' ,  >> ,  << , etc.
        When zero the 'ts' value will be used.  Use the  shiftwidth()
        function to get the effective shiftwidth value.

                                                'shortmess'   'shm'
'shortmess' 'shm'       string  (Vim default "filnxtToO", Vi default: "",
                                                    POSIX default: "A")
                        global
                        {not in Vi}
        This option helps to avoid all the  hit-enter  prompts caused by file
        messages, for example  with CTRL-G, and to avoid some other messages.
        It is a list of flags:
         flag   meaning when present
          f     use "(3 of 5)" instead of "(file 3 of 5)"
          i     use "[noeol]" instead of "[Incomplete last line]"
          l     use "999L, 888C" instead of "999 lines, 888 characters"
          m     use "[+]" instead of "[Modified]"
          n     use "[New]" instead of "[New File]"
          r     use "[RO]" instead of "[readonly]"
          w     use "[w]" instead of "written" for file write message
```

```
            and "[a]" instead of "appended" for ':w >> file' command
      x     use "[dos]" instead of "[dos format]", "[unix]" instead of
            "[unix format]" and "[mac]" instead of "[mac format]".
      a     all of the above abbreviations

      o     overwrite message for writing a file with subsequent message
            for reading a file (useful for ":wn" or when 'autowrite' on)
      O     message for reading a file overwrites any previous message.
            Also for quickfix message (e.g., ":cn").
      s     don't give "search hit BOTTOM, continuing at TOP" or "search
            hit TOP, continuing at BOTTOM" messages
      t     truncate file message at the start if it is too long to fit
            on the command-line, "<" will appear in the left most column.
            Ignored in Ex mode.
      T     truncate other messages in the middle if they are too long to
            fit on the command line.  "..." will appear in the middle.
            Ignored in Ex mode.
      W     don't give "written" or "[w]" when writing a file
      A     don't give the "ATTENTION" message when an existing swap file
            is found.
      I     don't give the intro message when starting Vim  :intro .
      c     don't give  ins-completion-menu  messages.  For example,
            "-- XXX completion (YYY)", "match 1 of 2", "The only match",
            "Pattern not found", "Back at original", etc.
      q     use "recording" instead of "recording @a"
      F     don't give the file info when editing a file, like `:silent`
            was used for the command

    This gives you the opportunity to avoid that a change between buffers
    requires you to hit <Enter>, but still gives as useful a message as
    possible for the space available.  To get the whole message that you
    would have got with 'shm' empty, use ":file!"
    Useful values:
        shm=        No abbreviation of message.
        shm=a       Abbreviation, but no loss of information.
        shm=at      Abbreviation, and truncate message when necessary.

    NOTE: This option is set to the Vi default value when 'compatible' is
    set and to the Vim default value when 'compatible' is reset.

                                    'shortname'   'sn'   'noshortname'   'nosn'
'shortname' 'sn'        boolean (default off)
                        local to buffer
                        {not in Vi, not in MS-DOS versions}
    Filenames are assumed to be 8 characters plus one extension of 3
    characters.  Multiple dots in file names are not allowed.  When this
    option is on, dots in file names are replaced with underscores when
    adding an extension (".~" or ".swp").  This option is not available
    for MS-DOS, because then it would always be on.  This option is useful
    when editing files on an MS-DOS compatible filesystem, e.g., messydos
    or crossdos.  When running the Win32 GUI version under Win32s, this
    option is always on by default.

                                                'showbreak'   'sbr'   E595
```

'showbreak' 'sbr'	string (default "")
			global
			{not in Vi}
			{not available when compiled without the +linebreak
			feature}
	String to put at the start of lines that have been wrapped. Useful
	values are "> " or "+++ ":
		:set showbreak=>\
	Note the backslash to escape the trailing space. It's easier like
	this:
		:let &showbreak = '+++ '
	Only printable single-cell characters are allowed, excluding <Tab> and
	comma (in a future version the comma might be used to separate the
	part that is shown at the end and at the start of a line).
	The characters are highlighted according to the '@' flag in
	'highlight'.
	Note that tabs after the showbreak will be displayed differently.
	If you want the 'showbreak' to appear in between line numbers, add the
	"n" flag to 'cpoptions'.

					'showcmd' 'sc' 'noshowcmd' 'nosc'
'showcmd' 'sc'		boolean (Vim default: on, off for Unix,
					 Vi default: off, set in defaults.vim)
			global
			{not in Vi}
			{not available when compiled without the
			 +cmdline_info feature}
	Show (partial) command in the last line of the screen. Set this
	option off if your terminal is slow.
	In Visual mode the size of the selected area is shown:
	- When selecting characters within a line, the number of characters.
	  If the number of bytes is different it is also displayed: "2-6"
	  means two characters and six bytes.
	- When selecting more than one line, the number of lines.
	- When selecting a block, the size in screen characters:
	  {lines}x{columns}.
	NOTE: This option is set to the Vi default value when 'compatible' is
	set and to the Vim default value when 'compatible' is reset.

			'showfulltag' 'sft' 'noshowfulltag' 'nosft'
'showfulltag' 'sft'	boolean (default off)
			global
			{not in Vi}
	When completing a word in insert mode (see ins-completion) from the
	tags file, show both the tag name and a tidied-up form of the search
	pattern (if there is one) as possible matches. Thus, if you have
	matched a C function, you can see a template for what arguments are
	required (coding style permitting).
	Note that this doesn't work well together with having "longest" in
	'completeopt', because the completion from the search pattern may not
	match the typed text.

				'showmatch' 'sm' 'noshowmatch' 'nosm'
'showmatch' 'sm'	boolean (default off)

global
When a bracket is inserted, briefly jump to the matching one. The jump is only done if the match can be seen on the screen. The time to show the match can be set with 'matchtime'.
A Beep is given if there is no match (no matter if the match can be seen or not).
This option is reset when 'paste' is set and restored when 'paste' is reset.
When the 'm' flag is not included in 'cpoptions', typing a character will immediately move the cursor back to where it belongs.
See the "sm" field in 'guicursor' for setting the cursor shape and blinking when showing the match.
The 'matchpairs' option can be used to specify the characters to show matches for. 'rightleft' and 'revins' are used to look for opposite matches.
Also see the matchparen plugin for highlighting the match when moving around pi_paren.txt .
Note: Use of the short form is rated PG.

'showmode' 'smd' 'noshowmode' 'nosmd'
'showmode' 'smd' boolean (Vim default: on, Vi default: off)
global
If in Insert, Replace or Visual mode put a message on the last line. Use the 'M' flag in 'highlight' to set the type of highlighting for this message.
When XIM may be used the message will include "XIM". But this doesn't mean XIM is really active, especially when 'imactivatekey' is not set.
NOTE: This option is set to the Vi default value when 'compatible' is set and to the Vim default value when 'compatible' is reset.

'showtabline' 'stal'
'showtabline' 'stal' number (default 1)
global
{not in Vi}
{not available when compiled without the +windows feature}
The value of this option specifies when the line with tab page labels will be displayed:
0: never
1: only if there are at least two tab pages
2: always
This is both for the GUI and non-GUI implementation of the tab pages line.
See tab-page for more information about tab pages.

'sidescroll' 'ss'
'sidescroll' 'ss' number (default 0)
global
{not in Vi}
The minimal number of columns to scroll horizontally. Used only when the 'wrap' option is off and the cursor is moved off of the screen. When it is zero the cursor will be put in the middle of the screen. When using a slow terminal set it to a large number or 0. When using

a fast terminal use a small number or 1. Not used for "zh" and "zl" commands.

'sidescrolloff' 'siso'

'sidescrolloff' 'siso' number (default 0)
global
{not in Vi}

The minimal number of screen columns to keep to the left and to the right of the cursor if 'nowrap' is set. Setting this option to a value greater than 0 while having 'sidescroll' also at a non-zero value makes some context visible in the line you are scrolling in horizontally (except at beginning of the line). Setting this option to a large value (like 999) has the effect of keeping the cursor horizontally centered in the window, as long as one does not come too close to the beginning of the line.
NOTE: This option is set to 0 when 'compatible' is set.

Example: Try this together with 'sidescroll' and 'listchars' as in the following example to never allow the cursor to move onto the "extends" character:

```
:set nowrap sidescroll=1 listchars=extends:>,precedes:<
:set sidescrolloff=1
```

'signcolumn' 'scl'

'signcolumn' 'scl' string (default "auto")
local to window
{not in Vi}
{not available when compiled without the +signs feature}

Whether or not to draw the signcolumn. Valid values are:

"auto"	only when there is a sign to display
"no"	never
"yes"	always

'smartcase' 'scs' 'nosmartcase' 'noscs'

'smartcase' 'scs' boolean (default off)
global
{not in Vi}

Override the 'ignorecase' option if the search pattern contains upper case characters. Only used when the search pattern is typed and 'ignorecase' option is on. Used for the commands "/", "?", "n", "N", ":g" and ":s". Not used for "*", "#", "gd", tag search, etc. After "*" and "#" you can make 'smartcase' used by doing a "/" command, recalling the search pattern from history and hitting <Enter>.
NOTE: This option is reset when 'compatible' is set.

'smartindent' 'si' 'nosmartindent' 'nosi'

'smartindent' 'si' boolean (default off)
local to buffer
{not in Vi}
{not available when compiled without the +smartindent feature}

Do smart autoindenting when starting a new line. Works for C-like programs, but can also be used for other languages. 'cindent' does something like this, works better in most cases, but is more strict, see C-indenting . When 'cindent' is on or 'indentexpr' is set, setting 'si' has no effect. 'indentexpr' is a more advanced alternative.
Normally 'autoindent' should also be on when using 'smartindent'.
An indent is automatically inserted:
- After a line ending in '{'.
- After a line starting with a keyword from 'cinwords'.
- Before a line starting with '}' (only with the "O" command).
When typing '}' as the first character in a new line, that line is given the same indent as the matching '{'.
When typing '#' as the first character in a new line, the indent for that line is removed, the '#' is put in the first column. The indent is restored for the next line. If you don't want this, use this mapping: ":inoremap # X^H#", where ^H is entered with CTRL-V CTRL-H.
When using the ">>" command, lines starting with '#' are not shifted right.
NOTE: This option is reset when 'compatible' is set.
This option is reset when 'paste' is set and restored when 'paste' is reset.

'smarttab' 'sta' 'nosmarttab' 'nosta'

'smarttab' 'sta' boolean (default off)
global
{not in Vi}

When on, a <Tab> in front of a line inserts blanks according to 'shiftwidth'. 'tabstop' or 'softtabstop' is used in other places. A <BS> will delete a 'shiftwidth' worth of space at the start of the line.
When off, a <Tab> always inserts blanks according to 'tabstop' or 'softtabstop'. 'shiftwidth' is only used for shifting text left or right shift-left-right .
What gets inserted (a <Tab> or spaces) depends on the 'expandtab' option. Also see ins-expandtab . When 'expandtab' is not set, the number of spaces is minimized by using <Tab>s.
This option is reset when 'paste' is set and restored when 'paste' is reset.
NOTE: This option is reset when 'compatible' is set.

'softtabstop' 'sts'

'softtabstop' 'sts' number (default 0)
local to buffer
{not in Vi}

Number of spaces that a <Tab> counts for while performing editing operations, like inserting a <Tab> or using <BS>. It "feels" like <Tab>s are being inserted, while in fact a mix of spaces and <Tab>s is used. This is useful to keep the 'ts' setting at its standard value of 8, while being able to edit like it is set to 'sts'. However, commands like "x" still work on the actual characters.
When 'sts' is zero, this feature is off.
When 'sts' is negative, the value of 'shiftwidth' is used.
'softtabstop' is set to 0 when the 'paste' option is set and restored

when 'paste' is reset.
See also ins-expandtab . When 'expandtab' is not set, the number of spaces is minimized by using <Tab>s.
The 'L' flag in 'cpoptions' changes how tabs are used when 'list' is set.
NOTE: This option is set to 0 when 'compatible' is set.

If Vim is compiled with the +vartabs feature then the value of 'softtabstop' will be ignored if 'varsofttabstop' is set to anything other than an empty string.

'spell' 'nospell'
'spell' boolean (default off)
local to window
{not in Vi}
{not available when compiled without the +syntax feature}
When on spell checking will be done. See spell .
The languages are specified with 'spelllang'.

'spellcapcheck' 'spc'
'spellcapcheck' 'spc' string (default "[.?!]_[\])'" \t]\+")
local to buffer
{not in Vi}
{not available when compiled without the +syntax feature}
Pattern to locate the end of a sentence. The following word will be checked to start with a capital letter. If not then it is highlighted with SpellCap hl-SpellCap (unless the word is also badly spelled).
When this check is not wanted make this option empty.
Only used when 'spell' is set.
Be careful with special characters, see option-backslash about including spaces and backslashes.
To set this option automatically depending on the language, see set-spc-auto .

'spellfile' 'spf'
'spellfile' 'spf' string (default empty)
local to buffer
{not in Vi}
{not available when compiled without the +syntax feature}
Name of the word list file where words are added for the zg and zw commands. It must end in ".{encoding}.add". You need to include the path, otherwise the file is placed in the current directory.
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It may also be a comma separated list of names. A count before the zg and zw commands can be used to access each. This allows using a personal word list file and a project word list file.
When a word is added while this option is empty Vim will set it for you: Using the first directory in 'runtimepath' that is writable. If there is no "spell" directory yet it will be created. For the file name the first language name that appears in 'spelllang' is used, ignoring the region.

The resulting ".spl" file will be used for spell checking, it does not have to appear in 'spelllang'.
Normally one file is used for all regions, but you can add the region name if you want to. However, it will then only be used when 'spellfile' is set to it, for entries in 'spelllang' only files without region name will be found.
This option cannot be set from a modeline or in the sandbox , for security reasons.

'spelllang' 'spl'

'spelllang' 'spl' string (default "en")
local to buffer
{not in Vi}
{not available when compiled without the +syntax feature}

A comma separated list of word list names. When the 'spell' option is on spellchecking will be done for these languages. Example:

```
set spelllang=en_us,nl,medical
```

This means US English, Dutch and medical words are recognized. Words that are not recognized will be highlighted.
The word list name must not include a comma or dot. Using a dash is recommended to separate the two letter language name from a specification. Thus "en-rare" is used for rare English words.
A region name must come last and have the form "_xx", where "xx" is the two-letter, lower case region name. You can use more than one region by listing them: "en_us,en_ca" supports both US and Canadian English, but not words specific for Australia, New Zealand or Great Britain. (Note: currently en_au and en_nz dictionaries are older than en_ca, en_gb and en_us).
If the name "cjk" is included East Asian characters are excluded from spell checking. This is useful when editing text that also has Asian words.

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As a special case the name of a .spl file can be given as-is. The first "_xx" in the name is removed and used as the region name (_xx is an underscore, two letters and followed by a non-letter). This is mainly for testing purposes. You must make sure the correct encoding is used, Vim doesn't check it.
When 'encoding' is set the word lists are reloaded. Thus it's a good idea to set 'spelllang' after setting 'encoding' to avoid loading the files twice.
How the related spell files are found is explained here: spell-load .

If the spellfile.vim plugin is active and you use a language name for which Vim cannot find the .spl file in 'runtimepath' the plugin will ask you if you want to download the file.

After this option has been set successfully, Vim will source the files "spell/LANG.vim" in 'runtimepath'. "LANG" is the value of 'spelllang' up to the first comma, dot or underscore.
Also see set-spc-auto .

'spellsuggest' 'sps'

'spellsuggest' 'sps'	string (default "best")
global
{not in Vi}
{not available when compiled without the +syntax feature}

Methods used for spelling suggestions. Both for the z= command and the spellsuggest() function. This is a comma-separated list of items:

best	Internal method that works best for English. Finds changes like "fast" and uses a bit of sound-a-like scoring to improve the ordering.

double	Internal method that uses two methods and mixes the results. The first method is "fast", the other method computes how much the suggestion sounds like the bad word. That only works when the language specifies sound folding. Can be slow and doesn't always give better results.

fast	Internal method that only checks for simple changes: character inserts/deletes/swaps. Works well for simple typing mistakes.

{number}	The maximum number of suggestions listed for z= . Not used for spellsuggest() . The number of suggestions is never more than the value of 'lines' minus two.

file:{filename}	Read file {filename}, which must have two columns, separated by a slash. The first column contains the bad word, the second column the suggested good word. Example:

```
theribal/terrible
```

Use this for common mistakes that do not appear at the top of the suggestion list with the internal methods. Lines without a slash are ignored, use this for comments.
The word in the second column must be correct, otherwise it will not be used. Add the word to an ".add" file if it is currently flagged as a spelling mistake.
The file is used for all languages.

expr:{expr}	Evaluate expression {expr}. Use a function to avoid trouble with spaces. v:val holds the badly spelled word. The expression must evaluate to a List of Lists, each with a suggestion and a score.
Example:

```
[['the', 33], ['that', 44]]
```

Set 'verbose' and use z= to see the scores that the internal methods use. A lower score is better.
This may invoke spellsuggest() if you temporarily set 'spellsuggest' to exclude the "expr:" part.

Errors are silently ignored, unless you set the
'verbose' option to a non-zero value.

Only one of "best", "double" or "fast" may be used. The others may
appear several times in any order. Example:
:set sps=file:~/.vim/sugg,best,expr:MySuggest()

This option cannot be set from a modeline or in the sandbox , for
security reasons.

'splitbelow' 'sb' 'nosplitbelow' 'nosb'
'splitbelow' 'sb' boolean (default off)
global
{not in Vi}
{not available when compiled without the +windows
feature}
When on, splitting a window will put the new window below the current
one. :split

'splitright' 'spr' 'nosplitright' 'nospr'
'splitright' 'spr' boolean (default off)
global
{not in Vi}
{not available when compiled without the +vertsplit
feature}
When on, splitting a window will put the new window right of the
current one. :vsplit

'startofline' 'sol' 'nostartofline' 'nosol'
'startofline' 'sol' boolean (default on)
global
{not in Vi}
When "on" the commands listed below move the cursor to the first
non-blank of the line. When off the cursor is kept in the same column
(if possible). This applies to the commands: CTRL-D, CTRL-U, CTRL-B,
CTRL-F, "G", "H", "M", "L", gg, and to the commands "d", "<<" and ">>"
with a linewise operator, with "%" with a count and to buffer changing
commands (CTRL-^, :bnext, :bNext, etc.). Also for an Ex command that
only has a line number, e.g., ":25" or ":+".
In case of buffer changing commands the cursor is placed at the column
where it was the last time the buffer was edited.
NOTE: This option is set when 'compatible' is set.

'statusline' 'stl' E540 E542
'statusline' 'stl' string (default empty)
global or local to window global-local
{not in Vi}
{not available when compiled without the +statusline
feature}
When nonempty, this option determines the content of the status line.
Also see status-line .

The option consists of printf style '%' items interspersed with

normal text. Each status line item is of the form:
  %-0{minwid}.{maxwid}{item}
All fields except the {item} are optional. A single percent sign can
be given as "%%". Up to 80 items can be specified. E541

When the option starts with "%!" then it is used as an expression,
evaluated and the result is used as the option value. Example:
        :set statusline=%!MyStatusLine()
The result can contain %{} items that will be evaluated too.
Note that the "%!" expression is evaluated in the context of the
current window and buffer, while %{} items are evaluated in the
context of the window that the statusline belongs to.

When there is error while evaluating the option then it will be made
empty to avoid further errors. Otherwise screen updating would loop.

Note that the only effect of 'ruler' when this option is set (and
'laststatus' is 2) is controlling the output of CTRL-G .

field	meaning
-	Left justify the item. The default is right justified when minwid is larger than the length of the item.
0	Leading zeroes in numeric items. Overridden by '-'.
minwid	Minimum width of the item, padding as set by '-' & '0'. Value must be 50 or less.
maxwid	Maximum width of the item. Truncation occurs with a '<' on the left for text items. Numeric items will be shifted down to maxwid-2 digits followed by '>'number where number is the amount of missing digits, much like an exponential notation.
item	A one letter code as described below.

Following is a description of the possible statusline items. The
second character in "item" is the type:
        N for number
        S for string
        F for flags as described below
        - not applicable

item	meaning
f S	Path to the file in the buffer, as typed or relative to current directory.
F S	Full path to the file in the buffer.
t S	File name (tail) of file in the buffer.
m F	Modified flag, text is "[+]"; "[-]" if 'modifiable' is off.
M F	Modified flag, text is ",+" or ",-".
r F	Readonly flag, text is "[RO]".
R F	Readonly flag, text is ",RO".
h F	Help buffer flag, text is "[help]".
H F	Help buffer flag, text is ",HLP".
w F	Preview window flag, text is "[Preview]".
W F	Preview window flag, text is ",PRV".
y F	Type of file in the buffer, e.g., "[vim]". See 'filetype'.
Y F	Type of file in the buffer, e.g., ",VIM". See 'filetype'.

```
q S   "[Quickfix List]", "[Location List]" or empty.
k S   Value of "b:keymap_name" or 'keymap' when  :lmap  mappings are
      being used: "<keymap>"
n N   Buffer number.
b N   Value of character under cursor.
B N   As above, in hexadecimal.
o N   Byte number in file of byte under cursor, first byte is 1.
      Mnemonic: Offset from start of file (with one added)
      {not available when compiled without |+byte_offset| feature}
O N   As above, in hexadecimal.
N N   Printer page number.  (Only works in the 'printheader' option.)
l N   Line number.
L N   Number of lines in buffer.
c N   Column number.
v N   Virtual column number.
V N   Virtual column number as -{num}.  Not displayed if equal to 'c'.
p N   Percentage through file in lines as in  CTRL-G .
P S   Percentage through file of displayed window.  This is like the
      percentage described for 'ruler'.  Always 3 in length, unless
      translated.
a S   Argument list status as in default title.  ({current} of {max})
      Empty if the argument file count is zero or one.
{ NF  Evaluate expression between '%{' and '}' and substitute result.
      Note that there is no '%' before the closing '}'.  The
      expression cannot contain a '}' character, call a function to
      work around that.
( -   Start of item group.  Can be used for setting the width and
      alignment of a section.  Must be followed by %) somewhere.
) -   End of item group.  No width fields allowed.
T N   For 'tabline': start of tab page N label.  Use %T after the last
      label.  This information is used for mouse clicks.
X N   For 'tabline': start of close tab N label.  Use %X after the
      label, e.g.: %3Xclose%X.  Use %999X for a "close current tab"
      mark.  This information is used for mouse clicks.
< -   Where to truncate line if too long.  Default is at the start.
      No width fields allowed.
= -   Separation point between left and right aligned items.
      No width fields allowed.
# -   Set highlight group.  The name must follow and then a # again.
      Thus use %#HLname# for highlight group HLname.  The same
      highlighting is used, also for the statusline of non-current
      windows.
* -   Set highlight group to User{N}, where {N} is taken from the
      minwid field, e.g. %1*.  Restore normal highlight with %* or %0*.
      The difference between User{N} and StatusLine  will be applied
      to StatusLineNC for the statusline of non-current windows.
      The number N must be between 1 and 9.  See  hl-User1..9

When displaying a flag, Vim removes the leading comma, if any, when
that flag comes right after plaintext.  This will make a nice display
when flags are used like in the examples below.

When all items in a group becomes an empty string (i.e. flags that are
not set) and a minwid is not set for the group, the whole group will
```

become empty. This will make a group like the following disappear
completely from the statusline when none of the flags are set.
	:set statusline=...%(\ [%M%R%H]%)...
                                                    g:actual_curbuf
Beware that an expression is evaluated each and every time the status
line is displayed. The current buffer and current window will be set
temporarily to that of the window (and buffer) whose statusline is
currently being drawn. The expression will evaluate in this context.
The variable "actual_curbuf" is set to the 'bufnr()' number of the
real current buffer.

The 'statusline' option will be evaluated in the sandbox if set from
a modeline, see sandbox-option .

It is not allowed to change text or jump to another window while
evaluating 'statusline' textlock .

If the statusline is not updated when you want it (e.g., after setting
a variable that's used in an expression), you can force an update by
setting an option without changing its value. Example:
	:let &ro = &ro

A result of all digits is regarded a number for display purposes.
Otherwise the result is taken as flag text and applied to the rules
described above.

Watch out for errors in expressions. They may render Vim unusable!
If you are stuck, hold down ':' or 'Q' to get a prompt, then quit and
edit your .vimrc or whatever with "vim --clean" to get it right.

Examples:
Emulate standard status line with 'ruler' set
  :set statusline=%<%f\ %h%m%r%=%-14.(%l,%c%V%)\ %P
Similar, but add ASCII value of char under the cursor (like "ga")
  :set statusline=%<%f%h%m%r%=%b\ 0x%B\ \ %l,%c%V\ %P
Display byte count and byte value, modified flag in red.
  :set statusline=%<%f%=\ [%1*%M%*%n%R%H]\ %-19(%3l,%02c%03V%)%O'%02b'
  :hi User1 term=inverse,bold cterm=inverse,bold ctermfg=red
Display a ,GZ flag if a compressed file is loaded
  :set statusline=...%r%{VarExists('b:gzflag','\ [GZ]')}%h...
In the :autocmd 's:
  :let b:gzflag = 1
And:
  :unlet b:gzflag
And define this function:
  :function VarExists(var, val)
  :   if exists(a:var) | return a:val | else | return '' | endif
  :endfunction

                                                    'suffixes'   'su'
'suffixes' 'su'		string (default ".bak,~,.o,.h,.info,.swp,.obj")
			global
			{not in Vi}
Files with these suffixes get a lower priority when multiple files

match a wildcard. See suffixes . Commas can be used to separate the suffixes. Spaces after the comma are ignored. A dot is also seen as the start of a suffix. To avoid a dot or comma being recognized as a separator, precede it with a backslash (see option-backslash about including spaces and backslashes).
See 'wildignore' for completely ignoring files.
The use of :set+= and :set-= is preferred when adding or removing suffixes from the list. This avoids problems when a future version uses another default.

'suffixesadd' 'sua'

'suffixesadd' 'sua' string (default "")
local to buffer
{not in Vi}
{not available when compiled without the +file_in_path feature}
Comma separated list of suffixes, which are used when searching for a file for the "gf", "[I", etc. commands. Example:

```
:set suffixesadd=.java
```

'swapfile' 'swf' 'noswapfile' 'noswf'

'swapfile' 'swf' boolean (default on)
local to buffer
{not in Vi}
Use a swapfile for the buffer. This option can be reset when a swapfile is not wanted for a specific buffer. For example, with confidential information that even root must not be able to access.
Careful: All text will be in memory:
- Don't use this for big files.
- Recovery will be impossible!

A swapfile will only be present when 'updatecount' is non-zero and 'swapfile' is set.
When 'swapfile' is reset, the swap file for the current buffer is immediately deleted. When 'swapfile' is set, and 'updatecount' is non-zero, a swap file is immediately created.
Also see swap-file and 'swapsync' .
If you want to open a new buffer without creating a swap file for it, use the :noswapfile modifier.
See 'directory' for where the swap file is created.

This option is used together with 'bufhidden' and 'buftype' to specify special kinds of buffers. See special-buffers .

'swapsync' 'sws'

'swapsync' 'sws' string (default "fsync")
global
{not in Vi}
When this option is not empty a swap file is synced to disk after writing to it. This takes some time, especially on busy unix systems. When this option is empty parts of the swap file may be in memory and not written to disk. When the system crashes you may lose more work. On Unix the system does a sync now and then without Vim asking for it, so the disadvantage of setting this option off is small. On some systems the swap file will not be written at all. For a unix system

setting it to "sync" will use the sync() call instead of the default fsync(), which may work better on some systems.
The 'fsync' option is used for the actual file.

'switchbuf' 'swb' 'switchbuf' 'swb'
string (default "")
global
{not in Vi}
This option controls the behavior when switching between buffers. Possible values (comma separated list):
useopen If included, jump to the first open window that contains the specified buffer (if there is one). Otherwise: Do not examine other windows. This setting is checked with quickfix commands, when jumping to errors (":cc", ":cn", "cp", etc.). It is also used in all buffer related split commands, for example ":sbuffer", ":sbnext", or ":sbrewind".
usetab Like "useopen", but also consider windows in other tab pages.
split If included, split the current window before loading a buffer for a quickfix command that display errors. Otherwise: do not split, use current window.
vsplit Just like "split" but split vertically.
newtab Like "split", but open a new tab page. Overrules "split" when both are present.

'synmaxcol' 'smc' 'synmaxcol' 'smc'
number (default 3000)
local to buffer
{not in Vi}
{not available when compiled without the +syntax feature}
Maximum column in which to search for syntax items. In long lines the text after this column is not highlighted and following lines may not be highlighted correctly, because the syntax state is cleared. This helps to avoid very slow redrawing for an XML file that is one long line.
Set to zero to remove the limit.

'syntax' 'syn' 'syntax' 'syn'
string (default empty)
local to buffer
{not in Vi}
{not available when compiled without the +syntax feature}
When this option is set, the syntax with this name is loaded, unless syntax highlighting has been switched off with ":syntax off". Otherwise this option does not always reflect the current syntax (the b:current_syntax variable does).
This option is most useful in a modeline, for a file which syntax is not automatically recognized. Example, in an IDL file:

```
/* vim: set syntax=idl : */
```

When a dot appears in the value then this separates two filetype names. Example:

```
                /* vim: set syntax=c.doxygen : */
        This will use the "c" syntax first, then the "doxygen" syntax.
        Note that the second one must be prepared to be loaded as an addition,
        otherwise it will be skipped.  More than one dot may appear.
        To switch off syntax highlighting for the current file, use:
                :set syntax=OFF
       To switch syntax highlighting on according to the current value of the
        'filetype' option:
                :set syntax=ON
       What actually happens when setting the 'syntax' option is that the
        Syntax autocommand event is triggered with the value as argument.
        This option is not copied to another buffer, independent of the 's' or
        'S' flag in 'cpoptions'.
        Only normal file name characters can be used, "/\*?[|<>" are illegal.

                                                        'tabline'   'tal'
'tabline' 'tal'         string  (default empty)
                        global
                        {not in Vi}
                        {not available when compiled without the  +windows
                        feature}
        When nonempty, this option determines the content of the tab pages
        line at the top of the Vim window.  When empty Vim will use a default
        tab pages line.  See  setting-tabline  for more info.

        The tab pages line only appears as specified with the 'showtabline'
        option and only when there is no GUI tab line.  When 'e' is in
        'guioptions' and the GUI supports a tab line 'guitablabel' is used
        instead.  Note that the two tab pages lines are very different.

        The value is evaluated like with 'statusline'.  You can use
         tabpagenr() ,  tabpagewinnr()  and  tabpagebuflist()  to figure out
        the text to be displayed.  Use "%1T" for the first label, "%2T" for
        the second one, etc.  Use "%X" items for closing labels.

        Keep in mind that only one of the tab pages is the current one, others
        are invisible and you can't jump to their windows.


                                                        'tabpagemax'   'tpm'
'tabpagemax' 'tpm'      number  (default 10)
                        global
                        {not in Vi}
                        {not available when compiled without the  +windows
                        feature}
        Maximum number of tab pages to be opened by the  -p  command line
        argument or the ":tab all" command.  tabpage


                                                        'tabstop'   'ts'
'tabstop' 'ts'          number  (default 8)
                        local to buffer
        Number of spaces that a <Tab> in the file counts for.  Also see
         :retab  command, and 'softtabstop' option.
```

Note: Setting 'tabstop' to any other value than 8 can make your file
appear wrong in many places (e.g., when printing it).

There are four main ways to use tabs in Vim:
1. Always keep 'tabstop' at 8, set 'softtabstop' and 'shiftwidth' to 4
   (or 3 or whatever you prefer) and use 'noexpandtab'. Then Vim
   will use a mix of tabs and spaces, but typing <Tab> and <BS> will
   behave like a tab appears every 4 (or 3) characters.
2. Set 'tabstop' and 'shiftwidth' to whatever you prefer and use
   'expandtab'. This way you will always insert spaces. The
   formatting will never be messed up when 'tabstop' is changed.
3. Set 'tabstop' and 'shiftwidth' to whatever you prefer and use a
   modeline to set these values when editing the file again. Only
   works when using Vim to edit the file.
4. Always set 'tabstop' and 'shiftwidth' to the same value, and
   'noexpandtab'. This should then work (for initial indents only)
   for any tabstop setting that people use. It might be nice to have
   tabs after the first non-blank inserted as spaces if you do this
   though. Otherwise aligned comments will be wrong when 'tabstop' is
   changed.

If Vim is compiled with the +vartabs feature then the value of
'tabstop' will be ignored if 'vartabstop' is set to anything other
than an empty string.

'tagbsearch' 'tbs' 'notagbsearch' 'notbs'
'tagbsearch' 'tbs' boolean (default on)
global
{not in Vi}
When searching for a tag (e.g., for the :ta command), Vim can either
use a binary search or a linear search in a tags file. Binary
searching makes searching for a tag a LOT faster, but a linear search
will find more tags if the tags file wasn't properly sorted.
Vim normally assumes that your tags files are sorted, or indicate that
they are not sorted. Only when this is not the case does the
'tagbsearch' option need to be switched off.

When 'tagbsearch' is on, binary searching is first used in the tags
files. In certain situations, Vim will do a linear search instead for
certain files, or retry all files with a linear search. When
'tagbsearch' is off, only a linear search is done.

Linear searching is done anyway, for one file, when Vim finds a line
at the start of the file indicating that it's not sorted:
!_TAG_FILE_SORTED 0 /some comment/
[The whitespace before and after the '0' must be a single <Tab>]

When a binary search was done and no match was found in any of the
files listed in 'tags', and case is ignored or a pattern is used
instead of a normal tag name, a retry is done with a linear search.
Tags in unsorted tags files, and matches with different case will only
be found in the retry.

If a tag file indicates that it is case-fold sorted, the second,
linear search can be avoided when case is ignored. Use a value of '2'
in the "!_TAG_FILE_SORTED" line for this. A tag file can be case-fold
sorted with the -f switch to "sort" in most unices, as in the command:
"sort -f -o tags tags". For "Exuberant ctags" version 5.x or higher
(at least 5.5) the --sort=foldcase switch can be used for this as
well. Note that case must be folded to uppercase for this to work.

By default, tag searches are case-sensitive. Case is ignored when
'ignorecase' is set and 'tagcase' is "followic", or when 'tagcase' is
"ignore".
Also when 'tagcase' is "followscs" and 'smartcase' is set, or
'tagcase' is "smart", and the pattern contains only lowercase
characters.

When 'tagbsearch' is off, tags searching is slower when a full match
exists, but faster when no full match exists. Tags in unsorted tags
files may only be found with 'tagbsearch' off.
When the tags file is not sorted, or sorted in a wrong way (not on
ASCII byte value), 'tagbsearch' should be off, or the line given above
must be included in the tags file.
This option doesn't affect commands that find all matching tags (e.g.,
command-line completion and ":help").
{Vi: always uses binary search in some versions}

                                                    'tagcase' 'tc'
'tagcase' 'tc'   string (default "followic")
                        global or local to buffer global-local
                        {not in Vi}
This option specifies how case is handled when searching the tags
file:
   followic   Follow the 'ignorecase' option
   followscs   Follow the 'smartcase' and 'ignorecase' options
   ignore   Ignore case
   match   Match case
   smart   Ignore case unless an upper case letter is used
NOTE: This option is set to the Vi default value when 'compatible' is
set and to the Vim default value when 'compatible' is reset.

                                                'taglength' 'tl'
'taglength' 'tl'   number (default 0)
                        global
If non-zero, tags are significant up to this number of characters.

                         'tagrelative' 'tr' 'notagrelative' 'notr'
'tagrelative' 'tr'   boolean (Vim default: on, Vi default: off)
                        global
                        {not in Vi}
If on and using a tags file in another directory, file names in that
tags file are relative to the directory where the tags file is.
NOTE: This option is set to the Vi default value when 'compatible' is
set and to the Vim default value when 'compatible' is reset.

                                                'tags' 'tag' E433

'tags' 'tag'		string	(default "./tags,tags", when compiled with
				+emacs_tags : "./tags,./TAGS,tags,TAGS")
			global or local to buffer	global-local
	Filenames for the tag command, separated by spaces or commas. To
	include a space or comma in a file name, precede it with a backslash
	(see option-backslash about including spaces and backslashes).
	When a file name starts with "./", the '.' is replaced with the path
	of the current file. But only when the 'd' flag is not included in
	'cpoptions'. Environment variables are expanded :set_env . Also see
	tags-option .
	"*", "**" and other wildcards can be used to search for tags files in
	a directory tree. See file-searching . E.g., "/lib/**/tags" will
	find all files named "tags" below "/lib". The filename itself cannot
	contain wildcards, it is used as-is. E.g., "/lib/**/tags?" will find
	files called "tags?". {not available when compiled without the
	+path_extra feature}
	The tagfiles() function can be used to get a list of the file names
	actually used.
	If Vim was compiled with the +emacs_tags feature, Emacs-style tag
	files are also supported. They are automatically recognized. The
	default value becomes "./tags,./TAGS,tags,TAGS", unless case
	differences are ignored (MS-Windows). emacs-tags
	The use of :set+= and :set-= is preferred when adding or removing
	file names from the list. This avoids problems when a future version
	uses another default.
	{Vi: default is "tags /usr/lib/tags"}

'tagstack' 'tgst'		'tagstack' 'tgst' 'notagstack' 'notgst'
			boolean (default on)
			global
			{not in all versions of Vi}
	When on, the tagstack is used normally. When off, a ":tag" or
	":tselect" command with an argument will not push the tag onto the
	tagstack. A following ":tag" without an argument, a ":pop" command or
	any other command that uses the tagstack will use the unmodified
	tagstack, but does change the pointer to the active entry.
	Resetting this option is useful when using a ":tag" command in a
	mapping which should not change the tagstack.

'tcldll'		'tcldll'
			string	(default depends on the build)
			global
			{not in Vi}
			{only available when compiled with the +tcl/dyn
			feature}
	Specifies the name of the Tcl shared library. The default is
	DYNAMIC_TCL_DLL, which was specified at compile time.
	Environment variables are expanded :set_env .
	This option cannot be set from a modeline or in the sandbox , for
	security reasons.

'term'		'term' E529 E530 E531
			string	(default is $TERM, if that fails:
				in the GUI: "builtin_gui"

```
                                        on Amiga: "amiga"
                                         on BeOS: "beos-ansi"
                                          on Mac: "mac-ansi"
                                         on MiNT: "vt52"
                                       on MS-DOS: "pcterm"
                                         on OS/2: "os2ansi"
                                         on Unix: "ansi"
                                          on VMS: "ansi"
                                       on Win 32: "win32")
                        global
        Name of the terminal.  Used for choosing the terminal control
        characters.  Environment variables are expanded  :set_env .
        For example:
                :set term=$TERM
      See  termcap .

                                                  'termbidi'   'tbidi'
                                                  'notermbidi'   'notbidi'
'termbidi' 'tbidi'      boolean (default off, on for "mlterm")
                        global
                        {not in Vi}
                        {only available when compiled with the  +arabic
                        feature}
        The terminal is in charge of Bi-directionality of text (as specified
        by Unicode).  The terminal is also expected to do the required shaping
        that some languages (such as Arabic) require.
        Setting this option implies that 'rightleft' will not be set when
        'arabic' is set and the value of 'arabicshape' will be ignored.
        Note that setting 'termbidi' has the immediate effect that
        'arabicshape' is ignored, but 'rightleft' isn't changed automatically.
        This option is reset when the GUI is started.
        For further details see  arabic.txt .

                                          'termencoding'   'tenc'
'termencoding' 'tenc'   string  (default ""; with GTK+ GUI: "utf-8"; with
                                                Macintosh GUI: "macroman")
                        global
                        {only available when compiled with the  +multi_byte
                        feature}
                        {not in Vi}
        Encoding used for the terminal.  This specifies what character
        encoding the keyboard produces and the display will understand.  For
        the GUI it only applies to the keyboard ('encoding' is used for the
        display).  Except for the Mac when 'macatsui' is off, then
        'termencoding' should be "macroman".
                                                                  E617
        Note: This does not apply to the GTK+ GUI.  After the GUI has been
        successfully initialized, 'termencoding' is forcibly set to "utf-8".
        Any attempts to set a different value will be rejected, and an error
        message is shown.
        For the Win32 GUI and console versions 'termencoding' is not used,
        because the Win32 system always passes Unicode characters.
        When empty, the same encoding is used as for the 'encoding' option.
        This is the normal value.
```

Not all combinations for 'termencoding' and 'encoding' are valid. See encoding-table .
The value for this option must be supported by internal conversions or iconv(). When this is not possible no conversion will be done and you will probably experience problems with non-ASCII characters.
Example: You are working with the locale set to euc-jp (Japanese) and want to edit a UTF-8 file:

```
:let &termencoding = &encoding
:set encoding=utf-8
```

You need to do this when your system has no locale support for UTF-8.

'termguicolors' 'tgc' E954

'termguicolors' 'tgc' boolean (default off)
global
{not in Vi}
{not available when compiled without the +termguicolors feature}

When on, uses highlight-guifg and highlight-guibg attributes in the terminal (thus using 24-bit color).

Requires a ISO-8613-3 compatible terminal. If setting this option does not work (produces a colorless UI) reading xterm-true-color might help.

For Win32 console, Windows 10 version 1703 (Creators Update) or later is required. Use this check to find out:

```
if has('vcon')
```

This requires Vim to be built with the +vtp feature.

Note that the "cterm" attributes are still used, not the "gui" ones.
NOTE: This option is reset when 'compatible' is set.

'termwinscroll' 'twsl'

'termwinscroll' 'twsl' number (default 10000)
local to buffer
{not in Vi}
{not available when compiled without the +terminal feature}

Number of scrollback lines to keep. When going over this limit the first 10% of the scrollback lines are deleted. This is just to reduce the memory usage. See Terminal-Normal .

'termwinkey' 'twk'

'termwinkey' 'twk' string (default "")
local to window
{not in Vi}

The key that starts a CTRL-W command in a terminal window. Other keys are sent to the job running in the window.
The <> notation can be used, e.g.:

```
:set termwinkey=<C-L>
```

The string must be one key stroke but can be multiple bytes.
When not set CTRL-W is used, so that CTRL-W : gets you to the command line. If 'termwinkey' is set to CTRL-L then CTRL-L : gets you to the command line.

'termwinsize' 'tws'

'termwinsize' 'tws'	string (default "")
			local to window
			{not in Vi}
	Size of the terminal window. Format: {rows}x{columns} or
	{rows}*{columns}.
	- When empty the terminal gets the size from the window.
	- When set with a "x" (e.g., "24x80") the terminal size is not
	  adjusted to the window size. If the window is smaller only the
	  top-left part is displayed.
	- When set with a "*" (e.g., "10*50") the terminal size follows the
	  window size, but will not be smaller than the specified rows and/or
	  columns.
	- When rows is zero then use the height of the window.
	- When columns is zero then use the width of the window.
	- Using "0x0" or "0*0" is the same as empty.

	Examples:
	  "30x0" uses 30 rows and the current window width.
	  "20*0" uses at least 20 rows and the current window width.
	  "0*40" uses the current window height and at least 40 columns.
	Note that the command running in the terminal window may still change
	the size of the terminal. In that case the Vim window will be
	adjusted to that size, if possible.

'terse' 'noterse'

'terse'			boolean (default off)
			global
	When set: Add 's' flag to 'shortmess' option (this makes the message
	for a search that hits the start or end of the file not being
	displayed). When reset: Remove 's' flag from 'shortmess' option. {Vi
	shortens a lot of messages}

'textauto' 'ta' 'notextauto' 'nota'

'textauto' 'ta'		boolean (Vim default: on, Vi default: off)
			global
			{not in Vi}
	This option is obsolete. Use 'fileformats'.
	For backwards compatibility, when 'textauto' is set, 'fileformats' is
	set to the default value for the current system. When 'textauto' is
	reset, 'fileformats' is made empty.
	NOTE: This option is set to the Vi default value when 'compatible' is
	set and to the Vim default value when 'compatible' is reset.

'textmode' 'tx' 'notextmode' 'notx'

'textmode' 'tx'		boolean (MS-DOS, Win32 and OS/2: default on,
				 others: default off)
			local to buffer
			{not in Vi}
	This option is obsolete. Use 'fileformat'.
	For backwards compatibility, when 'textmode' is set, 'fileformat' is
	set to "dos". When 'textmode' is reset, 'fileformat' is set to
	"unix".

'textwidth' 'tw'

'textwidth' 'tw' number (default 0)
local to buffer
{not in Vi}

Maximum width of text that is being inserted. A longer line will be broken after white space to get this width. A zero value disables this.
'textwidth' is set to 0 when the 'paste' option is set and restored when 'paste' is reset.
When 'textwidth' is zero, 'wrapmargin' may be used. See also 'formatoptions' and ins-textwidth .
When 'formatexpr' is set it will be used to break the line.
NOTE: This option is set to 0 when 'compatible' is set.

'thesaurus' 'tsr'

'thesaurus' 'tsr' string (default "")
global or local to buffer global-local
{not in Vi}

List of file names, separated by commas, that are used to lookup words for thesaurus completion commands i_CTRL-X_CTRL-T . Each line in the file should contain words with similar meaning, separated by non-keyword characters (white space is preferred). Maximum line length is 510 bytes.
To obtain a file to be used here, check out this ftp site:
[Sorry this link doesn't work anymore, do you know the right one?]
ftp://ftp.ox.ac.uk/pub/wordlists/ First get the README file.
To include a comma in a file name precede it with a backslash. Spaces after a comma are ignored, otherwise spaces are included in the file name. See option-backslash about using backslashes.
The use of :set+= and :set-= is preferred when adding or removing directories from the list. This avoids problems when a future version uses another default.
Backticks cannot be used in this option for security reasons.

'tildeop' 'top' 'notildeop' 'notop'

'tildeop' 'top' boolean (default off)
global
{not in Vi}

When on: The tilde command "~" behaves like an operator.
NOTE: This option is reset when 'compatible' is set.

'timeout' 'to' 'notimeout' 'noto'

'timeout' 'to' boolean (default on)
global

'ttimeout' 'nottimeout'

'ttimeout' boolean (default off, set in defaults.vim)
global
{not in Vi}

These two options together determine the behavior when part of a mapped key sequence or keyboard code has been received:

'timeout'	'ttimeout'	action
off	off	do not time out

```
   on          on or off       time out on :mappings and key codes
   off         on              time out on key codes
```

If both options are off, Vim will wait until either the complete mapping or key sequence has been received, or it is clear that there is no mapping or key sequence for the received characters. For example: if you have mapped "vl" and Vim has received 'v', the next character is needed to see if the 'v' is followed by an 'l'.
When one of the options is on, Vim will wait for about 1 second for the next character to arrive. After that the already received characters are interpreted as single characters. The waiting time can be changed with the 'timeoutlen' option.
On slow terminals or very busy systems timing out may cause malfunctioning cursor keys. If both options are off, Vim waits forever after an entered <Esc> if there are key codes that start with <Esc>. You will have to type <Esc> twice. If you do not have problems with key codes, but would like to have :mapped key sequences not timing out in 1 second, set the 'ttimeout' option and reset the 'timeout' option.

NOTE: 'ttimeout' is reset when 'compatible' is set.

```
                                                    'timeoutlen'   'tm'
'timeoutlen' 'tm'       number  (default 1000)
                        global
                        {not in all versions of Vi}
                                                    'ttimeoutlen'   'ttm'
'ttimeoutlen' 'ttm'     number  (default -1, set to 100 in  defaults.vim )
                        global
                        {not in Vi}
```

The time in milliseconds that is waited for a key code or mapped key sequence to complete. Also used for CTRL-\ CTRL-N and CTRL-\ CTRL-G when part of a command has been typed.
Normally only 'timeoutlen' is used and 'ttimeoutlen' is -1. When a different timeout value for key codes is desired set 'ttimeoutlen' to a non-negative number.

```
            ttimeoutlen     mapping delay      key code delay
               < 0          'timeoutlen'       'timeoutlen'
              >= 0          'timeoutlen'       'ttimeoutlen'
```

The timeout only happens when the 'timeout' and 'ttimeout' options tell so. A useful setting would be
```
        :set timeout timeoutlen=3000 ttimeoutlen=100
```
(time out on mapping after three seconds, time out on key codes after a tenth of a second).

```
                                                    'title'   'notitle'
'title'                 boolean (default off, on when title can be restored)
                        global
                        {not in Vi}
                        {not available when compiled without the  +title
                        feature}
```

When on, the title of the window will be set to the value of

'titlestring' (if it is not empty), or to:
        filename [+=-] (path) - VIM
Where:
        filename   the name of the file being edited
        -               indicates the file cannot be modified, 'ma' off
        +   indicates the file was modified
        =   indicates the file is read-only
        =+   indicates the file is read-only and modified
        (path)   is the path of the file being edited
        - VIM   the server name v:servername or "VIM"
Only works if the terminal supports setting window titles
(currently Amiga console, Win32 console, all GUI versions and
terminals with a non- empty 't_ts' option - these are Unix xterm and
iris-ansi by default, where 't_ts' is taken from the builtin termcap).
                                                        X11
When Vim was compiled with HAVE_X11 defined, the original title will
be restored if possible. The output of ":version" will include "+X11"
when HAVE_X11 was defined, otherwise it will be "-X11". This also
works for the icon name 'icon' .
But: When Vim was started with the -X argument, restoring the title
will not work (except in the GUI).
If the title cannot be restored, it is set to the value of 'titleold'.
You might want to restore the title outside of Vim then.
When using an xterm from a remote machine you can use this command:
    rsh machine_name xterm -display $DISPLAY &
then the WINDOWID environment variable should be inherited and the
title of the window should change back to what it should be after
exiting Vim.

                                                        'titlelen'
'titlelen'   number (default 85)
                        global
                        {not in Vi}
                        {not available when compiled without the +title
                        feature}
Gives the percentage of 'columns' to use for the length of the window
title. When the title is longer, only the end of the path name is
shown. A '<' character before the path name is used to indicate this.
Using a percentage makes this adapt to the width of the window. But
it won't work perfectly, because the actual number of characters
available also depends on the font used and other things in the title
bar. When 'titlelen' is zero the full path is used. Otherwise,
values from 1 to 30000 percent can be used.
'titlelen' is also used for the 'titlestring' option.

                                                    'titleold'
'titleold'   string (default "Thanks for flying Vim")
                        global
                        {not in Vi}
                        {only available when compiled with the +title
                        feature}
This option will be used for the window title when exiting Vim if the
original title cannot be restored. Only happens if 'title' is on or
'titlestring' is not empty.

This option cannot be set from a modeline or in the sandbox, for security reasons.

'titlestring'

'titlestring' string (default "")
global
{not in Vi}
{not available when compiled without the +title feature}

When this option is not empty, it will be used for the title of the window. This happens only when the 'title' option is on.
Only works if the terminal supports setting window titles (currently Amiga console, Win32 console, all GUI versions and terminals with a non-empty 't_ts' option).
When Vim was compiled with HAVE_X11 defined, the original title will be restored if possible, see X11.
When this option contains printf-style '%' items, they will be expanded according to the rules used for 'statusline'.
Example:

```
:auto BufEnter * let &titlestring = hostname() . "/" . expand("%:p")
:set title titlestring=%<%F%=%l/%L-%P titlelen=70
```

The value of 'titlelen' is used to align items in the middle or right of the available space.
Some people prefer to have the file name first:

```
:set titlestring=%t%(\ %M%)%(\ (%{expand(\"%:~:.:h\")})%)%(\ %a%)
```

Note the use of "%{ }" and an expression to get the path of the file, without the file name. The "%(%)" constructs are used to add a separating space only when needed.
NOTE: Use of special characters in 'titlestring' may cause the display to be garbled (e.g., when it contains a CR or NL character).
{not available when compiled without the |+statusline| feature}

'toolbar' 'tb'

'toolbar' 'tb' string (default "icons,tooltips")
global
{only for +GUI_GTK, +GUI_Athena, +GUI_Motif and +GUI_Photon}

The contents of this option controls various toolbar settings. The possible values are:

icons	Toolbar buttons are shown with icons.
text	Toolbar buttons shown with text.
horiz	Icon and text of a toolbar button are horizontally arranged. {only in GTK+ 2 GUI}
tooltips	Tooltips are active for toolbar buttons.

Tooltips refer to the popup help text which appears after the mouse cursor is placed over a toolbar button for a brief moment.

If you want the toolbar to be shown with icons as well as text, do the following:

```
:set tb=icons,text
```

Motif and Athena cannot display icons and text at the same time. They will show icons if both are requested.

If none of the strings specified in 'toolbar' are valid or if 'toolbar' is empty, this option is ignored. If you want to disable

the toolbar, you need to set the 'guioptions' option. For example:
```
:set guioptions-=T
```
Also see gui-toolbar .

'toolbariconsize' 'tbis'
'toolbariconsize' 'tbis' string (default "small")
global
{not in Vi}
{only in the GTK+ GUI}

Controls the size of toolbar icons. The possible values are:

tiny	Use tiny icons.
small	Use small icons (default).
medium	Use medium-sized icons.
large	Use large icons.
huge	Use even larger icons.
giant	Use very big icons.

The exact dimensions in pixels of the various icon sizes depend on the current theme. Common dimensions are giant=48x48, huge=32x32, large=24x24, medium=24x24, small=20x20 and tiny=16x16.

If 'toolbariconsize' is empty, the global default size as determined by user preferences or the current theme is used.

'ttybuiltin' 'tbi' 'nottybuiltin' 'notbi'
'ttybuiltin' 'tbi' boolean (default on)
global
{not in Vi}

When on, the builtin termcaps are searched before the external ones. When off the builtin termcaps are searched after the external ones. When this option is changed, you should set the 'term' option next for the change to take effect, for example:
```
:set notbi term=$TERM
```
See also termcap .
Rationale: The default for this option is "on", because the builtin termcap entries are generally better (many systems contain faulty xterm entries...).

'ttyfast' 'tf' 'nottyfast' 'notf'
'ttyfast' 'tf' boolean (default off, on when 'term' is xterm, hpterm, sun-cmd, screen, rxvt, dtterm or iris-ansi; also on when running Vim in a DOS console)
global
{not in Vi}

Indicates a fast terminal connection. More characters will be sent to the screen for redrawing, instead of using insert/delete line commands. Improves smoothness of redrawing when there are multiple windows and the terminal does not support a scrolling region.
Also enables the extra writing of characters at the end of each screen line for lines that wrap. This helps when using copy/paste with the mouse in an xterm and other terminals.

'ttymouse' 'ttym'
'ttymouse' 'ttym' string (default depends on 'term')

global
{not in Vi}
{only in Unix and VMS, doesn't work in the GUI; not
available when compiled without +mouse }
Name of the terminal type for which mouse codes are to be recognized.
Currently these strings are valid:

xterm-mouse

xterm — xterm-like mouse handling. The mouse generates "<Esc>[Mscr", where "scr" is three bytes:
"s" = button state
"c" = column plus 33
"r" = row plus 33
This only works up to 223 columns! See "dec", "urxvt", and "sgr" for solutions.

xterm2 — Works like "xterm", but with the xterm reporting the mouse position while the mouse is dragged. This works much faster and more precise. Your xterm must at least at patchlevel 88 / XFree 3.3.3 for this to work. See below for how Vim detects this automatically.

netterm-mouse

netterm — NetTerm mouse handling. The mouse generates "<Esc>}r,c<CR>", where "r,c" are two decimal numbers for the row and column.

dec-mouse

dec — DEC terminal mouse handling. The mouse generates a rather complex sequence, starting with "<Esc>[". This is also available for an Xterm, if it was configured with "--enable-dec-locator".

jsbterm-mouse

jsbterm — JSB term mouse handling.

pterm-mouse

pterm — QNX pterm mouse handling.

urxvt-mouse

urxvt — Mouse handling for the urxvt (rxvt-unicode) terminal. The mouse works only if the terminal supports this encoding style, but it does not have 223 columns limit unlike "xterm" or "xterm2".

sgr-mouse

sgr — Mouse handling for the terminal that emits SGR-styled mouse reporting. The mouse works even in columns beyond 223. This option is backward compatible with "xterm2" because it can also decode "xterm2" style mouse codes.

The mouse handling must be enabled at compile time +mouse_xterm +mouse_dec +mouse_netterm +mouse_jsbterm +mouse_urxvt +mouse_sgr .
Only "xterm"(2) is really recognized. NetTerm mouse codes are always recognized, if enabled at compile time. DEC terminal mouse codes are recognized if enabled at compile time, and 'ttymouse' is not "xterm", "xterm2", "urxvt" or "sgr" (because dec mouse codes conflict with them).
This option is automatically set to "xterm", when the 'term' option is

set to a name that starts with "xterm", "mlterm", "screen", "tmux", "st" (full match only), "st-" or "stterm", and 'ttymouse' is not set already.
Additionally, if vim is compiled with the +termresponse feature and t_RV is set to the escape sequence to request the xterm version number, more intelligent detection process runs.
The "xterm2" value will be set if the xterm version is reported to be from 95 to 276. The "sgr" value will be set if the xterm version is 277 or higher and when Vim detects Mac Terminal.app or iTerm2.
If you do not want 'ttymouse' to be set to "xterm2" or "sgr" automatically, set t_RV to an empty string:

```
:set t_RV=
```

'ttyscroll' 'tsl'

'ttyscroll' 'tsl' number (default 999)
global
Maximum number of lines to scroll the screen. If there are more lines to scroll the window is redrawn. For terminals where scrolling is very slow and redrawing is not slow this can be set to a small number, e.g., 3, to speed up displaying.

'ttytype' 'tty'

'ttytype' 'tty' string (default from $TERM)
global
Alias for 'term', see above.

'undodir' 'udir'

'undodir' 'udir' string (default ".")
global
{not in Vi}
{only when compiled with the |+persistent_undo| feature}
List of directory names for undo files, separated with commas.
See 'backupdir' for details of the format.
"." means using the directory of the file. The undo file name for "file.txt" is ".file.txt.un~".
For other directories the file name is the full path of the edited file, with path separators replaced with "%".
When writing: The first directory that exists is used. "." always works, no directories after "." will be used for writing.
When reading all entries are tried to find an undo file. The first undo file that exists is used. When it cannot be read an error is given, no further entry is used.
See undo-persistence .

'undofile' 'noundofile' 'udf' 'noudf'

'undofile' 'udf' boolean (default off)
local to buffer
{not in Vi}
{only when compiled with the |+persistent_undo| feature}
When on, Vim automatically saves undo history to an undo file when writing a buffer to a file, and restores undo history from the same file on buffer read.
The directory where the undo file is stored is specified by 'undodir'.
For more information about this feature see undo-persistence .

The undo file is not read when 'undoreload' causes the buffer from
before a reload to be saved for undo.
When 'undofile' is turned off the undo file is NOT deleted.
NOTE: This option is reset when 'compatible' is set.

'undolevels' 'ul'

'undolevels' 'ul'	number (default 100, 1000 for Unix, VMS,
Win32 and OS/2)
global or local to buffer global-local
{not in Vi}
Maximum number of changes that can be undone. Since undo information
is kept in memory, higher numbers will cause more memory to be used
(nevertheless, a single change can use an unlimited amount of memory).
Set to 0 for Vi compatibility: One level of undo and "u" undoes
itself:
set ul=0
But you can also get Vi compatibility by including the 'u' flag in
'cpoptions', and still be able to use CTRL-R to repeat undo.
Also see undo-two-ways .
Set to -1 for no undo at all. You might want to do this only for the
current buffer:
setlocal ul=-1
This helps when you run out of memory for a single change.

The local value is set to -123456 when the global value is to be used.

Also see clear-undo .

'undoreload' 'ur'

'undoreload' 'ur'	number (default 10000)
global
{not in Vi}
Save the whole buffer for undo when reloading it. This applies to the
":e!" command and reloading for when the buffer changed outside of
Vim. FileChangedShell
The save only happens when this option is negative or when the number
of lines is smaller than the value of this option.
Set this option to zero to disable undo for a reload.

When saving undo for a reload, any undo file is not read.

Note that this causes the whole buffer to be stored in memory. Set
this option to a lower value if you run out of memory.

'updatecount' 'uc'

'updatecount' 'uc'	number (default: 200)
global
{not in Vi}
After typing this many characters the swap file will be written to
disk. When zero, no swap file will be created at all (see chapter on
recovery crash-recovery). 'updatecount' is set to zero by starting
Vim with the "-n" option, see startup . When editing in readonly
mode this option will be initialized to 10000.
The swapfile can be disabled per buffer with 'swapfile' .

When 'updatecount' is set from zero to non-zero, swap files are created for all buffers that have 'swapfile' set. When 'updatecount' is set to zero, existing swap files are not deleted.
Also see 'swapsync' .
This option has no meaning in buffers where 'buftype' is "nofile" or "nowrite".

'updatetime' 'ut'

'updatetime' 'ut' number (default 4000)
global
{not in Vi}

If this many milliseconds nothing is typed the swap file will be written to disk (see crash-recovery). Also used for the CursorHold autocommand event.

'varsofttabstop' 'vsts'

'varsofttabstop' 'vsts' string (default "")
local to buffer
{only available when compiled with the +vartabs feature}
{not in Vi}

A list of the number of spaces that a <Tab> counts for while editing, such as inserting a <Tab> or using <BS>. It "feels" like variable-width <Tab>s are being inserted, while in fact a mixture of spaces and <Tab>s is used. Tab widths are separated with commas, with the final value applying to all subsequent tabs.

For example, when editing assembly language files where statements start in the 9th column and comments in the 41st, it may be useful to use the following:

```
:set varsofttabstop=8,32,8
```

This will set soft tabstops with 8 and 8 + 32 spaces, and 8 more for every column thereafter.

Note that the value of 'softtabstop' will be ignored while 'varsofttabstop' is set.

'vartabstop' 'vts'

'vartabstop' 'vts' string (default "")
local to buffer
{only available when compiled with the +vartabs feature}
{not in Vi}

A list of the number of spaces that a <Tab> in the file counts for, separated by commas. Each value corresponds to one tab, with the final value applying to all subsequent tabs. For example:

```
:set vartabstop=4,20,10,8
```

This will make the first tab 4 spaces wide, the second 20 spaces, the third 10 spaces, and all following tabs 8 spaces.

Note that the value of 'tabstop' will be ignored while 'vartabstop' is set.

'verbose' 'vbs'

```
'verbose' 'vbs'         number  (default 0)
                        global
                        {not in Vi, although some versions have a boolean
                        verbose option}
        When bigger than zero, Vim will give messages about what it is doing.
        Currently, these messages are given:
        >= 1    When the viminfo file is read or written.
        >= 2    When a file is ":source"'ed.
        >= 5    Every searched tags file and include file.
        >= 8    Files for which a group of autocommands is executed.
        >= 9    Every executed autocommand.
        >= 12   Every executed function.
        >= 13   When an exception is thrown, caught, finished, or discarded.
        >= 14   Anything pending in a ":finally" clause.
        >= 15   Every executed Ex command (truncated at 200 characters).

        This option can also be set with the "-V" argument.  See  -V .
        This option is also set by the  :verbose  command.

        When the 'verbosefile' option is set then the verbose messages are not
        displayed.

                                                    'verbosefile'   'vfile'
'verbosefile' 'vfile'   string  (default empty)
                        global
                        {not in Vi}
        When not empty all messages are written in a file with this name.
        When the file exists messages are appended.
        Writing to the file ends when Vim exits or when 'verbosefile' is made
        empty.  Writes are buffered, thus may not show up for some time.
        Setting 'verbosefile' to a new value is like making it empty first.
        The difference with  :redir  is that verbose messages are not
        displayed when 'verbosefile' is set.

                                                    'viewdir'   'vdir'
'viewdir' 'vdir'        string  (default for Amiga, MS-DOS, OS/2 and Win32:
                                                        "$VIM/vimfiles/view",
                                 for Unix: "~/.vim/view",
                                 for Macintosh: "$VIM:vimfiles:view"
                                 for VMS: "sys$login:vimfiles/view"
                                 for RiscOS: "Choices:vimfiles/view")
                        global
                        {not in Vi}
                        {not available when compiled without the  +mksession
                        feature}
        Name of the directory where to store files for  :mkview .
        This option cannot be set from a  modeline  or in the  sandbox , for
        security reasons.

                                                    'viewoptions'   'vop'
'viewoptions' 'vop'     string  (default: "folds,options,cursor,curdir")
                        global
                        {not in Vi}
                        {not available when compiled without the  +mksession
```

feature}
Changes the effect of the :mkview command. It is a comma separated list of words. Each word enables saving and restoring something:

word	save and restore
cursor	cursor position in file and in window
folds	manually created folds, opened/closed folds and local fold options
options	options and mappings local to a window or buffer (not global values for local options)
localoptions	same as "options"
slash	backslashes in file names replaced with forward slashes
unix	with Unix end-of-line format (single <NL>), even when on Windows or DOS
curdir	the window-local directory, if set with `:lcd`

"slash" and "unix" are useful on Windows when sharing view files with Unix. The Unix version of Vim cannot source dos format scripts, but the Windows version of Vim can source unix format scripts.

'viminfo' 'vi' E526 E527 E528

'viminfo' 'vi' string (Vi default: "", Vim default for MS-DOS, Windows and OS/2: '100,<50,s10,h,rA:,rB:, for Amiga: '100,<50,s10,h,rdf0:,rdf1:,rdf2: for others: '100,<50,s10,h)
global
{not in Vi}
{not available when compiled without the +viminfo feature}
When non-empty, the viminfo file is read upon startup and written when exiting Vim (see viminfo-file). Except when 'viminfofile' is "NONE".
The string should be a comma separated list of parameters, each consisting of a single character identifying the particular parameter, followed by a number or string which specifies the value of that parameter. If a particular character is left out, then the default value is used for that parameter. The following is a list of the identifying characters and the effect of their value.

CHAR	VALUE
	viminfo-!
!	When included, save and restore global variables that start with an uppercase letter, and don't contain a lowercase letter. Thus "KEEPTHIS and "K_L_M" are stored, but "KeepThis" and "_K_L_M" are not. Nested List and Dict items may not be read back correctly, you end up with an empty item.
	viminfo-quote
"	Maximum number of lines saved for each register. Old name of the '<' item, with the disadvantage that you need to put a backslash before the ", otherwise it will be recognized as the start of a comment!
	viminfo-%
%	When included, save and restore the buffer list. If Vim is started with a file name argument, the buffer list is not restored. If Vim is started without a file name argument, the

buffer list is restored from the viminfo file. Quickfix
('buftype'), unlisted ('buflisted'), unnamed and buffers on
removable media (viminfo-r) are not saved.
When followed by a number, the number specifies the maximum
number of buffers that are stored. Without a number all
buffers are stored.

viminfo-'

' Maximum number of previously edited files for which the marks
are remembered. This parameter must always be included when
'viminfo' is non-empty.
Including this item also means that the jumplist and the
 changelist are stored in the viminfo file.

viminfo-/

/ Maximum number of items in the search pattern history to be
saved. If non-zero, then the previous search and substitute
patterns are also saved. When not included, the value of
'history' is used.

viminfo-:

: Maximum number of items in the command-line history to be
saved. When not included, the value of 'history' is used.

viminfo-<

< Maximum number of lines saved for each register. If zero then
registers are not saved. When not included, all lines are
saved. '"' is the old name for this item.
Also see the 's' item below: limit specified in Kbyte.

viminfo-@

@ Maximum number of items in the input-line history to be
saved. When not included, the value of 'history' is used.

viminfo-c

c When included, convert the text in the viminfo file from the
'encoding' used when writing the file to the current
'encoding'. See viminfo-encoding .

viminfo-f

f Whether file marks need to be stored. If zero, file marks ('0
to '9, 'A to 'Z) are not stored. When not present or when
non-zero, they are all stored. '0 is used for the current
cursor position (when exiting or when doing ":wviminfo").

viminfo-h

h Disable the effect of 'hlsearch' when loading the viminfo
file. When not included, it depends on whether ":nohlsearch"
has been used since the last search command.

viminfo-n

n Name of the viminfo file. The name must immediately follow
the 'n'. Must be at the end of the option! If the
'viminfofile' option is set, that file name overrides the one
given here with 'viminfo'. Environment variables are
expanded when opening the file, not when setting the option.

viminfo-r

r Removable media. The argument is a string (up to the next
','). This parameter can be given several times. Each
specifies the start of a path for which no marks will be
stored. This is to avoid removable media. For MS-DOS you
could use "ra:,rb:", for Amiga "rdf0:,rdf1:,rdf2:". You can
also use it for temp files, e.g., for Unix: "r/tmp". Case is

ignored. Maximum length of each 'r' argument is 50 characters.

viminfo-s

s Maximum size of an item in Kbyte. If zero then registers are not saved. Currently only applies to registers. The default "s10" will exclude registers with more than 10 Kbyte of text. Also see the '<' item above: line count limit.

Example:

```
:set viminfo='50,<1000,s100,:0,n~/vim/viminfo
```

'50	Marks will be remembered for the last 50 files you edited.
<1000	Contents of registers (up to 1000 lines each) will be remembered.
s100	Registers with more than 100 Kbyte text are skipped.
:0	Command-line history will not be saved.
n~/vim/viminfo	The name of the file to use is "~/vim/viminfo".
no /	Since '/' is not specified, the default will be used, that is, save all of the search history, and also the previous search and substitute patterns.
no %	The buffer list will not be saved nor read back.
no h	'hlsearch' highlighting will be restored.

When setting 'viminfo' from an empty value you can use :rviminfo to load the contents of the file, this is not done automatically.

This option cannot be set from a modeline or in the sandbox, for security reasons.

NOTE: This option is set to the Vim default value when 'compatible' is reset.

'viminfofile' 'vif'

'viminfofile' 'vif' string (default: "")
global
{not in Vi}
{not available when compiled without the +viminfo feature}

When non-empty, overrides the file name used for viminfo.
When equal to "NONE" no viminfo file will be read or written.
This option can be set with the -i command line flag. The --clean command line flag sets it to "NONE".

'virtualedit' 've'

'virtualedit' 've' string (default "")
global
{not in Vi}
{not available when compiled without the +virtualedit feature}

A comma separated list of these words:

block	Allow virtual editing in Visual block mode.
insert	Allow virtual editing in Insert mode.
all	Allow virtual editing in all modes.
onemore	Allow the cursor to move just past the end of the line

Virtual editing means that the cursor can be positioned where there is no actual character. This can be halfway into a tab or beyond the end of the line. Useful for selecting a rectangle in Visual mode and editing a table.
"onemore" is not the same, it will only allow moving the cursor just after the last character of the line. This makes some commands more consistent. Previously the cursor was always past the end of the line if the line was empty. But it is far from Vi compatible. It may also break some plugins or Vim scripts. For example because `l` can move the cursor after the last character. Use with care!
Using the `$` command will move to the last character in the line, not past it. This may actually move the cursor to the left!
The `g$` command will move to the end of the screen line.
It doesn't make sense to combine "all" with "onemore", but you will not get a warning for it.
NOTE: This option is set to "" when 'compatible' is set.

'visualbell' 'vb' 'novisualbell' 'novb' beep
'visualbell' 'vb' boolean (default off)
global
{not in Vi}

Use a visual bell instead of beeping. The terminal code to display the visual bell is given with 't_vb'. When no beep or flash is wanted, use:

```
:set vb t_vb=
```

If you want a short flash, you can use this on many terminals:

```
:set vb t_vb=?[?5h$<100>?[?5l
```

Here $<100> specifies the time, you can use a smaller or bigger value to get a shorter or longer flash.

Note: Vim will limit the bell to once per half a second. This avoids having to wait for the flashing to finish when there are lots of bells, e.g. on key repeat. This also happens without 'visualbell' set.

In the GUI, 't_vb' defaults to "<Esc>|f", which inverts the display for 20 msec. If you want to use a different time, use "<Esc>|40f", where 40 is the time in msec.

Note: When the GUI starts, 't_vb' is reset to its default value. You might want to set it again in your `gvimrc` .

Does not work on the Amiga, you always get a screen flash.
Also see 'errorbells'.

'warn' 'nowarn'
'warn' boolean (default on)
global

Give a warning message when a shell command is used while the buffer has been changed.

'weirdinvert' 'wiv' 'noweirdinvert' 'nowiv'
'weirdinvert' 'wiv' boolean (default off)

```
                        global
                        {not in Vi}
        This option has the same effect as the 't_xs' terminal option.
        It is provided for backwards compatibility with version 4.x.
        Setting 'weirdinvert' has the effect of making 't_xs' non-empty, and
        vice versa.  Has no effect when the GUI is running.

                                                    'whichwrap'   'ww'
'whichwrap' 'ww'        string  (Vim default: "b,s", Vi default: "")
                        global
                        {not in Vi}
        Allow specified keys that move the cursor left/right to move to the
        previous/next line when the cursor is on the first/last character in
        the line.  Concatenate characters to allow this for these keys:
                char   key        mode
                 b    <BS>       Normal and Visual
                 s    <Space>    Normal and Visual
                 h    "h"        Normal and Visual (not recommended)
                 l    "l"        Normal and Visual (not recommended)
                 <    <Left>     Normal and Visual
                 >    <Right>    Normal and Visual
                 ~    "~"        Normal
                 [    <Left>     Insert and Replace
                 ]    <Right>    Insert and Replace
        For example:
                :set ww=<,>,[,]
       allows wrap only when cursor keys are used.
        When the movement keys are used in combination with a delete or change
        operator, the <EOL> also counts for a character.  This makes "3h"
        different from "3dh" when the cursor crosses the end of a line.  This
        is also true for "x" and "X", because they do the same as "dl" and
        "dh".  If you use this, you may also want to use the mapping
        ":map <BS> X" to make backspace delete the character in front of the
        cursor.
        When 'l' is included and it is used after an operator at the end of a
        line then it will not move to the next line.  This makes "dl", "cl",
        "yl" etc. work normally.
        NOTE: This option is set to the Vi default value when 'compatible' is
        set and to the Vim default value when 'compatible' is reset.

                                                    'wildchar'   'wc'
'wildchar' 'wc'         number  (Vim default: <Tab>, Vi default: CTRL-E)
                        global
                        {not in Vi}
        Character you have to type to start wildcard expansion in the
        command-line, as specified with 'wildmode'.
        More info here:  cmdline-completion .
        The character is not recognized when used inside a macro.  See
        'wildcharm' for that.
        Although 'wc' is a number option, you can set it to a special key:
                :set wc=<Esc>
       NOTE: This option is set to the Vi default value when 'compatible' is
        set and to the Vim default value when 'compatible' is reset.
```

'wildcharm' 'wcm'
'wildcharm' 'wcm'	number (default: none (0))
global
{not in Vi}
'wildcharm' works exactly like 'wildchar', except that it is recognized when used inside a macro. You can find "spare" command-line keys suitable for this option by looking at ex-edit-index . Normally you'll never actually type 'wildcharm', just use it in mappings that automatically invoke completion mode, e.g.:
:set wcm=<C-Z>
:cnoremap ss so $vim/sessions/*.vim<C-Z>
Then after typing :ss you can use CTRL-P & CTRL-N.

'wildignore' 'wig'
'wildignore' 'wig'	string (default "")
global
{not in Vi}
{not available when compiled without the +wildignore feature}
A list of file patterns. A file that matches with one of these patterns is ignored when expanding wildcards , completing file or directory names, and influences the result of expand() , glob() and globpath() unless a flag is passed to disable this.
The pattern is used like with :autocmd , see autocmd-patterns .
Also see 'suffixes'.
Example:
:set wildignore=*.o,*.obj
The use of :set+= and :set-= is preferred when adding or removing a pattern from the list. This avoids problems when a future version uses another default.

'wildignorecase' 'wic' 'nowildignorecase' 'nowic'
'wildignorecase' 'wic'	boolean (default off)
global
{not in Vi}
When set case is ignored when completing file names and directories.
Has no effect when 'fileignorecase' is set.
Does not apply when the shell is used to expand wildcards, which happens when there are special characters.

'wildmenu' 'wmnu' 'nowildmenu' 'nowmnu'
'wildmenu' 'wmnu'	boolean (default off, set in defaults.vim)
global
{not in Vi}
{not available if compiled without the +wildmenu feature}
When 'wildmenu' is on, command-line completion operates in an enhanced mode. On pressing 'wildchar' (usually <Tab>) to invoke completion, the possible matches are shown just above the command line, with the first match highlighted (overwriting the status line, if there is one). Keys that show the previous/next match, such as <Tab> or CTRL-P/CTRL-N, cause the highlight to move to the appropriate match.

When 'wildmode' is used, "wildmenu" mode is used where "full" is
specified. "longest" and "list" do not start "wildmenu" mode.
You can check the current mode with wildmenumode() .
If there are more matches than can fit in the line, a ">" is shown on
the right and/or a "<" is shown on the left. The status line scrolls
as needed.
The "wildmenu" mode is abandoned when a key is hit that is not used
for selecting a completion.
While the "wildmenu" is active the following keys have special
meanings:

<Left> <Right> - select previous/next match (like CTRL-P/CTRL-N)
<Down>   - in filename/menu name completion: move into a
                  subdirectory or submenu.
<CR>   - in menu completion, when the cursor is just after a
                  dot: move into a submenu.
<Up>   - in filename/menu name completion: move up into
                  parent directory or parent menu.

This makes the menus accessible from the console console-menus .

If you prefer the <Left> and <Right> keys to move the cursor instead
of selecting a different match, use this:
        :cnoremap <Left> <Space><BS><Left>
        :cnoremap <Right> <Space><BS><Right>

The "WildMenu" highlighting is used for displaying the current match
 hl-WildMenu .

                                                'wildmode'   'wim'
'wildmode' 'wim'   string (Vim default: "full")
                        global
                        {not in Vi}
Completion mode that is used for the character specified with
'wildchar'. It is a comma separated list of up to four parts. Each
part specifies what to do for each consecutive use of 'wildchar'. The
first part specifies the behavior for the first use of 'wildchar',
The second part for the second use, etc.
These are the possible values for each part:
""   Complete only the first match.
"full"   Complete the next full match. After the last match,
                the original string is used and then the first match
                again.
"longest"   Complete till longest common string. If this doesn't
                result in a longer string, use the next part.
"longest:full" Like "longest", but also start 'wildmenu' if it is
                enabled.
"list"   When more than one match, list all matches.
"list:full"   When more than one match, list all matches and
                complete first match.
"list:longest" When more than one match, list all matches and
                complete till longest common string.
When there is only a single match, it is fully completed in all cases.

```
        Examples:
                :set wildmode=full
        Complete first full match, next match, etc.  (the default)
                :set wildmode=longest,full
        Complete longest common string, then each full match
                :set wildmode=list:full
        List all matches and complete each full match
                :set wildmode=list,full
        List all matches without completing, then each full match
                :set wildmode=longest,list
        Complete longest common string, then list alternatives.
        More info here:  cmdline-completion .

                                                    'wildoptions'   'wop'
'wildoptions' 'wop'     string  (default "")
                        global
                        {not in Vi}
                        {not available when compiled without the  +wildignore
                        feature}
        A list of words that change how command line completion is done.
        Currently only one word is allowed:
          tagfile       When using CTRL-D to list matching tags, the kind of
                        tag and the file of the tag is listed.  Only one match
                        is displayed per line.  Often used tag kinds are:
                                d       #define
                                f       function
        Also see  cmdline-completion .

                                                    'winaltkeys'   'wak'
'winaltkeys' 'wak'      string  (default "menu")
                        global
                        {not in Vi}
                        {only used in Win32, Motif, GTK and Photon GUI}
        Some GUI versions allow the access to menu entries by using the ALT
        key in combination with a character that appears underlined in the
        menu.  This conflicts with the use of the ALT key for mappings and
        entering special characters.  This option tells what to do:
          no    Don't use ALT keys for menus.  ALT key combinations can be
                mapped, but there is no automatic handling.  This can then be
                done with the  :simalt  command.
          yes   ALT key handling is done by the windowing system.  ALT key
                combinations cannot be mapped.
          menu  Using ALT in combination with a character that is a menu
                shortcut key, will be handled by the windowing system.  Other
                keys can be mapped.
        If the menu is disabled by excluding 'm' from 'guioptions', the ALT
        key is never used for the menu.
        This option is not used for <F10>; on Win32 and with GTK <F10> will
        select the menu, unless it has been mapped.

                                                    'window'   'wi'
'window' 'wi'           number  (default screen height - 1)
                        global
        Window height.  Do not confuse this with the height of the Vim window,
```

use 'lines' for that.
Used for CTRL-F and CTRL-B when there is only one window and the value is smaller than 'lines' minus one. The screen will scroll 'window' minus two lines, with a minimum of one.
When 'window' is equal to 'lines' minus one CTRL-F and CTRL-B scroll in a much smarter way, taking care of wrapping lines.
When resizing the Vim window, the value is smaller than 1 or more than or equal to 'lines' it will be set to 'lines' minus 1.
{Vi also uses the option to specify the number of displayed lines}

'winheight' 'wh' E591
'winheight' 'wh' number (default 1)
global
{not in Vi}
{not available when compiled without the +windows feature}
Minimal number of lines for the current window. This is not a hard minimum, Vim will use fewer lines if there is not enough room. If the focus goes to a window that is smaller, its size is increased, at the cost of the height of other windows.
Set 'winheight' to a small number for normal editing.
Set it to 999 to make the current window fill most of the screen.
Other windows will be only 'winminheight' high. This has the drawback that ":all" will create only two windows. To avoid "vim -o 1 2 3 4" to create only two windows, set the option after startup is done, using the VimEnter event:

```
au VimEnter * set winheight=999
```

Minimum value is 1.
The height is not adjusted after one of the commands that change the height of the current window.
'winheight' applies to the current window. Use 'winminheight' to set the minimal height for other windows.

'winfixheight' 'wfh' 'nowinfixheight' 'nowfh'
'winfixheight' 'wfh' boolean (default off)
local to window
{not in Vi}
{not available when compiled without the +windows feature}
Keep the window height when windows are opened or closed and 'equalalways' is set. Also for CTRL-W_= . Set by default for the preview-window and quickfix-window .
The height may be changed anyway when running out of room.

'winfixwidth' 'wfw' 'nowinfixwidth' 'nowfw'
'winfixwidth' 'wfw' boolean (default off)
local to window
{not in Vi}
{not available when compiled without the +windows feature}
Keep the window width when windows are opened or closed and 'equalalways' is set. Also for CTRL-W_= .
The width may be changed anyway when running out of room.

'winminheight' 'wmh'
'winminheight' 'wmh' number (default 1)
global
{not in Vi}
{not available when compiled without the +windows
feature}
The minimal height of a window, when it's not the current window.
This is a hard minimum, windows will never become smaller.
When set to zero, windows may be "squashed" to zero lines (i.e. just a
status bar) if necessary. They will return to at least one line when
they become active (since the cursor has to have somewhere to go.)
Use 'winheight' to set the minimal height of the current window.
This option is only checked when making a window smaller. Don't use a
large number, it will cause errors when opening more than a few
windows. A value of 0 to 3 is reasonable.

'winminwidth' 'wmw'
'winminwidth' 'wmw' number (default 1)
global
{not in Vi}
{not available when compiled without the +vertsplit
feature}
The minimal width of a window, when it's not the current window.
This is a hard minimum, windows will never become smaller.
When set to zero, windows may be "squashed" to zero columns (i.e. just
a vertical separator) if necessary. They will return to at least one
line when they become active (since the cursor has to have somewhere
to go.)
Use 'winwidth' to set the minimal width of the current window.
This option is only checked when making a window smaller. Don't use a
large number, it will cause errors when opening more than a few
windows. A value of 0 to 12 is reasonable.

'winptydll'
'winptydll' string (default "winpty32.dll" or "winpty64.dll")
global
{not in Vi}
{only available when compiled with the terminal
feature on MS-Windows}
Specifies the name of the winpty shared library, used for the
:terminal command. The default depends on whether was build as a
32-bit or 64-bit executable. If not found, "winpty.dll" is tried as
a fallback.
Environment variables are expanded :set_env .
This option cannot be set from a modeline or in the sandbox , for
security reasons.

'winwidth' 'wiw' E592
'winwidth' 'wiw' number (default 20)
global
{not in Vi}
{not available when compiled without the +vertsplit
feature}
Minimal number of columns for the current window. This is not a hard

minimum, Vim will use fewer columns if there is not enough room. If the current window is smaller, its size is increased, at the cost of the width of other windows. Set it to 999 to make the current window always fill the screen. Set it to a small number for normal editing. The width is not adjusted after one of the commands to change the width of the current window.
'winwidth' applies to the current window. Use 'winminwidth' to set the minimal width for other windows.

'wrap' 'nowrap'

'wrap' boolean (default on)
local to window
{not in Vi}
This option changes how text is displayed. It doesn't change the text in the buffer, see 'textwidth' for that.
When on, lines longer than the width of the window will wrap and displaying continues on the next line. When off lines will not wrap and only part of long lines will be displayed. When the cursor is moved to a part that is not shown, the screen will scroll horizontally.
The line will be broken in the middle of a word if necessary. See 'linebreak' to get the break at a word boundary.
To make scrolling horizontally a bit more useful, try this:

```
:set sidescroll=5
:set listchars+=precedes:<,extends:>
```

See 'sidescroll', 'listchars' and wrap-off .
This option can't be set from a modeline when the 'diff' option is on.

'wrapmargin' 'wm'

'wrapmargin' 'wm' number (default 0)
local to buffer
Number of characters from the right window border where wrapping starts. When typing text beyond this limit, an <EOL> will be inserted and inserting continues on the next line.
Options that add a margin, such as 'number' and 'foldcolumn', cause the text width to be further reduced. This is Vi compatible.
When 'textwidth' is non-zero, this option is not used.
This option is set to 0 when 'paste' is set and restored when 'paste' is reset.
See also 'formatoptions' and ins-textwidth . {Vi: works differently and less usefully}

'wrapscan' 'ws' 'nowrapscan' 'nows'

'wrapscan' 'ws' boolean (default on) E384 E385
global
Searches wrap around the end of the file. Also applies to]s and [s , searching for spelling mistakes.

'write' 'nowrite'

'write' boolean (default on)
global
{not in Vi}
Allows writing files. When not set, writing a file is not allowed.

Can be used for a view-only mode, where modifications to the text are still allowed. Can be reset with the -m or -M command line argument. Filtering text is still possible, even though this requires writing a temporary file.

'writeany' 'wa' 'nowriteany' 'nowa'
'writeany' 'wa' boolean (default off)
global
Allows writing to any file with no need for "!" override.

'writebackup' 'wb' 'nowritebackup' 'nowb'
'writebackup' 'wb' boolean (default on with +writebackup feature, off otherwise)
global
{not in Vi}
Make a backup before overwriting a file. The backup is removed after the file was successfully written, unless the 'backup' option is also on.
WARNING: Switching this option off means that when Vim fails to write your buffer correctly and then, for whatever reason, Vim exits, you lose both the original file and what you were writing. Only reset this option if your file system is almost full and it makes the write fail (and make sure not to exit Vim until the write was successful). See backup-table for another explanation.
When the 'backupskip' pattern matches, a backup is not made anyway.
NOTE: This option is set to the default value when 'compatible' is set.

'writedelay' 'wd'
'writedelay' 'wd' number (default 0)
global
{not in Vi}
The number of milliseconds to wait for each character sent to the screen. When non-zero, characters are sent to the terminal one by one. For MS-DOS pcterm this does not work. For debugging purposes.

vim:tw=78:ts=8:noet:ft=help:norl:

pattern.txt For Vim version 8.1. Last change: 2018 Mar 13

VIM REFERENCE MANUAL by Bram Moolenaar

Patterns and search commands pattern-searches

The very basics can be found in section 03.9 of the user manual. A few more explanations are in chapter 27 usr_27.txt .

==========

1. Search commands search-commands

/

/{pattern}[/]<CR> Search forward for the [count]'th occurrence of {pattern} exclusive .

/{pattern}/{offset}<CR> Search forward for the [count]'th occurrence of {pattern} and go {offset} lines up or down. linewise .

/<CR>

/<CR> Search forward for the [count]'th occurrence of the latest used pattern last-pattern with latest used {offset} .

//{offset}<CR> Search forward for the [count]'th occurrence of the latest used pattern last-pattern with new {offset} . If {offset} is empty no offset is used.

?

?{pattern}[?]<CR> Search backward for the [count]'th previous occurrence of {pattern} exclusive .

?{pattern}?{offset}<CR> Search backward for the [count]'th previous occurrence of {pattern} and go {offset} lines up or down linewise .

?<CR>

?<CR> Search backward for the [count]'th occurrence of the latest used pattern last-pattern with latest used {offset} .

??{offset}<CR>		Search backward for the [count]'th occurrence of the
latest used pattern last-pattern with new
 {offset} . If {offset} is empty no offset is used.

n

n		Repeat the latest "/" or "?" [count] times.
If the cursor doesn't move the search is repeated with
count + 1.
 last-pattern {Vi: no count}

N

N		Repeat the latest "/" or "?" [count] times in
opposite direction. last-pattern {Vi: no count}

star E348 E349

*		Search forward for the [count]'th occurrence of the
word nearest to the cursor. The word used for the
search is the first of:
	1. the keyword under the cursor 'iskeyword'
	2. the first keyword after the cursor, in the
	   current line
	3. the non-blank word under the cursor
	4. the first non-blank word after the cursor,
	   in the current line
Only whole keywords are searched for, like with the
command "/\<keyword\>". exclusive {not in Vi}
'ignorecase' is used, 'smartcase' is not.

#

#		Same as "*", but search backward. The pound sign
(character 163) also works. If the "#" key works as
backspace, try using "stty erase <BS>" before starting
Vim (<BS> is CTRL-H or a real backspace). {not in Vi}

gstar

g*		Like "*", but don't put "\<" and "\>" around the word.
This makes the search also find matches that are not a
whole word. {not in Vi}

g#

g#		Like "#", but don't put "\<" and "\>" around the word.
This makes the search also find matches that are not a
whole word. {not in Vi}

gd

gd		Goto local Declaration. When the cursor is on a local
variable, this command will jump to its declaration.
First Vim searches for the start of the current
function, just like "[[". If it is not found the
search stops in line 1. If it is found, Vim goes back
until a blank line is found. From this position Vim
searches for the keyword under the cursor, like with
"*", but lines that look like a comment are ignored

(see 'comments' option).
Note that this is not guaranteed to work, Vim does not really check the syntax, it only searches for a match with the keyword. If included files also need to be searched use the commands listed in include-search .
After this command n searches forward for the next match (not backward).
{not in Vi}

gD

gD Goto global Declaration. When the cursor is on a global variable that is defined in the file, this command will jump to its declaration. This works just like "gd", except that the search for the keyword always starts in line 1. {not in Vi}

1gd

1gd Like "gd", but ignore matches inside a {} block that ends before the cursor position. {not in Vi}

1gD

1gD Like "gD", but ignore matches inside a {} block that ends before the cursor position. {not in Vi}

CTRL-C

CTRL-C Interrupt current (search) command. Use CTRL-Break on MS-DOS dos-CTRL-Break .
In Normal mode, any pending command is aborted.

:noh :nohlsearch

:noh[lsearch] Stop the highlighting for the 'hlsearch' option. It is automatically turned back on when using a search command, or setting the 'hlsearch' option.
This command doesn't work in an autocommand, because the highlighting state is saved and restored when executing autocommands autocmd-searchpat .
Same thing for when invoking a user function.

While typing the search pattern the current match will be shown if the 'incsearch' option is on. Remember that you still have to finish the search command with <CR> to actually position the cursor at the displayed match. Or use <Esc> to abandon the search.

All matches for the last used search pattern will be highlighted if you set the 'hlsearch' option. This can be suspended with the :nohlsearch command.

When no match is found you get the error: E486 Pattern not found
Note that for the :global command this behaves like a normal message, for Vi compatibility. For the :s command the "e" flag can be used to avoid the error message :s_flags .

search-offset {offset}

These commands search for the specified pattern. With "/" and "?" an additional offset may be given. There are two types of offsets: line offsets

and character offsets. {the character offsets are not in Vi}

The offset gives the cursor position relative to the found match:
```
    [num]       [num] lines downwards, in column 1
    +[num]      [num] lines downwards, in column 1
    -[num]      [num] lines upwards, in column 1
    e[+num]     [num] characters to the right of the end of the match
    e[-num]     [num] characters to the left of the end of the match
    s[+num]     [num] characters to the right of the start of the match
    s[-num]     [num] characters to the left of the start of the match
    b[+num]     [num] identical to s[+num] above (mnemonic: begin)
    b[-num]     [num] identical to s[-num] above (mnemonic: begin)
    ;{pattern}  perform another search, see  //;
```

If a '-' or '+' is given but [num] is omitted, a count of one will be used.
When including an offset with 'e', the search becomes inclusive (the
character the cursor lands on is included in operations).

Examples:

```
pattern                 cursor position
/test/+1                one line below "test", in column 1
/test/e                 on the last t of "test"
/test/s+2               on the 's' of "test"
/test/b-3               three characters before "test"
```

If one of these commands is used after an operator, the characters between
the cursor position before and after the search is affected. However, if a
line offset is given, the whole lines between the two cursor positions are
affected.

An example of how to search for matches with a pattern and change the match
with another word:
```
        /foo<CR>        find "foo"
        c//e<CR>        change until end of match
        bar<Esc>        type replacement
        //<CR>          go to start of next match
        c//e<CR>        change until end of match
        beep<Esc>       type another replacement
                        etc.
```

                                                                //;   E386
A very special offset is ';' followed by another search command. For example:

```
   /test 1/;/test
   /test.*/+1;?ing?
```

The first one first finds the next occurrence of "test 1", and then the first
occurrence of "test" after that.

This is like executing two search commands after each other, except that:
- It can be used as a single motion command after an operator.
- The direction for a following "n" or "N" command comes from the first
  search command.

- When an error occurs the cursor is not moved at all.

last-pattern

The last used pattern and offset are remembered. They can be used to repeat the search, possibly in another direction or with another count. Note that two patterns are remembered: One for 'normal' search commands and one for the substitute command ":s". Each time an empty pattern is given, the previously used pattern is used. However, if there is no previous search command, a previous substitute pattern is used, if possible.

The 'magic' option sticks with the last used pattern. If you change 'magic', this will not change how the last used pattern will be interpreted.
The 'ignorecase' option does not do this. When 'ignorecase' is changed, it will result in the pattern to match other text.

All matches for the last used search pattern will be highlighted if you set the 'hlsearch' option.

To clear the last used search pattern:
```
:let @/ = ""
```
This will not set the pattern to an empty string, because that would match everywhere. The pattern is really cleared, like when starting Vim.

The search usually skips matches that don't move the cursor. Whether the next match is found at the next character or after the skipped match depends on the 'c' flag in 'cpoptions'. See cpo-c .
```
          with 'c' flag:   "/..." advances 1 to 3 characters
       without 'c' flag:   "/..." advances 1 character
```
The unpredictability with the 'c' flag is caused by starting the search in the first column, skipping matches until one is found past the cursor position.

When searching backwards, searching starts at the start of the line, using the 'c' flag in 'cpoptions' as described above. Then the last match before the cursor position is used.

In Vi the ":tag" command sets the last search pattern when the tag is searched for. In Vim this is not done, the previous search pattern is still remembered, unless the 't' flag is present in 'cpoptions'. The search pattern is always put in the search history.

If the 'wrapscan' option is on (which is the default), searches wrap around the end of the buffer. If 'wrapscan' is not set, the backward search stops at the beginning and the forward search stops at the end of the buffer. If 'wrapscan' is set and the pattern was not found the error message "pattern not found" is given, and the cursor will not be moved. If 'wrapscan' is not set the message becomes "search hit BOTTOM without match" when searching forward, or "search hit TOP without match" when searching backward. If wrapscan is set and the search wraps around the end of the file the message "search hit TOP, continuing at BOTTOM" or "search hit BOTTOM, continuing at TOP" is given when searching backwards or forwards respectively. This can be switched off by setting the 's' flag in the 'shortmess' option. The highlight method 'w' is used for this message (default: standout).

search-range

You can limit the search command "/" to a certain range of lines by including
\%>l items. For example, to match the word "limit" below line 199 and above
line 300:
        /\%>199l\%<300llimit
Also see /\%>l .

Another way is to use the ":substitute" command with the 'c' flag. Example:
   :.,300s/Pattern//gc
This command will search from the cursor position until line 300 for
"Pattern". At the match, you will be asked to type a character. Type 'q' to
stop at this match, type 'n' to find the next match.

The "*", "#", "g*" and "g#" commands look for a word near the cursor in this
order, the first one that is found is used:
- The keyword currently under the cursor.
- The first keyword to the right of the cursor, in the same line.
- The WORD currently under the cursor.
- The first WORD to the right of the cursor, in the same line.
The keyword may only contain letters and characters in 'iskeyword'.
The WORD may contain any non-blanks (<Tab>s and/or <Space>s).
Note that if you type with ten fingers, the characters are easy to remember:
the "#" is under your left hand middle finger (search to the left and up) and
the "*" is under your right hand middle finger (search to the right and down).
(this depends on your keyboard layout though).

                                                                        E956
In very rare cases a regular expression is used recursively. This can happen
when executing a pattern takes a long time and when checkig for messages on
channels a callback is invoked that also uses a pattern or an autocommand is
triggered. In most cases this should be fine, but if a pattern is in use when
it's used again it fails. Usually this means there is something wrong with
the pattern.

==
2. The definition of a pattern   search-pattern   pattern   [pattern]
                                        regular-expression   regexp   Pattern
                                        E76   E383   E476

For starters, read chapter 27 of the user manual usr_27.txt .

                                                    /bar   /\bar   /pattern
1. A pattern is one or more branches, separated by "\|". It matches anything
   that matches one of the branches. Example: "foo\|beep" matches "foo" and
   matches "beep". If more than one branch matches, the first one is used.

   pattern ::=   branch
               or   branch \| branch
               or   branch \| branch \| branch
               etc.

                                                    /branch   /\&
2. A branch is one or more concats, separated by "\&". It matches the last
   concat, but only if all the preceding concats also match at the same
   position. Examples:

"foobeep\&..." matches "foo" in "foobeep".
".*Peter\&.*Bob" matches in a line containing both "Peter" and "Bob"

```
branch ::=      concat
            or  concat \& concat
            or  concat \& concat \& concat
            etc.
```

/concat

3. A concat is one or more pieces, concatenated. It matches a match for the first piece, followed by a match for the second piece, etc. Example: "f[0-9]b", first matches "f", then a digit and then "b".

```
concat  ::=     piece
            or  piece piece
            or  piece piece piece
            etc.
```

/piece

4. A piece is an atom, possibly followed by a multi, an indication of how many times the atom can be matched. Example: "a*" matches any sequence of "a" characters: "", "a", "aa", etc. See /multi .

```
piece   ::=     atom
            or  atom  multi
```

/atom

5. An atom can be one of a long list of items. Many atoms match one character in the text. It is often an ordinary character or a character class. Braces can be used to make a pattern into an atom. The "\z(\)" construct is only for syntax highlighting.

```
atom    ::=     ordinary-atom               /ordinary-atom
            or  \( pattern \)               /\(
            or  \%( pattern \)              /\%(
            or  \z( pattern \)              /\z(
```

/\%#= two-engines NFA

Vim includes two regexp engines:
1. An old, backtracking engine that supports everything.
2. A new, NFA engine that works much faster on some patterns, possibly slower on some patterns.

Vim will automatically select the right engine for you. However, if you run into a problem or want to specifically select one engine or the other, you can prepend one of the following to the pattern:

```
\%#=0   Force automatic selection.  Only has an effect when
        'regexpengine' has been set to a non-zero value.
\%#=1   Force using the old engine.
\%#=2   Force using the NFA engine.
```

You can also use the 'regexpengine' option to change the default.

E864 E868 E874 E875 E876 E877 E878
If selecting the NFA engine and it runs into something that is not implemented the pattern will not match. This is only useful when debugging Vim.

==========
3. Magic /magic

Some characters in the pattern are taken literally. They match with the same character in the text. When preceded with a backslash however, these characters get a special meaning.

Other characters have a special meaning without a backslash. They need to be preceded with a backslash to match literally.

If a character is taken literally or not depends on the 'magic' option and the items mentioned next.
/\m /\M
Use of "\m" makes the pattern after it be interpreted as if 'magic' is set, ignoring the actual value of the 'magic' option.
Use of "\M" makes the pattern after it be interpreted as if 'nomagic' is used.
/\v /\V
Use of "\v" means that in the pattern after it all ASCII characters except '0'-'9', 'a'-'z', 'A'-'Z' and '_' have a special meaning. "very magic"

Use of "\V" means that in the pattern after it only the backslash and the terminating character (/ or ?) has a special meaning. "very nomagic"

Examples:

after:	\v	\m 'magic'	\M 'nomagic'	\V	matches
	$	$	$	\$	matches end-of-line
	.	.	\.	\.	matches any character
	*	*	*	*	any number of the previous atom
	~	~	\~	\~	latest substitute string
	()	\(\)	\(\)	\(\)	grouping into an atom
	|	|	|	|	separating alternatives
	\a	\a	\a	\a	alphabetic character
	\\	\\	\\	\\	literal backslash
	\.	\.	.	.	literal dot
	\{	{	{	{	literal '{'
	a	a	a	a	literal 'a'

{only Vim supports \m, \M, \v and \V}

It is recommended to always keep the 'magic' option at the default setting, which is 'magic'. This avoids portability problems. To make a pattern immune to the 'magic' option being set or not, put "\m" or "\M" at the start of the pattern.

==========
4. Overview of pattern items pattern-overview
E865 E866 E867 E869

Overview of multi items. /multi E61 E62
More explanation and examples below, follow the links. E64 E871

```
          multi
    'magic' 'nomagic'  matches of the preceding atom
 /star  *       \*      0 or more       as many as possible
 /\+    \+      \+      1 or more       as many as possible (*)
 /\=    \=      \=      0 or 1          as many as possible (*)
 /\?    \?      \?      0 or 1          as many as possible (*)

 /\{    \{n,m}  \{n,m}  n to m          as many as possible (*)
        \{n}    \{n}    n               exactly (*)
        \{n,}   \{n,}   at least n      as many as possible (*)
        \{,m}   \{,m}   0 to m          as many as possible (*)
        \{}     \{}     0 or more       as many as possible (same as *) (*)

 /\{-   \{-n,m} \{-n,m} n to m          as few as possible (*)
        \{-n}   \{-n}   n               exactly (*)
        \{-n,}  \{-n,}  at least n      as few as possible (*)
        \{-,m}  \{-,m}  0 to m          as few as possible (*)
        \{-}    \{-}    0 or more       as few as possible (*)

                                                          E59
 /\@>   \@>     \@>     1, like matching a whole pattern (*)
 /\@=   \@=     \@=     nothing, requires a match  /zero-width  (*)
 /\@!   \@!     \@!     nothing, requires NO match  /zero-width  (*)
 /\@<=  \@<=    \@<=    nothing, requires a match behind  /zero-width  (*)
 /\@<!  \@<!    \@<!    nothing, requires NO match behind  /zero-width  (*)

(*) {not in Vi}
```

Overview of ordinary atoms. /ordinary-atom
More explanation and examples below, follow the links.

```
     ordinary atom
     magic   nomagic   matches
 /^     ^       ^       start-of-line (at start of pattern)  /zero-width
 /\^    \^      \^      literal '^'
 /\_^   \_^     \_^     start-of-line (used anywhere)  /zero-width
 /$     $       $       end-of-line (at end of pattern)  /zero-width
 /\$    \$      \$      literal '$'
 /\_$   \_$     \_$     end-of-line (used anywhere)  /zero-width
 /.     .       \.      any single character (not an end-of-line)
 /\_.   \_.     \_.     any single character or end-of-line
 /\<    \<      \<      beginning of a word  /zero-width
 /\>    \>      \>      end of a word  /zero-width
 /\zs   \zs     \zs     anything, sets start of match
 /\ze   \ze     \ze     anything, sets end of match
 /\%^   \%^     \%^     beginning of file  /zero-width          E71
 /\%$   \%$     \%$     end of file  /zero-width
 /\%V   \%V     \%V     inside Visual area  /zero-width
 /\%#   \%#     \%#     cursor position  /zero-width
 /\%'m  \%'m    \%'m    mark m position  /zero-width
```

```
 /\%l    \%23l    \%23l    in line 23  /zero-width
 /\%c    \%23c    \%23c    in column 23  /zero-width
 /\%v    \%23v    \%23v    in virtual column 23  /zero-width

Character classes {not in Vi}:                          /character-classes
      magic    nomagic    matches
 /\i     \i       \i       identifier character (see 'isident' option)
 /\I     \I       \I       like "\i", but excluding digits
 /\k     \k       \k       keyword character (see 'iskeyword' option)
 /\K     \K       \K       like "\k", but excluding digits
 /\f     \f       \f       file name character (see 'isfname' option)
 /\F     \F       \F       like "\f", but excluding digits
 /\p     \p       \p       printable character (see 'isprint' option)
 /\P     \P       \P       like "\p", but excluding digits
 /\s     \s       \s       whitespace character: <Space> and <Tab>
 /\S     \S       \S       non-whitespace character; opposite of \s
 /\d     \d       \d       digit:                              [0-9]
 /\D     \D       \D       non-digit:                          [^0-9]
 /\x     \x       \x       hex digit:                          [0-9A-Fa-f]
 /\X     \X       \X       non-hex digit:                      [^0-9A-Fa-f]
 /\o     \o       \o       octal digit:                        [0-7]
 /\O     \O       \O       non-octal digit:                    [^0-7]
 /\w     \w       \w       word character:                     [0-9A-Za-z_]
 /\W     \W       \W       non-word character:                 [^0-9A-Za-z_]
 /\h     \h       \h       head of word character:             [A-Za-z_]
 /\H     \H       \H       non-head of word character:         [^A-Za-z_]
 /\a     \a       \a       alphabetic character:               [A-Za-z]
 /\A     \A       \A       non-alphabetic character:           [^A-Za-z]
 /\l     \l       \l       lowercase character:                [a-z]
 /\L     \L       \L       non-lowercase character:            [^a-z]
 /\u     \u       \u       uppercase character:                [A-Z]
 /\U     \U       \U       non-uppercase character             [^A-Z]
 /\_     \_x      \_x      where x is any of the characters above: character
                           class with end-of-line included
(end of character classes)

      magic    nomagic    matches
 /\e     \e       \e       <Esc>
 /\t     \t       \t       <Tab>
 /\r     \r       \r       <CR>
 /\b     \b       \b       <BS>
 /\n     \n       \n       end-of-line
 /~      ~        \~       last given substitute string
 /\1     \1       \1       same string as matched by first \(\) {not in Vi}
 /\2     \2       \2       Like "\1", but uses second \(\)
          ...
 /\9     \9       \9       Like "\1", but uses ninth \(\)
                                                              E68
 /\z1    \z1      \z1      only for syntax highlighting, see  :syn-ext-match
          ...
 /\z1    \z9      \z9      only for syntax highlighting, see  :syn-ext-match

        x        x        a character with no special meaning matches itself
```

```
 /[]    []      \[]     any character specified inside the []
 /\%[]  \%[]    \%[]    a sequence of optionally matched atoms

 /\c    \c      \c      ignore case, do not use the 'ignorecase' option
 /\C    \C      \C      match case, do not use the 'ignorecase' option
 /\Z    \Z      \Z      ignore differences in Unicode "combining characters".
                        Useful when searching voweled Hebrew or Arabic text.

      magic   nomagic   matches
 /\m    \m      \m      'magic' on for the following chars in the pattern
 /\M    \M      \M      'magic' off for the following chars in the pattern
 /\v    \v      \v      the following chars in the pattern are "very magic"
 /\V    \V      \V      the following chars in the pattern are "very nomagic"
 /\%#=    \%#=1   \%#=1   select regexp engine  /zero-width

 /\%d   \%d     \%d     match specified decimal character (eg \%d123)
 /\%x   \%x     \%x     match specified hex character (eg \%x2a)
 /\%o   \%o     \%o     match specified octal character (eg \%o040)
 /\%u   \%u     \%u     match specified multibyte character (eg \%u20ac)
 /\%U   \%U     \%U     match specified large multibyte character (eg
                        \%U12345678)
 /\%C   \%C     \%C     match any composing characters

Example                 matches
\<\I\i*         or
\<\h\w*
\<[a-zA-Z_][a-zA-Z0-9_]*
                        An identifier (e.g., in a C program).

\(\.$\|\. \)            A period followed by <EOL> or a space.

[.!?][])"']*\($\|[ ]\)  A search pattern that finds the end of a sentence,
                        with almost the same definition as the ")" command.

cat\Z                   Both "cat" and "càt" ("a" followed by 0x0300)
                        Does not match "càt" (character 0x00e0), even
                        though it may look the same.


==============================================================================
5. Multi items                                          pattern-multi-items

An atom can be followed by an indication of how many times the atom can be
matched and in what way.  This is called a multi.  See  /multi  for an
overview.

                                                        /star   /\star
*       (use \* when 'magic' is not set)
        Matches 0 or more of the preceding atom, as many as possible.
        Example  'nomagic'      matches
        a*          a\*         "", "a", "aa", "aaa", etc.
        .*          \.\*        anything, also an empty string, no end-of-line
        \_.*        \_.\*       everything up to the end of the buffer
        \_.*END     \_.\*END    everything up to and including the last "END"
```

in the buffer

Exception: When "*" is used at the start of the pattern or just after "^" it matches the star character.

Be aware that repeating "_." can match a lot of text and take a long time. For example, "_.*END" matches all text from the current position to the last occurrence of "END" in the file. Since the "*" will match as many as possible, this first skips over all lines until the end of the file and then tries matching "END", backing up one character at a time.

/\+

\+ Matches 1 or more of the preceding atom, as many as possible. {not in Vi}

Example	matches
^.\+$	any non-empty line
\s\+	white space of at least one character

/\=

\= Matches 0 or 1 of the preceding atom, as many as possible. {not in Vi}

Example	matches
foo\=	"fo" and "foo"

/\?

\? Just like \=. Cannot be used when searching backwards with the "?" command. {not in Vi}

/\{ E60 E554 E870

\{n,m} Matches n to m of the preceding atom, as many as possible
\{n} Matches n of the preceding atom
\{n,} Matches at least n of the preceding atom, as many as possible
\{,m} Matches 0 to m of the preceding atom, as many as possible
\{} Matches 0 or more of the preceding atom, as many as possible (like *)

/\{-

\{-n,m} matches n to m of the preceding atom, as few as possible
\{-n} matches n of the preceding atom
\{-n,} matches at least n of the preceding atom, as few as possible
\{-,m} matches 0 to m of the preceding atom, as few as possible
\{-} matches 0 or more of the preceding atom, as few as possible
{Vi does not have any of these}

n and m are positive decimal numbers or zero

non-greedy

If a "-" appears immediately after the "{", then a shortest match first algorithm is used (see example below). In particular, "\{-}" is the same as "*" but uses the shortest match first algorithm. BUT: A match that starts earlier is preferred over a shorter match: "a\{-}b" matches "aaab" in "xaaab".

Example	matches
ab\{2,3}c	"abbc" or "abbbc"
a\{5}	"aaaaa"
ab\{2,}c	"abbc", "abbbc", "abbbbc", etc.

```
ab\{,3}c                "ac", "abc", "abbc" or "abbbc"
a[bc]\{3}d              "abbbd", "abbcd", "acbcd", "acccd", etc.
a\(bc\)\{1,2}d          "abcd" or "abcbcd"
a[bc]\{-}[cd]           "abc" in "abcd"
a[bc]*[cd]              "abcd" in "abcd"
```

The } may optionally be preceded with a backslash: \{n,m\}.

/\@=

\@= Matches the preceding atom with zero width. {not in Vi}
Like "(?=pattern)" in Perl.

```
Example                 matches
foo\(bar\)\@=           "foo" in "foobar"
foo\(bar\)\@=foo        nothing
```

/zero-width

When using "\@=" (or "^", "$", "\<", "\>") no characters are included in the match. These items are only used to check if a match can be made. This can be tricky, because a match with following items will be done in the same position. The last example above will not match "foobarfoo", because it tries match "foo" in the same position where "bar" matched.

Note that using "\&" works the same as using "\@=": "foo\&.." is the same as "\(foo\)\@=..". But using "\&" is easier, you don't need the braces.

/\@!

\@! Matches with zero width if the preceding atom does NOT match at the current position. /zero-width {not in Vi}
Like "(?!pattern)" in Perl.

```
Example                 matches
foo\(bar\)\@!           any "foo" not followed by "bar"
a.\{-}p\@!              "a", "ap", "app", "appp", etc. not immediately
                        followed by a "p"
if \(\(then\)\@!.\)*$   "if " not followed by "then"
```

Using "\@!" is tricky, because there are many places where a pattern does not match. "a.*p\@!" will match from an "a" to the end of the line, because ".*" can match all characters in the line and the "p" doesn't match at the end of the line. "a.\{-}p\@!" will match any "a", "ap", "app", etc. that isn't followed by a "p", because the "." can match a "p" and "p\@!" doesn't match after that.

You can't use "\@!" to look for a non-match before the matching position: "\(foo\)\@!bar" will match "bar" in "foobar", because at the position where "bar" matches, "foo" does not match. To avoid matching "foobar" you could use "\(foo\)\@!...bar", but that doesn't match a bar at the start of a line. Use "\(foo\)\@<!bar".

Useful example: to find "foo" in a line that does not contain "bar":

```
/^\%(.*bar\)\@!.*\zsfoo
```

This pattern first checks that there is not a single position in the line where "bar" matches. If ".*bar" matches somewhere the \@! will

reject the pattern. When there is no match any "foo" will be found.
The "\zs" is to have the match start just before "foo".

/\@<=

\@<=	Matches with zero width if the preceding atom matches just before what
follows. /zero-width {not in Vi}
Like "(?<=pattern)" in Perl, but Vim allows non-fixed-width patterns.
Example matches
\(an_s\+\)\@<=file "file" after "an" and white space or an
end-of-line
For speed it's often much better to avoid this multi. Try using "\zs"
instead /\zs . To match the same as the above example:
an_s\+\zsfile
At least set a limit for the look-behind, see below.

"\@<=" and "\@<!" check for matches just before what follows.
Theoretically these matches could start anywhere before this position.
But to limit the time needed, only the line where what follows matches
is searched, and one line before that (if there is one). This should
be sufficient to match most things and not be too slow.

In the old regexp engine the part of the pattern after "\@<=" and
"\@<!" are checked for a match first, thus things like "\1" don't work
to reference \(\) inside the preceding atom. It does work the other
way around:
Bad example matches
\%#=1\1\@<=,\([a-z]\+\) ",abc" in "abc,abc"

However, the new regexp engine works differently, it is better to not
rely on this behavior, do not use \@<= if it can be avoided:
Example matches
\([a-z]\+\)\zs,\1 ",abc" in "abc,abc"

\@123<=
Like "\@<=" but only look back 123 bytes. This avoids trying lots
of matches that are known to fail and make executing the pattern very
slow. Example, check if there is a "<" just before "span":
/<\@1<=span
This will try matching "<" only one byte before "span", which is the
only place that works anyway.
After crossing a line boundary, the limit is relative to the end of
the line. Thus the characters at the start of the line with the match
are not counted (this is just to keep it simple).
The number zero is the same as no limit.

/\@<!

\@<!	Matches with zero width if the preceding atom does NOT match just
before what follows. Thus this matches if there is no position in the
current or previous line where the atom matches such that it ends just
before what follows. /zero-width {not in Vi}
Like "(?<!pattern)" in Perl, but Vim allows non-fixed-width patterns.
The match with the preceding atom is made to end just before the match
with what follows, thus an atom that ends in ".*" will work.
Warning: This can be slow (because many positions need to be checked

for a match). Use a limit if you can, see below.

Example	matches
\(foo\)\@<!bar	any "bar" that's not in "foobar"
\(\/\/.*\)\@<!in	"in" which is not after "//"

\@123<!
Like "\@<!" but only look back 123 bytes. This avoids trying lots of matches that are known to fail and make executing the pattern very slow.

/\@>
\@> Matches the preceding atom like matching a whole pattern. {not in Vi} Like "(?>pattern)" in Perl.

Example	matches
\(a*\)\@>a	nothing (the "a*" takes all the "a"'s, there can't be another one following)

This matches the preceding atom as if it was a pattern by itself. If it doesn't match, there is no retry with shorter sub-matches or anything. Observe this difference: "a*b" and "a*ab" both match "aaab", but in the second case the "a*" matches only the first two "a"s. "\(a*\)\@>ab" will not match "aaab", because the "a*" matches the "aaa" (as many "a"s as possible), thus the "ab" can't match.

==========

6. Ordinary atoms pattern-atoms

An ordinary atom can be:

/^
^ At beginning of pattern or after "\|", "\(", "\%(" or "\n": matches start-of-line; at other positions, matches literal '^'. /zero-width

Example	matches
^beep(	the start of the C function "beep" (probably).

/\^
\^ Matches literal '^'. Can be used at any position in the pattern.

/_^
_^ Matches start-of-line. /zero-width Can be used at any position in the pattern.

Example	matches
_s*_^foo	white space and blank lines and then "foo" at start-of-line

/$
$ At end of pattern or in front of "\|", "\)" or "\n" ('magic' on): matches end-of-line <EOL>; at other positions, matches literal '$'. /zero-width

/\$
\$ Matches literal '$'. Can be used at any position in the pattern.

/_$

$ Matches end-of-line. /zero-width Can be used at any position in the pattern. Note that "a$b" never matches, since "b" cannot match an end-of-line. Use "a\nb" instead /\n .
Example matches
foo_$_s* "foo" at end-of-line and following white space and blank lines

. (with 'nomagic': \.) /. /\.
Matches any single character, but not an end-of-line.

/_.

_. Matches any single character or end-of-line.
Careful: "_.*" matches all text to the end of the buffer!

/\<

\< Matches the beginning of a word: The next char is the first char of a word. The 'iskeyword' option specifies what is a word character.
/zero-width

/\>

\> Matches the end of a word: The previous char is the last char of a word. The 'iskeyword' option specifies what is a word character.
/zero-width

/\zs

\zs Matches at any position, and sets the start of the match there: The next char is the first char of the whole match. /zero-width
Example:
/^\s*\zsif
matches an "if" at the start of a line, ignoring white space.
Can be used multiple times, the last one encountered in a matching branch is used. Example:
/\(.\{-}\zsFab\)\{3}
Finds the third occurrence of "Fab".
This cannot be followed by a multi. E888
{not in Vi} {not available when compiled without the |+syntax| feature}

/\ze

\ze Matches at any position, and sets the end of the match there: The previous char is the last char of the whole match. /zero-width
Can be used multiple times, the last one encountered in a matching branch is used.
Example: "end\ze\(if\|for\)" matches the "end" in "endif" and "endfor".
This cannot be followed by a multi. E888
{not in Vi} {not available when compiled without the |+syntax| feature}

/\%^ start-of-file

\%^ Matches start of the file. When matching with a string, matches the start of the string. {not in Vi}
For example, to find the first "VIM" in a file:
/\%^_.\{-}\zsVIM

/\%$ end-of-file

\%$	Matches end of the file. When matching with a string, matches the
	end of the string. {not in Vi}
	Note that this does NOT find the last "VIM" in a file:
		/VIM_.\{-}\%$
	It will find the next VIM, because the part after it will always
	match. This one will find the last "VIM" in the file:
		/VIM\ze\(\(VIM\)\@!_.\)*\%$
	This uses /\@! to ascertain that "VIM" does NOT match in any
	position after the first "VIM".
	Searching from the end of the file backwards is easier!

/\%V
\%V	Match inside the Visual area. When Visual mode has already been
	stopped match in the area that gv would reselect.
	This is a /zero-width match. To make sure the whole pattern is
	inside the Visual area put it at the start and just before the end of
	the pattern, e.g.:
		/\%Vfoo.*ba\%Vr
	This also works if only "foo bar" was Visually selected. This:
		/\%Vfoo.*bar\%V
	would match "foo bar" if the Visual selection continues after the "r".
	Only works for the current buffer.

/\%# cursor-position
\%#	Matches with the cursor position. Only works when matching in a
	buffer displayed in a window. {not in Vi}
	WARNING: When the cursor is moved after the pattern was used, the
	result becomes invalid. Vim doesn't automatically update the matches.
	This is especially relevant for syntax highlighting and 'hlsearch'.
	In other words: When the cursor moves the display isn't updated for
	this change. An update is done for lines which are changed (the whole
	line is updated) or when using the CTRL-L command (the whole screen
	is updated). Example, to highlight the word under the cursor:
		/\k*\%#\k*
	When 'hlsearch' is set and you move the cursor around and make changes
	this will clearly show when the match is updated or not.

/\%'m /\%<'m /\%>'m
\%'m	Matches with the position of mark m.
\%<'m	Matches before the position of mark m.
\%>'m	Matches after the position of mark m.
	Example, to highlight the text from mark 's to 'e:
		/.\%>'s.*\%<'e..
	Note that two dots are required to include mark 'e in the match. That
	is because "\%<'e" matches at the character before the 'e mark, and
	since it's a /zero-width match it doesn't include that character.
	{not in Vi}
	WARNING: When the mark is moved after the pattern was used, the result
	becomes invalid. Vim doesn't automatically update the matches.
	Similar to moving the cursor for "\%#" /\%# .

/\%l /\%>l /\%<l E951
\%23l	Matches in a specific line.
\%<23l	Matches above a specific line (lower line number).

\%>23l Matches below a specific line (higher line number).
        These three can be used to match specific lines in a buffer. The "23"
        can be any line number. The first line is 1. {not in Vi}
        WARNING: When inserting or deleting lines Vim does not automatically
        update the matches. This means Syntax highlighting quickly becomes
        wrong.
        Example, to highlight the line where the cursor currently is:
                :exe '/\%' . line(".") . 'l.*'
       When 'hlsearch' is set and you move the cursor around and make changes
        this will clearly show when the match is updated or not.

                                                /\%c   /\%>c   /\%<c
\%23c   Matches in a specific column.
\%<23c Matches before a specific column.
\%>23c Matches after a specific column.
        These three can be used to match specific columns in a buffer or
        string. The "23" can be any column number. The first column is 1.
        Actually, the column is the byte number (thus it's not exactly right
        for multi-byte characters). {not in Vi}
        WARNING: When inserting or deleting text Vim does not automatically
        update the matches. This means Syntax highlighting quickly becomes
        wrong.
        Example, to highlight the column where the cursor currently is:
                :exe '/\%' . col(".") . 'c'
       When 'hlsearch' is set and you move the cursor around and make changes
        this will clearly show when the match is updated or not.
        Example for matching a single byte in column 44:
                /\%>43c.\%<46c
       Note that "\%<46c" matches in column 45 when the "." matches a byte in
        column 44.
                                                /\%v   /\%>v   /\%<v
\%23v   Matches in a specific virtual column.
\%<23v Matches before a specific virtual column.
\%>23v Matches after a specific virtual column.
        These three can be used to match specific virtual columns in a buffer
        or string. When not matching with a buffer in a window, the option
        values of the current window are used (e.g., 'tabstop').
        The "23" can be any column number. The first column is 1.
        Note that some virtual column positions will never match, because they
        are halfway through a tab or other character that occupies more than
        one screen character. {not in Vi}
        WARNING: When inserting or deleting text Vim does not automatically
        update highlighted matches. This means Syntax highlighting quickly
        becomes wrong.
        Example, to highlight all the characters after virtual column 72:
                /\%>72v.*
       When 'hlsearch' is set and you move the cursor around and make changes
        this will clearly show when the match is updated or not.
        To match the text up to column 17:
                /^.*\%17v
       Column 17 is not included, because this is a /zero-width match. To
        include the column use:
                /^.*\%17v.
       This command does the same thing, but also matches when there is no

```
        character in column 17:
                /^.*\%<18v.
       Note that without the "^" to anchor the match in the first column,
        this will also highlight column 17:
                /.*\%17v
       Column 17 is highlighted by 'hlsearch' because there is another match
        where ".*" matches zero characters.
<

Character classes: {not in Vi}
\i      identifier character (see 'isident' option)      /\i
\I      like "\i", but excluding digits                  /\I
\k      keyword character (see 'iskeyword' option)       /\k
\K      like "\k", but excluding digits                  /\K
\f      file name character (see 'isfname' option)       /\f
\F      like "\f", but excluding digits                  /\F
\p      printable character (see 'isprint' option)       /\p
\P      like "\p", but excluding digits                  /\P

NOTE: the above also work for multi-byte characters.  The ones below only
match ASCII characters, as indicated by the range.

                                                 whitespace   white-space
\s      whitespace character: <Space> and <Tab>          /\s
\S      non-whitespace character; opposite of \s         /\S
\d      digit:                              [0-9]        /\d
\D      non-digit:                          [^0-9]       /\D
\x      hex digit:                          [0-9A-Fa-f]  /\x
\X      non-hex digit:                      [^0-9A-Fa-f] /\X
\o      octal digit:                        [0-7]        /\o
\O      non-octal digit:                    [^0-7]       /\O
\w      word character:                     [0-9A-Za-z_] /\w
\W      non-word character:                 [^0-9A-Za-z_] /\W
\h      head of word character:             [A-Za-z_]    /\h
\H      non-head of word character:         [^A-Za-z_]   /\H
\a      alphabetic character:               [A-Za-z]     /\a
\A      non-alphabetic character:           [^A-Za-z]    /\A
\l      lowercase character:                [a-z]        /\l
\L      non-lowercase character:            [^a-z]       /\L
\u      uppercase character:                [A-Z]        /\u
\U      non-uppercase character:            [^A-Z]       /\U

        NOTE: Using the atom is faster than the [] form.

        NOTE: 'ignorecase', "\c" and "\C" are not used by character classes.

                        /\_   E63   /\_i   /\_I   /\_k   /\_K   /\_f   /\_F
                        /\_p   /\_P   /\_s   /\_S   /\_d   /\_D   /\_x   /\_X
                        /\_o   /\_O   /\_w   /\_W   /\_h   /\_H   /\_a   /\_A
                        /\_l   /\_L   /\_u   /\_U
\_x     Where "x" is any of the characters above: The character class with
        end-of-line added
(end of character classes)
```

```
\e      matches <Esc>                                           /\e
\t      matches <Tab>                                           /\t
\r      matches <CR>                                            /\r
\b      matches <BS>                                            /\b
\n      matches an end-of-line                                  /\n
        When matching in a string instead of buffer text a literal newline
        character is matched.

~       matches the last given substitute string        /~   /\~

\(\)    A pattern enclosed by escaped parentheses.      /\(   /\(\)   /\)
        E.g., "\(^a\)" matches 'a' at the start of a line.
         E51   E54   E55   E872   E873

\1      Matches the same string that was matched by     /\1   E65
        the first sub-expression in \( and \). {not in Vi}
        Example: "\([a-z]\).\1" matches "ata", "ehe", "tot", etc.
\2      Like "\1", but uses second sub-expression,      /\2
   ...                                                  /\3
\9      Like "\1", but uses ninth sub-expression.       /\9
        Note: The numbering of groups is done based on which "\(" comes first
        in the pattern (going left to right), NOT based on what is matched
        first.

\%(\)   A pattern enclosed by escaped parentheses.      /\%(\)   /\%(   E53
        Just like \(\), but without counting it as a sub-expression.  This
        allows using more groups and it's a little bit faster.
        {not in Vi}

x       A single character, with no special meaning, matches itself

                                                        /\   /\\
\x      A backslash followed by a single character, with no special meaning,
        is reserved for future expansions

[]      (with 'nomagic': \[])           /[]   /\[]   /\_[]   /collection
\_[]
        A collection.  This is a sequence of characters enclosed in brackets.
        It matches any single character in the collection.
        Example         matches
        [xyz]           any 'x', 'y' or 'z'
        [a-zA-Z]$       any alphabetic character at the end of a line
        \c[a-z]$        same
        [A-яЁё]         Russian alphabet (with utf-8 and cp1251)

                                                                /[\n]
        With "\_" prepended the collection also includes the end-of-line.
        The same can be done by including "\n" in the collection.  The
        end-of-line is also matched when the collection starts with "^"!  Thus
        "\_[^ab]" matches the end-of-line and any character but "a" and "b".
        This makes it Vi compatible: Without the "\_" or "\n" the collection
        does not match an end-of-line.
                                                                E769
        When the ']' is not there Vim will not give an error message but
```

assume no collection is used. Useful to search for '['. However, you do get E769 for internal searching. And be aware that in a `:substitute` command the whole command becomes the pattern. E.g. ":s/[/x/" searches for "[/x" and replaces it with nothing. It does not search for "[" and replaces it with "x"!

E944 E945

If the sequence begins with "^", it matches any single character NOT in the collection: "[^xyz]" matches anything but 'x', 'y' and 'z'.

- If two characters in the sequence are separated by '-', this is shorthand for the full list of ASCII characters between them. E.g., "[0-9]" matches any decimal digit. If the starting character exceeds the ending character, e.g. [c-a], E944 occurs. Non-ASCII characters can be used, but the character values must not be more than 256 apart in the old regexp engine. For example, searching by [\u3000-\u4000] after setting re=1 emits a E945 error. Prepending \%#=2 will fix it.
- A character class expression is evaluated to the set of characters belonging to that character class. The following character classes are supported:

Name	Func	Contents
[:alnum:]	isalnum	ASCII letters and digits
[:alpha:]	isalpha	ASCII letters
[:blank:]		space and tab
[:cntrl:]	iscntrl	ASCII control characters
[:digit:]		decimal digits '0' to '9'
[:graph:]	isgraph	ASCII printable characters excluding space
[:lower:]	(1)	lowercase letters (all letters when 'ignorecase' is used)
[:print:]	(2)	printable characters including space
[:punct:]	ispunct	ASCII punctuation characters
[:space:]		whitespace characters: space, tab, CR, NL, vertical tab, form feed
[:upper:]	(3)	uppercase letters (all letters when 'ignorecase' is used)
[:xdigit:]		hexadecimal digits: 0-9, a-f, A-F
[:return:]		the <CR> character
[:tab:]		the <Tab> character
[:escape:]		the <Esc> character
[:backspace:]		the <BS> character

The brackets in character class expressions are additional to the brackets delimiting a collection. For example, the following is a plausible pattern for a UNIX filename: "[-./[:alnum:]_~]\+" That is, a list of at least one character, each of which is either '-', '.', '/', alphabetic, numeric, '_' or '~'.
These items only work for 8-bit characters, except [:lower:] and [:upper:] also work for multi-byte characters when using the new regexp engine. See two-engines . In the future these items may work for multi-byte characters. For now, to get all "alpha" characters you can use: [[:lower:][:upper:]].

The "Func" column shows what library function is used. The implementation depends on the system. Otherwise:
(1) Uses islower() for ASCII and Vim builtin rules for other

characters when built with the +multi_byte feature.
(2) Uses Vim builtin rules
(3) As with (1) but using isupper()

/[[= [==]

- An equivalence class. This means that characters are matched that have almost the same meaning, e.g., when ignoring accents. This only works for Unicode, latin1 and latin9. The form is:
  [=a=]

/[[. [..]

- A collation element. This currently simply accepts a single character in the form:
  [.a.]

/\]

- To include a literal ']', '^', '-' or '\' in the collection, put a backslash before it: "[xyz\]]", "[\^xyz]", "[xy\-z]" and "[xyz\\]". (Note: POSIX does not support the use of a backslash this way). For ']' you can also make it the first character (following a possible "^"): "[]xyz]" or "[^]xyz]" {not in Vi}.
  For '-' you can also make it the first or last character: "[-xyz]", "[^-xyz]" or "[xyz-]". For '\' you can also let it be followed by any character that's not in "^]-\bdertnoUux". "[\xyz]" matches '\', 'x', 'y' and 'z'. It's better to use "\\" though, future expansions may use other characters after '\'.
- Omitting the trailing] is not considered an error. "[]" works like "[]]", it matches the ']' character.
- The following translations are accepted when the 'l' flag is not included in 'cpoptions' {not in Vi}:

\e	<Esc>	
\t	<Tab>	
\r	<CR>	(NOT end-of-line!)
\b	<BS>	
\n	line break, see above	/[\n]
\d123	decimal number of character	
\o40	octal number of character up to 0377	
\x20	hexadecimal number of character up to 0xff	
\u20AC	hex. number of multibyte character up to 0xffff	
\U1234	hex. number of multibyte character up to 0xffffffff	

  NOTE: The other backslash codes mentioned above do not work inside []!
- Matching with a collection can be slow, because each character in the text has to be compared with each character in the collection. Use one of the other atoms above when possible. Example: "\d" is much faster than "[0-9]" and matches the same characters. However, the new NFA regexp engine deals with this better than the old one.

/\%[] E69 E70 E369

\%[] A sequence of optionally matched atoms. This always matches.
It matches as much of the list of atoms it contains as possible. Thus it stops at the first atom that doesn't match. For example:

```
/r\%[ead]
```

matches "r", "re", "rea" or "read". The longest that matches is used.
To match the Ex command "function", where "fu" is required and "nction" is optional, this would work:

```
/\<fu\%[nction]\>
```

The end-of-word atom "\>" is used to avoid matching "fu" in "full".
It gets more complicated when the atoms are not ordinary characters.
You don't often have to use it, but it is possible. Example:

```
/\<r\%[[eo]ad]\>
```

Matches the words "r", "re", "ro", "rea", "roa", "read" and "road".
There can be no \(\), \%(\) or \z(\) items inside the [] and \%[] does not nest.
To include a "[" use "[[]" and for "]" use []]", e.g.,:

```
/index\%[[[]0[]]]
```

matches "index" "index[", "index[0" and "index[0]".
{not available when compiled without the |+syntax| feature}

/\%d /\%x /\%o /\%u /\%U E678

\%d123 Matches the character specified with a decimal number. Must be followed by a non-digit.
\%o40 Matches the character specified with an octal number up to 0377. Numbers below 040 must be followed by a non-octal digit or a non-digit.
\%x2a Matches the character specified with up to two hexadecimal characters.
\%u20AC Matches the character specified with up to four hexadecimal characters.
\%U1234abcd Matches the character specified with up to eight hexadecimal characters.

==========

7. Ignoring case in a pattern /ignorecase

If the 'ignorecase' option is on, the case of normal letters is ignored.
'smartcase' can be set to ignore case when the pattern contains lowercase letters only.

/\c /\C

When "\c" appears anywhere in the pattern, the whole pattern is handled like 'ignorecase' is on. The actual value of 'ignorecase' and 'smartcase' is ignored. "\C" does the opposite: Force matching case for the whole pattern.
{only Vim supports \c and \C}
Note that 'ignorecase', "\c" and "\C" are not used for the character classes.

Examples:

pattern	'ignorecase'	'smartcase'	matches
foo	off	-	foo
foo	on	-	foo Foo FOO
Foo	on	off	foo Foo FOO
Foo	on	on	Foo
\cfoo	-	-	foo Foo FOO
foo\C	-	-	foo

Technical detail: NL-used-for-Nul
<Nul> characters in the file are stored as <NL> in memory. In the display they are shown as "^@". The translation is done when reading and writing files. To match a <Nul> with a search pattern you can just enter CTRL-@ or "CTRL-V 000". This is probably just what you expect. Internally the character is replaced with a <NL> in the search pattern. What is unusual is that typing CTRL-V CTRL-J also inserts a <NL>, thus also searches for a <Nul> in the file. {Vi cannot handle <Nul> characters in the file at all}

CR-used-for-NL

When 'fileformat' is "mac", <NL> characters in the file are stored as <CR> characters internally. In the text they are shown as "^J". Otherwise this works similar to the usage of <NL> for a <Nul>.

When working with expression evaluation, a <NL> character in the pattern matches a <NL> in the string. The use of "\n" (backslash n) to match a <NL> doesn't work there, it only works to match text in the buffer.

pattern-multi-byte

Patterns will also work with multi-byte characters, mostly as you would expect. But invalid bytes may cause trouble, a pattern with an invalid byte will probably never match.

==

8. Composing characters patterns-composing

/\Z

When "\Z" appears anywhere in the pattern, all composing characters are ignored. Thus only the base characters need to match, the composing characters may be different and the number of composing characters may differ. Only relevant when 'encoding' is "utf-8".
Exception: If the pattern starts with one or more composing characters, these must match.

/\%C

Use "\%C" to skip any composing characters. For example, the pattern "a" does not match in "càt" (where the a has the composing character 0x0300), but "a\%C" does. Note that this does not match "cát" (where the á is character 0xe1, it does not have a compositing character). It does match "cat" (where the a is just an a).

When a composing character appears at the start of the pattern of after an item that doesn't include the composing character, a match is found at any character that includes this composing character.

When using a dot and a composing character, this works the same as the composing character by itself, except that it doesn't matter what comes before this.

The order of composing characters does not matter. Also, the text may have more composing characters than the pattern, it still matches. But all composing characters in the pattern must be found in the text.

Suppose B is a base character and x and y are composing characters:

pattern	text	match
Bxy	Bxy	yes (perfect match)
Bxy	Byx	yes (order ignored)
Bxy	By	no (x missing)
Bxy	Bx	no (y missing)
Bx	Bx	yes (perfect match)
Bx	By	no (x missing)
Bx	Bxy	yes (extra y ignored)
Bx	Byx	yes (extra y ignored)

==
9. Compare with Perl patterns   perl-patterns

Vim's regexes are most similar to Perl's, in terms of what you can do. The
difference between them is mostly just notation; here's a summary of where
they differ:

Capability	in Vimspeak	in Perlspeak
force case insensitivity	\c	(?i)
force case sensitivity	\C	(?-i)
backref-less grouping	\%(atom\)	(?:atom)
conservative quantifiers	\{-n,m}	*?, +?, ??, {}?
0-width match	atom\@=	(?=atom)
0-width non-match	atom\@!	(?!atom)
0-width preceding match	atom\@<=	(?<=atom)
0-width preceding non-match	atom\@<!	(?<!atom)
match without retry	atom\@>	(?>atom)

Vim and Perl handle newline characters inside a string a bit differently:

In Perl, ^ and $ only match at the very beginning and end of the text,
by default, but you can set the 'm' flag, which lets them match at
embedded newlines as well. You can also set the 's' flag, which causes
a . to match newlines as well. (Both these flags can be changed inside
a pattern using the same syntax used for the i flag above, BTW.)

On the other hand, Vim's ^ and $ always match at embedded newlines, and
you get two separate atoms, \%^ and \%$, which only match at the very
start and end of the text, respectively. Vim solves the second problem
by giving you the _ "modifier": put it in front of a . or a character
class, and they will match newlines as well.

Finally, these constructs are unique to Perl:
- execution of arbitrary code in the regex: (?{perl code})
- conditional expressions: (?(condition)true-expr|false-expr)

...and these are unique to Vim:
- changing the magic-ness of a pattern: \v \V \m \M
   (very useful for avoiding backslashitis)
- sequence of optionally matching atoms: \%[atoms]
- \& (which is to \| what "and" is to "or"; it forces several branches
   to match at one spot)
- matching lines/columns by number: \%5l \%5c \%5v
- setting the start and end of the match: \zs \ze

==
10. Highlighting matches   match-highlight

                                                           :mat   :match
:mat[ch] {group} /{pattern}/
                Define a pattern to highlight in the current window. It will
                be highlighted with {group}. Example:

```
                :highlight MyGroup ctermbg=green guibg=green
                :match MyGroup /TODO/
            Instead of // any character can be used to mark the start and
            end of the {pattern}.  Watch out for using special characters,
            such as '"' and '|'.

            {group} must exist at the moment this command is executed.

            The {group} highlighting still applies when a character is
            to be highlighted for 'hlsearch', as the highlighting for
            matches is given higher priority than that of 'hlsearch'.
            Syntax highlighting (see 'syntax') is also overruled by
            matches.

            Note that highlighting the last used search pattern with
            'hlsearch' is used in all windows, while the pattern defined
            with ":match" only exists in the current window.  It is kept
            when switching to another buffer.

            'ignorecase' does not apply, use  /\c  in the pattern to
            ignore case.  Otherwise case is not ignored.

            'redrawtime' defines the maximum time searched for pattern
            matches.

            When matching end-of-line and Vim redraws only part of the
            display you may get unexpected results.  That is because Vim
            looks for a match in the line where redrawing starts.

            Also see  matcharg()  and  getmatches() . The former returns
            the highlight group and pattern of a previous  :match
            command.  The latter returns a list with highlight groups and
            patterns defined by both  matchadd()  and  :match .

            Highlighting matches using  :match  are limited to three
            matches (aside from  :match ,  :2match  and  :3match  are
            available).  matchadd()  does not have this limitation and in
            addition makes it possible to prioritize matches.

            Another example, which highlights all characters in virtual
            column 72 and more:
                :highlight rightMargin term=bold ctermfg=blue guifg=blue
                :match rightMargin /.\%>72v/
            To highlight all character that are in virtual column 7:
                :highlight col8 ctermbg=grey guibg=grey
                :match col8 /\%<8v.\%>7v/
            Note the use of two items to also match a character that
            occupies more than one virtual column, such as a TAB.

:mat[ch]
:mat[ch] none
            Clear a previously defined match pattern.
```

:2mat[ch] {group} /{pattern}/ :2match
:2mat[ch]
:2mat[ch] none
:3mat[ch] {group} /{pattern}/ :3match
:3mat[ch]
:3mat[ch] none

Just like :match above, but set a separate match. Thus there can be three matches active at the same time. The match with the lowest number has priority if several match at the same position.
The ":3match" command is used by the matchparen plugin. You are suggested to use ":match" for manual matching and ":2match" for another plugin.

vim:tw=78:ts=8:noet:ft=help:norl:

map.txt For Vim version 8.1. Last change: 2018 May 13

VIM REFERENCE MANUAL by Bram Moolenaar

Key mapping, abbreviations and user-defined commands.

This subject is introduced in sections 05.3 , 24.7 and 40.1 of the user manual.

==========

1. Key mapping key-mapping mapping macro

Key mapping is used to change the meaning of typed keys. The most common use is to define a sequence of commands for a function key. Example:

```
:map <F2> a<C-R>=strftime("%c")<CR><Esc>
```

This appends the current date and time after the cursor (in <> notation <>).

1.1 MAP COMMANDS :map-commands

There are commands to enter new mappings, remove mappings and list mappings. See map-overview for the various forms of "map" and their relationships with modes.

{lhs} means left-hand-side {lhs}
{rhs} means right-hand-side {rhs}

:map	{lhs} {rhs}	mapmode-nvo	:map
:nm[ap]	{lhs} {rhs}	mapmode-n	:nm :nmap
:vm[ap]	{lhs} {rhs}	mapmode-v	:vm :vmap
:xm[ap]	{lhs} {rhs}	mapmode-x	:xm :xmap
:smap	{lhs} {rhs}	mapmode-s	:smap
:om[ap]	{lhs} {rhs}	mapmode-o	:om :omap
:map!	{lhs} {rhs}	mapmode-ic	:map!

:im[ap] {lhs} {rhs} mapmode-i :im :imap
:lm[ap] {lhs} {rhs} mapmode-l :lm :lmap
:cm[ap] {lhs} {rhs} mapmode-c :cm :cmap
:tma[p] {lhs} {rhs} mapmode-t :tma :tmap

Map the key sequence {lhs} to {rhs} for the modes where the map command applies. The result, including {rhs}, is then further scanned for mapping. This allows for nested and recursive use of mappings.

:nore :norem
:no[remap] {lhs} {rhs} mapmode-nvo :no :noremap :nor
:nn[oremap] {lhs} {rhs} mapmode-n :nn :nnoremap
:vn[oremap] {lhs} {rhs} mapmode-v :vn :vnoremap
:xn[oremap] {lhs} {rhs} mapmode-x :xn :xnoremap
:snor[emap] {lhs} {rhs} mapmode-s :snor :snoremap
:ono[remap] {lhs} {rhs} mapmode-o :ono :onoremap
:no[remap]! {lhs} {rhs} mapmode-ic :no! :noremap!
:ino[remap] {lhs} {rhs} mapmode-i :ino :inoremap
:ln[oremap] {lhs} {rhs} mapmode-l :ln :lnoremap
:cno[remap] {lhs} {rhs} mapmode-c :cno :cnoremap
:tno[remap] {lhs} {rhs} mapmode-t :tno :tnoremap

Map the key sequence {lhs} to {rhs} for the modes where the map command applies. Disallow mapping of {rhs}, to avoid nested and recursive mappings. Often used to redefine a command. {not in Vi}

:unm[ap] {lhs} mapmode-nvo :unm :unmap
:nun[map] {lhs} mapmode-n :nun :nunmap
:vu[nmap] {lhs} mapmode-v :vu :vunmap
:xu[nmap] {lhs} mapmode-x :xu :xunmap
:sunm[ap] {lhs} mapmode-s :sunm :sunmap
:ou[nmap] {lhs} mapmode-o :ou :ounmap
:unm[ap]! {lhs} mapmode-ic :unm! :unmap!
:iu[nmap] {lhs} mapmode-i :iu :iunmap
:lu[nmap] {lhs} mapmode-l :lu :lunmap
:cu[nmap] {lhs} mapmode-c :cu :cunmap
:tunma[p] {lhs} mapmode-t :tunma :tunmap

Remove the mapping of {lhs} for the modes where the map command applies. The mapping may remain defined for other modes where it applies.
Note: Trailing spaces are included in the {lhs}. This unmap does NOT work:

```
:map @@ foo
:unmap @@ | print
```

:mapc[lear] mapmode-nvo :mapc :mapclear
:nmapc[lear] mapmode-n :nmapc :nmapclear
:vmapc[lear] mapmode-v :vmapc :vmapclear
:xmapc[lear] mapmode-x :xmapc :xmapclear
:smapc[lear] mapmode-s :smapc :smapclear
:omapc[lear] mapmode-o :omapc :omapclear
:mapc[lear]! mapmode-ic :mapc! :mapclear!
:imapc[lear] mapmode-i :imapc :imapclear

:lmapc[lear]		mapmode-l		:lmapc	:lmapclear
:cmapc[lear]		mapmode-c		:cmapc	:cmapclear
:tmapc[lear]		mapmode-t		:tmapc	:tmapclear
		Remove ALL mappings for the modes where the map
		command applies. {not in Vi}
		Use the <buffer> argument to remove buffer-local
		mappings :map-<buffer>
		Warning: This also removes the default mappings.

:map			mapmode-nvo
:nm[ap]			mapmode-n
:vm[ap]			mapmode-v
:xm[ap]			mapmode-x
:sm[ap]			mapmode-s
:om[ap]			mapmode-o
:map!			mapmode-ic
:im[ap]			mapmode-i
:lm[ap]			mapmode-l
:cm[ap]			mapmode-c
:tma[p]			mapmode-t
		List all key mappings for the modes where the map
		command applies. Note that ":map" and ":map!" are
		used most often, because they include the other modes.

:map {lhs}		mapmode-nvo		:map_l
:nm[ap] {lhs}		mapmode-n		:nmap_l
:vm[ap] {lhs}		mapmode-v		:vmap_l
:xm[ap] {lhs}		mapmode-x		:xmap_l
:sm[ap] {lhs}		mapmode-s		:smap_l
:om[ap] {lhs}		mapmode-o		:omap_l
:map! {lhs}		mapmode-ic		:map_l!
:im[ap] {lhs}		mapmode-i		:imap_l
:lm[ap] {lhs}		mapmode-l		:lmap_l
:cm[ap] {lhs}		mapmode-c		:cmap_l
:tma[p] {lhs}		mapmode-t		:tmap_l
		List the key mappings for the key sequences starting
		with {lhs} in the modes where the map command applies.
		{not in Vi}

These commands are used to map a key or key sequence to a string of
characters. You can use this to put command sequences under function keys,
translate one key into another, etc. See :mkexrc for how to save and
restore the current mappings.

map-ambiguous
When two mappings start with the same sequence of characters, they are
ambiguous. Example:
	:imap aa foo
	:imap aaa bar
When Vim has read "aa", it will need to get another character to be able to
decide if "aa" or "aaa" should be mapped. This means that after typing "aa"
that mapping won't get expanded yet, Vim is waiting for another character.
If you type a space, then "foo" will get inserted, plus the space. If you
type "a", then "bar" will get inserted.

{Vi does not allow ambiguous mappings}

1.2 SPECIAL ARGUMENTS :map-arguments

"<buffer>", "<nowait>", "<silent>", "<special>", "<script>", "<expr>" and "<unique>" can be used in any order. They must appear right after the command, before any other arguments.

:map-local :map-<buffer> E224 E225

If the first argument to one of these commands is "<buffer>" the mapping will be effective in the current buffer only. Example:

```
:map <buffer>  ,w  /[.,;]<CR>
```

Then you can map ",w" to something else in another buffer:

```
:map <buffer>  ,w  /[#&!]<CR>
```

The local buffer mappings are used before the global ones. See <nowait> below to make a short local mapping not taking effect when a longer global one exists.

The "<buffer>" argument can also be used to clear mappings:

```
:unmap <buffer> ,w
:mapclear <buffer>
```

Local mappings are also cleared when a buffer is deleted, but not when it is unloaded. Just like local option values.

Also see map-precedence .

:map-<nowait> :map-nowait

When defining a buffer-local mapping for "," there may be a global mapping that starts with ",". Then you need to type another character for Vim to know whether to use the "," mapping or the longer one. To avoid this add the <nowait> argument. Then the mapping will be used when it matches, Vim does not wait for more characters to be typed. However, if the characters were already typed they are used.

:map-<silent> :map-silent

To define a mapping which will not be echoed on the command line, add "<silent>" as the first argument. Example:

```
:map <silent> ,h /Header<CR>
```

The search string will not be echoed when using this mapping. Messages from the executed command are still given though. To shut them up too, add a ":silent" in the executed command:

```
:map <silent> ,h :exe ":silent normal /Header\r"<CR>
```

Prompts will still be given, e.g., for inputdialog().

Using "<silent>" for an abbreviation is possible, but will cause redrawing of the command line to fail.

:map-<special> :map-special

Define a mapping with <> notation for special keys, even though the "<" flag may appear in 'cpoptions'. This is useful if the side effect of setting 'cpoptions' is not desired. Example:

```
:map <special> <F12> /Header<CR>
```

:map-<script> :map-script

If the first argument to one of these commands is "<script>" and it is used to define a new mapping or abbreviation, the mapping will only remap characters

in the {rhs} using mappings that were defined local to a script, starting with "<SID>". This can be used to avoid that mappings from outside a script interfere (e.g., when CTRL-V is remapped in mswin.vim), but do use other mappings defined in the script.
Note: ":map <script>" and ":noremap <script>" do the same thing. The "<script>" overrules the command name. Using ":noremap <script>" is preferred, because it's clearer that remapping is (mostly) disabled.

:map-<unique> E226 E227
If the first argument to one of these commands is "<unique>" and it is used to define a new mapping or abbreviation, the command will fail if the mapping or abbreviation already exists. Example:
```
:map <unique> ,w /[#&!]<CR>
```
When defining a local mapping, there will also be a check if a global map already exists which is equal.
Example of what will fail:
```
:map ,w /[#&!]<CR>
:map <buffer> <unique> ,w /[.,;]<CR>
```
If you want to map a key and then have it do what it was originally mapped to, have a look at maparg() .

:map-<expr> :map-expression
If the first argument to one of these commands is "<expr>" and it is used to define a new mapping or abbreviation, the argument is an expression. The expression is evaluated to obtain the {rhs} that is used. Example:
```
:inoremap <expr> . InsertDot()
```
The result of the InsertDot() function will be inserted. It could check the text before the cursor and start omni completion when some condition is met.

For abbreviations v:char is set to the character that was typed to trigger the abbreviation. You can use this to decide how to expand the {lhs}. You should not either insert or change the v:char.

Be very careful about side effects! The expression is evaluated while obtaining characters, you may very well make the command dysfunctional.
For this reason the following is blocked:
- Changing the buffer text textlock .
- Editing another buffer.
- The :normal command.
- Moving the cursor is allowed, but it is restored afterwards.

If you want the mapping to do any of these let the returned characters do that.

You can use getchar(), it consumes typeahead if there is any. E.g., if you have these mappings:
```
inoremap <expr> <C-L> nr2char(getchar())
inoremap <expr> <C-L>x "foo"
```
If you now type CTRL-L nothing happens yet, Vim needs the next character to decide what mapping to use. If you type 'x' the second mapping is used and "foo" is inserted. If you type any other key the first mapping is used, getchar() gets the typed key and returns it.

Here is an example that inserts a list number that increases:
```
let counter = 0
```

```
        inoremap <expr> <C-L> ListItem()
        inoremap <expr> <C-R> ListReset()

        func ListItem()
          let g:counter += 1
          return g:counter . '. '
        endfunc

        func ListReset()
          let g:counter = 0
          return ''
        endfunc
```

CTRL-L inserts the next number, CTRL-R resets the count. CTRL-R returns an empty string, so that nothing is inserted.

Note that there are some tricks to make special keys work and escape CSI bytes in the text. The :map command also does this, thus you must avoid that it is done twice. This does not work:

```
        :imap <expr> <F3> "<Char-0x611B>"
```

Because the <Char- sequence is escaped for being a :imap argument and then again for using <expr>. This does work:

```
        :imap <expr> <F3> "\u611B"
```

Using 0x80 as a single byte before other text does not work, it will be seen as a special key.

1.3 MAPPING AND MODES

:map-modes
mapmode-nvo mapmode-n mapmode-v mapmode-o

There are six sets of mappings
- For Normal mode: When typing commands.
- For Visual mode: When typing commands while the Visual area is highlighted.
- For Select mode: like Visual mode but typing text replaces the selection.
- For Operator-pending mode: When an operator is pending (after "d", "y", "c", etc.). See below: omap-info .
- For Insert mode. These are also used in Replace mode.
- For Command-line mode: When entering a ":" or "/" command.

Special case: While typing a count for a command in Normal mode, mapping zero is disabled. This makes it possible to map zero without making it impossible to type a count with a zero.

map-overview map-modes

Overview of which map command works in which mode. More details below.

COMMANDS			MODES
:map	:noremap	:unmap	Normal, Visual, Select, Operator-pending
:nmap	:nnoremap	:nunmap	Normal
:vmap	:vnoremap	:vunmap	Visual and Select
:smap	:snoremap	:sunmap	Select
:xmap	:xnoremap	:xunmap	Visual
:omap	:onoremap	:ounmap	Operator-pending
:map!	:noremap!	:unmap!	Insert and Command-line
:imap	:inoremap	:iunmap	Insert

```
:lmap  :lnoremap :lunmap    Insert, Command-line, Lang-Arg
:cmap  :cnoremap :cunmap    Command-line
:tmap  :tnoremap :tunmap    Terminal-Job
```

COMMANDS				MODES		
				Normal	Visual+Select	Operator-pending
:map	:noremap	:unmap	:mapclear	yes	yes	yes
:nmap	:nnoremap	:nunmap	:nmapclear	yes	-	-
:vmap	:vnoremap	:vunmap	:vmapclear	-	yes	-
:omap	:onoremap	:ounmap	:omapclear	-	-	yes

:nunmap can also be used outside of a monastery.

mapmode-x mapmode-s

Some commands work both in Visual and Select mode, some in only one. Note that quite often "Visual" is mentioned where both Visual and Select mode apply. Select-mode-mapping

NOTE: Mapping a printable character in Select mode may confuse the user. It's better to explicitly use :xmap and :smap for printable characters. Or use :sunmap after defining the mapping.

COMMANDS				MODES	
				Visual	Select
:vmap	:vnoremap	:vunmap	:vmapclear	yes	yes
:xmap	:xnoremap	:xunmap	:xmapclear	yes	-
:smap	:snoremap	:sunmap	:smapclear	-	yes

mapmode-ic mapmode-i mapmode-c mapmode-l

Some commands work both in Insert mode and Command-line mode, some not:

COMMANDS				MODES		
				Insert	Command-line	Lang-Arg
:map!	:noremap!	:unmap!	:mapclear!	yes	yes	-
:imap	:inoremap	:iunmap	:imapclear	yes	-	-
:cmap	:cnoremap	:cunmap	:cmapclear	-	yes	-
:lmap	:lnoremap	:lunmap	:lmapclear	yes*	yes*	yes*

The original Vi did not have separate mappings for Normal/Visual/Operator-pending mode and for Insert/Command-line mode. Therefore the ":map" and ":map!" commands enter and display mappings for several modes. In Vim you can use the ":nmap", ":vmap", ":omap", ":cmap" and ":imap" commands to enter mappings for each mode separately.

mapmode-t

The terminal mappings are used in a terminal window, when typing keys for the job running in the terminal. See terminal-typing .

omap-info

Operator-pending mappings can be used to define a movement command that can be used with any operator. Simple example: ":omap { w" makes "y{" work like "yw" and "d{" like "dw".

To ignore the starting cursor position and select different text, you can have the omap start Visual mode to select the text to be operated upon. Example

that operates on a function name in the current line:
```
        onoremap <silent> F :<C-U>normal! 0f(hviw<CR>
```
The CTRL-U (<C-U>) is used to remove the range that Vim may insert. The Normal mode commands find the first '(' character and select the first word before it. That usually is the function name.

To enter a mapping for Normal and Visual mode, but not Operator-pending mode, first define it for all three modes, then unmap it for Operator-pending mode:
```
        :map    xx something-difficult
        :ounmap xx
```
Likewise for a mapping for Visual and Operator-pending mode or Normal and Operator-pending mode.

language-mapping

":lmap" defines a mapping that applies to:
- Insert mode
- Command-line mode
- when entering a search pattern
- the argument of the commands that accept a text character, such as "r" and "f"
- for the input() line

Generally: Whenever a character is to be typed that is part of the text in the buffer, not a Vim command character. "Lang-Arg" isn't really another mode, it's just used here for this situation.

The simplest way to load a set of related language mappings is by using the 'keymap' option. See 45.5 .

In Insert mode and in Command-line mode the mappings can be disabled with the CTRL-^ command i_CTRL-^ c_CTRL-^ . These commands change the value of the 'iminsert' option. When starting to enter a normal command line (not a search pattern) the mappings are disabled until a CTRL-^ is typed. The state last used is remembered for Insert mode and Search patterns separately. The state for Insert mode is also used when typing a character as an argument to command like "f" or "t".

Language mappings will never be applied to already mapped characters. They are only used for typed characters. This assumes that the language mapping was already done when typing the mapping.

1.4 LISTING MAPPINGS map-listing

When listing mappings the characters in the first two columns are:

CHAR	MODE
<Space>	Normal, Visual, Select and Operator-pending
n	Normal
v	Visual and Select
s	Select
x	Visual
o	Operator-pending
!	Insert and Command-line
i	Insert
l	":lmap" mappings for Insert, Command-line and Lang-Arg
c	Command-line
t	Terminal-Job

Just before the {rhs} a special character can appear:
        *   indicates that it is not remappable
        &   indicates that only script-local mappings are remappable
        @   indicates a buffer-local mapping

Everything from the first non-blank after {lhs} up to the end of the line
(or '|') is considered to be part of {rhs}. This allows the {rhs} to end
with a space.

Note: When using mappings for Visual mode, you can use the "'<" mark, which
is the start of the last selected Visual area in the current buffer '< .

The :filter command can be used to select what mappings to list. The
pattern is matched against the {lhs} and {rhs} in the raw form.

                                                              :map-verbose
When 'verbose' is non-zero, listing a key map will also display where it was
last defined. Example:

        :verbose map <C-W>*
        n <C-W>*   * <C-W><C-S>*
                Last set from /home/abcd/.vimrc

See :verbose-cmd for more information.

1.5 MAPPING SPECIAL KEYS   :map-special-keys

There are three ways to map a special key:
1. The Vi-compatible method: Map the key code. Often this is a sequence that
   starts with <Esc>. To enter a mapping like this you type ":map " and then
   you have to type CTRL-V before hitting the function key. Note that when
   the key code for the key is in the termcap (the t_ options), it will
   automatically be translated into the internal code and become the second
   way of mapping (unless the 'k' flag is included in 'cpoptions').
2. The second method is to use the internal code for the function key. To
   enter such a mapping type CTRL-K and then hit the function key, or use
   the form "#1", "#2", .. "#9", "#0", "<Up>", "<S-Down>", "<S-F7>", etc.
   (see table of keys key-notation , all keys from <Up> can be used). The
   first ten function keys can be defined in two ways: Just the number, like
   "#2", and with "<F>", like "<F2>". Both stand for function key 2. "#0"
   refers to function key 10, defined with option 't_f10', which may be
   function key zero on some keyboards. The <> form cannot be used when
   'cpoptions' includes the '<' flag.
3. Use the termcap entry, with the form <t_xx>, where "xx" is the name of the
   termcap entry. Any string entry can be used. For example:
     :map <t_F3> G
  Maps function key 13 to "G". This does not work if 'cpoptions' includes
   the '<' flag.

The advantage of the second and third method is that the mapping will work on
different terminals without modification (the function key will be
translated into the same internal code or the actual key code, no matter what

terminal you are using. The termcap must be correct for this to work, and you must use the same mappings).

DETAIL: Vim first checks if a sequence from the keyboard is mapped. If it isn't the terminal key codes are tried (see terminal-options). If a terminal code is found it is replaced with the internal code. Then the check for a mapping is done again (so you can map an internal code to something else). What is written into the script file depends on what is recognized. If the terminal key code was recognized as a mapping the key code itself is written to the script file. If it was recognized as a terminal code the internal code is written to the script file.

1.6 SPECIAL CHARACTERS :map-special-chars

map_backslash map-backslash

Note that only CTRL-V is mentioned here as a special character for mappings and abbreviations. When 'cpoptions' does not contain 'B', a backslash can also be used like CTRL-V. The <> notation can be fully used then <> . But you cannot use "<C-V>" like CTRL-V to escape the special meaning of what follows.

To map a backslash, or use a backslash literally in the {rhs}, the special sequence "<Bslash>" can be used. This avoids the need to double backslashes when using nested mappings.

map_CTRL-C map-CTRL-C

Using CTRL-C in the {lhs} is possible, but it will only work when Vim is waiting for a key, not when Vim is busy with something. When Vim is busy CTRL-C interrupts/breaks the command.
When using the GUI version on MS-Windows CTRL-C can be mapped to allow a Copy command to the clipboard. Use CTRL-Break to interrupt Vim.

map_space_in_lhs map-space_in_lhs

To include a space in {lhs} precede it with a CTRL-V (type two CTRL-Vs for each space).

map_space_in_rhs map-space_in_rhs

If you want a {rhs} that starts with a space, use "<Space>". To be fully Vi compatible (but unreadable) don't use the <> notation, precede {rhs} with a single CTRL-V (you have to type CTRL-V two times).

map_empty_rhs map-empty-rhs

You can create an empty {rhs} by typing nothing after a single CTRL-V (you have to type CTRL-V two times). Unfortunately, you cannot do this in a vimrc file.

<Nop>

An easier way to get a mapping that doesn't produce anything, is to use "<Nop>" for the {rhs}. This only works when the <> notation is enabled. For example, to make sure that function key 8 does nothing at all:

```
:map  <F8>  <Nop>
:map! <F8>  <Nop>
```

map-multibyte

It is possible to map multibyte characters, but only the whole character. You cannot map the first byte only. This was done to prevent problems in this scenario:

```
        :set encoding=latin1
        :imap <M-C> foo
        :set encoding=utf-8
```
The mapping for <M-C> is defined with the latin1 encoding, resulting in a 0xc3 byte. If you type the character á (0xe1 <M-a>) in UTF-8 encoding this is the two bytes 0xc3 0xa1. You don't want the 0xc3 byte to be mapped then or otherwise it would be impossible to type the á character.

<Leader> mapleader

To define a mapping which uses the "mapleader" variable, the special string "<Leader>" can be used. It is replaced with the string value of "mapleader". If "mapleader" is not set or empty, a backslash is used instead. Example:
```
        :map <Leader>A  oanother line<Esc>
```
Works like:
```
        :map \A  oanother line<Esc>
```
But after:
```
        :let mapleader = ","
```
It works like:
```
        :map ,A  oanother line<Esc>
```

Note that the value of "mapleader" is used at the moment the mapping is defined. Changing "mapleader" after that has no effect for already defined mappings.

<LocalLeader> maplocalleader

<LocalLeader> is just like <Leader>, except that it uses "maplocalleader" instead of "mapleader". <LocalLeader> is to be used for mappings which are local to a buffer. Example:
```
      :map <buffer> <LocalLeader>A  oanother line<Esc>
```

In a global plugin <Leader> should be used and in a filetype plugin <LocalLeader>. "mapleader" and "maplocalleader" can be equal. Although, if you make them different, there is a smaller chance of mappings from global plugins to clash with mappings for filetype plugins. For example, you could keep "mapleader" at the default backslash, and set "maplocalleader" to an underscore.

map-<SID>

In a script the special key name "<SID>" can be used to define a mapping that's local to the script. See <SID> for details.

<Plug>

The special key name "<Plug>" can be used for an internal mapping, which is not to be matched with any key sequence. This is useful in plugins using-<Plug> .

<Char> <Char->

To map a character by its decimal, octal or hexadecimal number the <Char> construct can be used:
```
        <Char-123>      character 123
        <Char-033>      character 27
        <Char-0x7f>     character 127
        <S-Char-114>    character 114 ('r') shifted ('R')
```
This is useful to specify a (multi-byte) character in a 'keymap' file.

Upper and lowercase differences are ignored.

map-comments
It is not possible to put a comment after these commands, because the '"'
character is considered to be part of the {lhs} or {rhs}. However, one can
use |", since this starts a new, empty command with a comment.

map_bar map-bar
Since the '|' character is used to separate a map command from the next
command, you will have to do something special to include a '|' in {rhs}.
There are three methods:

use	works when	example
<Bar>	'<' is not in 'cpoptions'	:map _l :!ls <Bar> more^M
|	'b' is not in 'cpoptions'	:map _l :!ls | more^M
^V|	always, in Vim and Vi	:map _l :!ls ^V| more^M

(here ^V stands for CTRL-V; to get one CTRL-V you have to type it twice; you
cannot use the <> notation "<C-V>" here).

All three work when you use the default setting for 'cpoptions'.

When 'b' is present in 'cpoptions', "\|" will be recognized as a mapping
ending in a '\' and then another command. This is Vi compatible, but
illogical when compared to other commands.

map_return map-return
When you have a mapping that contains an Ex command, you need to put a line
terminator after it to have it executed. The use of <CR> is recommended for
this (see <>). Example:

```
:map  _ls  :!ls -l %:S<CR>:echo "the end"<CR>
```

To avoid mapping of the characters you type in insert or Command-line mode,
type a CTRL-V first. The mapping in Insert mode is disabled if the 'paste'
option is on.

map-error
Note that when an error is encountered (that causes an error message or beep)
the rest of the mapping is not executed. This is Vi-compatible.

Note that the second character (argument) of the commands @zZtTfF[]rm'`"v
and CTRL-X is not mapped. This was done to be able to use all the named
registers and marks, even when the command with the same name has been
mapped.

1.7 WHAT KEYS TO MAP map-which-keys

If you are going to map something, you will need to choose which key(s) to use
for the {lhs}. You will have to avoid keys that are used for Vim commands,
otherwise you would not be able to use those commands anymore. Here are a few
suggestions:
- Function keys <F2>, <F3>, etc.. Also the shifted function keys <S-F1>,
  <S-F2>, etc. Note that <F1> is already used for the help command.
- Meta-keys (with the ALT key pressed). Depending on your keyboard accented
  characters may be used as well. :map-alt-keys

- Use the '_' or ',' character and then any other character. The "_" and "," commands do exist in Vim (see _ and ,), but you probably never use them.
- Use a key that is a synonym for another command. For example: CTRL-P and CTRL-N. Use an extra character to allow more mappings.
- The key defined by <Leader> and one or more other keys. This is especially useful in scripts. mapleader

See the file "index" for keys that are not used and thus can be mapped without losing any builtin function. You can also use ":help {key}^D" to find out if a key is used for some command. ({key} is the specific key you want to find out about, ^D is CTRL-D).

1.8 EXAMPLES map-examples

A few examples (given as you type them, for "<CR>" you type four characters; the '<' flag must not be present in 'cpoptions' for this to work).

```
:map <F3>  o#include
:map <M-g> /foo<CR>cwbar<Esc>
:map _x    d/END/e<CR>
:map! qq   quadrillion questions
```

Multiplying a count

When you type a count before triggering a mapping, it's like the count was typed before the {lhs}. For example, with this mapping:

```
:map <F4>  3w
```

Typing 2<F4> will result in "23w". Thus not moving 2 * 3 words but 23 words. If you want to multiply counts use the expression register:

```
:map <F4>  @='3w'<CR>
```

The part between quotes is the expression being executed. @=

1.9 USING MAPPINGS map-typing

Vim will compare what you type with the start of a mapped sequence. If there is an incomplete match, it will get more characters until there either is a complete match or until there is no match at all. Example: If you map! "qq", the first 'q' will not appear on the screen until you type another character. This is because Vim cannot know if the next character will be a 'q' or not. If the 'timeout' option is on (which is the default) Vim will only wait for one second (or as long as specified with the 'timeoutlen' option). After that it assumes that the 'q' is to be interpreted as such. If you type slowly, or your system is slow, reset the 'timeout' option. Then you might want to set the 'ttimeout' option.

map-precedence

Buffer-local mappings (defined using :map-<buffer>) take precedence over global mappings. When a buffer-local mapping is the same as a global mapping, Vim will use the buffer-local mapping. In addition, Vim will use a complete mapping immediately if it was defined with <nowait>, even if a longer mapping has the same prefix. For example, given the following two mappings:

```
    :map <buffer> <nowait> \a   :echo "Local \a"<CR>
    :map                   \abc :echo "Global \abc"<CR>
```
When typing \a the buffer-local mapping will be used immediately. Vim will
not wait for more characters to see if the user might be typing \abc.

map-keys-fails
There are situations where key codes might not be recognized:
- Vim can only read part of the key code. Mostly this is only the first
  character. This happens on some Unix versions in an xterm.
- The key code is after character(s) that are mapped. E.g., "<F1><F1>" or
  "g<F1>".

The result is that the key code is not recognized in this situation, and the
mapping fails. There are two actions needed to avoid this problem:

- Remove the 'K' flag from 'cpoptions'. This will make Vim wait for the rest
  of the characters of the function key.
- When using <F1> to <F4> the actual key code generated may correspond to
  <xF1> to <xF4>. There are mappings from <xF1> to <F1>, <xF2> to <F2>, etc.,
  but these are not recognized after another half a mapping. Make sure the
  key codes for <F1> to <F4> are correct:
```
        :set <F1>=<type CTRL-V><type F1>
```
 Type the <F1> as four characters. The part after the "=" must be done with
  the actual keys, not the literal text.
Another solution is to use the actual key code in the mapping for the second
special key:
```
        :map <F1><Esc>OP :echo "yes"<CR>
```
Don't type a real <Esc>, Vim will recognize the key code and replace it with
<F1> anyway.

Another problem may be that when keeping ALT or Meta pressed the terminal
prepends ESC instead of setting the 8th bit. See :map-alt-keys .

recursive_mapping
If you include the {lhs} in the {rhs} you have a recursive mapping. When
{lhs} is typed, it will be replaced with {rhs}. When the {lhs} which is
included in {rhs} is encountered it will be replaced with {rhs}, and so on.
This makes it possible to repeat a command an infinite number of times. The
only problem is that the only way to stop this is by causing an error. The
macros to solve a maze uses this, look there for an example. There is one
exception: If the {rhs} starts with {lhs}, the first character is not mapped
again (this is Vi compatible).
For example:
```
   :map ab abcd
```
will execute the "a" command and insert "bcd" in the text. The "ab" in the
{rhs} will not be mapped again.

If you want to exchange the meaning of two keys you should use the :noremap
command. For example:
```
   :noremap k j
   :noremap j k
```
This will exchange the cursor up and down commands.

With the normal :map command, when the 'remap' option is on, mapping takes

place until the text is found not to be a part of a {lhs}. For example, if you use:

```
:map x y
:map y x
```

Vim will replace x with y, and then y with x, etc. When this has happened 'maxmapdepth' times (default 1000), Vim will give the error message "recursive mapping".

:map-undo

If you include an undo command inside a mapped sequence, this will bring the text back in the state before executing the macro. This is compatible with the original Vi, as long as there is only one undo command in the mapped sequence (having two undo commands in a mapped sequence did not make sense in the original Vi, you would get back the text before the first undo).

1.10 MAPPING ALT-KEYS :map-alt-keys

In the GUI Vim handles the Alt key itself, thus mapping keys with ALT should always work. But in a terminal Vim gets a sequence of bytes and has to figure out whether ALT was pressed or not.

By default Vim assumes that pressing the ALT key sets the 8th bit of a typed character. Most decent terminals can work that way, such as xterm, aterm and rxvt. If your <A-k> mappings don't work it might be that the terminal is prefixing the character with an ESC character. But you can just as well type ESC before a character, thus Vim doesn't know what happened (except for checking the delay between characters, which is not reliable).

As of this writing, some mainstream terminals like gnome-terminal and konsole use the ESC prefix. There doesn't appear a way to have them use the 8th bit instead. Xterm should work well by default. Aterm and rxvt should work well when started with the "--meta8" argument. You can also tweak resources like "metaSendsEscape", "eightBitInput" and "eightBitOutput".

On the Linux console, this behavior can be toggled with the "setmetamode" command. Bear in mind that not using an ESC prefix could get you in trouble with other programs. You should make sure that bash has the "convert-meta" option set to "on" in order for your Meta keybindings to still work on it (it's the default readline behavior, unless changed by specific system configuration). For that, you can add the line:

```
set convert-meta on
```

to your ~/.inputrc file. If you're creating the file, you might want to use:

```
$include /etc/inputrc
```

as the first line, if that file exists on your system, to keep global options. This may cause a problem for entering special characters, such as the umlaut. Then you should use CTRL-V before that character.

Bear in mind that convert-meta has been reported to have troubles when used in UTF-8 locales. On terminals like xterm, the "metaSendsEscape" resource can be

toggled on the fly through the "Main Options" menu, by pressing Ctrl-LeftClick on the terminal; that's a good last resource in case you want to send ESC when using other applications but not when inside Vim.

1.11 MAPPING AN OPERATOR :map-operator

An operator is used before a {motion} command. To define your own operator you must create mapping that first sets the 'operatorfunc' option and then invoke the g@ operator. After the user types the {motion} command the specified function will be called.

g@ E774 E775

g@{motion} Call the function set by the 'operatorfunc' option.
The '[mark is positioned at the start of the text moved over by {motion}, the '] mark on the last character of the text.
The function is called with one String argument:
"line" {motion} was linewise
"char" {motion} was characterwise
"block" {motion} was blockwise-visual
Although "block" would rarely appear, since it can only result from Visual mode where "g@" is not useful.
{not available when compiled without the +eval feature}

Here is an example that counts the number of spaces with <F4>:

```
nmap <silent> <F4> :set opfunc=CountSpaces<CR>g@
vmap <silent> <F4> :<C-U>call CountSpaces(visualmode(), 1)<CR>

function! CountSpaces(type, ...)
  let sel_save = &selection
  let &selection = "inclusive"
  let reg_save = @@

  if a:0  " Invoked from Visual mode, use gv command.
    silent exe "normal! gvy"
  elseif a:type == 'line'
    silent exe "normal! '[V']y"
  else
    silent exe "normal! `[v`]y"
  endif

  echomsg strlen(substitute(@@, '[^ ]', '', 'g'))

  let &selection = sel_save
  let @@ = reg_save
endfunction
```

Note that the 'selection' option is temporarily set to "inclusive" to be able to yank exactly the right text by using Visual mode from the '[to the '] mark.

Also note that there is a separate mapping for Visual mode. It removes the "'<,'>" range that ":" inserts in Visual mode and invokes the function with visualmode() and an extra argument.

==
2. Abbreviations   abbreviations   Abbreviations

Abbreviations are used in Insert mode, Replace mode and Command-line mode.
If you enter a word that is an abbreviation, it is replaced with the word it
stands for. This can be used to save typing for often used long words. And
you can use it to automatically correct obvious spelling errors.
Examples:

```
        :iab ms Microsoft
        :iab tihs this
```

There are three types of abbreviations:

full-id   The "full-id" type consists entirely of keyword characters (letters
          and characters from 'iskeyword' option). This is the most common
          abbreviation.

          Examples: "foo", "g3", "-1"

end-id   The "end-id" type ends in a keyword character, but all the other
          characters are not keyword characters.

          Examples: "#i", "..f", "$/7"

non-id   The "non-id" type ends in a non-keyword character, the other
          characters may be of any type, excluding space and tab. {this type
          is not supported by Vi}

          Examples: "def#", "4/7$"

Examples of strings that cannot be abbreviations: "a.b", "#def", "a b", "_$r"

An abbreviation is only recognized when you type a non-keyword character.
This can also be the <Esc> that ends insert mode or the <CR> that ends a
command. The non-keyword character which ends the abbreviation is inserted
after the expanded abbreviation. An exception to this is the character <C-]>,
which is used to expand an abbreviation without inserting any extra
characters.

Example:
```
   :ab hh       hello
           "hh<Space>" is expanded to "hello<Space>"
            "hh<C-]>" is expanded to "hello"
```

The characters before the cursor must match the abbreviation. Each type has
an additional rule:

full-id   In front of the match is a non-keyword character, or this is where
          the line or insertion starts. Exception: When the abbreviation is

```
          only one character, it is not recognized if there is a non-keyword
          character in front of it, other than a space or a tab. However, for
          the command line "'<,'>" (or any other marks) is ignored, as if the
          command line starts after it.

end-id    In front of the match is a keyword character, or a space or a tab,
          or this is where the line or insertion starts.

non-id    In front of the match is a space, tab or the start of the line or
          the insertion.

Examples: ({CURSOR} is where you type a non-keyword character)
   :ab foo   four old otters
               " foo{CURSOR}"    is expanded to " four old otters"
                " foobar{CURSOR}" is not expanded
                "barfoo{CURSOR}"  is not expanded

   :ab #i #include
              "#i{CURSOR}"      is expanded to "#include"
               ">#i{CURSOR}"     is not expanded

   :ab ;; <endofline>
              "test;;"          is not expanded
               "test ;;"         is expanded to "test <endofline>"

To avoid the abbreviation in Insert mode: Type CTRL-V before the character
that would trigger the abbreviation.  E.g. CTRL-V <Space>.  Or type part of
the abbreviation, exit insert mode with <Esc>, re-enter insert mode with "a"
and type the rest.

To avoid the abbreviation in Command-line mode: Type CTRL-V twice somewhere in
the abbreviation to avoid it to be replaced.  A CTRL-V in front of a normal
character is mostly ignored otherwise.

It is possible to move the cursor after an abbreviation:
   :iab if if ()<Left>
This does not work if 'cpoptions' includes the '<' flag.  <>

You can even do more complicated things.  For example, to consume the space
typed after an abbreviation:
   func Eatchar(pat)
      let c = nr2char(getchar(0))
      return (c =~ a:pat) ? '' : c
   endfunc
   iabbr <silent> if if ()<Left><C-R>=Eatchar('\s')<CR>

There are no default abbreviations.

Abbreviations are never recursive.  You can use ":ab f f-o-o" without any
problem.  But abbreviations can be mapped.  {some versions of Vi support
recursive abbreviations, for no apparent reason}

Abbreviations are disabled if the 'paste' option is on.
```

:abbreviate-local :abbreviate-<buffer>
Just like mappings, abbreviations can be local to a buffer. This is mostly used in a filetype-plugin file. Example for a C plugin file:

```
:abb <buffer> FF  for (i = 0; i < ; ++i)
```

:ab :abbreviate
:ab[breviate] list all abbreviations. The character in the first column indicates the mode where the abbreviation is used: 'i' for insert mode, 'c' for Command-line mode, '!' for both. These are the same as for mappings, see map-listing .

:abbreviate-verbose
When 'verbose' is non-zero, listing an abbreviation will also display where it was last defined. Example:

```
:verbose abbreviate
!  teh           the
        Last set from /home/abcd/vim/abbr.vim
```

See :verbose-cmd for more information.

:ab[breviate] {lhs} list the abbreviations that start with {lhs}
You may need to insert a CTRL-V (type it twice) to avoid that a typed {lhs} is expanded, since command-line abbreviations apply here.

:ab[breviate] [<expr>] [<buffer>] {lhs} {rhs}
add abbreviation for {lhs} to {rhs}. If {lhs} already existed it is replaced with the new {rhs}. {rhs} may contain spaces.
See :map-<expr> for the optional <expr> argument.
See :map-<buffer> for the optional <buffer> argument.

:una :unabbreviate
:una[bbreviate] {lhs} Remove abbreviation for {lhs} from the list. If none is found, remove abbreviations in which {lhs} matches with the {rhs}. This is done so that you can even remove abbreviations after expansion. To avoid expansion insert a CTRL-V (type it twice).

:norea :noreabbrev
:norea[bbrev] [<expr>] [<buffer>] [lhs] [rhs]
same as ":ab", but no remapping for this {rhs} {not in Vi}

:ca :cabbrev
:ca[bbrev] [<expr>] [<buffer>] [lhs] [rhs]
same as ":ab", but for Command-line mode only. {not in Vi}

:cuna :cunabbrev
:cuna[bbrev] {lhs} same as ":una", but for Command-line mode only. {not in Vi}

:cnorea :cnoreabbrev
:cnorea[bbrev] [<expr>] [<buffer>] [lhs] [rhs]
                        same as ":ab", but for Command-line mode only and no
                        remapping for this {rhs} {not in Vi}

:ia :iabbrev
:ia[bbrev] [<expr>] [<buffer>] [lhs] [rhs]
                        same as ":ab", but for Insert mode only. {not in Vi}

:iuna :iunabbrev
:iuna[bbrev] {lhs}   same as ":una", but for insert mode only. {not in
                        Vi}

:inorea :inoreabbrev
:inorea[bbrev] [<expr>] [<buffer>] [lhs] [rhs]
                        same as ":ab", but for Insert mode only and no
                        remapping for this {rhs} {not in Vi}

:abc :abclear
:abc[lear] [<buffer>]   Remove all abbreviations. {not in Vi}

:iabc :iabclear
:iabc[lear] [<buffer>] Remove all abbreviations for Insert mode. {not in Vi}

:cabc :cabclear
:cabc[lear] [<buffer>] Remove all abbreviations for Command-line mode. {not
                        in Vi}

using_CTRL-V
It is possible to use special characters in the rhs of an abbreviation.
CTRL-V has to be used to avoid the special meaning of most non printable
characters. How many CTRL-Vs need to be typed depends on how you enter the
abbreviation. This also applies to mappings. Let's use an example here.

Suppose you want to abbreviate "esc" to enter an <Esc> character. When you
type the ":ab" command in Vim, you have to enter this: (here ^V is a CTRL-V
and ^[is <Esc>)

You type: ab esc ^V^V^V^V^V^[

        All keyboard input is subjected to ^V quote interpretation, so
        the first, third, and fifth ^V characters simply allow the second,
        and fourth ^Vs, and the ^[, to be entered into the command-line.

You see: ab esc ^V^V^[

        The command-line contains two actual ^Vs before the ^[. This is
        how it should appear in your .exrc file, if you choose to go that
        route. The first ^V is there to quote the second ^V; the :ab
        command uses ^V as its own quote character, so you can include quoted
        whitespace or the | character in the abbreviation. The :ab command
        doesn't do anything special with the ^[character, so it doesn't need
        to be quoted. (Although quoting isn't harmful; that's why typing 7

[but not 8!] ^Vs works.)

Stored as: esc   ^V^[

After parsing, the abbreviation's short form ("esc") and long form (the two characters "^V^[") are stored in the abbreviation table. If you give the :ab command with no arguments, this is how the abbreviation will be displayed.

Later, when the abbreviation is expanded because the user typed in the word "esc", the long form is subjected to the same type of ^V interpretation as keyboard input. So the ^V protects the ^[character from being interpreted as the "exit Insert mode" character. Instead, the ^[is inserted into the text.

Expands to: ^[

[example given by Steve Kirkendall]

==
3. Local mappings and functions   script-local

When using several Vim script files, there is the danger that mappings and functions used in one script use the same name as in other scripts. To avoid this, they can be made local to the script.

                                                    <SID> <SNR> E81
The string "<SID>" can be used in a mapping or menu. This requires that the '<' flag is not present in 'cpoptions'.
   When executing the map command, Vim will replace "<SID>" with the special key code <SNR>, followed by a number that's unique for the script, and an underscore. Example:

```
:map <SID>Add
```

could define a mapping "<SNR>23_Add".

When defining a function in a script, "s:" can be prepended to the name to make it local to the script. But when a mapping is executed from outside of the script, it doesn't know in which script the function was defined. To avoid this problem, use "<SID>" instead of "s:". The same translation is done as for mappings. This makes it possible to define a call to the function in a mapping.

When a local function is executed, it runs in the context of the script it was defined in. This means that new functions and mappings it defines can also use "s:" or "<SID>" and it will use the same unique number as when the function itself was defined. Also, the "s:var" local script variables can be used.

When executing an autocommand or a user command, it will run in the context of the script it was defined in. This makes it possible that the command calls a local function or uses a local mapping.

Otherwise, using "<SID>" outside of a script context is an error.

If you need to get the script number to use in a complicated script, you can use this function:

```
function s:SID()
  return matchstr(expand('<sfile>'), '<SNR>\zs\d\+\ze_SID$')
endfun
```

The "<SNR>" will be shown when listing functions and mappings. This is useful to find out what they are defined to.

The :scriptnames command can be used to see which scripts have been sourced and what their <SNR> number is.

This is all {not in Vi} and {not available when compiled without the +eval feature}.

==
4. User-defined commands user-commands

It is possible to define your own Ex commands. A user-defined command can act just like a built-in command (it can have a range or arguments, arguments can be completed as filenames or buffer names, etc), except that when the command is executed, it is transformed into a normal Ex command and then executed.

For starters: See section 40.2 in the user manual.

E183 E841 user-cmd-ambiguous

All user defined commands must start with an uppercase letter, to avoid confusion with builtin commands. Exceptions are these builtin commands:

```
:Next
:X
```

They cannot be used for a user defined command. ":Print" is also an existing command, but it is deprecated and can be overruled.

The other characters of the user command can be uppercase letters, lowercase letters or digits. When using digits, note that other commands that take a numeric argument may become ambiguous. For example, the command ":Cc2" could be the user command ":Cc2" without an argument, or the command ":Cc" with argument "2". It is advised to put a space between the command name and the argument to avoid these problems.

When using a user-defined command, the command can be abbreviated. However, if an abbreviation is not unique, an error will be issued. Furthermore, a built-in command will always take precedence.

Example:

```
:command Rename ...
:command Renumber ...
:Rena                          " Means "Rename"
:Renu                          " Means "Renumber"
:Ren                           " Error - ambiguous
:command Paste ...
:P                             " The built-in :Print
```

It is recommended that full names for user-defined commands are used in

scripts.

:com[mand]   :com   :command
                        List all user-defined commands. When listing commands,
                        the characters in the first two columns are
                            !   Command has the -bang attribute
                            "   Command has the -register attribute
                            b   Command is local to current buffer
                        (see below for details on attributes)
                        The list can be filtered on command name with
                         :filter , e.g., to list all commands with "Pyth" in
                        the name:
                                filter Pyth command

:com[mand] {cmd}   List the user-defined commands that start with {cmd}

                                                              :command-verbose
When 'verbose' is non-zero, listing a command will also display where it was
last defined. Example:

    :verbose command TOhtml
       Name   Args Range Complete Definition
        TOhtml   0   %   :call Convert2HTML(<line1>, <line2>)
            Last set from /usr/share/vim/vim-7.0/plugin/tohtml.vim

See :verbose-cmd for more information.

                                                              E174   E182
:com[mand][!] [{attr}...] {cmd} {rep}
                        Define a user command. The name of the command is
                        {cmd} and its replacement text is {rep}. The command's
                        attributes (see below) are {attr}. If the command
                        already exists, an error is reported, unless a ! is
                        specified, in which case the command is redefined.

:delc[ommand] {cmd}   :delc   :delcommand   E184
                        Delete the user-defined command {cmd}.

:comc[lear]   :comc   :comclear
                        Delete all user-defined commands.

Command attributes

User-defined commands are treated by Vim just like any other Ex commands. They
can have arguments, or have a range specified. Arguments are subject to
completion as filenames, buffers, etc. Exactly how this works depends upon the
command's attributes, which are specified when the command is defined.

There are a number of attributes, split into four categories: argument
handling, completion behavior, range handling, and special cases. The
attributes are described below, by category.

Argument handling   E175   E176   :command-nargs

By default, a user defined command will take no arguments (and an error is reported if any are supplied). However, it is possible to specify that the command can take arguments, using the -nargs attribute. Valid cases are:

```
        -nargs=0    No arguments are allowed (the default)
        -nargs=1    Exactly one argument is required, it includes spaces
        -nargs=*    Any number of arguments are allowed (0, 1, or many),
                    separated by white space
        -nargs=?    0 or 1 arguments are allowed
        -nargs=+    Arguments must be supplied, but any number are allowed
```

Arguments are considered to be separated by (unescaped) spaces or tabs in this context, except when there is one argument, then the white space is part of the argument.

Note that arguments are used as text, not as expressions. Specifically, "s:var" will use the script-local variable in the script where the command was defined, not where it is invoked! Example:

```
    script1.vim:
        :let s:error = "None"
        :command -nargs=1 Error echoerr <args>
   script2.vim:
        :source script1.vim
        :let s:error = "Wrong!"
        :Error s:error
```

Executing script2.vim will result in "None" being echoed. Not what you intended! Calling a function may be an alternative.

Completion behavior :command-completion E179 E180 E181 :command-complete

By default, the arguments of user defined commands do not undergo completion. However, by specifying one or the other of the following attributes, argument completion can be enabled:

```
        -complete=arglist       file names in argument list
        -complete=augroup       autocmd groups
        -complete=buffer        buffer names
        -complete=behave        :behave suboptions
        -complete=color         color schemes
        -complete=command       Ex command (and arguments)
        -complete=compiler      compilers
        -complete=cscope         :cscope  suboptions
        -complete=dir           directory names
        -complete=environment   environment variable names
        -complete=event         autocommand events
        -complete=expression    Vim expression
        -complete=file          file and directory names
        -complete=file_in_path  file and directory names in  'path'
        -complete=filetype      filetype names  'filetype'
        -complete=function      function name
        -complete=help          help subjects
        -complete=highlight     highlight groups
        -complete=history       :history suboptions
        -complete=locale        locale names (as output of locale -a)
```

```
        -complete=mapclear      buffer argument
        -complete=mapping       mapping name
        -complete=menu          menus
        -complete=messages       :messages  suboptions
        -complete=option        options
        -complete=packadd       optional package  pack-add  names
        -complete=shellcmd      Shell command
        -complete=sign           :sign  suboptions
        -complete=syntax        syntax file names  'syntax'
        -complete=syntime        :syntime  suboptions
        -complete=tag           tags
        -complete=tag_listfiles tags, file names are shown when CTRL-D is hit
        -complete=user          user names
        -complete=var           user variables
        -complete=custom,{func} custom completion, defined via {func}
        -complete=customlist,{func} custom completion, defined via {func}
```

Note: That some completion methods might expand environment variables.

Custom completion :command-completion-custom
:command-completion-customlist
E467 E468

It is possible to define customized completion schemes via the "custom,{func}" or the "customlist,{func}" completion argument. The {func} part should be a function with the following signature:

```
        :function {func}(ArgLead, CmdLine, CursorPos)
```

The function need not use all these arguments. The function should provide the completion candidates as the return value.

For the "custom" argument, the function should return the completion candidates one per line in a newline separated string.

For the "customlist" argument, the function should return the completion candidates as a Vim List. Non-string items in the list are ignored.

The function arguments are:

```
        ArgLead         the leading portion of the argument currently being
                        completed on
        CmdLine         the entire command line
        CursorPos       the cursor position in it (byte index)
```

The function may use these for determining context. For the "custom" argument, it is not necessary to filter candidates against the (implicit pattern in) ArgLead. Vim will filter the candidates with its regexp engine after function return, and this is probably more efficient in most cases. For the "customlist" argument, Vim will not filter the returned completion candidates and the user supplied function should filter the candidates.

The following example lists user names to a Finger command

```
    :com -complete=custom,ListUsers -nargs=1 Finger !finger <args>
    :fun ListUsers(A,L,P)
    :    return system("cut -d: -f1 /etc/passwd")
```

```
    :endfun
```

The following example completes filenames from the directories specified in the 'path' option:

```
    :com -nargs=1 -bang -complete=customlist,EditFileComplete
                        \ EditFile edit<bang> <args>
    :fun EditFileComplete(A,L,P)
    :    return split(globpath(&path, a:A), "\n")
    :endfun
```

This example does not work for file names with spaces!

Range handling E177 E178 :command-range :command-count

By default, user-defined commands do not accept a line number range. However, it is possible to specify that the command does take a range (the -range attribute), or that it takes an arbitrary count value, either in the line number position (-range=N, like the :split command) or as a "count" argument (-count=N, like the :Next command). The count will then be available in the argument with <count> .

Possible attributes are:

-range	Range allowed, default is current line
-range=%	Range allowed, default is whole file (1,$)
-range=N	A count (default N) which is specified in the line number position (like :split); allows for zero line number.
-count=N	A count (default N) which is specified either in the line number position, or as an initial argument (like :Next). Specifying -count (without a default) acts like -count=0

Note that -range=N and -count=N are mutually exclusive - only one should be specified.

:command-addr

It is possible that the special characters in the range like ., $ or % which by default correspond to the current line, last line and the whole buffer, relate to arguments, (loaded) buffers, windows or tab pages.

Possible values are:

-addr=lines	Range of lines (this is the default)
-addr=arguments	Range for arguments
-addr=buffers	Range for buffers (also not loaded buffers)
-addr=loaded_buffers	Range for loaded buffers
-addr=windows	Range for windows
-addr=tabs	Range for tab pages

Special cases :command-bang :command-bar :command-register :command-buffer

There are some special cases as well:

-bang	The command can take a ! modifier (like :q or :w)

```
        -bar        The command can be followed by a "|" and another command.
                    A "|" inside the command argument is not allowed then.
                    Also checks for a " to start a comment.
        -register   The first argument to the command can be an optional
                    register name (like :del, :put, :yank).
        -buffer     The command will only be available in the current buffer.

In the cases of the -count and -register attributes, if the optional argument
is supplied, it is removed from the argument list and is available to the
replacement text separately.
Note that these arguments can be abbreviated, but that is a deprecated
feature.  Use the full name for new scripts.

Replacement text

The replacement text for a user defined command is scanned for special escape
sequences, using <...> notation.  Escape sequences are replaced with values
from the entered command line, and all other text is copied unchanged.  The
resulting string is executed as an Ex command.  To avoid the replacement use
<lt> in place of the initial <.  Thus to include "<bang>" literally use
"<lt>bang>".

The valid escape sequences are

                                                    <line1>
        <line1> The starting line of the command range.
                                                    <line2>
        <line2> The final line of the command range.
                                                    <range>
        <range> The number of items in the command range: 0, 1 or 2
                                                    <count>
        <count> Any count supplied (as described for the '-range'
                and '-count' attributes).
                                                    <bang>
        <bang>  (See the '-bang' attribute) Expands to a ! if the
                command was executed with a ! modifier, otherwise
                expands to nothing.
                                                    <mods>
        <mods>  The command modifiers, if specified. Otherwise, expands to
                nothing. Supported modifiers are  :aboveleft ,  :belowright ,
                 :botright ,  :browse ,  :confirm ,  :hide ,  :keepalt ,
                 :keepjumps ,  :keepmarks ,  :keeppatterns ,  :leftabove ,
                 :lockmarks ,  :noswapfile   :rightbelow ,  :silent ,  :tab ,
                 :topleft ,  :verbose , and  :vertical .
                Note that these are not yet supported:  :noautocmd ,
                 :sandbox  and  :unsilent .
                Examples:
                    command! -nargs=+ -complete=file MyEdit
                                \ for f in expand(<q-args>, 0, 1) |
                                \ exe '<mods> split ' . f |
                                \ endfor

                    function! SpecialEdit(files, mods)
                        for f in expand(a:files, 0, 1)
```

```
                    exe a:mods . ' split ' . f
                endfor
            endfunction
            command! -nargs=+ -complete=file Sedit
                        \ call SpecialEdit(<q-args>, <q-mods>)
```

<reg> <register>

<reg> (See the '-register' attribute) The optional register, if specified. Otherwise, expands to nothing. <register> is a synonym for this.

<args>

<args> The command arguments, exactly as supplied (but as noted above, any count or register can consume some of the arguments, which are then not part of <args>).

<lt> A single '<' (Less-Than) character. This is needed if you want to get a literal copy of one of these escape sequences into the expansion - for example, to get <bang>, use <lt>bang>.

<q-args>

If the first two characters of an escape sequence are "q-" (for example, <q-args>) then the value is quoted in such a way as to make it a valid value for use in an expression. This uses the argument as one single value. When there is no argument <q-args> is an empty string.

<f-args>

To allow commands to pass their arguments on to a user-defined function, there is a special form <f-args> ("function args"). This splits the command arguments at spaces and tabs, quotes each argument individually, and the <f-args> sequence is replaced by the comma-separated list of quoted arguments. See the Mycmd example below. If no arguments are given <f-args> is removed.

To embed whitespace into an argument of <f-args>, prepend a backslash. <f-args> replaces every pair of backslashes (\\) with one backslash. A backslash followed by a character other than white space or a backslash remains unmodified. Overview:

```
command             <f-args>
XX ab               'ab'
XX a\b              'a\b'
XX a\ b             'a b'
XX a\  b            'a ', 'b'
XX a\\b             'a\b'
XX a\\ b            'a\', 'b'
XX a\\\b            'a\\b'
XX a\\\ b           'a\ b'
XX a\\\\b           'a\\b'
XX a\\\\ b          'a\\', 'b'
```

Examples

```
" Delete everything after here to the end
:com Ddel +,$d

" Rename the current buffer
:com -nargs=1 -bang -complete=file Ren f <args>|w<bang>
```

```
   " Replace a range with the contents of a file
   " (Enter this all as one line)
   :com -range -nargs=1 -complete=file
         Replace <line1>-pu_|<line1>,<line2>d|r <args>|<line1>d

   " Count the number of lines in the range
   :com! -range -nargs=0 Lines  echo <line2> - <line1> + 1 "lines"

   " Call a user function (example of <f-args>)
   :com -nargs=* Mycmd call Myfunc(<f-args>)
```

When executed as:

```
        :Mycmd arg1 arg2
```

This will invoke:

```
        :call Myfunc("arg1","arg2")
```

```
   :" A more substantial example
   :function Allargs(command)
   :   let i = 0
   :   while i < argc()
   :      if filereadable(argv(i))
   :         execute "e " . argv(i)
   :         execute a:command
   :      endif
   :      let i = i + 1
   :   endwhile
   :endfunction
   :command -nargs=+ -complete=command Allargs call Allargs(<q-args>)
```

The command Allargs takes any Vim command(s) as argument and executes it on all files in the argument list. Usage example (note use of the "e" flag to ignore errors and the "update" command to write modified buffers):

```
        :Allargs %s/foo/bar/ge|update
```

This will invoke:

```
        :call Allargs("%s/foo/bar/ge|update")
```

When defining a user command in a script, it will be able to call functions local to the script and use mappings local to the script. When the user invokes the user command, it will run in the context of the script it was defined in. This matters if <SID> is used in a command.

vim:tw=78:ts=8:noet:ft=help:norl:

tagsrch.txt For Vim version 8.1. Last change: 2018 May 04

VIM REFERENCE MANUAL by Bram Moolenaar

Tags and special searches tags-and-searches

See section 29.1 of the user manual for an introduction.

==
1. Jump to a tag tag-commands

tag tags
A tag is an identifier that appears in a "tags" file. It is a sort of label that can be jumped to. For example: In C programs each function name can be used as a tag. The "tags" file has to be generated by a program like ctags, before the tag commands can be used.

With the ":tag" command the cursor will be positioned on the tag. With the CTRL-] command, the keyword on which the cursor is standing is used as the tag. If the cursor is not on a keyword, the first keyword to the right of the cursor is used.

The ":tag" command works very well for C programs. If you see a call to a function and wonder what that function does, position the cursor inside of the function name and hit CTRL-]. This will bring you to the function definition. An easy way back is with the CTRL-T command. Also read about the tag stack below.

:ta :tag E426 E429
:[count]ta[g][!] {name}
Jump to the definition of {name}, using the information in the tags file(s). Put {name} in the tag stack. See tag-! for [!].
{name} can be a regexp pattern, see tag-regexp .
When there are several matching tags for {name}, jump to the [count] one. When [count] is omitted the first one is jumped to. See tag-matchlist for jumping to other matching tags.

g<LeftMouse> g<LeftMouse>
<C-LeftMouse> <C-LeftMouse> CTRL-]
CTRL-]
Jump to the definition of the keyword under the cursor. Same as ":tag {name}", where {name} is the keyword under or after cursor.
When there are several matching tags for {name}, jump

to the [count] one. When no [count] is given the first one is jumped to. See tag-matchlist for jumping to other matching tags.
{Vi: identifier after the cursor}

v_CTRL-]
{Visual}CTRL-] Same as ":tag {name}", where {name} is the text that is highlighted. {not in Vi}

telnet-CTRL-]
CTRL-] is the default telnet escape key. When you type CTRL-] to jump to a tag, you will get the telnet prompt instead. Most versions of telnet allow changing or disabling the default escape key. See the telnet man page. You can 'telnet -E {Hostname}' to disable the escape character, or 'telnet -e {EscapeCharacter} {Hostname}' to specify another escape character. If possible, try to use "ssh" instead of "telnet" to avoid this problem.

tag-priority
When there are multiple matches for a tag, this priority is used:
1. "FSC" A full matching static tag for the current file.
2. "F C" A full matching global tag for the current file.
3. "F " A full matching global tag for another file.
4. "FS " A full matching static tag for another file.
5. " SC" An ignore-case matching static tag for the current file.
6. " C" An ignore-case matching global tag for the current file.
7. " " An ignore-case matching global tag for another file.
8. " S " An ignore-case matching static tag for another file.

Note that when the current file changes, the priority list is mostly not changed, to avoid confusion when using ":tnext". It is changed when using ":tag {name}".

The ignore-case matches are not found for a ":tag" command when:
- the 'ignorecase' option is off and 'tagcase' is "followic"
- 'tagcase' is "match"
- 'tagcase' is "smart" and the pattern contains an upper case character.
- 'tagcase' is "followscs" and 'smartcase' option is on and the pattern contains an upper case character.

The ignore-case matches are found when:
- a pattern is used (starting with a "/")
- for ":tselect"
- when 'tagcase' is "followic" and 'ignorecase' is off
- when 'tagcase' is "match"
- when 'tagcase' is "followscs" and the 'smartcase' option is off

Note that using ignore-case tag searching disables binary searching in the tags file, which causes a slowdown. This can be avoided by fold-case sorting the tag file. See the 'tagbsearch' option for an explanation.

==
2. Tag stack tag-stack tagstack E425

On the tag stack is remembered which tags you jumped to, and from where.

Tags are only pushed onto the stack when the 'tagstack' option is set.

g<RightMouse> g<RightMouse>
<C-RightMouse> <C-RightMouse> CTRL-T
CTRL-T Jump to [count] older entry in the tag stack
(default 1). {not in Vi}

:po :pop E555 E556
:[count]po[p][!] Jump to [count] older entry in tag stack (default 1).
See tag-! for [!]. {not in Vi}

:[count]ta[g][!] Jump to [count] newer entry in tag stack (default 1).
See tag-! for [!]. {not in Vi}

:tags
:tags Show the contents of the tag stack. The active
entry is marked with a '>'. {not in Vi}

The output of ":tags" looks like this:

```
   # TO tag      FROM line  in file/text
   1  1 main            1  harddisk2:text/vim/test
 > 2  2 FuncA           58  i = FuncA(10);
   3  1 FuncC          357  harddisk2:text/vim/src/amiga.c
```

This list shows the tags that you jumped to and the cursor position before
that jump. The older tags are at the top, the newer at the bottom.

The '>' points to the active entry. This is the tag that will be used by the
next ":tag" command. The CTRL-T and ":pop" command will use the position
above the active entry.

Below the "TO" is the number of the current match in the match list. Note
that this doesn't change when using ":pop" or ":tag".

The line number and file name are remembered to be able to get back to where
you were before the tag command. The line number will be correct, also when
deleting/inserting lines, unless this was done by another program (e.g.
another instance of Vim).

For the current file, the "file/text" column shows the text at the position.
An indent is removed and a long line is truncated to fit in the window.

You can jump to previously used tags with several commands. Some examples:

```
":pop" or CTRL-T        to position before previous tag
{count}CTRL-T           to position before {count} older tag
":tag"                  to newer tag
":0tag"                 to last used tag
```

The most obvious way to use this is while browsing through the call graph of
a program. Consider the following call graph:

```
main  --->  FuncA  --->  FuncC
```

```
              --->  FuncB
```

(Explanation: main calls FuncA and FuncB; FuncA calls FuncC).
You can get from main to FuncA by using CTRL-] on the call to FuncA. Then you can CTRL-] to get to FuncC. If you now want to go back to main you can use CTRL-T twice. Then you can CTRL-] to FuncB.

If you issue a ":ta {name}" or CTRL-] command, this tag is inserted at the current position in the stack. If the stack was full (it can hold up to 20 entries), the oldest entry is deleted and the older entries shift one position up (their index number is decremented by one). If the last used entry was not at the bottom, the entries below the last used one are deleted. This means that an old branch in the call graph is lost. After the commands explained above the tag stack will look like this:

```
   # TO tag     FROM line  in file/text
   1  1 main           1  harddisk2:text/vim/test
   2  1 FuncB         59  harddisk2:text/vim/src/main.c
```

E73

When you try to use the tag stack while it doesn't contain anything you will get an error message.

==========

3. Tag match list tag-matchlist E427 E428

When there are several matching tags, these commands can be used to jump between them. Note that these commands don't change the tag stack, they keep the same entry.

:ts :tselect

:ts[elect][!] [name] List the tags that match [name], using the information in the tags file(s).
When [name] is not given, the last tag name from the tag stack is used.
See tag-! for [!].
With a '>' in the first column is indicated which is the current position in the list (if there is one).
[name] can be a regexp pattern, see tag-regexp .
See tag-priority for the priorities used in the listing. {not in Vi}
Example output:

```
  nr pri kind tag               file
   1 F   f    mch_delay         os_amiga.c
                 mch_delay(msec, ignoreinput)
 > 2 F   f    mch_delay         os_msdos.c
                 mch_delay(msec, ignoreinput)
   3 F   f    mch_delay         os_unix.c
                 mch_delay(msec, ignoreinput)
 Enter nr of choice (<CR> to abort):
```

See tag-priority for the "pri" column. Note that

this depends on the current file, thus using
":tselect xxx" can produce different results.
The "kind" column gives the kind of tag, if this was
included in the tags file.
The "info" column shows information that could be
found in the tags file. It depends on the program
that produced the tags file.
When the list is long, you may get the more-prompt .
If you already see the tag you want to use, you can
type 'q' and enter the number.

:sts :stselect

:sts[elect][!] [name] Does ":tselect[!] [name]" and splits the window for the selected tag. {not in Vi}

g]

g] Like CTRL-], but use ":tselect" instead of ":tag".
{not in Vi}

v_g]

{Visual}g] Same as "g]", but use the highlighted text as the identifier. {not in Vi}

:tj :tjump

:tj[ump][!] [name] Like ":tselect", but jump to the tag directly when there is only one match. {not in Vi}

:stj :stjump

:stj[ump][!] [name] Does ":tjump[!] [name]" and splits the window for the selected tag. {not in Vi}

g_CTRL-]

g CTRL-] Like CTRL-], but use ":tjump" instead of ":tag".
{not in Vi}

v_g_CTRL-]

{Visual}g CTRL-] Same as "g CTRL-]", but use the highlighted text as the identifier. {not in Vi}

:tn :tnext

:[count]tn[ext][!] Jump to [count] next matching tag (default 1). See tag-! for [!]. {not in Vi}

:tp :tprevious

:[count]tp[revious][!] Jump to [count] previous matching tag (default 1).
See tag-! for [!]. {not in Vi}

:tN :tNext

:[count]tN[ext][!] Same as ":tprevious". {not in Vi}

:tr :trewind

:[count]tr[ewind][!] Jump to first matching tag. If [count] is given, jump to [count]th matching tag. See tag-! for [!]. {not in Vi}

:tf :tfirst

:[count]tf[irst][!] Same as ":trewind". {not in Vi}

:tl :tlast

:tl[ast][!] Jump to last matching tag. See tag-! for [!]. {not in Vi}

:lt :ltag

:lt[ag][!] [name] Jump to tag [name] and add the matching tags to a new location list for the current window. [name] can be a regexp pattern, see tag-regexp . When [name] is not given, the last tag name from the tag stack is used. The search pattern to locate the tag line is prefixed with "\V" to escape all the special characters (very nomagic). The location list showing the matching tags is independent of the tag stack. See tag-! for [!].
{not in Vi}

When there is no other message, Vim shows which matching tag has been jumped to, and the number of matching tags:

```
tag 1 of 3 or more
```

The " or more" is used to indicate that Vim didn't try all the tags files yet. When using ":tnext" a few times, or with ":tlast", more matches may be found.

When you didn't see this message because of some other message, or you just want to know where you are, this command will show it again (and jump to the same tag as last time):

```
:0tn
```

tag-skip-file

When a matching tag is found for which the file doesn't exist, this match is skipped and the next matching tag is used. Vim reports this, to notify you of missing files. When the end of the list of matches has been reached, an error message is given.

tag-preview

The tag match list can also be used in the preview window. The commands are the same as above, with a "p" prepended.
{not available when compiled without the |+quickfix| feature}

:pts :ptselect

:pts[elect][!] [name] Does ":tselect[!] [name]" and shows the new tag in a "Preview" window. See :ptag for more info.
{not in Vi}

:ptj :ptjump

:ptj[ump][!] [name] Does ":tjump[!] [name]" and shows the new tag in a "Preview" window. See :ptag for more info.
{not in Vi}

:ptn :ptnext

:[count]ptn[ext][!] ":tnext" in the preview window. See :ptag .

{not in Vi}

:ptp :ptprevious
:[count]ptp[revious][!] ":tprevious" in the preview window. See :ptag .
{not in Vi}

:ptN :ptNext
:[count]ptN[ext][!] Same as ":ptprevious". {not in Vi}

:ptr :ptrewind
:[count]ptr[ewind][!] ":trewind" in the preview window. See :ptag .
{not in Vi}

:ptf :ptfirst
:[count]ptf[irst][!] Same as ":ptrewind". {not in Vi}

:ptl :ptlast
:ptl[ast][!] ":tlast" in the preview window. See :ptag .
{not in Vi}

==
4. Tags details tag-details

static-tag
A static tag is a tag that is defined for a specific file. In a C program
this could be a static function.

In Vi jumping to a tag sets the current search pattern. This means that
the "n" command after jumping to a tag does not search for the same pattern
that it did before jumping to the tag. Vim does not do this as we consider it
to be a bug. You can still find the tag search pattern in the search history.
If you really want the old Vi behavior, set the 't' flag in 'cpoptions'.

tag-binary-search
Vim uses binary searching in the tags file to find the desired tag quickly
(when enabled at compile time +tag_binary). But this only works if the
tags file was sorted on ASCII byte value. Therefore, if no match was found,
another try is done with a linear search. If you only want the linear search,
reset the 'tagbsearch' option. Or better: Sort the tags file!

Note that the binary searching is disabled when not looking for a tag with a
specific name. This happens when ignoring case and when a regular expression
is used that doesn't start with a fixed string. Tag searching can be a lot
slower then. The former can be avoided by case-fold sorting the tags file.
See 'tagbsearch' for details.

tag-regexp
The ":tag" and ":tselect" commands accept a regular expression argument. See
pattern for the special characters that can be used.
When the argument starts with '/', it is used as a pattern. If the argument
does not start with '/', it is taken literally, as a full tag name.
Examples:
:tag main
jumps to the tag "main" that has the highest priority.

    :tag /^get
       jumps to the tag that starts with "get" and has the highest priority.
    :tag /norm
       lists all the tags that contain "norm", including "id_norm".
When the argument both exists literally, and match when used as a regexp, a literal match has a higher priority. For example, ":tag /open" matches "open" before "open_file" and "file_open".
When using a pattern case is ignored. If you want to match case use "\C" in the pattern.

                                                                tag-!
If the tag is in the current file this will always work. Otherwise the performed actions depend on whether the current file was changed, whether a ! is added to the command and on the 'autowrite' option:

tag in current file	file changed	!	autowrite option	action
yes	x	x	x	goto tag
no	no	x	x	read other file, goto tag
no	yes	yes	x	abandon current file, read other file, goto tag
no	yes	no	on	write current file, read other file, goto tag
no	yes	no	off	fail

- If the tag is in the current file, the command will always work.
- If the tag is in another file and the current file was not changed, the other file will be made the current file and read into the buffer.
- If the tag is in another file, the current file was changed and a ! is added to the command, the changes to the current file are lost, the other file will be made the current file and read into the buffer.
- If the tag is in another file, the current file was changed and the 'autowrite' option is on, the current file will be written, the other file will be made the current file and read into the buffer.
- If the tag is in another file, the current file was changed and the 'autowrite' option is off, the command will fail. If you want to save the changes, use the ":w" command and then use ":tag" without an argument. This works because the tag is put on the stack anyway. If you want to lose the changes you can use the ":tag!" command.

                                                        tag-security
Note that Vim forbids some commands, for security reasons. This works like using the 'secure' option for exrc/vimrc files in the current directory. See trojan-horse and sandbox .
When the {tagaddress} changes a buffer, you will get a warning message:
        "WARNING: tag command changed a buffer!!!"
In a future version changing the buffer will be impossible. All this for security reasons: Somebody might hide a nasty command in the tags file, which would otherwise go unnoticed. Example:
        :$d|/tag-function-name/
{this security prevention is not present in Vi}

In Vi the ":tag" command sets the last search pattern when the tag is searched for. In Vim this is not done, the previous search pattern is still remembered, unless the 't' flag is present in 'cpoptions'. The search pattern is always put in the search history, so you can modify it if searching fails.

emacs-tags emacs_tags E430

Emacs style tag files are only supported if Vim was compiled with the +emacs_tags feature enabled. Sorry, there is no explanation about Emacs tag files here, it is only supported for backwards compatibility :-).

Lines in Emacs tags files can be very long. Vim only deals with lines of up to about 510 bytes. To see whether lines are ignored set 'verbose' to 5 or higher.

tags-option

The 'tags' option is a list of file names. Each of these files is searched for the tag. This can be used to use a different tags file than the default file "tags". It can also be used to access a common tags file.

The next file in the list is not used when:
- A matching static tag for the current buffer has been found.
- A matching global tag has been found.

This also depends on whether case is ignored. Case is ignored when:
- 'tagcase' is "followic" and 'ignorecase' is set
- 'tagcase' is "ignore"
- 'tagcase' is "smart" and the pattern only contains lower case characters.
- 'tagcase' is "followscs" and 'smartcase' is set and the pattern only contains lower case characters.

If case is not ignored, and the tags file only has a match without matching case, the next tags file is searched for a match with matching case. If no tag with matching case is found, the first match without matching case is used. If case is ignored, and a matching global tag with or without matching case is found, this one is used, no further tags files are searched.

When a tag file name starts with "./", the '.' is replaced with the path of the current file. This makes it possible to use a tags file in the directory where the current file is (no matter what the current directory is). The idea of using "./" is that you can define which tag file is searched first: In the current directory ("tags,./tags") or in the directory of the current file ("./tags,tags").

For example:

```
:set tags=./tags,tags,/home/user/commontags
```

In this example the tag will first be searched for in the file "tags" in the directory where the current file is. Next the "tags" file in the current directory. If it is not found there, then the file "/home/user/commontags" will be searched for the tag.

This can be switched off by including the 'd' flag in 'cpoptions', to make it Vi compatible. "./tags" will then be the tags file in the current directory, instead of the tags file in the directory where the current file is.

Instead of the comma a space may be used. Then a backslash is required for the space to be included in the string option:
	:set tags=tags\ /home/user/commontags

To include a space in a file name use three backslashes. To include a comma in a file name use two backslashes. For example, use:
	:set tags=tag\\\ file,/home/user/common\\,tags

for the files "tag file" and "/home/user/common,tags". The 'tags' option will have the value "tag\ file,/home/user/common\,tags".

If the 'tagrelative' option is on (which is the default) and using a tag file in another directory, file names in that tag file are relative to the directory where the tag file is.

==
5. Tags file format   tags-file-format   E431

                                                       ctags   jtags
A tags file can be created with an external command, for example "ctags". It will contain a tag for each function. Some versions of "ctags" will also make a tag for each "#defined" macro, typedefs, enums, etc.

Some programs that generate tags files:
ctags   As found on most Unix systems. Only supports C. Only does the basic work.
                                                                Exuberant_ctags
exuberant ctags   This a very good one. It works for C, C++, Java, Fortran, Eiffel and others. It can generate tags for many items. See http://ctags.sourceforge.net.
etags   Connected to Emacs. Supports many languages.
JTags   For Java, in Java. It can be found at http://www.fleiner.com/jtags/.
ptags.py   For Python, in Python. Found in your Python source directory at Tools/scripts/ptags.py.
ptags   For Perl, in Perl. It can be found at http://www.eleves.ens.fr:8080/home/nthiery/Tags/.
gnatxref   For Ada. See http://www.gnuada.org/. gnatxref is part of the gnat package.

The lines in the tags file must have one of these three formats:

1. {tagname}   {TAB} {tagfile} {TAB} {tagaddress}
2. {tagfile}:{tagname} {TAB} {tagfile} {TAB} {tagaddress}
3. {tagname}   {TAB} {tagfile} {TAB} {tagaddress} {term} {field} ..

The first is a normal tag, which is completely compatible with Vi. It is the only format produced by traditional ctags implementations. This is often used for functions that are global, also referenced in other files.

The lines in the tags file can end in <LF> or <CR><LF>. On the Macintosh <CR> also works. The <CR> and <NL> characters can never appear inside a line.

tag-old-static

The second format is for a static tag only. It is obsolete now, replaced by the third format. It is only supported by Elvis 1.x and Vim and a few versions of ctags. A static tag is often used for functions that are local, only referenced in the file {tagfile}. Note that for the static tag, the two occurrences of {tagfile} must be exactly the same. Also see tags-option below, for how static tags are used.

The third format is new. It includes additional information in optional fields at the end of each line. It is backwards compatible with Vi. It is only supported by new versions of ctags (such as Exuberant ctags).

{tagname} The identifier. Normally the name of a function, but it can be any identifier. It cannot contain a <Tab>.

{TAB} One <Tab> character. Note: previous versions allowed any white space here. This has been abandoned to allow spaces in {tagfile}. It can be re-enabled by including the +tag_any_white feature at compile time. tag-any-white

{tagfile} The file that contains the definition of {tagname}. It can have an absolute or relative path. It may contain environment variables and wildcards (although the use of wildcards is doubtful). It cannot contain a <Tab>.

{tagaddress} The Ex command that positions the cursor on the tag. It can be any Ex command, although restrictions apply (see tag-security). Posix only allows line numbers and search commands, which are mostly used.

{term} ;" The two characters semicolon and double quote. This is interpreted by Vi as the start of a comment, which makes the following be ignored. This is for backwards compatibility with Vi, it ignores the following fields.

{field} .. A list of optional fields. Each field has the form:

<Tab>{fieldname}:{value}

The {fieldname} identifies the field, and can only contain alphabetical characters [a-zA-Z].
The {value} is any string, but cannot contain a <Tab>.
These characters are special:
"\t" stands for a <Tab>
"\r" stands for a <CR>
"\n" stands for a <NL>
"\\" stands for a single '\' character

There is one field that doesn't have a ':'. This is the kind of the tag. It is handled like it was preceded with "kind:". See the documentation of ctags for the kinds it produces.

The only other field currently recognized by Vim is "file:" (with an empty value). It is used for a static tag.

The first lines in the tags file can contain lines that start with
!_TAG_
These are sorted to the first lines, only rare tags that start with "!" can

sort to before them. Vim recognizes two items. The first one is the line
that indicates if the file was sorted. When this line is found, Vim uses
binary searching for the tags file:
	!_TAG_FILE_SORTED<Tab>1<Tab>{anything}

A tag file may be case-fold sorted to avoid a linear search when case is
ignored. (Case is ignored when 'ignorecase' is set and 'tagcase' is
"followic", or when 'tagcase' is "ignore".) See 'tagbsearch' for details.
The value '2' should be used then:
	!_TAG_FILE_SORTED<Tab>2<Tab>{anything}

The other tag that Vim recognizes, but only when compiled with the
 +multi_byte feature, is the encoding of the tags file:
	!_TAG_FILE_ENCODING<Tab>utf-8<Tab>{anything}
Here "utf-8" is the encoding used for the tags. Vim will then convert the tag
being searched for from 'encoding' to the encoding of the tags file. And when
listing tags the reverse happens. When the conversion fails the unconverted
tag is used.

                                                              tag-search
The command can be any Ex command, but often it is a search command.
Examples:
	tag1	file1	/^main(argc, argv)/
	tag2	file2	108

The command is always executed with 'magic' not set. The only special
characters in a search pattern are "^" (begin-of-line) and "$" (<EOL>).
See pattern . Note that you must put a backslash before each backslash in
the search text. This is for backwards compatibility with Vi.

                                                          E434 E435
If the command is a normal search command (it starts and ends with "/" or
"?"), some special handling is done:
- Searching starts on line 1 of the file.
  The direction of the search is forward for "/", backward for "?".
  Note that 'wrapscan' does not matter, the whole file is always searched. (Vi
  does use 'wrapscan', which caused tags sometimes not be found.) {Vi starts
  searching in line 2 of another file. It does not find a tag in line 1 of
  another file when 'wrapscan' is not set}
- If the search fails, another try is done ignoring case. If that fails too,
  a search is done for:
	"^tagname[\t]*("
  (the tag with '^' prepended and "[\t]*(" appended). When using function
  names, this will find the function name when it is in column 0. This will
  help when the arguments to the function have changed since the tags file was
  made. If this search also fails another search is done with:
	"^[#a-zA-Z_].*\<tagname[\t]*("
  This means: A line starting with '#' or an identifier and containing the tag
  followed by white space and a '('. This will find macro names and function
  names with a type prepended. {the extra searches are not in Vi}

==
6. Include file searches   include-search definition-search
                                                        E387 E388 E389

These commands look for a string in the current file and in all encountered included files (recursively). This can be used to find the definition of a variable, function or macro. If you only want to search in the current buffer, use the commands listed at pattern-searches .

These commands are not available when the +find_in_path feature was disabled at compile time.

When a line is encountered that includes another file, that file is searched before continuing in the current buffer. Files included by included files are also searched. When an include file could not be found it is silently ignored. Use the :checkpath command to discover which files could not be found, possibly your 'path' option is not set up correctly. Note: the included file is searched, not a buffer that may be editing that file. Only for the current file the lines in the buffer are used.

The string can be any keyword or a defined macro. For the keyword any match will be found. For defined macros only lines that match with the 'define' option will be found. The default is "^#\s*define", which is for C programs. For other languages you probably want to change this. See 'define' for an example for C++. The string cannot contain an end-of-line, only matches within a line are found.

When a match is found for a defined macro, the displaying of lines continues with the next line when a line ends in a backslash.

The commands that start with "[" start searching from the start of the current file. The commands that start with "]" start at the current cursor position.

The 'include' option is used to define a line that includes another file. The default is "\^#\s*include", which is for C programs. Note: Vim does not recognize C syntax, if the 'include' option matches a line inside "#ifdef/#endif" or inside a comment, it is searched anyway. The 'isfname' option is used to recognize the file name that comes after the matched pattern.

The 'path' option is used to find the directory for the include files that do not have an absolute path.

The 'comments' option is used for the commands that display a single line or jump to a line. It defines patterns that may start a comment. Those lines are ignored for the search, unless [!] is used. One exception: When the line matches the pattern "^# *define" it is not considered to be a comment.

If you want to list matches, and then select one to jump to, you could use a mapping to do that for you. Here is an example:

```
:map <F4> [I:let nr = input("Which one: ")<Bar>exe "normal " . nr ."[\t"<CR>
```

[i

[i Display the first line that contains the keyword under the cursor. The search starts at the beginning of the file. Lines that look like a comment are

ignored (see 'comments' option). If a count is given, the count'th matching line is displayed, and comment lines are not ignored. {not in Vi}

]i

]i like "[i", but start at the current cursor position. {not in Vi}

:is :isearch

:[range]is[earch][!] [count] [/]pattern[/]
Like "[i" and "]i", but search in [range] lines (default: whole file).
See :search-args for [/] and [!]. {not in Vi}

[I

[I Display all lines that contain the keyword under the cursor. Filenames and line numbers are displayed for the found lines. The search starts at the beginning of the file. {not in Vi}

]I

]I like "[I", but start at the current cursor position. {not in Vi}

:il :ilist

:[range]il[ist][!] [/]pattern[/]
Like "[I" and "]I", but search in [range] lines (default: whole file).
See :search-args for [/] and [!]. {not in Vi}

[_CTRL-I

[CTRL-I Jump to the first line that contains the keyword under the cursor. The search starts at the beginning of the file. Lines that look like a comment are ignored (see 'comments' option). If a count is given, the count'th matching line is jumped to, and comment lines are not ignored. {not in Vi}

]_CTRL-I

] CTRL-I like "[CTRL-I", but start at the current cursor position. {not in Vi}

:ij :ijump

:[range]ij[ump][!] [count] [/]pattern[/]
Like "[CTRL-I" and "] CTRL-I", but search in [range] lines (default: whole file).
See :search-args for [/] and [!]. {not in Vi}

CTRL-W CTRL-I CTRL-W_CTRL-I CTRL-W_i

CTRL-W i Open a new window, with the cursor on the first line that contains the keyword under the cursor. The search starts at the beginning of the file. Lines that look like a comment line are ignored (see 'comments' option). If a count is given, the count'th

matching line is jumped to, and comment lines are not ignored. {not in Vi}

:isp :isplit
:[range]isp[lit][!] [count] [/]pattern[/]
Like "CTRL-W i" and "CTRL-W i", but search in [range] lines (default: whole file).
See :search-args for [/] and [!]. {not in Vi}

[d
[d Display the first macro definition that contains the macro under the cursor. The search starts from the beginning of the file. If a count is given, the count'th matching line is displayed. {not in Vi}

]d
]d like "[d", but start at the current cursor position. {not in Vi}

:ds :dsearch
:[range]ds[earch][!] [count] [/]string[/]
Like "[d" and "]d", but search in [range] lines (default: whole file).
See :search-args for [/] and [!]. {not in Vi}

[D
[D Display all macro definitions that contain the macro under the cursor. Filenames and line numbers are displayed for the found lines. The search starts from the beginning of the file. {not in Vi}

]D
]D like "[D", but start at the current cursor position. {not in Vi}

:dli :dlist
:[range]dli[st][!] [/]string[/]
Like `[D` and `]D`, but search in [range] lines (default: whole file).
See :search-args for [/] and [!]. {not in Vi}
Note that `:dl` works like `:delete` with the "l" flag, not `:dlist`.

[_CTRL-D
[CTRL-D Jump to the first macro definition that contains the keyword under the cursor. The search starts from the beginning of the file. If a count is given, the count'th matching line is jumped to. {not in Vi}

]_CTRL-D
] CTRL-D like "[CTRL-D", but start at the current cursor position. {not in Vi}

:dj :djump

```
:[range]dj[ump][!] [count] [/]string[/]
                        Like "[ CTRL-D"  and "] CTRL-D", but search  in
                        [range] lines (default: whole file).
                        See  :search-args  for [/] and [!].  {not in Vi}

CTRL-W CTRL-D                                       CTRL-W_CTRL-D   CTRL-W_d
CTRL-W d                Open a new window, with the cursor on the first
                        macro definition line that contains the keyword
                        under the cursor.  The search starts from the
                        beginning of the file.  If a count is given, the
                        count'th matching line is jumped to.  {not in Vi}

                                                                :dsp   :dsplit
:[range]dsp[lit][!] [count] [/]string[/]
                        Like "CTRL-W d", but search in [range] lines
                        (default: whole file).
                        See  :search-args  for [/] and [!].  {not in Vi}

                                                                :che   :checkpath
:che[ckpath]            List all the included files that could not be found.
                        {not in Vi}

:che[ckpath]!           List all the included files.  {not in Vi}

                                                                    :search-args
Common arguments for the commands above:
[!]     When included, find matches in lines that are recognized as comments.
        When excluded, a match is ignored when the line is recognized as a
        comment (according to 'comments'), or the match is in a C comment
        (after "//" or inside /* */).  Note that a match may be missed if a
        line is recognized as a comment, but the comment ends halfway the line.
        And if the line is a comment, but it is not recognized (according to
        'comments') a match may be found in it anyway.  Example:
                /* comment
                   foobar */
       A match for "foobar" is found, because this line is not recognized as
        a comment (even though syntax highlighting does recognize it).
        Note: Since a macro definition mostly doesn't look like a comment, the
        [!] makes no difference for ":dlist", ":dsearch" and ":djump".
[/]     A pattern can be surrounded by '/'.  Without '/' only whole words are
        matched, using the pattern "\<pattern\>".  Only after the second '/' a
        next command can be appended with '|'.  Example:
        :isearch /string/ | echo "the last one"
       For a ":djump", ":dsplit", ":dlist" and ":dsearch" command the pattern
        is used as a literal string, not as a search pattern.

 vim:tw=78:ts=8:noet:ft=help:norl:
```

quickfix.txt For Vim version 8.1. Last change: 2018 May 01

VIM REFERENCE MANUAL by Bram Moolenaar

This subject is introduced in section 30.1 of the user manual.

{Vi does not have any of these commands}

The quickfix commands are not available when the +quickfix feature was disabled at compile time.

==
1. Using QuickFix commands quickfix Quickfix E42

Vim has a special mode to speedup the edit-compile-edit cycle. This is inspired by the quickfix option of the Manx's Aztec C compiler on the Amiga. The idea is to save the error messages from the compiler in a file and use Vim to jump to the errors one by one. You can examine each problem and fix it, without having to remember all the error messages.

In Vim the quickfix commands are used more generally to find a list of positions in files. For example, :vimgrep finds pattern matches. You can use the positions in a script with the getqflist() function. Thus you can do a lot more than the edit/compile/fix cycle!

If you have the error messages in a file you can start Vim with:

```
vim -q filename
```

From inside Vim an easy way to run a command and handle the output is with the :make command (see below).

The 'errorformat' option should be set to match the error messages from your compiler (see errorformat below).

quickfix-ID

Each quickfix list has a unique identifier called the quickfix ID and this number will not change within a Vim session. The getqflist() function can be used to get the identifier assigned to a list. There is also a quickfix list number which may change whenever more than ten lists are added to a quickfix stack.

location-list E776

A location list is a window-local quickfix list. You get one after commands like `:lvimgrep`, `:lgrep`, `:lhelpgrep`, `:lmake`, etc., which create a location list instead of a quickfix list as the corresponding `:vimgrep`, `:grep`, `:helpgrep`, `:make` do.
A location list is associated with a window and each window can have a separate location list. A location list can be associated with only one window. The location list is independent of the quickfix list.

When a window with a location list is split, the new window gets a copy of the location list. When there are no longer any references to a location list, the location list is destroyed.

quickfix-changedtick
Every quickfix and location list has a read-only changedtick variable that tracks the total number of changes made to the list. Every time the quickfix list is modified, this count is incremented. This can be used to perform an action only when the list has changed. The getqflist() and getloclist() functions can be used to query the current value of changedtick. You cannot change the changedtick variable.

The following quickfix commands can be used. The location list commands are similar to the quickfix commands, replacing the 'c' prefix in the quickfix command with 'l'.

E924
If the current window was closed by an autocommand while processing a location list command, it will be aborted.

E925 E926
If the current quickfix or location list was changed by an autocommand while processing a quickfix or location list command, it will be aborted.

:cc
:cc[!] [nr] Display error [nr]. If [nr] is omitted, the same error is displayed again. Without [!] this doesn't work when jumping to another buffer, the current buffer has been changed, there is the only window for the buffer and both 'hidden' and 'autowrite' are off.
When jumping to another buffer with [!] any changes to the current buffer are lost, unless 'hidden' is set or there is another window for this buffer.
The 'switchbuf' settings are respected when jumping to a buffer.

:ll
:ll[!] [nr] Same as ":cc", except the location list for the current window is used instead of the quickfix list.

:cn :cnext E553
:[count]cn[ext][!] Display the [count] next error in the list that includes a file name. If there are no file names at all, go to the [count] next error. See :cc for [!] and 'switchbuf'.

:lne :lnext
:[count]lne[xt][!] Same as ":cnext", except the location list for the current window is used instead of the quickfix list.

:[count]cN[ext][!] :cp :cprevious :cN :cNext
:[count]cp[revious][!] Display the [count] previous error in the list that includes a file name. If there are no file names at all, go to the [count] previous error. See :cc for [!] and 'switchbuf'.

:[count]lN[ext][!] :lp :lprevious :lN :lNext
:[count]lp[revious][!] Same as ":cNext" and ":cprevious", except the location list for the current window is used instead of the quickfix list.

:cnf :cnfile
:[count]cnf[ile][!] Display the first error in the [count] next file in the list that includes a file name. If there are no file names at all or if there is no next file, go to the [count] next error. See :cc for [!] and 'switchbuf'.

:lnf :lnfile
:[count]lnf[ile][!] Same as ":cnfile", except the location list for the current window is used instead of the quickfix list.

:[count]cNf[ile][!] :cpf :cpfile :cNf :cNfile
:[count]cpf[ile][!] Display the last error in the [count] previous file in the list that includes a file name. If there are no file names at all or if there is no next file, go to the [count] previous error. See :cc for [!] and 'switchbuf'.

:[count]lNf[ile][!] :lpf :lpfile :lNf :lNfile
:[count]lpf[ile][!] Same as ":cNfile" and ":cpfile", except the location list for the current window is used instead of the quickfix list.

:crewind :cr
:cr[ewind][!] [nr] Display error [nr]. If [nr] is omitted, the FIRST error is displayed. See :cc .

:lrewind :lr
:lr[ewind][!] [nr] Same as ":crewind", except the location list for the current window is used instead of the quickfix list.

:cfirst :cfir
:cfir[st][!] [nr] Same as ":crewind".

:lfirst :lfir
:lfir[st][!] [nr] Same as ":lrewind".

:cla[st][!] [nr] Display error [nr]. If [nr] is omitted, the LAST error is displayed. See :cc .

:clast :cla

:lla[st][!] [nr] Same as ":clast", except the location list for the current window is used instead of the quickfix list.

:llast :lla

:cq[uit][!] Quit Vim with an error code, so that the compiler will not compile the same file again.
WARNING: All changes in files are lost! Also when the [!] is not used. It works like ":qall!" :qall , except that Vim returns a non-zero exit code.

:cq :cquit

:cf[ile][!] [errorfile] Read the error file and jump to the first error.
This is done automatically when Vim is started with the -q option. You can use this command when you keep Vim running while compiling. If you give the name of the errorfile, the 'errorfile' option will be set to [errorfile]. See :cc for [!].
If the encoding of the error file differs from the 'encoding' option, you can use the 'makeencoding' option to specify the encoding.

:cf :cfile

:lf[ile][!] [errorfile] Same as ":cfile", except the location list for the current window is used instead of the quickfix list.
You can not use the -q command-line option to set the location list.

:lf :lfile

:cg[etfile] [errorfile] Read the error file. Just like ":cfile" but don't jump to the first error.
If the encoding of the error file differs from the 'encoding' option, you can use the 'makeencoding' option to specify the encoding.

:cg :cgetfile

:lg[etfile] [errorfile] Same as ":cgetfile", except the location list for the current window is used instead of the quickfix list.

:lg :lgetfile

:caddf[ile] [errorfile] Read the error file and add the errors from the errorfile to the current quickfix list. If a quickfix list is not present, then a new list is created.
If the encoding of the error file differs from the 'encoding' option, you can use the 'makeencoding' option to specify the encoding.

:caddf :caddfile

:laddf :laddfile

:laddf[ile] [errorfile] Same as ":caddfile", except the location list for the current window is used instead of the quickfix list.

:cb :cbuffer E681

:cb[uffer][!] [bufnr] Read the error list from the current buffer. When [bufnr] is given it must be the number of a loaded buffer. That buffer will then be used instead of the current buffer.
A range can be specified for the lines to be used. Otherwise all lines in the buffer are used.
See :cc for [!].

:lb :lbuffer

:lb[uffer][!] [bufnr] Same as ":cbuffer", except the location list for the current window is used instead of the quickfix list.

:cgetb :cgetbuffer

:cgetb[uffer] [bufnr] Read the error list from the current buffer. Just like ":cbuffer" but don't jump to the first error.

:lgetb :lgetbuffer

:lgetb[uffer] [bufnr] Same as ":cgetbuffer", except the location list for the current window is used instead of the quickfix list.

:cad :caddbuffer

:cad[dbuffer] [bufnr] Read the error list from the current buffer and add the errors to the current quickfix list. If a quickfix list is not present, then a new list is created. Otherwise, same as ":cbuffer".

:laddb :laddbuffer

:laddb[uffer] [bufnr] Same as ":caddbuffer", except the location list for the current window is used instead of the quickfix list.

:cex :cexpr E777

:cex[pr][!] {expr} Create a quickfix list using the result of {expr} and jump to the first error.
If {expr} is a String, then each new-line terminated line in the String is processed using the global value of 'errorformat' and the result is added to the quickfix list.
If {expr} is a List, then each String item in the list is processed and added to the quickfix list. Non String items in the List are ignored.
See :cc for [!].
Examples:

```
:cexpr system('grep -n xyz *')
:cexpr getline(1, '$')
```

:lex :lexpr

:lex[pr][!] {expr} Same as :cexpr , except the location list for the current window is used instead of the quickfix list.

:cgete[xpr] {expr} :cgete :cgetexpr
Create a quickfix list using the result of {expr}. Just like :cexpr , but don't jump to the first error.

:lgete[xpr] {expr} :lgete :lgetexpr
Same as :cgetexpr , except the location list for the current window is used instead of the quickfix list.

:cadde[xpr] {expr} :cadde :caddexpr
Evaluate {expr} and add the resulting lines to the current quickfix list. If a quickfix list is not present, then a new list is created. The current cursor position will not be changed. See :cexpr for more information.
Example:

```
:g/mypattern/caddexpr expand("%") . ":" . line(".") .  ":" . getline(".")
```

:lad[dexpr] {expr} :lad :laddexpr
Same as ":caddexpr", except the location list for the current window is used instead of the quickfix list.

:cl[ist] [from] [, [to]] :cl :clist
List all errors that are valid quickfix-valid . If numbers [from] and/or [to] are given, the respective range of errors is listed. A negative number counts from the last error backwards, -1 being the last error. The 'switchbuf' settings are respected when jumping to a buffer.
The :filter command can be used to display only the quickfix entries matching a supplied pattern. The pattern is matched against the filename, module name, pattern and text of the entry.

:cl[ist] +{count}
List the current and next {count} valid errors. This is similar to ":clist from from+count", where "from" is the current error position.

:cl[ist]! [from] [, [to]]
List all errors.

:cl[ist]! +{count}
List the current and next {count} error lines. This is useful to see unrecognized lines after the current one. For example, if ":clist" shows:

```
8384 testje.java:252: error: cannot find symbol
```

Then using ":cl! +3" shows the reason:

```
8384 testje.java:252: error: cannot find symbol
8385:   ZexitCode = Fmainx();
8386:               ^
8387:   symbol:   method Fmainx()
```

:lli[st] [from] [, [to]] :lli :llist
Same as ":clist", except the location list for the

current window is used instead of the quickfix list.

:lli[st]! [from] [, [to]]
List all the entries in the location list for the current window.

If you insert or delete lines, mostly the correct error location is still found because hidden marks are used. Sometimes, when the mark has been deleted for some reason, the message "line changed" is shown to warn you that the error location may not be correct. If you quit Vim and start again the marks are lost and the error locations may not be correct anymore.

Two autocommands are available for running commands before and after a quickfix command (':make', ':grep' and so on) is executed. See QuickFixCmdPre and QuickFixCmdPost for details.

QuickFixCmdPost-example
When 'encoding' differs from the locale, the error messages may have a different encoding from what Vim is using. To convert the messages you can use this code:

```
function QfMakeConv()
   let qflist = getqflist()
   for i in qflist
      let i.text = iconv(i.text, "cp936", "utf-8")
   endfor
   call setqflist(qflist)
endfunction

au QuickfixCmdPost make call QfMakeConv()
```

Another option is using 'makeencoding'.

quickfix-title
Every quickfix and location list has a title. By default the title is set to the command that created the list. The getqflist() and getloclist() functions can be used to get the title of a quickfix and a location list respectively. The setqflist() and setloclist() functions can be used to modify the title of a quickfix and location list respectively. Examples:

```
call setqflist([], 'a', {'title' : 'Cmd output'})
echo getqflist({'title' : 1})
call setloclist(3, [], 'a', {'title' : 'Cmd output'})
echo getloclist(3, {'title' : 1})
```

quickfix-size
You can get the number of entries (size) in a quickfix and a location list using the getqflist() and getloclist() functions respectively. Examples:

```
echo getqflist({'size' : 1})
echo getloclist(5, {'size' : 1})
```

quickfix-context
Any Vim type can be associated as a context with a quickfix or location list. The setqflist() and the setloclist() functions can be used to associate a context with a quickfix and a location list respectively. The getqflist() and the getloclist() functions can be used to retrieve the context of a quickfix and a location list respectively. This is useful for a Vim plugin

dealing with multiple quickfix/location lists.
Examples:

```
	let somectx = {'name' : 'Vim', 'type' : 'Editor'}
	call setqflist([], 'a', {'context' : somectx})
	echo getqflist({'context' : 1})

	let newctx = ['red', 'green', 'blue']
	call setloclist(2, [], 'a', {'id' : qfid, 'context' : newctx})
	echo getloclist(2, {'id' : qfid, 'context' : 1})
```

quickfix-parse
You can parse a list of lines using 'errorformat' without creating or
modifying a quickfix list using the getqflist() function. Examples:

```
	echo getqflist({'lines' : ["F1:10:Line10", "F2:20:Line20"]})
	echo getqflist({'lines' : systemlist('grep -Hn quickfix *')})
```

This returns a dictionary where the 'items' key contains the list of quickfix
entries parsed from lines. The following shows how to use a custom
'errorformat' to parse the lines without modifying the 'errorformat' option:

```
	echo getqflist({'efm' : '%f#%l#%m', 'lines' : ['F1#10#Line']})
```

EXECUTE A COMMAND IN ALL THE BUFFERS IN QUICKFIX OR LOCATION LIST:
:cdo
:cdo[!] {cmd} Execute {cmd} in each valid entry in the quickfix list.
It works like doing this:

```
	:cfirst
	:{cmd}
	:cnext
	:{cmd}
	etc.
```

When the current file can't be abandon ed and the [!]
is not present, the command fails.
When an error is detected execution stops.
The last buffer (or where an error occurred) becomes
the current buffer.
{cmd} can contain '|' to concatenate several commands.

Only valid entries in the quickfix list are used.
A range can be used to select entries, e.g.:

```
	:10,$cdo cmd
```

To skip entries 1 to 9.

Note: While this command is executing, the Syntax
autocommand event is disabled by adding it to
'eventignore'. This considerably speeds up editing
each buffer.
{not in Vi}
Also see :bufdo , :tabdo , :argdo , :windo ,
:ldo , :cfdo and :lfdo .

:cfdo
:cfdo[!] {cmd} Execute {cmd} in each file in the quickfix list.
It works like doing this:

:cfirst
:{cmd}
:cnfile
:{cmd}
etc.
Otherwise it works the same as `:cdo`.
{not in Vi}

:ldo
:ld[o][!] {cmd} Execute {cmd} in each valid entry in the location list
for the current window.
It works like doing this:
:lfirst
:{cmd}
:lnext
:{cmd}
etc.
Only valid entries in the location list are used.
Otherwise it works the same as `:cdo`.
{not in Vi}

:lfdo
:lfdo[!] {cmd} Execute {cmd} in each file in the location list for
the current window.
It works like doing this:
:lfirst
:{cmd}
:lnfile
:{cmd}
etc.
Otherwise it works the same as `:ldo`.
{not in Vi}

==
2. The error window quickfix-window

:cope :copen w:quickfix_title
:cope[n] [height] Open a window to show the current list of errors.

When [height] is given, the window becomes that high
(if there is room). When [height] is omitted the
window is made ten lines high.

If there already is a quickfix window, it will be made
the current window. It is not possible to open a
second quickfix window. If [height] is given the
existing window will be resized to it.

The window will contain a special buffer, with
'buftype' equal to "quickfix". Don't change this!
The window will have the w:quickfix_title variable set
which will indicate the command that produced the
quickfix list. This can be used to compose a custom
status line if the value of 'statusline' is adjusted

properly. Whenever this buffer is modified by a quickfix command or function, the b:changedtick variable is incremented.

:lop[en] [height] — :lop :lopen
Open a window to show the location list for the current window. Works only when the location list for the current window is present. You can have more than one location window opened at a time. Otherwise, it acts the same as ":copen".

:ccl[ose] — :ccl :cclose
Close the quickfix window.

:lcl[ose] — :lcl :lclose
Close the window showing the location list for the current window.

:cw[indow] [height] — :cw :cwindow
Open the quickfix window when there are recognized errors. If the window is already open and there are no recognized errors, close the window.

:lw[indow] [height] — :lw :lwindow
Same as ":cwindow", except use the window showing the location list for the current window.

:cbo[ttom] — :cbo :cbottom
Put the cursor in the last line of the quickfix window and scroll to make it visible. This is useful for when errors are added by an asynchronous callback. Only call it once in a while if there are many updates to avoid a lot of redrawing.

:lbo[ttom] — :lbo :lbottom
Same as ":cbottom", except use the window showing the location list for the current window.

Normally the quickfix window is at the bottom of the screen. If there are vertical splits, it's at the bottom of the rightmost column of windows. To make it always occupy the full width:

```
:botright cwindow
```

You can move the window around with window-moving commands.
For example, to move it to the top: CTRL-W K
The 'winfixheight' option will be set, which means that the window will mostly keep its height, ignoring 'winheight' and 'equalalways'. You can change the height manually (e.g., by dragging the status line above it with the mouse).

In the quickfix window, each line is one error. The line number is equal to the error number. The current entry is highlighted with the QuickFixLine highlighting. You can change it to your liking, e.g.:

```
:hi QuickFixLine ctermbg=Yellow guibg=Yellow
```

You can use ":.cc" to jump to the error under the cursor.

Hitting the <Enter> key or double-clicking the mouse on a line has the same effect. The file containing the error is opened in the window above the quickfix window. If there already is a window for that file, it is used instead. If the buffer in the used window has changed, and the error is in another file, jumping to the error will fail. You will first have to make sure the window contains a buffer which can be abandoned.
CTRL-W_<Enter> CTRL-W_<CR>
You can use CTRL-W <Enter> to open a new window and jump to the error there.

When the quickfix window has been filled, two autocommand events are triggered. First the 'filetype' option is set to "qf", which triggers the FileType event. Then the BufReadPost event is triggered, using "quickfix" for the buffer name. This can be used to perform some action on the listed errors. Example:

```
au BufReadPost quickfix  setlocal modifiable
        \ | silent exe 'g/^/s//\=line(".")." "/'
        \ | setlocal nomodifiable
```

This prepends the line number to each line. Note the use of "\=" in the substitute string of the ":s" command, which is used to evaluate an expression.
The BufWinEnter event is also triggered, again using "quickfix" for the buffer name.

Note: When adding to an existing quickfix list the autocommand are not triggered.

Note: Making changes in the quickfix window has no effect on the list of errors. 'modifiable' is off to avoid making changes. If you delete or insert lines anyway, the relation between the text and the error number is messed up. If you really want to do this, you could write the contents of the quickfix window to a file and use ":cfile" to have it parsed and used as the new error list.

location-list-window
The location list window displays the entries in a location list. When you open a location list window, it is created below the current window and displays the location list for the current window. The location list window is similar to the quickfix window, except that you can have more than one location list window open at a time. When you use a location list command in this window, the displayed location list is used.

When you select a file from the location list window, the following steps are used to find a window to edit the file:

1. If a window with the location list displayed in the location list window is present, then the file is opened in that window.
2. If the above step fails and if the file is already opened in another window, then that window is used.
3. If the above step fails then an existing window showing a buffer with 'buftype' not set is used.
4. If the above step fails, then the file is edited in a new window.

In all of the above cases, if the location list for the selected window is not yet set, then it is set to the location list displayed in the location list

window.

quickfix-window-ID

You can use the getqflist() and getloclist() functions to obtain the window ID of the quickfix window and location list window respectively (if present). Examples:

```
echo getqflist({'winid' : 1}).winid
echo getloclist(2, {'winid' : 1}).winid
```

getqflist-examples

The getqflist() and getloclist() functions can be used to get the various attributes of a quickfix and location list respectively. Some examples for using these functions are below:

```
" get the title of the current quickfix list
:echo getqflist({'title' : 0}).title

" get the identifier of the current quickfix list
:let qfid = getqflist({'id' : 0}).id

" get the identifier of the fourth quickfix list in the stack
:let qfid = getqflist({'nr' : 4, 'id' : 0}).id

" check whether a quickfix list with a specific identifier exists
:if getqflist({'id' : qfid}).id == qfid

" get the index of the current quickfix list in the stack
:let qfnum = getqflist({'nr' : 0}).nr

" get the items of a quickfix list specified by an identifier
:echo getqflist({'id' : qfid, 'items' : 0}).items

" get the number of entries in a quickfix list specified by an id
:echo getqflist({'id' : qfid, 'size' : 0}).size

" get the context of the third quickfix list in the stack
:echo getqflist({'nr' : 3, 'context' : 0}).context

" get the number of quickfix lists in the stack
:echo getqflist({'nr' : '$'}).nr

" get the number of times the current quickfix list is changed
:echo getqflist({'changedtick' : 0}).changedtick

" get the current entry in a quickfix list specified by an identifier
:echo getqflist({'id' : qfid, 'idx' : 0}).idx

" get all the quickfix list attributes using an identifier
:echo getqflist({'id' : qfid, 'all' : 0})

" parse text from a List of lines and return a quickfix list
:let myList = ["a.java:10:L10", "b.java:20:L20"]
:echo getqflist({'lines' : myList}).items
```

```
    " parse text using a custom 'efm' and return a quickfix list
    :echo getqflist({'lines' : ['a.c#10#Line 10'], 'efm':'%f#%l#%m'}).items

    " get the quickfix list window id
    :echo getqflist({'winid' : 0}).winid

    " get the context of the current location list
    :echo getloclist(0, {'context' : 0}).context

    " get the location list window id of the third window
    :echo getloclist(3, {'winid' : 0}).winid
```

setqflist-examples

The setqflist() and setloclist() functions can be used to set the various attributes of a quickfix and location list respectively. Some examples for using these functions are below:

```
    " create an empty quickfix list with a title and a context
    :let t = 'Search results'
    :let c = {'cmd' : 'grep'}
    :call setqflist([], ' ', {'title' : t, 'context' : c})

    " set the title of the current quickfix list
    :call setqflist([], 'a', {'title' : 'Mytitle'})

    " set the context of a quickfix list specified by an identifier
    :call setqflist([], 'a', {'id' : qfid, 'context' : {'val' : 100}})

    " create a new quickfix list from a command output
    :call setqflist([], ' ', {'lines' : systemlist('grep -Hn main *.c')})

    " parse text using a custom efm and add to a particular quickfix list
    :call setqflist([], 'a', {'id' : qfid,
                \ 'lines' : ["a.c#10#L10", "b.c#20#L20"], 'efm':'%f#%l#%m'})

    " add items to the quickfix list specified by an identifier
    :let newItems = [{'filename' : 'a.txt', 'lnum' : 10, 'text' : "Apple"},
                    \ {'filename' : 'b.txt', 'lnum' : 20, 'text' : "Orange"}]
    :call setqflist([], 'a', {'id' : qfid, 'items' : newItems})

    " empty a quickfix list specified by an identifier
    :call setqflist([], 'r', {'id' : qfid, 'items' : []})

    " free all the quickfix lists in the stack
    :call setqflist([], 'f')

    " set the title of the fourth quickfix list
    :call setqflist([], 'a', {'nr' : 4, 'title' : 'SomeTitle'})

    " create a new quickfix list at the end of the stack
    :call setqflist([], ' ', {'nr' : '$',
                        \ 'lines' : systemlist('grep -Hn class *.java')})

    " create a new location list from a command output
```

```
    :call setloclist(0, [], ' ', {'lines' : systemlist('grep -Hn main *.c')})

    " replace the location list entries for the third window
    :call setloclist(3, [], 'r', {'items' : newItems})
```

==
3. Using more than one list of errors   quickfix-error-lists

So far has been assumed that there is only one list of errors. Actually the
ten last used lists are remembered. When starting a new list, the previous
ones are automatically kept. Two commands can be used to access older error
lists. They set one of the existing error lists as the current one.

                                                    :colder   :col   E380
:col[der] [count]   Go to older error list. When [count] is given, do
                        this [count] times. When already at the oldest error
                        list, an error message is given.

                                                    :lolder   :lol
:lol[der] [count]   Same as `:colder`, except use the location list for
                        the current window instead of the quickfix list.

                                                    :cnewer   :cnew   E381
:cnew[er] [count]   Go to newer error list. When [count] is given, do
                        this [count] times. When already at the newest error
                        list, an error message is given.

                                                    :lnewer   :lnew
:lnew[er] [count]   Same as `:cnewer`, except use the location list for
                        the current window instead of the quickfix list.

                                                    :chistory   :chi
:chi[story]   Show the list of error lists. The current list is
                        marked with ">". The output looks like:
                                  error list 1 of 3; 43 errors
                                > error list 2 of 3; 0 errors
                                  error list 3 of 3; 15 errors

                                                    :lhistory   :lhi
:lhi[story]   Show the list of location lists, otherwise like
                        `:chistory`.

When adding a new error list, it becomes the current list.

When ":colder" has been used and ":make" or ":grep" is used to add a new error
list, one newer list is overwritten. This is especially useful if you are
browsing with ":grep" `grep .`. If you want to keep the more recent error
lists, use ":cnewer 99" first.

To get the number of lists in the quickfix and location list stack, you can
use the `getqflist()` and `getloclist()` functions respectively with the list
number set to the special value '$'. Examples:
```
        echo getqflist({'nr' : '$'}).nr
        echo getloclist(3, {'nr' : '$'}).nr
```

To get the number of the current list in the stack:
	echo getqflist({'nr' : 0}).nr

==
4. Using :make   :make_makeprg

                                                                :mak   :make
:mak[e][!] [arguments] 1. All relevant QuickFixCmdPre autocommands are
                           executed.
                        2. If the 'autowrite' option is on, write any changed
                           buffers
                        3. An errorfile name is made from 'makeef'. If
                           'makeef' doesn't contain "##", and a file with this
                           name already exists, it is deleted.
                        4. The program given with the 'makeprg' option is
                           started (default "make") with the optional
                           [arguments] and the output is saved in the
                           errorfile (for Unix it is also echoed on the
                           screen).
                        5. The errorfile is read using 'errorformat'.
                        6. All relevant QuickFixCmdPost autocommands are
                           executed. See example below.
                        7. If [!] is not given the first error is jumped to.
                        8. The errorfile is deleted.
                        9. You can now move through the errors with commands
                           like :cnext and :cprevious , see above.
                        This command does not accept a comment, any "
                        characters are considered part of the arguments.
                        If the encoding of the program output differs from the
                        'encoding' option, you can use the 'makeencoding'
                        option to specify the encoding.

                                                                :lmak   :lmake
:lmak[e][!] [arguments]
                        Same as ":make", except the location list for the
                        current window is used instead of the quickfix list.

The ":make" command executes the command given with the 'makeprg' option.
This is done by passing the command to the shell given with the 'shell'
option. This works almost like typing

	":!{makeprg} [arguments] {shellpipe} {errorfile}".

{makeprg} is the string given with the 'makeprg' option. Any command can be
used, not just "make". Characters '%' and '#' are expanded as usual on a
command-line. You can use "%<" to insert the current file name without
extension, or "#<" to insert the alternate file name without extension, for
example:
   :set makeprg=make\ #<.o

[arguments] is anything that is typed after ":make".
{shellpipe} is the 'shellpipe' option.
{errorfile} is the 'makeef' option, with ## replaced to make it unique.

The placeholder "$*" can be used for the argument list in {makeprg} if the command needs some additional characters after its arguments. The $* is replaced then by all arguments. Example:

```
   :set makeprg=latex\ \\\\nonstopmode\ \\\\input\\{$*}
```

or simpler

```
   :let &mp = 'latex \\nonstopmode \\input\{$*}'
```

"$*" can be given multiple times, for example:

```
   :set makeprg=gcc\ -o\ $*\ $*
```

The 'shellpipe' option defaults to ">" for the Amiga, MS-DOS and Win32. This means that the output of the compiler is saved in a file and not shown on the screen directly. For Unix "| tee" is used. The compiler output is shown on the screen and saved in a file the same time. Depending on the shell used "|& tee" or "2>&1| tee" is the default, so stderr output will be included.

If 'shellpipe' is empty, the {errorfile} part will be omitted. This is useful for compilers that write to an errorfile themselves (e.g., Manx's Amiga C).

Using QuickFixCmdPost to fix the encoding

It may be that 'encoding' is set to an encoding that differs from the messages your build program produces. This example shows how to fix this after Vim has read the error messages:

```
        function QfMakeConv()
           let qflist = getqflist()
           for i in qflist
              let i.text = iconv(i.text, "cp936", "utf-8")
           endfor
           call setqflist(qflist)
        endfunction

        au QuickfixCmdPost make call QfMakeConv()
```

(Example by Faque Cheng)
Another option is using 'makeencoding'.

==
5. Using :vimgrep and :grep grep lid

Vim has two ways to find matches for a pattern: Internal and external. The advantage of the internal grep is that it works on all systems and uses the powerful Vim search patterns. An external grep program can be used when the Vim grep does not do what you want.

The internal method will be slower, because files are read into memory. The advantages are:
- Line separators and encoding are automatically recognized, as if a file is being edited.
- Uses Vim search patterns. Multi-line patterns can be used.
- When plugins are enabled: compressed and remote files can be searched.
  gzip netrw

To be able to do this Vim loads each file as if it is being edited. When there is no match in the file the associated buffer is wiped out again. The 'hidden' option is ignored here to avoid running out of memory or file descriptors when searching many files. However, when the :hide command modifier is used the buffers are kept loaded. This makes following searches in the same files a lot faster.

Note that :copen (or :lopen for :lgrep) may be used to open a buffer containing the search results in linked form. The :silent command may be used to suppress the default full screen grep output. The ":grep!" form of the :grep command doesn't jump to the first match automatically. These commands can be combined to create a NewGrep command:

```
command! -nargs=+ NewGrep execute 'silent grep! <args>' | copen 42
```

5.1 using Vim's internal grep

:vim :vimgrep E682 E683

:vim[grep][!] /{pattern}/[g][j] {file} ...
Search for {pattern} in the files {file} ... and set the error list to the matches. Files matching 'wildignore' are ignored; files in 'suffixes' are searched last.
Without the 'g' flag each line is added only once.
With 'g' every match is added.

{pattern} is a Vim search pattern. Instead of enclosing it in / any non-ID character (see 'isident') can be used, so long as it does not appear in {pattern}.
'ignorecase' applies. To overrule it put /\c in the pattern to ignore case or /\C to match case.
'smartcase' is not used.
If {pattern} is empty (e.g. // is specified), the last used search pattern is used. last-pattern

When a number is put before the command this is used as the maximum number of matches to find. Use ":1vimgrep pattern file" to find only the first. Useful if you only want to check if there is a match and quit quickly when it's found.

Without the 'j' flag Vim jumps to the first match.
With 'j' only the quickfix list is updated.
With the [!] any changes in the current buffer are abandoned.

Every second or so the searched file name is displayed to give you an idea of the progress made.
Examples:

```
:vimgrep /an error/ *.c
:vimgrep /\<FileName\>/ *.h include/*
:vimgrep /myfunc/ **/*.c
```

For the use of "**" see starstar-wildcard .

:vim[grep][!] {pattern} {file} ...
Like above, but instead of enclosing the pattern in a non-ID character use a white-separated pattern. The pattern must start with an ID character.
Example:
```
:vimgrep Error *.c
```

:lv :lvimgrep
:lv[imgrep][!] /{pattern}/[g][j] {file} ...
:lv[imgrep][!] {pattern} {file} ...
Same as ":vimgrep", except the location list for the current window is used instead of the quickfix list.

:vimgrepa :vimgrepadd
:vimgrepa[dd][!] /{pattern}/[g][j] {file} ...
:vimgrepa[dd][!] {pattern} {file} ...
Just like ":vimgrep", but instead of making a new list of errors the matches are appended to the current list.

:lvimgrepa :lvimgrepadd
:lvimgrepa[dd][!] /{pattern}/[g][j] {file} ...
:lvimgrepa[dd][!] {pattern} {file} ...
Same as ":vimgrepadd", except the location list for the current window is used instead of the quickfix list.

5.2 External grep

Vim can interface with "grep" and grep-like programs (such as the GNU id-utils) in a similar way to its compiler integration (see :make above).

[Unix trivia: The name for the Unix "grep" command comes from ":g/re/p", where "re" stands for Regular Expression.]

:gr :grep
:gr[ep][!] [arguments] Just like ":make", but use 'grepprg' instead of 'makeprg' and 'grepformat' instead of 'errorformat'.
When 'grepprg' is "internal" this works like :vimgrep . Note that the pattern needs to be enclosed in separator characters then.
If the encoding of the program output differs from the 'encoding' option, you can use the 'makeencoding' option to specify the encoding.

:lgr :lgrep
:lgr[ep][!] [arguments] Same as ":grep", except the location list for the current window is used instead of the quickfix list.

:grepa :grepadd
:grepa[dd][!] [arguments]
Just like ":grep", but instead of making a new list of

errors the matches are appended to the current list.
Example:

```
:call setqflist([])
:bufdo grepadd! something %
```

The first command makes a new error list which is empty. The second command executes "grepadd" for each listed buffer. Note the use of ! to avoid that ":grepadd" jumps to the first error, which is not allowed with :bufdo .
An example that uses the argument list and avoids errors for files without matches:

```
:silent argdo try
  \ | grepadd! something %
  \ | catch /E480:/
  \ | endtry"
```

If the encoding of the program output differs from the 'encoding' option, you can use the 'makeencoding' option to specify the encoding.

:lgrepa :lgrepadd

:lgrepa[dd][!] [arguments]
Same as ":grepadd", except the location list for the current window is used instead of the quickfix list.

5.3 Setting up external grep

If you have a standard "grep" program installed, the :grep command may work well with the defaults. The syntax is very similar to the standard command:

```
:grep foo *.c
```

Will search all files with the .c extension for the substring "foo". The arguments to :grep are passed straight to the "grep" program, so you can use whatever options your "grep" supports.

By default, :grep invokes grep with the -n option (show file and line numbers). You can change this with the 'grepprg' option. You will need to set 'grepprg' if:

a) You are using a program that isn't called "grep"
b) You have to call grep with a full path
c) You want to pass other options automatically (e.g. case insensitive search.)

Once "grep" has executed, Vim parses the results using the 'grepformat' option. This option works in the same way as the 'errorformat' option - see that for details. You may need to change 'grepformat' from the default if your grep outputs in a non-standard format, or you are using some other program with a special format.

Once the results are parsed, Vim loads the first file containing a match and jumps to the appropriate line, in the same way that it jumps to a compiler error in quickfix mode. You can then use the :cnext , :clist , etc.

commands to see the other matches.

5.4 Using :grep with id-utils

You can set up :grep to work with the GNU id-utils like this:

```
:set grepprg=lid\ -Rgrep\ -s
:set grepformat=%f:%l:%m
```

then

```
:grep (regexp)
```

works just as you'd expect.
(provided you remembered to mkid first :)

5.5 Browsing source code with :vimgrep or :grep

Using the stack of error lists that Vim keeps, you can browse your files to look for functions and the functions they call. For example, suppose that you have to add an argument to the read_file() function. You enter this command:

```
:vimgrep /\<read_file\>/ *.c
```

You use ":cn" to go along the list of matches and add the argument. At one place you have to get the new argument from a higher level function msg(), and need to change that one too. Thus you use:

```
:vimgrep /\<msg\>/ *.c
```

While changing the msg() functions, you find another function that needs to get the argument from a higher level. You can again use ":vimgrep" to find these functions. Once you are finished with one function, you can use

```
:colder
```

to go back to the previous one.

This works like browsing a tree: ":vimgrep" goes one level deeper, creating a list of branches. ":colder" goes back to the previous level. You can mix this use of ":vimgrep" and "colder" to browse all the locations in a tree-like way. If you do this consistently, you will find all locations without the need to write down a "todo" list.

==
6. Selecting a compiler compiler-select

:comp :compiler E666

:comp[iler][!] {name} Set options to work with compiler {name}.
Without the "!" options are set for the current buffer. With "!" global options are set.
If you use ":compiler foo" in "file.foo" and

then ":compiler! bar" in another buffer, Vim
will keep on using "foo" in "file.foo".
{not available when compiled without the
+eval feature}

The Vim plugins in the "compiler" directory will set options to use the selected compiler. For `:compiler` local options are set, for `:compiler!` global options.

current_compiler

To support older Vim versions, the plugins always use "current_compiler" and not "b:current_compiler". What the command actually does is the following:

- Delete the "current_compiler" and "b:current_compiler" variables.
- Define the "CompilerSet" user command. With "!" it does ":set", without "!" it does ":setlocal".
- Execute ":runtime! compiler/{name}.vim". The plugins are expected to set options with "CompilerSet" and set the "current_compiler" variable to the name of the compiler.
- Delete the "CompilerSet" user command.
- Set "b:current_compiler" to the value of "current_compiler".
- Without "!" the old value of "current_compiler" is restored.

For writing a compiler plugin, see write-compiler-plugin .

GCC

quickfix-gcc compiler-gcc

There's one variable you can set for the GCC compiler:

g:compiler_gcc_ignore_unmatched_lines
Ignore lines that don't match any patterns defined for GCC. Useful if output from commands run from make are generating false positives.

MANX AZTEC C

quickfix-manx compiler-manx

To use Vim with Manx's Aztec C compiler on the Amiga you should do the following:
- Set the CCEDIT environment variable with the command:
  mset "CCEDIT=vim -q"
- Compile with the -qf option. If the compiler finds any errors, Vim is started and the cursor is positioned on the first error. The error message will be displayed on the last line. You can go to other errors with the commands mentioned above. You can fix the errors and write the file(s).
- If you exit Vim normally the compiler will re-compile the same file. If you exit with the :cq command, the compiler will terminate. Do this if you cannot fix the error, or if another file needs to be compiled first.

There are some restrictions to the Quickfix mode on the Amiga. The compiler only writes the first 25 errors to the errorfile (Manx's

documentation does not say how to get more). If you want to find the others, you will have to fix a few errors and exit the editor. After recompiling, up to 25 remaining errors will be found.

If Vim was started from the compiler, the :sh and some :! commands will not work, because Vim is then running in the same process as the compiler and stdin (standard input) will not be interactive.

PERL quickfix-perl compiler-perl

The Perl compiler plugin doesn't actually compile, but invokes Perl's internal syntax checking feature and parses the output for possible errors so you can correct them in quick-fix mode.

Warnings are forced regardless of "no warnings" or "$^W = 0" within the file being checked. To disable this set g:perl_compiler_force_warnings to a zero value. For example:

```
let g:perl_compiler_force_warnings = 0
```

PYUNIT COMPILER compiler-pyunit

This is not actually a compiler, but a unit testing framework for the Python language. It is included into standard Python distribution starting from version 2.0. For older versions, you can get it from http://pyunit.sourceforge.net.

When you run your tests with the help of the framework, possible errors are parsed by Vim and presented for you in quick-fix mode.

Unfortunately, there is no standard way to run the tests.
The alltests.py script seems to be used quite often, that's all.
Useful values for the 'makeprg' options therefore are:

```
 setlocal makeprg=./alltests.py " Run a testsuite
 setlocal makeprg=python\ %:S   " Run a single testcase
```

Also see http://vim.sourceforge.net/tip_view.php?tip_id=280.

TEX COMPILER compiler-tex

Included in the distribution compiler for TeX ($VIMRUNTIME/compiler/tex.vim) uses make command if possible. If the compiler finds a file named "Makefile" or "makefile" in the current directory, it supposes that you want to process your *TeX files with make, and the makefile does the right work. In this case compiler sets 'errorformat' for *TeX output and leaves 'makeprg' untouched. If neither "Makefile" nor "makefile" is found, the compiler will not use make. You can force the compiler to ignore makefiles by defining b:tex_ignore_makefile or g:tex_ignore_makefile variable (they are checked for existence only).

If the compiler chose not to use make, it need to choose a right program for processing your input. If b:tex_flavor or g:tex_flavor (in this precedence)

variable exists, it defines TeX flavor for :make (actually, this is the name of executed command), and if both variables do not exist, it defaults to "latex". For example, while editing chapter2.tex \input-ed from mypaper.tex written in AMS-TeX:

```
:let b:tex_flavor = 'amstex'
:compiler tex
[editing...]
:make mypaper
```

Note that you must specify a name of the file to process as an argument (to process the right file when editing \input-ed or \include-ed file; portable solution for substituting % for no arguments is welcome). This is not in the semantics of make, where you specify a target, not source, but you may specify filename without extension ".tex" and mean this as "make filename.dvi or filename.pdf or filename.some_result_extension according to compiler".

Note: tex command line syntax is set to usable both for MikTeX (suggestion by Srinath Avadhanula) and teTeX (checked by Artem Chuprina). Suggestion from errorformat-LaTeX is too complex to keep it working for different shells and OSes and also does not allow to use other available TeX options, if any. If your TeX doesn't support "-interaction=nonstopmode", please report it with different means to express \nonstopmode from the command line.

==
7. The error format error-file-format

errorformat E372 E373 E374 E375 E376 E377 E378

The 'errorformat' option specifies a list of formats that are recognized. The first format that matches with an error message is used. You can add several formats for different messages your compiler produces, or even entries for multiple compilers. See efm-entries .

Each entry in 'errorformat' is a scanf-like string that describes the format. First, you need to know how scanf works. Look in the documentation of your C compiler. Below you find the % items that Vim understands. Others are invalid.

Special characters in 'errorformat' are comma and backslash. See efm-entries for how to deal with them. Note that a literal "%" is matched by "%%", thus it is not escaped with a backslash.
Keep in mind that in the `:make` and `:grep` output all NUL characters are replaced with SOH (0x01).

Note: By default the difference between upper and lowercase is ignored. If you want to match case, add "\C" to the pattern /\C .

Basic items

```
%f              file name (finds a string)
%o              module name (finds a string)
%l              line number (finds a number)
```

```
        %c              column number (finds a number representing character
                        column of the error, (1 <tab> == 1 character column))
        %v              virtual column number (finds a number representing
                        screen column of the error (1 <tab> == 8 screen
                        columns))
        %t              error type (finds a single character)
        %n              error number (finds a number)
        %m              error message (finds a string)
        %r              matches the "rest" of a single-line file message %O/P/Q
        %p              pointer line (finds a sequence of '-', '.', ' ' or
                        tabs and uses the length for the column number)
        %*{conv}        any scanf non-assignable conversion
        %%              the single '%' character
        %s              search text (finds a string)
```

The "%f" conversion may depend on the current 'isfname' setting. "~/" is expanded to the home directory and environment variables are expanded.

The "%f" and "%m" conversions have to detect the end of the string. This normally happens by matching following characters and items. When nothing is following the rest of the line is matched. If "%f" is followed by a '%' or a backslash, it will look for a sequence of 'isfname' characters.

On MS-DOS, MS-Windows and OS/2 a leading "C:" will be included in "%f", even when using "%f:". This means that a file name which is a single alphabetical letter will not be detected.

The "%p" conversion is normally followed by a "^". It's used for compilers that output a line like:

```
          ^
```

or

```
   ---------^
```

to indicate the column of the error. This is to be used in a multi-line error message. See errorformat-javac for a useful example.

The "%s" conversion specifies the text to search for, to locate the error line. The text is used as a literal string. The anchors "^" and "$" are added to the text to locate the error line exactly matching the search text and the text is prefixed with the "\V" atom to make it "very nomagic". The "%s" conversion can be used to locate lines without a line number in the error output. Like the output of the "grep" shell command.
When the pattern is present the line number will not be used.

The "%o" conversion specifies the module name in quickfix entry. If present it will be used in quickfix error window instead of the filename. The module name is used only for displaying purposes, the file name is used when jumping to the file.

Changing directory

The following uppercase conversion characters specify the type of special format strings. At most one of them may be given as a prefix at the beginning of a single comma-separated format pattern.
Some compilers produce messages that consist of directory names that have to

be prepended to each file name read by %f (example: GNU make). The following codes can be used to scan these directory names; they will be stored in an internal directory stack. E379

```
        %D              "enter directory" format string; expects a following
                          %f that finds the directory name
        %X              "leave directory" format string; expects following %f
```

When defining an "enter directory" or "leave directory" format, the "%D" or "%X" has to be given at the start of that substring. Vim tracks the directory changes and prepends the current directory to each erroneous file found with a relative path. See quickfix-directory-stack for details, tips and limitations.

Multi-line messages errorformat-multi-line

It is possible to read the output of programs that produce multi-line messages, i.e. error strings that consume more than one line. Possible prefixes are:

```
        %E              start of a multi-line error message
        %W              start of a multi-line warning message
        %I              start of a multi-line informational message
        %A              start of a multi-line message (unspecified type)
        %>              for next line start with current pattern again  efm-%>
        %C              continuation of a multi-line message
        %Z              end of a multi-line message
```

These can be used with '+' and '-', see efm-ignore below.

Using "\n" in the pattern won't work to match multi-line messages.

Example: Your compiler happens to write out errors in the following format (leading line numbers not being part of the actual output):

```
     1  Error 275
     2  line 42
     3  column 3
     4  ' ' expected after '--'
```

The appropriate error format string has to look like this:

```
   :set efm=%EError\ %n,%Cline\ %l,%Ccolumn\ %c,%Z%m
```

And the :clist error message generated for this error is:

```
 1:42 col 3 error 275:  ' ' expected after '--'
```

Another example: Think of a Python interpreter that produces the following error message (line numbers are not part of the actual output):

```
     1  ======================================================================
     2  FAIL: testGetTypeIdCachesResult (dbfacadeTest.DjsDBFacadeTest)
     3  ----------------------------------------------------------------------
     4  Traceback (most recent call last):
     5    File "unittests/dbfacadeTest.py", line 89, in testFoo
     6      self.assertEquals(34, dtid)
```

```
 7    File "/usr/lib/python2.2/unittest.py", line 286, in
 8   failUnlessEqual
 9      raise self.failureException, \
10  AssertionError: 34 != 33
11
12  ----------------------------------------------------------------------
13  Ran 27 tests in 0.063s
```

Say you want :clist write the relevant information of this message only,
namely:
```
 5 unittests/dbfacadeTest.py:89:  AssertionError: 34 != 33
```

Then the error format string could be defined as follows:
```
  :set efm=%C\ %.%#,%A\ \ File\ \"%f\"\\,\ line\ %l%.%#,%Z%[%^\ ]%\\@=%m
```

Note that the %C string is given before the %A here: since the expression
' %.%#' (which stands for the regular expression ' .*') matches every line
starting with a space, followed by any characters to the end of the line,
it also hides line 7 which would trigger a separate error message otherwise.
Error format strings are always parsed pattern by pattern until the first
match occurs.

                                                              efm-%>

The %> item can be used to avoid trying patterns that appear earlier in
'errorformat'. This is useful for patterns that match just about anything.
For example, if the error looks like this:

```
        Error in line 123 of foo.c:
        unknown variable "i"
```

This can be found with:
```
        :set efm=xxx,%E%>Error in line %l of %f:,%Z%m
```
Where "xxx" has a pattern that would also match the second line.

Important: There is no memory of what part of the errorformat matched before;
every line in the error file gets a complete new run through the error format
lines. For example, if one has:
```
  setlocal efm=aa,bb,cc,dd,ee
```
Where aa, bb, etc. are error format strings. Each line of the error file will
be matched to the pattern aa, then bb, then cc, etc. Just because cc matched
the previous error line does _not_ mean that dd will be tried first on the
current line, even if cc and dd are multi-line errorformat strings.

Separate file name   errorformat-separate-filename

These prefixes are useful if the file name is given once and multiple messages
follow that refer to this file name.

%O	single-line file message: overread the matched part
%P	single-line file message: push file %f onto the stack
%Q	single-line file message: pop the last file from stack

Example: Given a compiler that produces the following error logfile (without
leading line numbers):

```
 1  [a1.tt]
 2  (1,17)  error: ';' missing
 3  (21,2)  warning: variable 'z' not defined
 4  (67,3)  error: end of file found before string ended
 5
 6  [a2.tt]
 7
 8  [a3.tt]
 9  NEW compiler v1.1
10  (2,2)   warning: variable 'x' not defined
11  (67,3)  warning: 's' already defined
```

This logfile lists several messages for each file enclosed in [...] which are
properly parsed by an error format like this:

```
:set efm=%+P[%f],(%l\\,%c)%*[\ ]%t%*[^:]:\ %m,%-Q
```

A call of :clist writes them accordingly with their correct filenames:

```
2 a1.tt:1 col 17 error: ';' missing
3 a1.tt:21 col 2 warning: variable 'z' not defined
4 a1.tt:67 col 3 error: end of file found before string ended
8 a3.tt:2 col 2 warning: variable 'x' not defined
9 a3.tt:67 col 3 warning: 's' already defined
```

Unlike the other prefixes that all match against whole lines, %P, %Q and %O
can be used to match several patterns in the same line. Thus it is possible
to parse even nested files like in the following line:

```
{"file1" {"file2" error1} error2 {"file3" error3 {"file4" error4 error5}}}
```

The %O then parses over strings that do not contain any push/pop file name
information. See errorformat-LaTeX for an extended example.

Ignoring and using whole messages efm-ignore

The codes '+' or '-' can be combined with the uppercase codes above; in that
case they have to precede the letter, e.g. '%+A' or '%-G':

%-	do not include the matching multi-line in any output
%+	include the whole matching line in the %m error string

One prefix is only useful in combination with '+' or '-', namely %G. It parses
over lines containing general information like compiler version strings or
other headers that can be skipped.

%-G	ignore this message
%+G	general message

Pattern matching

The scanf()-like "%*[]" notation is supported for backward-compatibility
with previous versions of Vim. However, it is also possible to specify
(nearly) any Vim supported regular expression in format strings.
Since meta characters of the regular expression language can be part of
ordinary matching strings or file names (and therefore internally have to

be escaped), meta symbols have to be written with leading '%':
	%\		The single '\' character. Note that this has to be
			escaped ("%\\") in ":set errorformat=" definitions.
	%.		The single '.' character.
	%#		The single '*'(!) character.
	%^		The single '^' character. Note that this is not
			useful, the pattern already matches start of line.
	%$		The single '$' character. Note that this is not
			useful, the pattern already matches end of line.
	%[		The single '[' character for a [] character range.
	%~		The single '~' character.
When using character classes in expressions (see /\i for an overview),
terms containing the "\+" quantifier can be written in the scanf() "%*"
notation. Example: "%\\d%\\+" ("\d\+", "any number") is equivalent to "%*\\d".
Important note: The \(...\) grouping of sub-matches can not be used in format
specifications because it is reserved for internal conversions.

Multiple entries in 'errorformat'		efm-entries

To be able to detect output from several compilers, several format patterns
may be put in 'errorformat', separated by commas (note: blanks after the comma
are ignored). The first pattern that has a complete match is used. If no
match is found, matching parts from the last one will be used, although the
file name is removed and the error message is set to the whole message. If
there is a pattern that may match output from several compilers (but not in a
right way), put it after one that is more restrictive.

To include a comma in a pattern precede it with a backslash (you have to type
two in a ":set" command). To include a backslash itself give two backslashes
(you have to type four in a ":set" command). You also need to put a backslash
before a space for ":set".

Valid matches		quickfix-valid

If a line does not completely match one of the entries in 'errorformat', the
whole line is put in the error message and the entry is marked "not valid"
These lines are skipped with the ":cn" and ":cp" commands (unless there is
no valid line at all). You can use ":cl!" to display all the error messages.

If the error format does not contain a file name Vim cannot switch to the
correct file. You will have to do this by hand.

Examples

The format of the file from the Amiga Aztec compiler is:

	filename>linenumber:columnnumber:errortype:errornumber:errormessage

	filename	name of the file in which the error was detected
	linenumber	line number where the error was detected
	columnnumber	column number where the error was detected

```
        errortype       type of the error, normally a single 'E' or 'W'
        errornumber     number of the error (for lookup in the manual)
        errormessage    description of the error

This can be matched with this 'errorformat' entry:
        %f>%l:%c:%t:%n:%m

Some examples for C compilers that produce single-line error outputs:
%f:%l:\ %t%*[^0123456789]%n:\ %m        for Manx/Aztec C error messages
                                        (scanf() doesn't understand [0-9])
%f\ %l\ %t%*[^0-9]%n:\ %m               for SAS C
\"%f\"\\,%*[^0-9]%l:\ %m                for generic C compilers
%f:%l:\ %m                              for GCC
%f:%l:\ %m,%Dgmake[%*\\d]:\ Entering\ directory\ `%f',
%Dgmake[%*\\d]:\ Leaving\ directory\ `%f'
                                        for GCC with gmake (concat the lines!)
%f(%l)\ :\ %*[^:]:\ %m                  old SCO C compiler (pre-OS5)
%f(%l)\ :\ %t%*[^0-9]%n:\ %m            idem, with error type and number
%f:%l:\ %m,In\ file\ included\ from\ %f:%l:,\^I\^Ifrom\ %f:%l%m
                                        for GCC, with some extras

Extended examples for the handling of multi-line messages are given below,
see  errorformat-Jikes  and  errorformat-LaTeX .

Note the backslash in front of a space and double quote.  It is required for
the :set command.  There are two backslashes in front of a comma, one for the
:set command and one to avoid recognizing the comma as a separator of error
formats.


Filtering messages

If you have a compiler that produces error messages that do not fit in the
format string, you could write a program that translates the error messages
into this format.  You can use this program with the ":make" command by
changing the 'makeprg' option.  For example:
   :set mp=make\ \\\|&\ error_filter
The backslashes before the pipe character are required to avoid it to be
recognized as a command separator.  The backslash before each space is
required for the set command.

==============================================================================
8. The directory stack                          quickfix-directory-stack

Quickfix maintains a stack for saving all used directories parsed from the
make output.  For GNU-make this is rather simple, as it always prints the
absolute path of all directories it enters and leaves.  Regardless if this is
done via a 'cd' command in the makefile or with the parameter "-C dir" (change
to directory before reading the makefile).  It may be useful to use the switch
"-w" to force GNU-make to print out the working directory before and after
processing.

Maintaining the correct directory is more complicated if you don't use
GNU-make.  AIX-make for example doesn't print any information about its
```

working directory. Then you need to enhance the makefile. In the makefile of LessTif there is a command which echoes "Making {target} in {dir}". The special problem here is that it doesn't print information on leaving the directory and that it doesn't print the absolute path.

To solve the problem with relative paths and missing "leave directory" messages Vim uses following algorithm:

1) Check if the given directory is a subdirectory of the current directory.
   If this is true, store it as the current directory.
2) If it is not a subdir of the current directory, try if this is a
   subdirectory of one of the upper directories.
3) If the directory still isn't found, it is assumed to be a subdirectory
   of Vim's current directory.

Additionally it is checked for every file, if it really exists in the identified directory. If not, it is searched in all other directories of the directory stack (NOT the directory subtree!). If it is still not found, it is assumed that it is in Vim's current directory.

There are limitations in this algorithm. These examples assume that make just prints information about entering a directory in the form "Making all in dir".

1) Assume you have following directories and files:
   ./dir1
   ./dir1/file1.c
   ./file1.c

   If make processes the directory "./dir1" before the current directory and there is an error in the file "./file1.c", you will end up with the file "./dir1/file.c" loaded by Vim.

   This can only be solved with a "leave directory" message.

2) Assume you have following directories and files:
   ./dir1
   ./dir1/dir2
   ./dir2

   You get the following:

Make output	Directory interpreted by Vim
Making all in dir1	./dir1
Making all in dir2	./dir1/dir2
Making all in dir2	./dir1/dir2

   This can be solved by printing absolute directories in the "enter directory" message or by printing "leave directory" messages.

To avoid this problem, ensure to print absolute directory names and "leave directory" messages.

Examples for Makefiles:

```
Unix:
    libs:
            for dn in $(LIBDIRS); do                                \
                (cd $$dn; echo "Entering dir '$$(pwd)'"; make); \
                echo "Leaving dir";                                 \
            done

Add
    %DEntering\ dir\ '%f',%XLeaving\ dir
to your 'errorformat' to handle the above output.

Note that Vim doesn't check if the directory name in a "leave directory"
messages is the current directory.  This is why you could just use the message
"Leaving dir".

==============================================================================
9. Specific error file formats                  errorformats

                                                errorformat-Jikes
Jikes(TM), a source-to-bytecode Java compiler published by IBM Research,
produces simple multi-line error messages.

An 'errorformat' string matching the produced messages is shown below.
The following lines can be placed in the user's  vimrc  to overwrite Vim's
recognized default formats, or see  :set+=  how to install this format
additionally to the default.

  :set efm=%A%f:%l:%c:%*\\d:%*\\d:,
        \%C%*\\s%trror:%m,
        \%+C%*[^:]%trror:%m,
        \%C%*\\s%tarning:%m,
        \%C%m

Jikes(TM) produces a single-line error message when invoked with the option
"+E", and can be matched with the following:

  :setl efm=%f:%l:%v:%*\\d:%*\\d:%*\\s%m

                                                errorformat-javac
This 'errorformat' has been reported to work well for javac, which outputs a
line with "^" to indicate the column of the error:
  :setl efm=%A%f:%l:\ %m,%-Z%p^,%-C%.%#
or:
  :setl efm=%A%f:%l:\ %m,%+Z%p^,%+C%.%#,%-G%.%#

Here is an alternative from Michael F. Lamb for Unix that filters the errors
first:
  :setl errorformat=%Z%f:%l:\ %m,%A%p^,%-G%*[^sl]%.%#
  :setl makeprg=javac\ %:S\ 2>&1\ \\\|\ vim-javac-filter

You need to put the following in "vim-javac-filter" somewhere in your path
(e.g., in ~/bin) and make it executable:
   #!/bin/sed -f
```

```
   /\^$/s/\t/\ /g;/:[0-9]\+:/{h;d};/^[ \t]*\^/G;
```

In English, that sed script:
- Changes single tabs to single spaces and
- Moves the line with the filename, line number, error message to just after
  the pointer line. That way, the unused error text between doesn't break
  vim's notion of a "multi-line message" and also doesn't force us to include
  it as a "continuation of a multi-line message."

errorformat-ant

For ant (http://jakarta.apache.org/) the above errorformat has to be modified
to honour the leading [javac] in front of each javac output line:
```
  :set efm=%A\ %#[javac]\ %f:%l:\ %m,%-Z\ %#[javac]\ %p^,%-C%.%#
```

The 'errorformat' can also be configured to handle ant together with either
javac or jikes. If you're using jikes, you should tell ant to use jikes' +E
command line switch which forces jikes to generate one-line error messages.
This is what the second line (of a build.xml file) below does:
```
  <property name = "build.compiler"       value = "jikes"/>
  <property name = "build.compiler.emacs" value = "true"/>
```

The 'errorformat' which handles ant with both javac and jikes is:
```
  :set efm=\ %#[javac]\ %#%f:%l:%c:%*\\d:%*\\d:\ %t%[%^:]%#:%m,
           \%A\ %#[javac]\ %f:%l:\ %m,%-Z\ %#[javac]\ %p^,%-C%.%#
```

errorformat-jade

parsing jade (see http://www.jclark.com/) errors is simple:
```
  :set efm=jade:%f:%l:%c:%t:%m
```

errorformat-LaTeX

The following is an example how an 'errorformat' string can be specified
for the (La)TeX typesetting system which displays error messages over
multiple lines. The output of ":clist" and ":cc" etc. commands displays
multi-lines in a single line, leading white space is removed.
It should be easy to adopt the above LaTeX errorformat to any compiler output
consisting of multi-line errors.

The commands can be placed in a vimrc file or some other Vim script file,
e.g. a script containing LaTeX related stuff which is loaded only when editing
LaTeX sources.
Make sure to copy all lines of the example (in the given order), afterwards
remove the comment lines. For the '\' notation at the start of some lines see
 line-continuation .

```
               First prepare 'makeprg' such that LaTeX will report multiple
               errors; do not stop when the first error has occurred:
 :set makeprg=latex\ \\\\nonstopmode\ \\\\input\\{$*}

               Start of multi-line error messages:
 :set efm=%E!\ LaTeX\ %trror:\ %m,
        \%E!\ %m,
              Start of multi-line warning messages; the first two also
               include the line number.  Meaning of some regular expressions:
                 - "%.%#"  (".*")   matches a (possibly empty) string
```

```
          - "%*\\d" ("\d\+") matches a number
\%+WLaTeX\ %.%#Warning:\ %.%#line\ %l%.%#,
\%+W%.%#\ at\ lines\ %l--%*\\d,
\%WLaTeX\ %.%#Warning:\ %m,
       Possible continuations of error/warning messages; the first
        one also includes the line number:
\%Cl.%l\ %m,
\%+C\ \ %m.,
\%+C%.%#-%.%#,
\%+C%.%#[]%.%#,
\%+C[]%.%#,
\%+C%.%#%[{}\\]%.%#,
\%+C<%.%#>%.%#,
\%C\ \ %m,
       Lines that match the following patterns do not contain any
        important information; do not include them in messages:
\%-GSee\ the\ LaTeX%m,
\%-GType\ \ H\ <return>%m,
\%-G\ ...%.%#,
\%-G%.%#\ (C)\ %.%#,
\%-G(see\ the\ transcript%.%#),
       Generally exclude any empty or whitespace-only line from
        being displayed:
\%-G\\s%#,
       The LaTeX output log does not specify the names of erroneous
        source files per line; rather they are given globally,
        enclosed in parentheses.
        The following patterns try to match these names and store
        them in an internal stack.  The patterns possibly scan over
        the same input line (one after another), the trailing "%r"
        conversion indicates the "rest" of the line that will be
        parsed in the next go until the end of line is reached.

        Overread a file name enclosed in '('...')'; do not push it
        on a stack since the file apparently does not contain any
        error:
\%+O(%f)%r,
       Push a file name onto the stack.  The name is given after '(':
\%+P(%f%r,
\%+P\ %\\=(%f%r,
\%+P%*[^()](%f%r,
\%+P[%\\d%[^()]%#(%f%r,
       Pop the last stored file name when a ')' is scanned:
\%+Q)%r,
\%+Q%*[^()])%r,
\%+Q[%\\d%*[^()])%r
```

Note that in some cases file names in the LaTeX output log cannot be parsed properly. The parser might have been messed up by unbalanced parentheses then. The above example tries to catch the most relevant cases only.
You can customize the given setting to suit your own purposes, for example, all the annoying "Overfull ..." warnings could be excluded from being recognized as an error.
Alternatively to filtering the LaTeX compiler output, it is also possible

to directly read the *.log file that is produced by the [La]TeX compiler.
This contains even more useful information about possible error causes.
However, to properly parse such a complex file, an external filter should
be used. See the description further above how to make such a filter known
by Vim.

errorformat-Perl

In $VIMRUNTIME/tools you can find the efm_perl.pl script, which filters Perl
error messages into a format that quickfix mode will understand. See the
start of the file about how to use it. (This script is deprecated, see
compiler-perl .)

vim:tw=78:ts=8:noet:ft=help:norl:

windows.txt For Vim version 8.1. Last change: 2018 Apr 24

VIM REFERENCE MANUAL by Bram Moolenaar

Editing with multiple windows and buffers. windows buffers

The commands which have been added to use multiple windows and buffers are explained here. Additionally, there are explanations for commands that work differently when used in combination with more than one window.

The basics are explained in chapter 7 and 8 of the user manual usr_07.txt usr_08.txt .

{Vi does not have any of these commands}
{not able to use multiple windows when the +windows feature was disabled at compile time}
{not able to use vertically split windows when the +vertsplit feature was disabled at compile time}

==========

1. Introduction windows-intro window

Summary:
   A buffer is the in-memory text of a file.
   A window is a viewport on a buffer.
   A tab page is a collection of windows.

A window is a viewport onto a buffer. You can use multiple windows on one buffer, or several windows on different buffers.

A buffer is a file loaded into memory for editing. The original file remains unchanged until you write the buffer to the file.

A buffer can be in one of three states:

active-buffer

active: The buffer is displayed in a window. If there is a file for this buffer, it has been read into the buffer. The buffer may have been modified since then and thus be different from the file.

hidden-buffer
hidden: The buffer is not displayed. If there is a file for this buffer, it has been read into the buffer. Otherwise it's the same as an active buffer, you just can't see it.

inactive-buffer
inactive: The buffer is not displayed and does not contain anything. Options for the buffer are remembered if the file was once loaded. It can contain marks from the viminfo file. But the buffer doesn't contain text.

In a table:

state	displayed in window	loaded	":buffers" shows
active	yes	yes	'a'
hidden	no	yes	'h'
inactive	no	no	' '

Note: All CTRL-W commands can also be executed with :wincmd , for those places where a Normal mode command can't be used or is inconvenient.

The main Vim window can hold several split windows. There are also tab pages tab-page , each of which can hold multiple windows.

window-ID winid windowid
Each window has a unique identifier called the window ID. This identifier will not change within a Vim session. The win_getid() and win_id2tabwin() functions can be used to convert between the window/tab number and the identifier. There is also the window number, which may change whenever windows are opened or closed, see winnr() .

Each buffer has a unique number and the number will not change within a Vim session. The bufnr() and bufname() functions can be used to convert between a buffer name and the buffer number.

==
2. Starting Vim windows-starting

By default, Vim starts with one window, just like Vi.

The "-o" and "-O" arguments to Vim can be used to open a window for each file in the argument list. The "-o" argument will split the windows horizontally; the "-O" argument will split the windows vertically. If both "-o" and "-O" are given, the last one encountered will be used to determine the split orientation. For example, this will open three windows, split horizontally:

```
vim -o file1 file2 file3
```

"-oN", where N is a decimal number, opens N windows split horizontally. If there are more file names than windows, only N windows are opened and some files do not get a window. If there are more windows than file names, the last few windows will be editing empty buffers. Similarly, "-ON" opens N windows split vertically, with the same restrictions.

If there are many file names, the windows will become very small. You might want to set the 'winheight' and/or 'winwidth' options to create a workable

situation.

Buf/Win Enter/Leave autocommand s are not executed when opening the new
windows and reading the files, that's only done when they are really entered.

                                                              status-line
A status line will be used to separate windows. The 'laststatus' option tells
when the last window also has a status line:
        'laststatus' = 0   never a status line
        'laststatus' = 1   status line if there is more than one window
        'laststatus' = 2   always a status line

You can change the contents of the status line with the 'statusline' option.
This option can be local to the window, so that you can have a different
status line in each window.

Normally, inversion is used to display the status line. This can be changed
with the 's' character in the 'highlight' option. For example, "sb" sets it to
bold characters. If no highlighting is used for the status line ("sn"), the
'^' character is used for the current window, and '=' for other windows. If
the mouse is supported and enabled with the 'mouse' option, a status line can
be dragged to resize windows.

Note: If you expect your status line to be in reverse video and it isn't,
check if the 'highlight' option contains "si". In version 3.0, this meant to
invert the status line. Now it should be "sr", reverse the status line, as
"si" now stands for italic! If italic is not available on your terminal, the
status line is inverted anyway; you will only see this problem on terminals
that have termcap codes for italics.

==
3. Opening and closing a window   opening-window   E36

CTRL-W s   CTRL-W_s
CTRL-W S   CTRL-W_S
CTRL-W CTRL-S   CTRL-W_CTRL-S
:[N]sp[lit] [++opt] [+cmd] [file]   :sp   :split
                Split current window in two. The result is two viewports on
                the same file.

                Make the new window N high (default is to use half the height
                of the current window). Reduces the current window height to
                create room (and others, if the 'equalalways' option is set,
                'eadirection' isn't "hor", and one of them is higher than the
                current or the new window).

                If [file] is given it will be edited in the new window. If it
                is not loaded in any buffer, it will be read. Else the new
                window will use the already loaded buffer.

                Note: CTRL-S does not work on all terminals and might block
                further input, use CTRL-Q to get going again.
                Also see ++opt and +cmd .

CTRL-W CTRL-V   CTRL-W_CTRL-V
CTRL-W v   CTRL-W_v
:[N]vs[plit] [++opt] [+cmd] [file]   :vs   :vsplit
Like :split , but split vertically. The windows will be spread out horizontally if
1. a width was not specified,
2. 'equalalways' is set,
3. 'eadirection' isn't "ver", and
4. one of the other windows is wider than the current or new window.
Note: In other places CTRL-Q does the same as CTRL-V, but here it doesn't!

CTRL-W n   CTRL-W_n
CTRL-W CTRL_N   CTRL-W_CTRL-N
:[N]new [++opt] [+cmd]   :new
Create a new window and start editing an empty file in it. Make new window N high (default is to use half the existing height). Reduces the current window height to create room (and others, if the 'equalalways' option is set and 'eadirection' isn't "hor").
Also see ++opt and +cmd .
If 'fileformats' is not empty, the first format given will be used for the new buffer. If 'fileformats' is empty, the 'fileformat' of the current buffer is used. This can be overridden with the ++opt argument.
Autocommands are executed in this order:
1. WinLeave for the current window
2. WinEnter for the new window
3. BufLeave for the current buffer
4. BufEnter for the new buffer
This behaves like a ":split" first, and then an ":enew" command.

:[N]vne[w] [++opt] [+cmd] [file]   :vne   :vnew
Like :new , but split vertically. If 'equalalways' is set and 'eadirection' isn't "ver" the windows will be spread out horizontally, unless a width was specified.

:[N]new [++opt] [+cmd] {file}
:[N]sp[lit] [++opt] [+cmd] {file}   :split_f
Create a new window and start editing file {file} in it. This behaves like a ":split" first, and then an ":e" command.
If [+cmd] is given, execute the command when the file has been loaded +cmd .
Also see ++opt .
Make new window N high (default is to use half the existing height). Reduces the current window height to create room (and others, if the 'equalalways' option is set).

:[N]sv[iew] [++opt] [+cmd] {file}   :sv   :sview   splitview
Same as ":split", but set 'readonly' option for this buffer.

:[N]sf[ind] [++opt] [+cmd] {file}   :sf   :sfind   splitfind

Same as ":split", but search for {file} in 'path' like in
:find . Doesn't split if {file} is not found.

CTRL-W CTRL-^ CTRL-W_CTRL-^ CTRL-W_^
CTRL-W ^ Does ":split #", split window in two and edit alternate file.
When a count is given, it becomes ":split #N", split window
and edit buffer N.

CTRL-W_:
CTRL-W : Does the same as typing : - enter a command line. Useful in a
terminal window, where all Vim commands must be preceded with
CTRL-W or 'termwinkey'.

Note that the 'splitbelow' and 'splitright' options influence where a new
window will appear.

:vert :vertical
:vert[ical] {cmd}
Execute {cmd}. If it contains a command that splits a window,
it will be split vertically.
Doesn't work for :execute and :normal .

:lefta[bove] {cmd} :lefta :leftabove
:abo[veleft] {cmd} :abo :aboveleft
Execute {cmd}. If it contains a command that splits a window,
it will be opened left (vertical split) or above (horizontal
split) the current window. Overrules 'splitbelow' and
'splitright'.
Doesn't work for :execute and :normal .

:rightb[elow] {cmd} :rightb :rightbelow
:bel[owright] {cmd} :bel :belowright
Execute {cmd}. If it contains a command that splits a window,
it will be opened right (vertical split) or below (horizontal
split) the current window. Overrules 'splitbelow' and
'splitright'.
Doesn't work for :execute and :normal .

:topleft E442
:to[pleft] {cmd}
Execute {cmd}. If it contains a command that splits a window,
it will appear at the top and occupy the full width of the Vim
window. When the split is vertical the window appears at the
far left and occupies the full height of the Vim window.
Doesn't work for :execute and :normal .

:bo :botright
:bo[tright] {cmd}
Execute {cmd}. If it contains a command that splits a window,
it will appear at the bottom and occupy the full width of the
Vim window. When the split is vertical the window appears at
the far right and occupies the full height of the Vim window.
Doesn't work for :execute and :normal .

These command modifiers can be combined to make a vertically split window
occupy the full height. Example:
        :vertical topleft split tags
Opens a vertically split, full-height window on the "tags" file at the far
left of the Vim window.

Closing a window

:q[uit]
:{count}q[uit]
CTRL-W q   CTRL-W_q
CTRL-W CTRL-Q   CTRL-W_CTRL-Q
                Without {count}: Quit the current window. If {count} is
                given quit the {count} window.

                When quitting the last window (not counting a help window),
                exit Vim.

                When 'hidden' is set, and there is only one window for the
                current buffer, it becomes hidden. When 'hidden' is not set,
                and there is only one window for the current buffer, and the
                buffer was changed, the command fails.

                (Note: CTRL-Q does not work on all terminals).

                If [count] is greater than the last window number the last
                window will be closed:
                    :1quit " quit the first window
                    :$quit " quit the last window
                    :9quit " quit the last window
                            " if there are fewer than 9 windows opened
                    :-quit " quit the previous window
                    :+quit " quit the next window
                    :+2quit " quit the second next window

:q[uit]!
:{count}q[uit]!
                Without {count}: Quit the current window. If {count} is
                given quit the {count} window.

                If this was the last window for a buffer, any changes to that
                buffer are lost. When quitting the last window (not counting
                help windows), exit Vim. The contents of the buffer are lost,
                even when 'hidden' is set.

:clo[se][!]
:{count}clo[se][!]
CTRL-W c   CTRL-W_c   :clo   :close
                Without {count}: Close the current window. If {count} is
                given close the {count} window.

                When the 'hidden' option is set, or when the buffer was

changed and the [!] is used, the buffer becomes hidden (unless there is another window editing it).

When there is only one window in the current tab page and there is another tab page, this closes the current tab page. tab-page .

This command fails when: E444
- There is only one window on the screen.
- When 'hidden' is not set, [!] is not used, the buffer has changes, and there is no other window on this buffer.
Changes to the buffer are not written and won't get lost, so this is a "safe" command.

CTRL-W CTRL-C CTRL-W_CTRL-C
You might have expected that CTRL-W CTRL-C closes the current window, but that does not work, because the CTRL-C cancels the command.

:hide

:hid[e]
:{count}hid[e]
Without {count}: Quit the current window, unless it is the last window on the screen.
If {count} is given quit the {count} window.

The buffer becomes hidden (unless there is another window editing it or 'bufhidden' is "unload", "delete" or "wipe"). If the window is the last one in the current tab page the tab page is closed. tab-page

The value of 'hidden' is irrelevant for this command. Changes to the buffer are not written and won't get lost, so this is a "safe" command.

:hid[e] {cmd} Execute {cmd} with 'hidden' is set. The previous value of 'hidden' is restored after {cmd} has been executed.
Example:
```
:hide edit Makefile
```
This will edit "Makefile", and hide the current buffer if it has any changes.

:on[ly][!]
:{count}on[ly][!]
CTRL-W o CTRL-W_o E445
CTRL-W CTRL-O CTRL-W_CTRL-O :on :only
Make the current window the only one on the screen. All other windows are closed. For {count} see :quit command.

When the 'hidden' option is set, all buffers in closed windows become hidden.

When 'hidden' is not set, and the 'autowrite' option is set, modified buffers are written. Otherwise, windows that have

buffers that are modified are not removed, unless the [!] is given, then they become hidden. But modified buffers are never abandoned, so changes cannot get lost.

==========

4. Moving cursor to other windows window-move-cursor

CTRL-W <Down> CTRL-W_<Down>
CTRL-W CTRL-J CTRL-W_CTRL-J CTRL-W_j
CTRL-W j Move cursor to Nth window below current one. Uses the cursor position to select between alternatives.

CTRL-W <Up> CTRL-W_<Up>
CTRL-W CTRL-K CTRL-W_CTRL-K CTRL-W_k
CTRL-W k Move cursor to Nth window above current one. Uses the cursor position to select between alternatives.

CTRL-W <Left> CTRL-W_<Left>
CTRL-W CTRL-H CTRL-W_CTRL-H
CTRL-W <BS> CTRL-W_<BS> CTRL-W_h
CTRL-W h Move cursor to Nth window left of current one. Uses the cursor position to select between alternatives.

CTRL-W <Right> CTRL-W_<Right>
CTRL-W CTRL-L CTRL-W_CTRL-L CTRL-W_l
CTRL-W l Move cursor to Nth window right of current one. Uses the cursor position to select between alternatives.

CTRL-W w CTRL-W_w CTRL-W_CTRL-W
CTRL-W CTRL-W Without count: move cursor to window below/right of the current one. If there is no window below or right, go to top-left window.
With count: go to Nth window (windows are numbered from top-left to bottom-right). To obtain the window number see bufwinnr() and winnr() . When N is larger than the number of windows go to the last window.

CTRL-W_W
CTRL-W W Without count: move cursor to window above/left of current one. If there is no window above or left, go to bottom-right window. With count: go to Nth window, like with CTRL-W w.

CTRL-W t CTRL-W_t CTRL-W_CTRL-T
CTRL-W CTRL-T Move cursor to top-left window.

CTRL-W b CTRL-W_b CTRL-W_CTRL-B
CTRL-W CTRL-B Move cursor to bottom-right window.

CTRL-W p CTRL-W_p CTRL-W_CTRL-P
CTRL-W CTRL-P Go to previous (last accessed) window.

CTRL-W_P E441
CTRL-W P Go to preview window. When there is no preview window this is an error.

{not available when compiled without the |+quickfix| feature}

If Visual mode is active and the new window is not for the same buffer, the Visual mode is ended. If the window is on the same buffer, the cursor position is set to keep the same Visual area selected.

:winc :wincmd
These commands can also be executed with ":wincmd":

:[count]winc[md] {arg}
Like executing CTRL-W [count] {arg}. Example:
:wincmd j
Moves to the window below the current one.
This command is useful when a Normal mode cannot be used (for the CursorHold autocommand event). Or when a Normal mode command is inconvenient.
The count can also be a window number. Example:
:exe nr . "wincmd w"
This goes to window "nr".

==========
5. Moving windows around window-moving

CTRL-W r CTRL-W_r CTRL-W_CTRL-R E443
CTRL-W CTRL-R Rotate windows downwards/rightwards. The first window becomes the second one, the second one becomes the third one, etc. The last window becomes the first window. The cursor remains in the same window.
This only works within the row or column of windows that the current window is in.

CTRL-W_R
CTRL-W R Rotate windows upwards/leftwards. The second window becomes the first one, the third one becomes the second one, etc. The first window becomes the last window. The cursor remains in the same window.
This only works within the row or column of windows that the current window is in.

CTRL-W x CTRL-W_x CTRL-W_CTRL-X
CTRL-W CTRL-X Without count: Exchange current window with next one. If there is no next window, exchange with previous window.
With count: Exchange current window with Nth window (first window is 1). The cursor is put in the other window.
When vertical and horizontal window splits are mixed, the exchange is only done in the row or column of windows that the current window is in.

The following commands can be used to change the window layout. For example, when there are two vertically split windows, CTRL-W K will change that in horizontally split windows. CTRL-W H does it the other way around.

CTRL-W_K
CTRL-W K Move the current window to be at the very top, using the full

width of the screen. This works like closing the current
window and then creating another one with ":topleft split",
except that the current window contents is used for the new
window.

CTRL-W_J
CTRL-W J	Move the current window to be at the very bottom, using the
full width of the screen. This works like closing the current
window and then creating another one with ":botright split",
except that the current window contents is used for the new
window.

CTRL-W_H
CTRL-W H	Move the current window to be at the far left, using the
full height of the screen. This works like closing the
current window and then creating another one with
":vert topleft split", except that the current window contents
is used for the new window.
{not available when compiled without the |+vertsplit| feature}

CTRL-W_L
CTRL-W L	Move the current window to be at the far right, using the full
height of the screen. This works like closing the
current window and then creating another one with
":vert botright split", except that the current window
contents is used for the new window.
{not available when compiled without the |+vertsplit| feature}

CTRL-W_T
CTRL-W T	Move the current window to a new tab page. This fails if
there is only one window in the current tab page.
When a count is specified the new tab page will be opened
before the tab page with this index. Otherwise it comes after
the current tab page.

==
6. Window resizing   window-resize

CTRL-W_=
CTRL-W =	Make all windows (almost) equally high and wide, but use
'winheight' and 'winwidth' for the current window.
Windows with 'winfixheight' set keep their height and windows
with 'winfixwidth' set keep their width.

:res[ize] -N   :res   :resize   CTRL-W_-
CTRL-W -	Decrease current window height by N (default 1).
If used after :vertical : decrease width by N.

:res[ize] +N   CTRL-W_+
CTRL-W +	Increase current window height by N (default 1).
If used after :vertical : increase width by N.

:res[ize] [N]
CTRL-W CTRL-_   CTRL-W_CTRL-_   CTRL-W__

CTRL-W _   Set current window height to N (default: highest possible).

z{nr}<CR>   Set current window height to {nr}.

                                                CTRL-W_<
CTRL-W <   Decrease current window width by N (default 1).

                                                CTRL-W_>
CTRL-W >   Increase current window width by N (default 1).

:vertical res[ize] [N]   :vertical-resize   CTRL-W_bar
CTRL-W | Set current window width to N (default: widest possible).

You can also resize a window by dragging a status line up or down with the mouse. Or by dragging a vertical separator line left or right. This only works if the version of Vim that is being used supports the mouse and the 'mouse' option has been set to enable it.

The option 'winheight' ('wh') is used to set the minimal window height of the current window. This option is used each time another window becomes the current window. If the option is '0', it is disabled. Set 'winheight' to a very large value, e.g., '9999', to make the current window always fill all available space. Set it to a reasonable value, e.g., '10', to make editing in the current window comfortable.

The equivalent 'winwidth' ('wiw') option is used to set the minimal width of the current window.

When the option 'equalalways' ('ea') is set, all the windows are automatically made the same size after splitting or closing a window. If you don't set this option, splitting a window will reduce the size of the current window and leave the other windows the same. When closing a window, the extra lines are given to the window above it.

The 'eadirection' option limits the direction in which the 'equalalways' option is applied. The default "both" resizes in both directions. When the value is "ver" only the heights of windows are equalized. Use this when you have manually resized a vertically split window and want to keep this width. Likewise, "hor" causes only the widths of windows to be equalized.

The option 'cmdheight' ('ch') is used to set the height of the command-line. If you are annoyed by the hit-enter prompt for long messages, set this option to 2 or 3.

If there is only one window, resizing that window will also change the command line height. If there are several windows, resizing the current window will also change the height of the window below it (and sometimes the window above it).

The minimal height and width of a window is set with 'winminheight' and 'winminwidth'. These are hard values, a window will never become smaller.

==
7. Argument and buffer list commands   buffer-list

	args list	buffer list	meaning
1.	:[N]argument [N]	11. :[N]buffer [N]	to arg/buf N
2.	:[N]next [file ..]	12. :[N]bnext [N]	to Nth next arg/buf
3.	:[N]Next [N]	13. :[N]bNext [N]	to Nth previous arg/buf
4.	:[N]previous [N]	14. :[N]bprevious [N]	to Nth previous arg/buf
5.	:rewind / :first	15. :brewind / :bfirst	to first arg/buf
6.	:last	16. :blast	to last arg/buf
7.	:all	17. :ball	edit all args/buffers
		18. :unhide	edit all loaded buffers
		19. :[N]bmod [N]	to Nth modified buf

	split & args list	split & buffer list	meaning
21.	:[N]sargument [N]	31. :[N]sbuffer [N]	split + to arg/buf N
22.	:[N]snext [file ..]	32. :[N]sbnext [N]	split + to Nth next arg/buf
23.	:[N]sNext [N]	33. :[N]sbNext [N]	split + to Nth previous arg/buf
24.	:[N]sprevious [N]	34. :[N]sbprevious [N]	split + to Nth previous arg/buf
25.	:srewind / :sfirst	35. :sbrewind / :sbfirst	split + to first arg/buf
26.	:slast	36. :sblast	split + to last arg/buf
27.	:sall	37. :sball	edit all args/buffers
		38. :sunhide	edit all loaded buffers
		39. :[N]sbmod [N]	split + to Nth modified buf

40.	:args	list of arguments
41.	:buffers	list of buffers

The meaning of [N] depends on the command:
 [N] is the number of buffers to go forward/backward on 2/12/22/32,
     3/13/23/33, and 4/14/24/34
 [N] is an argument number, defaulting to current argument, for 1 and 21
 [N] is a buffer number, defaulting to current buffer, for 11 and 31
 [N] is a count for 19 and 39

Note: ":next" is an exception, because it must accept a list of file names
for compatibility with Vi.

The argument list and multiple windows

The current position in the argument list can be different for each window.
Remember that when doing ":e file", the position in the argument list stays
the same, but you are not editing the file at that position. To indicate
this, the file message (and the title, if you have one) shows
"(file (N) of M)", where "(N)" is the current position in the file list, and
"M" the number of files in the file list.

All the entries in the argument list are added to the buffer list. Thus, you
can also get to them with the buffer list commands, like ":bnext".

:[N]al[l][!] [N] :al :all :sal :sall
:[N]sal[l][!] [N]
Rearrange the screen to open one window for each argument.
All other windows are closed. When a count is given, this is

the maximum number of windows to open.
With the :tab modifier open a tab page for each argument.
When there are more arguments than 'tabpagemax' further ones become split windows in the last tab page.
When the 'hidden' option is set, all buffers in closed windows become hidden.
When 'hidden' is not set, and the 'autowrite' option is set, modified buffers are written. Otherwise, windows that have buffers that are modified are not removed, unless the [!] is given, then they become hidden. But modified buffers are never abandoned, so changes cannot get lost.
[N] is the maximum number of windows to open. 'winheight' also limits the number of windows opened ('winwidth' if :vertical was prepended).
Buf/Win Enter/Leave autocommands are not executed for the new windows here, that's only done when they are really entered.

:[N]sa[rgument][!] [++opt] [+cmd] [N] :sa :sargument
Short for ":split | argument [N]": split window and go to Nth argument. But when there is no such argument, the window is not split. Also see ++opt and +cmd .

:[N]sn[ext][!] [++opt] [+cmd] [file ..] :sn :snext
Short for ":split | [N]next": split window and go to Nth next argument. But when there is no next file, the window is not split. Also see ++opt and +cmd .

:[N]spr[evious][!] [++opt] [+cmd] [N] :spr :sprevious
:[N]sN[ext][!] [++opt] [+cmd] [N] :sN :sNext
Short for ":split | [N]Next": split window and go to Nth previous argument. But when there is no previous file, the window is not split. Also see ++opt and +cmd .

:sre :srewind
:sre[wind][!] [++opt] [+cmd]
Short for ":split | rewind": split window and go to first argument. But when there is no argument list, the window is not split. Also see ++opt and +cmd .

:sfir :sfirst
:sfir[st] [++opt] [+cmd]
Same as ":srewind".

:sla :slast
:sla[st][!] [++opt] [+cmd]
Short for ":split | last": split window and go to last argument. But when there is no argument list, the window is not split. Also see ++opt and +cmd .

:dr :drop
:dr[op] [++opt] [+cmd] {file} ..
Edit the first {file} in a window.
- If the file is already open in a window change to that window.

- If the file is not open in a window edit the file in the
  current window. If the current buffer can't be abandon ed,
  the window is split first.
- Windows that are not in the argument list or are not full
  width will be closed if possible.

The argument-list is set, like with the :next command.
The purpose of this command is that it can be used from a
program that wants Vim to edit another file, e.g., a debugger.
When using the :tab modifier each argument is opened in a
tab page. The last window is used if it's empty.
Also see ++opt and +cmd .

==
8. Do a command in all buffers or windows   list-repeat

                                                                :windo
:[range]windo {cmd}   Execute {cmd} in each window or if [range] is given
                        only in windows for which the window number lies in
                        the [range]. It works like doing this:
                                CTRL-W t
                                :{cmd}
                                CTRL-W w
                                :{cmd}
                                etc.
                       This only operates in the current tab page.
                        When an error is detected on one window, further
                        windows will not be visited.
                        The last window (or where an error occurred) becomes
                        the current window.
                        {cmd} can contain '|' to concatenate several commands.
                        {cmd} must not open or close windows or reorder them.
                        {not in Vi}
                        Also see :tabdo , :argdo , :bufdo , :cdo , :ldo ,
                         :cfdo and :lfdo

                                                                :bufdo
:[range]bufdo[!] {cmd} Execute {cmd} in each buffer in the buffer list or if
                        [range] is given only for buffers for which their
                        buffer number is in the [range]. It works like doing
                        this:
                                :bfirst
                                :{cmd}
                                :bnext
                                :{cmd}
                                etc.
                       When the current file can't be abandon ed and the [!]
                        is not present, the command fails.
                        When an error is detected on one buffer, further
                        buffers will not be visited.
                        Unlisted buffers are skipped.
                        The last buffer (or where an error occurred) becomes
                        the current buffer.
                        {cmd} can contain '|' to concatenate several commands.
                        {cmd} must not delete buffers or add buffers to the

buffer list.
Note: While this command is executing, the Syntax autocommand event is disabled by adding it to 'eventignore'. This considerably speeds up editing each buffer.
{not in Vi}
Also see :tabdo , :argdo , :windo , :cdo , :ldo , :cfdo and :lfdo

Examples:

```
:windo set nolist nofoldcolumn | normal zn
```

This resets the 'list' option and disables folding in all windows.

```
:bufdo set fileencoding= | update
```

This resets the 'fileencoding' in each buffer and writes it if this changed the buffer. The result is that all buffers will use the 'encoding' encoding (if conversion works properly).

==
9. Tag or file name under the cursor window-tag

:sta :stag

:sta[g][!] [tagname]
Does ":tag[!] [tagname]" and splits the window for the found tag. See also :tag .

CTRL-W] CTRL-W_] CTRL-W_CTRL-]
CTRL-W CTRL-] Split current window in two. Use identifier under cursor as a tag and jump to it in the new upper window.
In Visual mode uses the Visually selected text as a tag.
Make new window N high.

CTRL-W_g]
CTRL-W g] Split current window in two. Use identifier under cursor as a tag and perform ":tselect" on it in the new upper window.
In Visual mode uses the Visually selected text as a tag.
Make new window N high.

CTRL-W_g_CTRL-]
CTRL-W g CTRL-] Split current window in two. Use identifier under cursor as a tag and perform ":tjump" on it in the new upper window.
In Visual mode uses the Visually selected text as a tag.
Make new window N high.

CTRL-W f CTRL-W_f CTRL-W_CTRL-F
CTRL-W CTRL-F Split current window in two. Edit file name under cursor.
Like ":split gf", but window isn't split if the file does not exist.
Uses the 'path' variable as a list of directory names where to look for the file. Also the path for current file is used to search for the file name.

If the name is a hypertext link that looks like
"type://machine/path", only "/path" is used.
If a count is given, the count'th matching file is edited.
{not available when the +file_in_path feature was disabled
at compile time}

CTRL-W F CTRL-W_F
Split current window in two. Edit file name under cursor and
jump to the line number following the file name. See gF for
details on how the line number is obtained.
{not available when the +file_in_path feature was disabled
at compile time}

CTRL-W gf CTRL-W_gf
Open a new tab page and edit the file name under the cursor.
Like "tab split" and "gf", but the new tab page isn't created
if the file does not exist.
{not available when the +file_in_path feature was disabled
at compile time}

CTRL-W gF CTRL-W_gF
Open a new tab page and edit the file name under the cursor
and jump to the line number following the file name. Like
"tab split" and "gF", but the new tab page isn't created if
the file does not exist.
{not available when the +file_in_path feature was disabled
at compile time}

Also see CTRL-W_CTRL-I : open window for an included file that includes
the keyword under the cursor.

==
10. The preview window preview-window

The preview window is a special window to show (preview) another file. It is
normally a small window used to show an include file or definition of a
function.
{not available when compiled without the |+quickfix| feature}

There can be only one preview window (per tab page). It is created with one
of the commands below. The 'previewheight' option can be set to specify the
height of the preview window when it's opened. The 'previewwindow' option is
set in the preview window to be able to recognize it. The 'winfixheight'
option is set to have it keep the same height when opening/closing other
windows.

:pta :ptag
:pta[g][!] [tagname]
Does ":tag[!] [tagname]" and shows the found tag in a
"Preview" window without changing the current buffer or cursor
position. If a "Preview" window already exists, it is re-used
(like a help window is). If a new one is opened,
'previewheight' is used for the height of the window. See
also :tag .

See below for an example. CursorHold-example
Small difference from :tag : When [tagname] is equal to the already displayed tag, the position in the matching tag list is not reset. This makes the CursorHold example work after a :ptnext .

CTRL-W z CTRL-W_z
CTRL-W CTRL-Z CTRL-W_CTRL-Z :pc :pclose
:pc[lose][!] Close any "Preview" window currently open. When the 'hidden' option is set, or when the buffer was changed and the [!] is used, the buffer becomes hidden (unless there is another window editing it). The command fails if any "Preview" buffer cannot be closed. See also :close .

:pp :ppop
:[count]pp[op][!]
Does ":[count]pop[!]" in the preview window. See :pop and :ptag . {not in Vi}

CTRL-W } CTRL-W_}
Use identifier under cursor as a tag and perform a :ptag on it. Make the new Preview window (if required) N high. If N is not given, 'previewheight' is used.

CTRL-W g } CTRL-W_g}
Use identifier under cursor as a tag and perform a :ptjump on it. Make the new Preview window (if required) N high. If N is not given, 'previewheight' is used.

:ped :pedit
:ped[it][!] [++opt] [+cmd] {file}
Edit {file} in the preview window. The preview window is opened like with :ptag . The current window and cursor position isn't changed. Useful example:

```
:pedit +/fputc /usr/include/stdio.h
```

:ps :psearch
:[range]ps[earch][!] [count] [/]pattern[/]
Works like :ijump but shows the found match in the preview window. The preview window is opened like with :ptag . The current window and cursor position isn't changed. Useful example:

```
:psearch popen
```

Like with the :ptag command, you can use this to automatically show information about the word under the cursor. This is less clever than using :ptag , but you don't need a tags file and it will also find matches in system include files. Example:

```
:au! CursorHold *.[ch] nested exe "silent! psearch " . expand("<cword>")
```

Warning: This can be slow.

Example CursorHold-example

```
:au! CursorHold *.[ch] nested exe "silent! ptag " . expand("<cword>")
```

This will cause a ":ptag" to be executed for the keyword under the cursor, when the cursor hasn't moved for the time set with 'updatetime'. The "nested" makes other autocommands be executed, so that syntax highlighting works in the preview window. The "silent!" avoids an error message when the tag could not be found. Also see CursorHold . To disable this again:

```
:au! CursorHold
```

A nice addition is to highlight the found tag, avoid the ":ptag" when there is no word under the cursor, and a few other things:

```
:au! CursorHold *.[ch] nested call PreviewWord()
:func PreviewWord()
:  if &previewwindow                  " don't do this in the preview window
:    return
:  endif
:  let w = expand("<cword>")          " get the word under cursor
:  if w =~ '\a'                       " if the word contains a letter
:
:    " Delete any existing highlight before showing another tag
:    silent! wincmd P                 " jump to preview window
:    if &previewwindow                       " if we really get there...
:      match none                     " delete existing highlight
:      wincmd p                       " back to old window
:    endif
:
:    " Try displaying a matching tag for the word under the cursor
:    try
:       exe "ptag " . w
:    catch
:      return
:    endtry
:
:    silent! wincmd P                 " jump to preview window
:    if &previewwindow                " if we really get there...
:      if has("folding")
:        silent! .foldopen            " don't want a closed fold
:      endif
:      call search("$", "b")          " to end of previous line
:      let w = substitute(w, '\\', '\\\\', "")
:      call search('\<\V' . w . '\>') " position cursor on match
:      " Add a match highlight to the word at this position
:      hi previewWord term=bold ctermbg=green guibg=green
:      exe 'match previewWord "\%' . line(".") . 'l\%' . col(".") . 'c\k*"'
:      wincmd p                       " back to old window
:    endif
:  endif
:endfun
```

==========

11. Using hidden buffers buffer-hidden

A hidden buffer is not displayed in a window, but is still loaded into memory.

This makes it possible to jump from file to file, without the need to read or write the file every time you get another buffer in a window.

:buffer-!

If the option 'hidden' ('hid') is set, abandoned buffers are kept for all commands that start editing another file: ":edit", ":next", ":tag", etc. The commands that move through the buffer list sometimes make the current buffer hidden although the 'hidden' option is not set. This happens when a buffer is modified, but is forced (with '!') to be removed from a window, and 'autowrite' is off or the buffer can't be written.

You can make a hidden buffer not hidden by starting to edit it with any command. Or by deleting it with the ":bdelete" command.

The 'hidden' is global, it is used for all buffers. The 'bufhidden' option can be used to make an exception for a specific buffer. It can take these values:

<empty>	Use the value of 'hidden'.
hide	Hide this buffer, also when 'hidden' is not set.
unload	Don't hide but unload this buffer, also when 'hidden' is set.
delete	Delete the buffer.

hidden-quit

When you try to quit Vim while there is a hidden, modified buffer, you will get an error message and Vim will make that buffer the current buffer. You can then decide to write this buffer (":wq") or quit without writing (":q!"). Be careful: there may be more hidden, modified buffers!

A buffer can also be unlisted. This means it exists, but it is not in the list of buffers. unlisted-buffer

:files[!] [flags] :files
:buffers[!] [flags] :buffers :ls
:ls[!] [flags]

Show all buffers. Example:

```
1 #h   "/test/text"          line 1
2u     "asdf"                line 0
3 %a + "version.c"           line 1
```

When the [!] is included the list will show unlisted buffers (the term "unlisted" is a bit confusing then...).

Each buffer has a unique number. That number will not change, thus you can always go to a specific buffer with ":buffer N" or "N CTRL-^", where N is the buffer number.

Indicators (chars in the same column are mutually exclusive):

u	an unlisted buffer (only displayed when [!] is used) unlisted-buffer
%	the buffer in the current window
#	the alternate buffer for ":e #" and CTRL-^

```
                  a     an active buffer: it is loaded and visible
                  h     a hidden buffer: It is loaded, but currently not
                           displayed in a window  hidden-buffer
                   -    a buffer with 'modifiable' off
                   =    a readonly buffer
                   R    a terminal buffer with a running job
                   F    a terminal buffer with a finished job
                   ?    a terminal buffer without a job: `:terminal NONE`
                    +   a modified buffer
                    x   a buffer with read errors

                [flags] can be a combination of the following characters,
                which restrict the buffers to be listed:
                     +   modified buffers
                     -   buffers with 'modifiable' off
                     =   readonly buffers
                     a   active buffers
                     u   unlisted buffers (overrides the "!")
                     h   hidden buffers
                     x   buffers with a read error
                     %   current buffer
                     #   alternate buffer
                     R   terminal buffers with a running job
                     F   terminal buffers with a finished job
                     ?   terminal buffers without a job: `:terminal NONE`
                Combining flags means they are "and"ed together, e.g.:
                     h+   hidden buffers which are modified
                     a+   active buffers which are modified

                When using  :filter  the pattern is matched against the
                displayed buffer name, e.g.:
                        filter /\.vim/ ls

                                                    :bad   :badd
:bad[d] [+lnum] {fname}
                Add file name {fname} to the buffer list, without loading it.
                If "lnum" is specified, the cursor will be positioned at that
                line when the buffer is first entered.  Note that other
                commands after the + will be ignored.

:[N]bd[elete][!]                        :bd   :bdel   :bdelete   E516
:bd[elete][!] [N]
                Unload buffer [N] (default: current buffer) and delete it from
                the buffer list.  If the buffer was changed, this fails,
                unless when [!] is specified, in which case changes are lost.
                The file remains unaffected.  Any windows for this buffer are
                closed.  If buffer [N] is the current buffer, another buffer
                will be displayed instead.  This is the most recent entry in
                the jump list that points into a loaded buffer.
                Actually, the buffer isn't completely deleted, it is removed
                from the buffer list  unlisted-buffer  and option values,
                variables and mappings/abbreviations for the buffer are
                cleared. Examples:
                    :.,$-bdelete    " delete buffers from the current one to
```

```
                                " last but one
                    :%bdelete       " delete all buffers


:bdelete[!] {bufname}                                               E93   E94
                Like ":bdelete[!] [N]", but buffer given by name, see
                 {bufname} .

:bdelete[!] N1 N2 ...
                Do ":bdelete[!]" for buffer N1, N2, etc.  The arguments can be
                buffer numbers or buffer names (but not buffer names that are
                a number).  Insert a backslash before a space in a buffer
                name.

:N,Mbdelete[!]  Do ":bdelete[!]" for all buffers in the range N to M
                 inclusive .

:[N]bw[ipeout][!]                          :bw   :bwipe   :bwipeout   E517
:bw[ipeout][!] {bufname}
:N,Mbw[ipeout][!]
:bw[ipeout][!] N1 N2 ...
                Like  :bdelete , but really delete the buffer.  Everything
                related to the buffer is lost.  All marks in this buffer
                become invalid, option settings are lost, etc.  Don't use this
                unless you know what you are doing. Examples:
                    :.+,$bwipeout   " wipe out all buffers after the current
                                    " one
                    :%bwipeout      " wipe out all buffers


:[N]bun[load][!]                                    :bun   :bunload   E515
:bun[load][!] [N]
                Unload buffer [N] (default: current buffer).  The memory
                allocated for this buffer will be freed.  The buffer remains
                in the buffer list.
                If the buffer was changed, this fails, unless when [!] is
                specified, in which case the changes are lost.
                Any windows for this buffer are closed.  If buffer [N] is the
                current buffer, another buffer will be displayed instead.
                This is the most recent entry in the jump list that points
                into a loaded buffer.

:bunload[!] {bufname}
                Like ":bunload[!] [N]", but buffer given by name.
                Also see  {bufname} .

:N,Mbunload[!]  Do ":bunload[!]" for all buffers in the range N to M
                 inclusive .

:bunload[!] N1 N2 ...
                Do ":bunload[!]" for buffer N1, N2, etc.  The arguments can be
                buffer numbers or buffer names (but not buffer names that are
                a number).  Insert a backslash before a space in a buffer
                name.
```

:[N]b[uffer][!] [+cmd] [N] :b :bu :buf :buffer E86
Edit buffer [N] from the buffer list. If [N] is not given, the current buffer remains being edited. See :buffer-! for [!]. This will also edit a buffer that is not in the buffer list, without setting the 'buflisted' flag.
Also see +cmd .

:[N]b[uffer][!] [+cmd] {bufname} {bufname}
Edit buffer for {bufname} from the buffer list. A partial name also works, so long as it is unique in the list of buffers.
Note that a buffer whose name is a number cannot be referenced by that name; use the buffer number instead.
Insert a backslash before a space in a buffer name.
See :buffer-! for [!].
This will also edit a buffer that is not in the buffer list, without setting the 'buflisted' flag.
Also see +cmd .

:[N]sb[uffer] [+cmd] [N] :sb :sbuffer
Split window and edit buffer [N] from the buffer list. If [N] is not given, the current buffer is edited. Respects the "useopen" setting of 'switchbuf' when splitting. This will also edit a buffer that is not in the buffer list, without setting the 'buflisted' flag.
Also see +cmd .

:[N]sb[uffer] [+cmd] {bufname}
Split window and edit buffer for {bufname} from the buffer list. This will also edit a buffer that is not in the buffer list, without setting the 'buflisted' flag.
Note: If what you want to do is split the buffer, make a copy under another name, you can do it this way:

```
:w foobar | sp #
```

Also see +cmd .

:[N]bn[ext][!] [+cmd] [N] :bn :bnext E87
Go to [N]th next buffer in buffer list. [N] defaults to one. Wraps around the end of the buffer list.
See :buffer-! for [!].
Also see +cmd .
If you are in a help buffer, this takes you to the next help buffer (if there is one). Similarly, if you are in a normal (non-help) buffer, this takes you to the next normal buffer. This is so that if you have invoked help, it doesn't get in the way when you're browsing code/text buffers. The next three commands also work like this.

:[N]sbn[ext] [+cmd] [N] :sbn :sbnext
Split window and go to [N]th next buffer in buffer list. Wraps around the end of the buffer list. Uses 'switchbuf'

Also see +cmd .

:[N]bN[ext][!] [+cmd] [N] :bN :bNext :bp :bprevious E88
:[N]bp[revious][!] [+cmd] [N]
Go to [N]th previous buffer in buffer list. [N] defaults to
one. Wraps around the start of the buffer list.
See :buffer-! for [!] and 'switchbuf'.
Also see +cmd .

:[N]sbN[ext] [+cmd] [N] :sbN :sbNext :sbp :sbprevious
:[N]sbp[revious] [+cmd] [N]
Split window and go to [N]th previous buffer in buffer list.
Wraps around the start of the buffer list.
Uses 'switchbuf'.
Also see +cmd .

:br[ewind][!] [+cmd] :br :brewind
Go to first buffer in buffer list. If the buffer list is
empty, go to the first unlisted buffer.
See :buffer-! for [!].

:bf[irst] [+cmd] :bf :bfirst
Same as :brewind .
Also see +cmd .

:sbr[ewind] [+cmd] :sbr :sbrewind
Split window and go to first buffer in buffer list. If the
buffer list is empty, go to the first unlisted buffer.
Respects the 'switchbuf' option.
Also see +cmd .

:sbf[irst] [+cmd] :sbf :sbfirst
Same as ":sbrewind".

:bl[ast][!] [+cmd] :bl :blast
Go to last buffer in buffer list. If the buffer list is
empty, go to the last unlisted buffer.
See :buffer-! for [!].

:sbl[ast] [+cmd] :sbl :sblast
Split window and go to last buffer in buffer list. If the
buffer list is empty, go to the last unlisted buffer.
Respects 'switchbuf' option.

:[N]bm[odified][!] [+cmd] [N] :bm :bmodified E84
Go to [N]th next modified buffer. Note: this command also
finds unlisted buffers. If there is no modified buffer the
command fails.

:[N]sbm[odified] [+cmd] [N] :sbm :sbmodified
Split window and go to [N]th next modified buffer.
Respects 'switchbuf' option.
Note: this command also finds buffers not in the buffer list.

:[N]unh[ide] [N] :unh :unhide :sun :sunhide
:[N]sun[hide] [N]
Rearrange the screen to open one window for each loaded buffer in the buffer list. When a count is given, this is the maximum number of windows to open.

:[N]ba[ll] [N] :ba :ball :sba :sball
:[N]sba[ll] [N] Rearrange the screen to open one window for each buffer in the buffer list. When a count is given, this is the maximum number of windows to open. 'winheight' also limits the number of windows opened ('winwidth' if :vertical was prepended). Buf/Win Enter/Leave autocommands are not executed for the new windows here, that's only done when they are really entered. When the :tab modifier is used new windows are opened in a new tab, up to 'tabpagemax'.

Note: All the commands above that start editing another buffer, keep the 'readonly' flag as it was. This differs from the ":edit" command, which sets the 'readonly' flag each time the file is read.

==
12. Special kinds of buffers special-buffers

Instead of containing the text of a file, buffers can also be used for other purposes. A few options can be set to change the behavior of a buffer:

'bufhidden'	what happens when the buffer is no longer displayed in a window.
'buftype'	what kind of a buffer this is
'swapfile'	whether the buffer will have a swap file
'buflisted'	buffer shows up in the buffer list

A few useful kinds of a buffer:

quickfix Used to contain the error list or the location list. See :cwindow and :lwindow . This command sets the 'buftype' option to "quickfix". You are not supposed to change this! 'swapfile' is off.

help Contains a help file. Will only be created with the :help command. The flag that indicates a help buffer is internal and can't be changed. The 'buflisted' option will be reset for a help buffer.

terminal A terminal window buffer, see terminal . The contents cannot be read or changed until the job ends.

directory Displays directory contents. Can be used by a file explorer plugin. The buffer is created with these settings:

```
:setlocal buftype=nowrite
:setlocal bufhidden=delete
:setlocal noswapfile
```

The buffer name is the name of the directory and is adjusted when using the :cd command.

scratch		Contains text that can be discarded at any time. It is kept
		when closing the window, it must be deleted explicitly.
		Settings:
			:setlocal buftype=nofile
			:setlocal bufhidden=hide
			:setlocal noswapfile
		The buffer name can be used to identify the buffer, if you
		give it a meaningful name.

		unlisted-buffer
unlisted	The buffer is not in the buffer list. It is not used for
		normal editing, but to show a help file, remember a file name
		or marks. The ":bdelete" command will also set this option,
		thus it doesn't completely delete the buffer. Settings:
			:setlocal nobuflisted

 vim:tw=78:ts=8:ft=help:norl:

tabpage.txt For Vim version 8.1. Last change: 2018 Mar 29

VIM REFERENCE MANUAL by Bram Moolenaar

Editing with windows in multiple tab pages. tab-page tabpage

The commands which have been added to use multiple tab pages are explained here. Additionally, there are explanations for commands that work differently when used in combination with more than one tab page.

{Vi does not have any of these commands}
{not able to use multiple tab pages when the +windows feature was disabled at compile time}

==
1. Introduction tab-page-intro

A tab page holds one or more windows. You can easily switch between tab pages, so that you have several collections of windows to work on different things.

Usually you will see a list of labels at the top of the Vim window, one for each tab page. With the mouse you can click on the label to jump to that tab page. There are other ways to move between tab pages, see below.

Most commands work only in the current tab page. That includes the CTRL-W commands, :windo, :all and :ball (when not using the :tab modifier). The commands that are aware of other tab pages than the current one are mentioned below.

Tabs are also a nice way to edit a buffer temporarily without changing the current window layout. Open a new tab page, do whatever you want to do and close the tab page.

==
2. Commands tab-page-commands

OPENING A NEW TAB PAGE:

When starting Vim "vim -p filename ..." opens each file argument in a separate tab page (up to 'tabpagemax'). See -p

A double click with the mouse in the non-GUI tab pages line opens a new, empty tab page. It is placed left of the position of the click. The first click may select another tab page first, causing an extra screen update.

This also works in a few GUI versions, esp. Win32 and Motif. But only when clicking right of the labels.

In the GUI tab pages line you can use the right mouse button to open menu.
 tabline-menu .

For the related autocommands see tabnew-autocmd .

:[count]tabe[dit]   :tabe   :tabedit   :tabnew
:[count]tabnew
                Open a new tab page with an empty window, after the current
                tab page. If [count] is given the new tab page appears after
                the tab page [count] otherwise the new tab page will appear
                after the current one.
                    :tabnew   " opens tabpage after the current one
                    :.tabnew   " as above
                    :+tabnew   " opens tabpage after the next tab page
                                " note: it is one further than :tabnew
                    :-tabnew   " opens tabpage before the current one
                    :0tabnew   " opens tabpage before the first one
                    :$tabnew   " opens tabpage after the last one

:[count]tabe[dit] [++opt] [+cmd] {file}
:[count]tabnew [++opt] [+cmd] {file}
                Open a new tab page and edit {file}, like with :edit .
                For [count] see :tabnew above.

:[count]tabf[ind] [++opt] [+cmd] {file}   :tabf   :tabfind
                Open a new tab page and edit {file} in 'path', like with
                 :find . For [count] see :tabnew above.
                {not available when the +file_in_path feature was disabled
                at compile time}

:[count]tab {cmd}   :tab
                Execute {cmd} and when it opens a new window open a new tab
                page instead. Doesn't work for :diffsplit , :diffpatch ,
                 :execute and :normal .
                If [count] is given the new tab page appears after the tab
                page [count] otherwise the new tab page will appear after the
                current one.
                Examples:
                    :tab split   " opens current buffer in new tab page
                    :tab help gt   " opens tab page with help for "gt"
                    :.tab help gt   " as above
                    :+tab help   " opens tab page with help after the next
                                    " tab page
                    :-tab help   " opens tab page with help before the
                                    " current one
                    :0tab help   " opens tab page with help before the
                                    " first one
                    :$tab help   " opens tab page with help after the last
                                    " one

CTRL-W gf   Open a new tab page and edit the file name under the cursor.

See CTRL-W_gf .

CTRL-W gF	Open a new tab page and edit the file name under the cursor
and jump to the line number following the file name.
See CTRL-W_gF .

CLOSING A TAB PAGE:

Closing the last window of a tab page closes the tab page too, unless there is only one tab page.

Using the mouse: If the tab page line is displayed you can click in the "X" at the top right to close the current tab page. A custom 'tabline' may show something else.

:tabc :tabclose

:tabc[lose][!] Close current tab page.
This command fails when:
- There is only one tab page on the screen. E784
- When 'hidden' is not set, [!] is not used, a buffer has changes, and there is no other window on this buffer.
Changes to the buffer are not written and won't get lost, so this is a "safe" command.

```
:tabclose       " close the current tab page
```

:{count}tabc[lose][!]
:tabc[lose][!] {count}
Close tab page {count}. Fails in the same way as `:tabclose` above.

```
:-tabclose      " close the previous tab page
:+tabclose      " close the next tab page
:1tabclose      " close the first tab page
:$tabclose      " close the last tab page
:tabclose -2    " close the two previous tab page
:tabclose +     " close the next tab page
:tabclose 3     " close the third tab page
:tabclose $     " close the last tab page
```

:tabo :tabonly

:tabo[nly][!] Close all other tab pages.
When the 'hidden' option is set, all buffers in closed windows become hidden.
When 'hidden' is not set, and the 'autowrite' option is set, modified buffers are written. Otherwise, windows that have buffers that are modified are not removed, unless the [!] is given, then they become hidden. But modified buffers are never abandoned, so changes cannot get lost.

```
:tabonly        " close all tab pages except the current
                " one
```

:{count}tabo[nly][!]
:tabo[nly][!] {count}
Close all tab pages except {count} one.

```
:.tabonly       " as above
```

```
                    :-tabonly       " close all tab pages except the previous
                                    " one
                    :+tabonly       " close all tab pages except the next one
                    :1tabonly       " close all tab pages except the first one
                    :$tabonly       " close all tab pages except the last one
                    :tabonly -      " close all tab pages except the previous
                                    " one
                    :tabonly +2     " close all tab pages except the two next
                                    " one
                    :tabonly 1      " close all tab pages except the first one
                    :tabonly $      " close all tab pages except the last one
```

SWITCHING TO ANOTHER TAB PAGE:

Using the mouse: If the tab page line is displayed you can click in a tab page label to switch to that tab page. Click where there is no label to go to the next tab page. 'tabline'

:tabn[ext] :tabn :tabnext gt
<C-PageDown> CTRL-<PageDown> <C-PageDown>
gt i_CTRL-<PageDown> i_<C-PageDown>
Go to the next tab page. Wraps around from the last to the first one.

:{count}tabn[ext]
:tabn[ext] {count}
Go to tab page {count}. The first tab page has number one.

```
    :-tabnext   " go to the previous tab page
    :+tabnext   " go to the next tab page
    :+2tabnext  " go to the two next tab page
    :1tabnext   " go to the first tab page
    :$tabnext   " go to the last tab page
    :tabnext $  " as above
    :tabnext -  " go to the previous tab page
    :tabnext -1 " as above
    :tabnext +  " go to the next tab page
    :tabnext +1 " as above
```

{count}<C-PageDown>
{count}gt Go to tab page {count}. The first tab page has number one.

:tabp[revious] :tabp :tabprevious gT :tabN
:tabN[ext] :tabNext CTRL-<PageUp>
<C-PageUp> <C-PageUp> i_CTRL-<PageUp> i_<C-PageUp>
gT Go to the previous tab page. Wraps around from the first one to the last one.

:tabp[revious] {count}
:tabN[ext] {count}
{count}<C-PageUp>
{count}gT Go {count} tab pages back. Wraps around from the first one to the last one. Note that the use of {count} is different

from :tabnext , where it is used as the tab page number.

:tabr[ewind] :tabfir :tabfirst :tabr :tabrewind
:tabfir[st] Go to the first tab page.

:tabl :tablast
:tabl[ast] Go to the last tab page.

Other commands:

:tabs :tabs
List the tab pages and the windows they contain.
Shows a ">" for the current window.
Shows a "+" for modified buffers.
For example:

```
Tab page 1
  + tabpage.txt
    ex_docmd.c
Tab page 2
>   main.c
```

REORDERING TAB PAGES:

:tabm[ove] [N] :tabm :tabmove
:[N]tabm[ove]
Move the current tab page to after tab page N. Use zero to make the current tab page the first one. Without N the tab page is made the last one.

```
:.tabmove   " do nothing
:-tabmove   " move the tab page to the left
:+tabmove   " move the tab page to the right
:0tabmove   " move the tab page to the beginning of the tab
            " list
:tabmove 0  " as above
:tabmove    " move the tab page to the last
:$tabmove   " as above
:tabmove $  " as above
```

:tabm[ove] +[N]
:tabm[ove] -[N]
Move the current tab page N places to the right (with +) or to the left (with -).

```
:tabmove -  " move the tab page to the left
:tabmove -1 " as above
:tabmove +  " move the tab page to the right
:tabmove +1 " as above
```

Note that although it is possible to move a tab behind the N-th one by using :Ntabmove. And move it by N places by using :+Ntabmove. For clarification what +N means in this context see [range] .

LOOPING OVER TAB PAGES:

:tabd :tabdo

:[range]tabd[o] {cmd}
Execute {cmd} in each tab page or if [range] is given only in tab pages which tab page number is in the [range]. It works like doing this:

```
:tabfirst
:{cmd}
:tabnext
:{cmd}
etc.
```

This only operates in the current window of each tab page. When an error is detected on one tab page, further tab pages will not be visited.
The last tab page (or where an error occurred) becomes the current tab page.
{cmd} can contain '|' to concatenate several commands.
{cmd} must not open or close tab pages or reorder them.
{not in Vi}
Also see :windo , :argdo , :bufdo , :cdo , :ldo , :cfdo and :lfdo

==========

3. Other items tab-page-other

tabline-menu

The GUI tab pages line has a popup menu. It is accessed with a right click. The entries are:

Close	Close the tab page under the mouse pointer. The current one if there is no label under the mouse pointer.
New Tab	Open a tab page, editing an empty buffer. It appears to the left of the mouse pointer.
Open Tab...	Like "New Tab" and additionally use a file selector to select a file to edit.

Diff mode works per tab page. You can see the diffs between several files within one tab page. Other tab pages can show differences between other files.

Variables local to a tab page start with "t:". tabpage-variable

Currently there is only one option local to a tab page: 'cmdheight'.

tabnew-autocmd

The TabLeave and TabEnter autocommand events can be used to do something when switching from one tab page to another. The exact order depends on what you are doing. When creating a new tab page this works as if you create a new window on the same buffer and then edit another buffer. Thus ":tabnew" triggers:

WinLeave	leave current window
TabLeave	leave current tab page
WinEnter	enter window in new tab page

```
        TabEnter                enter new tab page
        BufLeave                leave current buffer
        BufEnter                enter new empty buffer

When switching to another tab page the order is:
        BufLeave
        WinLeave
        TabLeave
        TabEnter
        WinEnter
        BufEnter

==============================================================================
4. Setting 'tabline'                                    setting-tabline

The 'tabline' option specifies what the line with tab pages labels looks like.
It is only used when there is no GUI tab line.

You can use the 'showtabline' option to specify when you want the line with
tab page labels to appear: never, when there is more than one tab page or
always.

The highlighting of the tab pages line is set with the groups TabLine
TabLineSel and TabLineFill.   hl-TabLine   hl-TabLineSel   hl-TabLineFill

A "+" will be shown for a tab page that has a modified window.  The number of
windows in a tabpage is also shown.  Thus "3+" means three windows and one of
them has a modified buffer.

The 'tabline' option allows you to define your preferred way to tab pages
labels.  This isn't easy, thus an example will be given here.

For basics see the 'statusline' option.  The same items can be used in the
'tabline' option.  Additionally, the  tabpagebuflist() ,  tabpagenr()  and
 tabpagewinnr()  functions are useful.

Since the number of tab labels will vary, you need to use an expression for
the whole option.  Something like:
        :set tabline=%!MyTabLine()

Then define the MyTabLine() function to list all the tab pages labels.  A
convenient method is to split it in two parts:  First go over all the tab
pages and define labels for them.  Then get the label for each tab page.

        function MyTabLine()
          let s = ''
          for i in range(tabpagenr('$'))
            " select the highlighting
            if i + 1 == tabpagenr()
              let s .= '%#TabLineSel#'
            else
              let s .= '%#TabLine#'
            endif
```

```
      " set the tab page number (for mouse clicks)
      let s .= '%' . (i + 1) . 'T'

      " the label is made by MyTabLabel()
      let s .= ' %{MyTabLabel(' . (i + 1) . ')} '
    endfor

    " after the last tab fill with TabLineFill and reset tab page nr
    let s .= '%#TabLineFill#%T'

    " right-align the label to close the current tab page
    if tabpagenr('$') > 1
      let s .= '%=%#TabLine#%999Xclose'
    endif

    return s
  endfunction
```

Now the MyTabLabel() function is called for each tab page to get its label.

```
  function MyTabLabel(n)
    let buflist = tabpagebuflist(a:n)
    let winnr = tabpagewinnr(a:n)
    return bufname(buflist[winnr - 1])
  endfunction
```

This is just a simplistic example that results in a tab pages line that resembles the default, but without adding a + for a modified buffer or truncating the names. You will want to reduce the width of labels in a clever way when there is not enough room. Check the 'columns' option for the space available.

==========

5. Setting 'guitablabel' setting-guitablabel

When the GUI tab pages line is displayed, 'guitablabel' can be used to specify the label to display for each tab page. Unlike 'tabline', which specifies the whole tab pages line at once, 'guitablabel' is used for each label separately.

'guitabtooltip' is very similar and is used for the tooltip of the same label. This only appears when the mouse pointer hovers over the label, thus it usually is longer. Only supported on some systems though.

See the 'statusline' option for the format of the value.

The "%N" item can be used for the current tab page number. The v:lnum variable is also set to this number when the option is evaluated.
The items that use a file name refer to the current window of the tab page.

Note that syntax highlighting is not used for the option. The %T and %X items are also ignored.

A simple example that puts the tab page number and the buffer name in the

label:

```
:set guitablabel=%N\ %f
```

An example that resembles the default 'guitablabel': Show the number of windows in the tab page and a '+' if there is a modified buffer:

```
function GuiTabLabel()
  let label = ''
  let bufnrlist = tabpagebuflist(v:lnum)

  " Add '+' if one of the buffers in the tab page is modified
  for bufnr in bufnrlist
    if getbufvar(bufnr, "&modified")
      let label = '+'
      break
    endif
  endfor

  " Append the number of windows in the tab page if more than one
  let wincount = tabpagewinnr(v:lnum, '$')
  if wincount > 1
    let label .= wincount
  endif
  if label != ''
    let label .= ' '
  endif

  " Append the buffer name
  return label . bufname(bufnrlist[tabpagewinnr(v:lnum) - 1])
endfunction

set guitablabel=%{GuiTabLabel()}
```

Note that the function must be defined before setting the option, otherwise you get an error message for the function not being known.

If you want to fall back to the default label, return an empty string.

If you want to show something specific for a tab page, you might want to use a tab page local variable. t:var

vim:tw=78:ts=8:noet:ft=help:norl:

VIM REFERENCE MANUAL by Bram Moolenaar

Syntax highlighting syntax syntax-highlighting coloring

Syntax highlighting enables Vim to show parts of the text in another font or color. Those parts can be specific keywords or text matching a pattern. Vim doesn't parse the whole file (to keep it fast), so the highlighting has its limitations. Lexical highlighting might be a better name, but since everybody calls it syntax highlighting we'll stick with that.

Vim supports syntax highlighting on all terminals. But since most ordinary terminals have very limited highlighting possibilities, it works best in the GUI version, gvim.

In the User Manual:
usr_06.txt introduces syntax highlighting.
usr_44.txt introduces writing a syntax file.

{Vi does not have any of these commands}

Syntax highlighting is not available when the +syntax feature has been disabled at compile time.

==========

1. Quick start :syn-qstart

:syn-enable :syntax-enable

This command switches on syntax highlighting:

```
:syntax enable
```

What this command actually does is to execute the command
	:source $VIMRUNTIME/syntax/syntax.vim

If the VIM environment variable is not set, Vim will try to find
the path in another way (see $VIMRUNTIME). Usually this works just
fine. If it doesn't, try setting the VIM environment variable to the
directory where the Vim stuff is located. For example, if your syntax files
are in the "/usr/vim/vim50/syntax" directory, set $VIMRUNTIME to
"/usr/vim/vim50". You must do this in the shell, before starting Vim.
This command also sources the menu.vim script when the GUI is running or
will start soon. See 'go-M' about avoiding that.

:syn-on :syntax-on
The `:syntax enable` command will keep your current color settings. This
allows using `:highlight` commands to set your preferred colors before or
after using this command. If you want Vim to overrule your settings with the
defaults, use:
	:syntax on

:hi-normal :highlight-normal
If you are running in the GUI, you can get white text on a black background
with:
	:highlight Normal guibg=Black guifg=White
For a color terminal see :hi-normal-cterm .
For setting up your own colors syntax highlighting see syncolor .

NOTE: The syntax files on MS-DOS and Windows have lines that end in <CR><NL>.
The files for Unix end in <NL>. This means you should use the right type of
file for your system. Although on MS-DOS and Windows the right format is
automatically selected if the 'fileformats' option is not empty.

NOTE: When using reverse video ("gvim -fg white -bg black"), the default value
of 'background' will not be set until the GUI window is opened, which is after
reading the gvimrc . This will cause the wrong default highlighting to be
used. To set the default value of 'background' before switching on
highlighting, include the ":gui" command in the gvimrc :

```
:gui         " open window and set default for 'background'
:syntax on   " start highlighting, use 'background' to set colors
```

NOTE: Using ":gui" in the gvimrc means that "gvim -f" won't start in the
foreground! Use ":gui -f" then.

g:syntax_on
You can toggle the syntax on/off with this command:
```
:if exists("g:syntax_on") | syntax off | else | syntax enable | endif
```

To put this into a mapping, you can use:
```
:map <F7> :if exists("g:syntax_on") <Bar>
     \   syntax off <Bar>
     \ else <Bar>
     \   syntax enable <Bar>
     \ endif <CR>
```
[using the <> notation, type this literally]

Details:
The ":syntax" commands are implemented by sourcing a file. To see exactly how this works, look in the file:

command	file
:syntax enable	$VIMRUNTIME/syntax/syntax.vim
:syntax on	$VIMRUNTIME/syntax/syntax.vim
:syntax manual	$VIMRUNTIME/syntax/manual.vim
:syntax off	$VIMRUNTIME/syntax/nosyntax.vim

Also see syntax-loading .

NOTE: If displaying long lines is slow and switching off syntax highlighting makes it fast, consider setting the 'synmaxcol' option to a lower value.

==
2. Syntax files   :syn-files

The syntax and highlighting commands for one language are normally stored in a syntax file. The name convention is: "{name}.vim". Where {name} is the name of the language, or an abbreviation (to fit the name in 8.3 characters, a requirement in case the file is used on a DOS filesystem).
Examples:

c.vim	perl.vim	java.vim	html.vim
cpp.vim	sh.vim	csh.vim	

The syntax file can contain any Ex commands, just like a vimrc file. But the idea is that only commands for a specific language are included. When a language is a superset of another language, it may include the other one, for example, the cpp.vim file could include the c.vim file:

```
:so $VIMRUNTIME/syntax/c.vim
```

The .vim files are normally loaded with an autocommand. For example:

```
:au Syntax c     runtime! syntax/c.vim
:au Syntax cpp   runtime! syntax/cpp.vim
```

These commands are normally in the file $VIMRUNTIME/syntax/synload.vim.

MAKING YOUR OWN SYNTAX FILES   mysyntaxfile

When you create your own syntax files, and you want to have Vim use these automatically with ":syntax enable", do this:

1. Create your user runtime directory. You would normally use the first item of the 'runtimepath' option. Example for Unix:
   ```
   mkdir ~/.vim
   ```

2. Create a directory in there called "syntax". For Unix:
   ```
   mkdir ~/.vim/syntax
   ```

3. Write the Vim syntax file. Or download one from the internet. Then write it in your syntax directory. For example, for the "mine" syntax:
   ```
   :w ~/.vim/syntax/mine.vim
   ```

Now you can start using your syntax file manually:

```
	:set syntax=mine
```
You don't have to exit Vim to use this.

If you also want Vim to detect the type of file, see new-filetype .

If you are setting up a system with many users and you don't want each user
to add the same syntax file, you can use another directory from 'runtimepath'.

ADDING TO AN EXISTING SYNTAX FILE mysyntaxfile-add

If you are mostly satisfied with an existing syntax file, but would like to
add a few items or change the highlighting, follow these steps:

1. Create your user directory from 'runtimepath', see above.

2. Create a directory in there called "after/syntax". For Unix:
```
	mkdir ~/.vim/after
	mkdir ~/.vim/after/syntax
```

3. Write a Vim script that contains the commands you want to use. For
   example, to change the colors for the C syntax:
```
	highlight cComment ctermfg=Green guifg=Green
```

4. Write that file in the "after/syntax" directory. Use the name of the
   syntax, with ".vim" added. For our C syntax:
```
	:w ~/.vim/after/syntax/c.vim
```

That's it. The next time you edit a C file the Comment color will be
different. You don't even have to restart Vim.

If you have multiple files, you can use the filetype as the directory name.
All the "*.vim" files in this directory will be used, for example:
```
	~/.vim/after/syntax/c/one.vim
	~/.vim/after/syntax/c/two.vim
```

REPLACING AN EXISTING SYNTAX FILE mysyntaxfile-replace

If you don't like a distributed syntax file, or you have downloaded a new
version, follow the same steps as for mysyntaxfile above. Just make sure
that you write the syntax file in a directory that is early in 'runtimepath'.
Vim will only load the first syntax file found, assuming that it sets
b:current_syntax.

NAMING CONVENTIONS group-name {group-name} E669 W18

A syntax group name is to be used for syntax items that match the same kind of
thing. These are then linked to a highlight group that specifies the color.
A syntax group name doesn't specify any color or attributes itself.

The name for a highlight or syntax group must consist of ASCII letters, digits
and the underscore. As a regexp: "[a-zA-Z0-9_]*". However, Vim does not give

an error when using other characters.

To be able to allow each user to pick his favorite set of colors, there must
be preferred names for highlight groups that are common for many languages.
These are the suggested group names (if syntax highlighting works properly
you can see the actual color, except for "Ignore"):

```
        *Comment        any comment

        *Constant       any constant
         String         a string constant: "this is a string"
         Character      a character constant: 'c', '\n'
         Number         a number constant: 234, 0xff
         Boolean        a boolean constant: TRUE, false
         Float          a floating point constant: 2.3e10

        *Identifier     any variable name
         Function       function name (also: methods for classes)

        *Statement      any statement
         Conditional    if, then, else, endif, switch, etc.
         Repeat         for, do, while, etc.
         Label          case, default, etc.
         Operator       "sizeof", "+", "*", etc.
         Keyword        any other keyword
         Exception      try, catch, throw

        *PreProc        generic Preprocessor
         Include        preprocessor #include
         Define         preprocessor #define
         Macro          same as Define
         PreCondit      preprocessor #if, #else, #endif, etc.

        *Type           int, long, char, etc.
         StorageClass   static, register, volatile, etc.
         Structure      struct, union, enum, etc.
         Typedef        A typedef

        *Special        any special symbol
         SpecialChar    special character in a constant
         Tag            you can use CTRL-] on this
         Delimiter      character that needs attention
         SpecialComment special things inside a comment
         Debug          debugging statements

        *Underlined     text that stands out, HTML links

        *Ignore         left blank, hidden   hl-Ignore

        *Error          any erroneous construct

        *Todo           anything that needs extra attention; mostly the
                        keywords TODO FIXME and XXX
```

The names marked with * are the preferred groups; the others are minor groups.
For the preferred groups, the "syntax.vim" file contains default highlighting.
The minor groups are linked to the preferred groups, so they get the same
highlighting. You can override these defaults by using ":highlight" commands
after sourcing the "syntax.vim" file.

Note that highlight group names are not case sensitive. "String" and "string"
can be used for the same group.

The following names are reserved and cannot be used as a group name:
        NONE   ALL   ALLBUT   contains   contained

                                                              hl-Ignore
When using the Ignore group, you may also consider using the conceal
mechanism. See conceal .

==
3. Syntax loading procedure   syntax-loading

This explains the details that happen when the command ":syntax enable" is
issued. When Vim initializes itself, it finds out where the runtime files are
located. This is used here as the variable $VIMRUNTIME .

":syntax enable" and ":syntax on" do the following:

    Source $VIMRUNTIME/syntax/syntax.vim
    |
    +- Clear out any old syntax by sourcing $VIMRUNTIME/syntax/nosyntax.vim
    |
    +- Source first syntax/synload.vim in 'runtimepath'
    | |
    | +- Setup the colors for syntax highlighting. If a color scheme is
    | | defined it is loaded again with ":colors {name}". Otherwise
    | | ":runtime! syntax/syncolor.vim" is used. ":syntax on" overrules
    | | existing colors, ":syntax enable" only sets groups that weren't
    | | set yet.
    | |
    | +- Set up syntax autocmds to load the appropriate syntax file when
    | | the 'syntax' option is set. synload-1
    | |
    | +- Source the user's optional file, from the mysyntaxfile variable.
    | This is for backwards compatibility with Vim 5.x only. synload-2
    |
    +- Do ":filetype on", which does ":runtime! filetype.vim". It loads any
    | filetype.vim files found. It should always Source
    | $VIMRUNTIME/filetype.vim, which does the following.
    | |
    | +- Install autocmds based on suffix to set the 'filetype' option
    | | This is where the connection between file name and file type is
    | | made for known file types. synload-3
    | |
    | +- Source the user's optional file, from the myfiletypefile
    | | variable. This is for backwards compatibility with Vim 5.x only.
    | | synload-4

```
    |   |
    |   +-  Install one autocommand which sources scripts.vim when no file
    |   |   type was detected yet.  synload-5
    |   |
    |   +-  Source $VIMRUNTIME/menu.vim, to setup the Syntax menu.  menu.vim
    |
    +-  Install a FileType autocommand to set the 'syntax' option when a file
    |   type has been detected.  synload-6
    |
    +-  Execute syntax autocommands to start syntax highlighting for each
        already loaded buffer.


Upon loading a file, Vim finds the relevant syntax file as follows:

    Loading the file triggers the BufReadPost autocommands.
    |
    +-  If there is a match with one of the autocommands from  synload-3
    |   (known file types) or  synload-4  (user's file types), the 'filetype'
    |   option is set to the file type.
    |
    +-  The autocommand at  synload-5  is triggered.  If the file type was not
    |   found yet, then scripts.vim is searched for in 'runtimepath'.  This
    |   should always load $VIMRUNTIME/scripts.vim, which does the following.
    |   |
    |   +-  Source the user's optional file, from the  myscriptsfile
    |   |   variable.  This is for backwards compatibility with Vim 5.x only.
    |   |
    |   +-  If the file type is still unknown, check the contents of the file,
    |       again with checks like "getline(1) =~ pattern" as to whether the
    |       file type can be recognized, and set 'filetype'.
    |
    +-  When the file type was determined and 'filetype' was set, this
    |   triggers the FileType autocommand  synload-6  above.  It sets
    |   'syntax' to the determined file type.
    |
    +-  When the 'syntax' option was set above, this triggers an autocommand
    |   from  synload-1  (and  synload-2 ).  This find the main syntax file in
    |   'runtimepath', with this command:
    |           runtime! syntax/<name>.vim
    |
    +-  Any other user installed FileType or Syntax autocommands are
        triggered.  This can be used to change the highlighting for a specific
        syntax.

==============================================================================
4. Syntax file remarks                                  :syn-file-remarks

                                                  b:current_syntax-variable
Vim stores the name of the syntax that has been loaded in the
"b:current_syntax" variable.  You can use this if you want to load other
settings, depending on which syntax is active.  Example:
   :au BufReadPost * if b:current_syntax == "csh"
   :au BufReadPost *   do-some-things
```

```
   :au BufReadPost * endif
```

2HTML   2html.vim   convert-to-HTML

This is not a syntax file itself, but a script that converts the current
window into HTML. Vim opens a new window in which it builds the HTML file.

After you save the resulting file, you can view it with any browser. The
colors should be exactly the same as you see them in Vim. With
 g:html_line_ids you can jump to specific lines by adding (for example) #L123
or #123 to the end of the URL in your browser's address bar. And with
 g:html_dynamic_folds enabled, you can show or hide the text that is folded
in Vim.

You are not supposed to set the 'filetype' or 'syntax' option to "2html"!
Source the script to convert the current file:

```
        :runtime! syntax/2html.vim
```

Many variables affect the output of 2html.vim; see below. Any of the on/off
options listed below can be enabled or disabled by setting them explicitly to
the desired value, or restored to their default by removing the variable using
 :unlet .

Remarks:
- Some truly ancient browsers may not show the background colors.
- From most browsers you can also print the file (in color)!
- The latest TOhtml may actually work with older versions of Vim, but some
  features such as conceal support will not function, and the colors may be
  incorrect for an old Vim without GUI support compiled in.

Here is an example how to run the script over all .c and .h files from a
Unix shell:
```
   for f in *.[ch]; do gvim -f +"syn on" +"run! syntax/2html.vim" +"wq" +"q" $f; done
```

                                        g:html_start_line   g:html_end_line
To restrict the conversion to a range of lines, use a range with the :TOhtml
command below, or set "g:html_start_line" and "g:html_end_line" to the first
and last line to be converted. Example, using the last set Visual area:

```
        :let g:html_start_line = line("'<")
        :let g:html_end_line = line("'>")
        :runtime! syntax/2html.vim
```

                                                              :TOhtml
:[range]TOhtml   The ":TOhtml" command is defined in a standard plugin.
                        This command will source 2html.vim for you. When a
                        range is given, this command sets g:html_start_line
                        and g:html_end_line to the start and end of the
                        range, respectively. Default range is the entire
                        buffer.

                        If the current window is part of a diff , unless

g:html_diff_one_file is set, :TOhtml will convert all windows which are part of the diff in the current tab and place them side-by-side in a <table> element in the generated HTML. With g:html_line_ids you can jump to lines in specific windows with (for example) #W1L42 for line 42 in the first diffed window, or #W3L87 for line 87 in the third.

Examples:

```
:10,40TOhtml " convert lines 10-40 to html
:'<,'>TOhtml " convert current/last visual selection
:TOhtml      " convert entire buffer
```

g:html_diff_one_file

Default: 0.
When 0, and using :TOhtml all windows involved in a diff in the current tab page are converted to HTML and placed side-by-side in a <table> element. When 1, only the current buffer is converted.
Example:

```
let g:html_diff_one_file = 1
```

g:html_whole_filler

Default: 0.
When 0, if g:html_diff_one_file is 1, a sequence of more than 3 filler lines is displayed as three lines with the middle line mentioning the total number of inserted lines.
When 1, always display all inserted lines as if g:html_diff_one_file were not set.

```
:let g:html_whole_filler = 1
```

TOhtml-performance g:html_no_progress

Default: 0.
When 0, display a progress bar in the statusline for each major step in the 2html.vim conversion process.
When 1, do not display the progress bar. This offers a minor speed improvement but you won't have any idea how much longer the conversion might take; for big files it can take a long time!
Example:

```
let g:html_no_progress = 1
```

You can obtain better performance improvements by also instructing Vim to not run interactively, so that too much time is not taken to redraw as the script moves through the buffer, switches windows, and the like:

```
vim -E -s -c "let g:html_no_progress=1" -c "syntax on" -c "set ft=c" -c "runtime syntax/2
```

Note that the -s flag prevents loading your .vimrc and any plugins, so you need to explicitly source/enable anything that will affect the HTML conversion. See -E and -s-ex for details. It is probably best to create a script to replace all the -c commands and use it with the -u flag instead of

specifying each command separately.

g:html_number_lines

Default: current 'number' setting.
When 0, buffer text is displayed in the generated HTML without line numbering.
When 1, a column of line numbers is added to the generated HTML with the same highlighting as the line number column in Vim (hl-LineNr).
Force line numbers even if 'number' is not set:
```
:let g:html_number_lines = 1
```
Force to omit the line numbers:
```
:let g:html_number_lines = 0
```
Go back to the default to use 'number' by deleting the variable:
```
:unlet g:html_number_lines
```

g:html_line_ids

Default: 1 if g:html_number_lines is set, 0 otherwise.
When 1, adds an HTML id attribute to each line number, or to an empty inserted for that purpose if no line numbers are shown. This ID attribute takes the form of L123 for single-buffer HTML pages, or W2L123 for diff-view pages, and is used to jump to a specific line (in a specific window of a diff view). Javascript is inserted to open any closed dynamic folds (g:html_dynamic_folds) containing the specified line before jumping. The javascript also allows omitting the window ID in the url, and the leading L. For example:

```
page.html#L123  jumps to line 123 in a single-buffer file
page.html#123   does the same

diff.html#W1L42 jumps to line 42 in the first window in a diff
diff.html#42    does the same
```

g:html_use_css

Default: 1.
When 1, generate valid HTML 4.01 markup with CSS1 styling, supported in all modern browsers and most old browsers.
When 0, generate <font> tags and similar outdated markup. This is not recommended but it may work better in really old browsers, email clients, forum posts, and similar situations where basic CSS support is unavailable.
Example:
```
:let g:html_use_css = 0
```

g:html_ignore_conceal

Default: 0.
When 0, concealed text is removed from the HTML and replaced with a character from :syn-cchar or 'listchars' as appropriate, depending on the current value of 'conceallevel'.
When 1, include all text from the buffer in the generated HTML, even if it is conceal ed.

Either of the following commands will ensure that all text in the buffer is included in the generated HTML (unless it is folded):
```
:let g:html_ignore_conceal = 1
:setl conceallevel=0
```

g:html_ignore_folding

Default: 0.
When 0, text in a closed fold is replaced by the text shown for the fold in Vim (fold-foldtext). See g:html_dynamic_folds if you also want to allow the user to expand the fold as in Vim to see the text inside.
When 1, include all text from the buffer in the generated HTML; whether the text is in a fold has no impact at all. g:html_dynamic_folds has no effect.

Either of these commands will ensure that all text in the buffer is included in the generated HTML (unless it is concealed):

```
zR
:let g:html_ignore_folding = 1
```

g:html_dynamic_folds

Default: 0.
When 0, text in a closed fold is not included at all in the generated HTML.
When 1, generate javascript to open a fold and show the text within, just like in Vim.

Setting this variable to 1 causes 2html.vim to always use CSS for styling, regardless of what g:html_use_css is set to.

This variable is ignored when g:html_ignore_folding is set.

```
:let g:html_dynamic_folds = 1
```

g:html_no_foldcolumn

Default: 0.
When 0, if g:html_dynamic_folds is 1, generate a column of text similar to Vim's foldcolumn (fold-foldcolumn) the user can click on to toggle folds open or closed. The minimum width of the generated text column is the current 'foldcolumn' setting.
When 1, do not generate this column; instead, hovering the mouse cursor over folded text will open the fold as if g:html_hover_unfold were set.

```
:let g:html_no_foldcolumn = 1
```

TOhtml-uncopyable-text g:html_prevent_copy

Default: empty string.
This option prevents certain regions of the generated HTML from being copied, when you select all text in document rendered in a browser and copy it. Useful for allowing users to copy-paste only the source text even if a fold column or line numbers are shown in the generated content. Specify regions to be affected in this way as follows:

```
        f:      fold column
        n:      line numbers (also within fold text)
        t:      fold text
        d:      diff filler
```

Example, to make the fold column and line numbers uncopyable:

```
        :let g:html_prevent_copy = "fn"
```

This feature is currently implemented by inserting read-only <input> elements into the markup to contain the uncopyable areas. This does not work well in

all cases. When pasting to some applications which understand HTML, the <input> elements also get pasted. But plain-text paste destinations should always work.

g:html_no_invalid

Default: 0.
When 0, if g:html_prevent_copy is non-empty, an invalid attribute is intentionally inserted into the <input> element for the uncopyable areas. This increases the number of applications you can paste to without also pasting the <input> elements. Specifically, Microsoft Word will not paste the <input> elements if they contain this invalid attribute.
When 1, no invalid markup is ever intentionally inserted, and the generated page should validate. However, be careful pasting into Microsoft Word when g:html_prevent_copy is non-empty; it can be hard to get rid of the <input> elements which get pasted.

g:html_hover_unfold

Default: 0.
When 0, the only way to open a fold generated by 2html.vim with g:html_dynamic_folds set, is to click on the generated fold column.
When 1, use CSS 2.0 to allow the user to open a fold by moving the mouse cursor over the displayed fold text. This is useful to allow users with disabled javascript to view the folded text.

Note that old browsers (notably Internet Explorer 6) will not support this feature. Browser-specific markup for IE6 is included to fall back to the normal CSS1 styling so that the folds show up correctly for this browser, but they will not be openable without a foldcolumn.

```
:let g:html_hover_unfold = 1
```

g:html_id_expr

Default: ""
Dynamic folding and jumping to line IDs rely on unique IDs within the document to work. If generated HTML is copied into a larger document, these IDs are no longer guaranteed to be unique. Set g:html_id_expr to an expression Vim can evaluate to get a unique string to append to each ID used in a given document, so that the full IDs will be unique even when combined with other content in a larger HTML document. Example, to append _ and the buffer number to each ID:

```
:let g:html_id_expr = '"_".bufnr("%")'
```

To append a string "_mystring" to the end of each ID:

```
:let g:html_id_expr = '"_mystring"'
```

Note, when converting a diff view to HTML, the expression will only be evaluated for the first window in the diff, and the result used for all the windows.

TOhtml-wrap-text g:html_pre_wrap

Default: current 'wrap' setting.
When 0, if g:html_no_pre is 0 or unset, the text in the generated HTML does not wrap at the edge of the browser window.

When 1, if g:html_use_css is 1, the CSS 2.0 "white-space:pre-wrap" value is used, causing the text to wrap at whitespace at the edge of the browser window.
Explicitly enable text wrapping:
```
:let g:html_pre_wrap = 1
```
Explicitly disable wrapping:
```
:let g:html_pre_wrap = 0
```
Go back to default, determine wrapping from 'wrap' setting:
```
:unlet g:html_pre_wrap
```

g:html_no_pre

Default: 0.
When 0, buffer text in the generated HTML is surrounded by <pre>...</pre> tags. Series of whitespace is shown as in Vim without special markup, and tab characters can be included literally (see g:html_expand_tabs).
When 1 (not recommended), the <pre> tags are omitted, and a plain is used instead. Whitespace is replaced by a series of   character references, and <br> is used to end each line. This is another way to allow text in the generated HTML is wrap (see g:html_pre_wrap) which also works in old browsers, but may cause noticeable differences between Vim's display and the rendered page generated by 2html.vim.

```
:let g:html_no_pre = 1
```

g:html_expand_tabs

Default: 1 if 'tabstop' is 8, 'expandtab' is 0, and no fold column or line
                numbers occur in the generated HTML;
         0 otherwise.
When 0, <Tab> characters in the buffer text are replaced with an appropriate number of space characters, or   references if g:html_no_pre is 1.
When 1, if g:html_no_pre is 0 or unset, <Tab> characters in the buffer text are included as-is in the generated HTML. This is useful for when you want to allow copy and paste from a browser without losing the actual whitespace in the source document. Note that this can easily break text alignment and indentation in the HTML, unless set by default.

Force 2html.vim to keep <Tab> characters:
```
:let g:html_expand_tabs = 0
```

Force tabs to be expanded:
```
:let g:html_expand_tabs = 1
```

TOhtml-encoding-detect TOhtml-encoding

It is highly recommended to set your desired encoding with
 g:html_use_encoding for any content which will be placed on a web server.

If you do not specify an encoding, 2html.vim uses the preferred IANA name for the current value of 'fileencoding' if set, or 'encoding' if not. 'encoding' is always used for certain 'buftype' values. 'fileencoding' will be set to match the chosen document encoding.

Automatic detection works for the encodings mentioned specifically by name in
 encoding-names , but TOhtml will only automatically use those encodings with wide browser support. However, you can override this to support specific

encodings that may not be automatically detected by default (see options below). See http://www.iana.org/assignments/character-sets for the IANA names.

Note, by default all Unicode encodings are converted to UTF-8 with no BOM in the generated HTML, as recommended by W3C:

        http://www.w3.org/International/questions/qa-choosing-encodings
        http://www.w3.org/International/questions/qa-byte-order-mark

                                                                g:html_use_encoding
Default: none, uses IANA name for current 'fileencoding' as above.
To overrule all automatic charset detection, set g:html_use_encoding to the name of the charset to be used. It is recommended to set this variable to something widely supported, like UTF-8, for anything you will be hosting on a webserver:
   :let g:html_use_encoding = "UTF-8"
You can also use this option to omit the line that specifies the charset entirely, by setting g:html_use_encoding to an empty string (NOT recommended):
   :let g:html_use_encoding = ""
To go back to the automatic mechanism, delete the g:html_use_encoding variable:
   :unlet g:html_use_encoding

                                                          g:html_encoding_override
Default: none, autoload/tohtml.vim contains default conversions for encodings mentioned by name at encoding-names .
This option allows 2html.vim to detect the correct 'fileencoding' when you specify an encoding with g:html_use_encoding which is not in the default list of conversions.

This is a dictionary of charset-encoding pairs that will replace existing pairs automatically detected by TOhtml, or supplement with new pairs.

Detect the HTML charset "windows-1252" as the encoding "8bit-cp1252":
   :let g:html_encoding_override = {'windows-1252': '8bit-cp1252'}

                                                            g:html_charset_override
Default: none, autoload/tohtml.vim contains default conversions for encodings mentioned by name at encoding-names and which have wide browser support.
This option allows 2html.vim to detect the HTML charset for any 'fileencoding' or 'encoding' which is not detected automatically. You can also use it to override specific existing encoding-charset pairs. For example, TOhtml will by default use UTF-8 for all Unicode/UCS encodings. To use UTF-16 and UTF-32 instead, use:
   :let g:html_charset_override = {'ucs-4': 'UTF-32', 'utf-16': 'UTF-16'}

Note that documents encoded in either UTF-32 or UTF-16 have known compatibility problems with some major browsers.

                                                                    g:html_font
Default: "monospace"
You can specify the font or fonts used in the converted document using g:html_font. If this option is set to a string, then the value will be

surrounded with single quotes. If this option is set to a list then each list item is surrounded by single quotes and the list is joined with commas. Either way, "monospace" is added as the fallback generic family name and the entire result used as the font family (using CSS) or font face (if not using CSS). Examples:

```
" font-family: 'Consolas', monospace;
:let g:html_font = "Consolas"

" font-family: 'DejaVu Sans Mono', 'Consolas', monospace;
:let g:html_font = ["DejaVu Sans Mono", "Consolas"]
```

convert-to-XML convert-to-XHTML g:html_use_xhtml

Default: 0.
When 0, generate standard HTML 4.01 (strict when possible).
When 1, generate XHTML 1.0 instead (XML compliant HTML).

```
:let g:html_use_xhtml = 1
```

ABEL abel.vim ft-abel-syntax

ABEL highlighting provides some user-defined options. To enable them, assign any value to the respective variable. Example:

```
:let abel_obsolete_ok=1
```

To disable them use ":unlet". Example:

```
:unlet abel_obsolete_ok
```

Variable	Highlight
abel_obsolete_ok	obsolete keywords are statements, not errors
abel_cpp_comments_illegal	do not interpret '//' as inline comment leader

ADA

See ft-ada-syntax

ANT ant.vim ft-ant-syntax

The ant syntax file provides syntax highlighting for javascript and python by default. Syntax highlighting for other script languages can be installed by the function AntSyntaxScript(), which takes the tag name as first argument and the script syntax file name as second argument. Example:

```
:call AntSyntaxScript('perl', 'perl.vim')
```

will install syntax perl highlighting for the following ant code

```
<script language = 'perl'><![CDATA[
    # everything inside is highlighted as perl
]]></script>
```

See mysyntaxfile-add for installing script languages permanently.

APACHE apache.vim ft-apache-syntax

The apache syntax file provides syntax highlighting for Apache HTTP server version 2.2.3.

ASSEMBLY asm.vim asmh8300.vim nasm.vim masm.vim asm68k ft-asm-syntax ft-asmh8300-syntax ft-nasm-syntax ft-masm-syntax ft-asm68k-syntax fasm.vim

Files matching "*.i" could be Progress or Assembly. If the automatic detection doesn't work for you, or you don't edit Progress at all, use this in your startup vimrc:

```
:let filetype_i = "asm"
```

Replace "asm" with the type of assembly you use.

There are many types of assembly languages that all use the same file name extensions. Therefore you will have to select the type yourself, or add a line in the assembly file that Vim will recognize. Currently these syntax files are included:

asm	GNU assembly (the default)
asm68k	Motorola 680x0 assembly
asmh8300	Hitachi H-8300 version of GNU assembly
ia64	Intel Itanium 64
fasm	Flat assembly (http://flatassembler.net)
masm	Microsoft assembly (probably works for any 80x86)
nasm	Netwide assembly
tasm	Turbo Assembly (with opcodes 80x86 up to Pentium, and MMX)
pic	PIC assembly (currently for PIC16F84)

The most flexible is to add a line in your assembly file containing:

```
asmsyntax=nasm
```

Replace "nasm" with the name of the real assembly syntax. This line must be one of the first five lines in the file. No non-white text must be immediately before or after this text. Note that specifying asmsyntax=foo is equivalent to setting ft=foo in a modeline , and that in case of a conflict between the two settings the one from the modeline will take precedence (in particular, if you have ft=asm in the modeline, you will get the GNU syntax highlighting regardless of what is specified as asmsyntax).

The syntax type can always be overruled for a specific buffer by setting the b:asmsyntax variable:

```
:let b:asmsyntax = "nasm"
```

If b:asmsyntax is not set, either automatically or by hand, then the value of the global variable asmsyntax is used. This can be seen as a default assembly language:

```
:let asmsyntax = "nasm"
```

As a last resort, if nothing is defined, the "asm" syntax is used.

Netwide assembler (nasm.vim) optional highlighting

To enable a feature:
        :let   {variable}=1|set syntax=nasm
To disable a feature:
        :unlet {variable} |set syntax=nasm

Variable	Highlight
nasm_loose_syntax	unofficial parser allowed syntax not as Error (parser dependent; not recommended)
nasm_ctx_outside_macro	contexts outside macro not as Error
nasm_no_warn	potentially risky syntax not as ToDo

ASPPERL and ASPVBS   ft-aspperl-syntax   ft-aspvbs-syntax

*.asp and *.asa files could be either Perl or Visual Basic script. Since it's
hard to detect this you can set two global variables to tell Vim what you are
using. For Perl script use:
        :let g:filetype_asa = "aspperl"
        :let g:filetype_asp = "aspperl"
For Visual Basic use:
        :let g:filetype_asa = "aspvbs"
        :let g:filetype_asp = "aspvbs"

BAAN   baan.vim   baan-syntax

The baan.vim gives syntax support for BaanC of release BaanIV upto SSA ERP LN
for both 3 GL and 4 GL programming. Large number of standard defines/constants
are supported.

Some special violation of coding standards will be signalled when one specify
in ones .vimrc :
        let baan_code_stds=1

 baan-folding

Syntax folding can be enabled at various levels through the variables
mentioned below (Set those in your .vimrc). The more complex folding on
source blocks and SQL can be CPU intensive.

To allow any folding and enable folding at function level use:
        let baan_fold=1
Folding can be enabled at source block level as if, while, for ,... The
indentation preceding the begin/end keywords has to match (spaces are not
considered equal to a tab).
        let baan_fold_block=1
Folding can be enabled for embedded SQL blocks as SELECT, SELECTDO,
SELECTEMPTY, ... The indentation preceding the begin/end keywords has to
match (spaces are not considered equal to a tab).
        let baan_fold_sql=1
Note: Block folding can result in many small folds. It is suggested to :set

the options 'foldminlines' and 'foldnestmax' in .vimrc or use :setlocal in .../after/syntax/baan.vim (see after-directory). Eg:

```
set foldminlines=5
set foldnestmax=6
```

BASIC basic.vim vb.vim ft-basic-syntax ft-vb-syntax

Both Visual Basic and "normal" basic use the extension ".bas". To detect which one should be used, Vim checks for the string "VB_Name" in the first five lines of the file. If it is not found, filetype will be "basic", otherwise "vb". Files with the ".frm" extension will always be seen as Visual Basic.

C c.vim ft-c-syntax

A few things in C highlighting are optional. To enable them assign any value to the respective variable. Example:

```
:let c_comment_strings = 1
```

To disable them use ":unlet". Example:

```
:unlet c_comment_strings
```

Variable	Highlight
c_gnu	GNU gcc specific items
c_comment_strings	strings and numbers inside a comment
c_space_errors	trailing white space and spaces before a <Tab>
c_no_trail_space_error	... but no trailing spaces
c_no_tab_space_error	... but no spaces before a <Tab>
c_no_bracket_error	don't highlight {}; inside [] as errors
c_no_curly_error	don't highlight {}; inside [] and () as errors; except { and } in first column Default is to highlight them, otherwise you can't spot a missing ")".
c_curly_error	highlight a missing }; this forces syncing from the start of the file, can be slow
c_no_ansi	don't do standard ANSI types and constants
c_ansi_typedefs	... but do standard ANSI types
c_ansi_constants	... but do standard ANSI constants
c_no_utf	don't highlight \u and \U in strings
c_syntax_for_h	for *.h files use C syntax instead of C++ and use objc syntax instead of objcpp
c_no_if0	don't highlight "#if 0" blocks as comments
c_no_cformat	don't highlight %-formats in strings
c_no_c99	don't highlight C99 standard items
c_no_c11	don't highlight C11 standard items
c_no_bsd	don't highlight BSD specific types

When 'foldmethod' is set to "syntax" then /* */ comments and { } blocks will become a fold. If you don't want comments to become a fold use:

```
:let c_no_comment_fold = 1
```

"#if 0" blocks are also folded, unless:

```
:let c_no_if0_fold = 1
```

If you notice highlighting errors while scrolling backwards, which are fixed
when redrawing with CTRL-L, try setting the "c_minlines" internal variable
to a larger number:
        :let c_minlines = 100
This will make the syntax synchronization start 100 lines before the first
displayed line. The default value is 50 (15 when c_no_if0 is set). The
disadvantage of using a larger number is that redrawing can become slow.

When using the "#if 0" / "#endif" comment highlighting, notice that this only
works when the "#if 0" is within "c_minlines" from the top of the window. If
you have a long "#if 0" construct it will not be highlighted correctly.

To match extra items in comments, use the cCommentGroup cluster.
Example:
```
   :au Syntax c call MyCadd()
   :function MyCadd()
   :  syn keyword cMyItem contained Ni
   :  syn cluster cCommentGroup add=cMyItem
   :  hi link cMyItem Title
   :endfun
```

ANSI constants will be highlighted with the "cConstant" group. This includes
"NULL", "SIG_IGN" and others. But not "TRUE", for example, because this is
not in the ANSI standard. If you find this confusing, remove the cConstant
highlighting:
        :hi link cConstant NONE

If you see '{' and '}' highlighted as an error where they are OK, reset the
highlighting for cErrInParen and cErrInBracket.

If you want to use folding in your C files, you can add these lines in a file
in the "after" directory in 'runtimepath'. For Unix this would be
~/.vim/after/syntax/c.vim.
```
    syn sync fromstart
    set foldmethod=syntax
```

CH   ch.vim   ft-ch-syntax

C/C++ interpreter. Ch has similar syntax highlighting to C and builds upon
the C syntax file. See c.vim for all the settings that are available for C.

By setting a variable you can tell Vim to use Ch syntax for *.h files, instead
of C or C++:
        :let ch_syntax_for_h = 1

CHILL   chill.vim   ft-chill-syntax

Chill syntax highlighting is similar to C. See c.vim for all the settings
that are available. Additionally there is:

```
chill_space_errors      like c_space_errors
chill_comment_string    like c_comment_strings
chill_minlines          like c_minlines
```

CHANGELOG changelog.vim ft-changelog-syntax

ChangeLog supports highlighting spaces at the start of a line.
If you do not like this, add following line to your .vimrc:

```
let g:changelog_spacing_errors = 0
```

This works the next time you edit a changelog file. You can also use "b:changelog_spacing_errors" to set this per buffer (before loading the syntax file).

You can change the highlighting used, e.g., to flag the spaces as an error:

```
:hi link ChangelogError Error
```

Or to avoid the highlighting:

```
:hi link ChangelogError NONE
```

This works immediately.

CLOJURE ft-clojure-syntax

The default syntax groups can be augmented through the g:clojure_syntax_keywords and b:clojure_syntax_keywords variables. The value should be a Dictionary of syntax group names to a List of custom identifiers:

```
let g:clojure_syntax_keywords = {
    \ 'clojureMacro': ["defproject", "defcustom"],
    \ 'clojureFunc': ["string/join", "string/replace"]
    \ }
```

Refer to the Clojure syntax script for valid syntax group names.

If the buffer-variable b:clojure_syntax_without_core_keywords is set, only language constants and special forms are matched.

Setting g:clojure_fold enables folding Clojure code via the syntax engine. Any list, vector, or map that extends over more than one line can be folded using the standard Vim fold-commands .

Please note that this option does not work with scripts that redefine the bracket syntax regions, such as rainbow-parentheses plugins.

This option is off by default.

```
" Default
let g:clojure_fold = 0
```

COBOL cobol.vim ft-cobol-syntax

COBOL highlighting has different needs for legacy code than it does for fresh development. This is due to differences in what is being done (maintenance versus development) and other factors. To enable legacy code highlighting, add this line to your .vimrc:

```
        :let cobol_legacy_code = 1
To disable it again, use this:
        :unlet cobol_legacy_code
```

COLD FUSION coldfusion.vim ft-coldfusion-syntax

The ColdFusion has its own version of HTML comments. To turn on ColdFusion comment highlighting, add the following line to your startup file:

```
        :let html_wrong_comments = 1
```

The ColdFusion syntax file is based on the HTML syntax file.

CPP cpp.vim ft-cpp-syntax

Most of things are same as ft-c-syntax .

Variable	Highlight
cpp_no_cpp11	don't highlight C++11 standard items
cpp_no_cpp14	don't highlight C++14 standard items

CSH csh.vim ft-csh-syntax

This covers the shell named "csh". Note that on some systems tcsh is actually used.

Detecting whether a file is csh or tcsh is notoriously hard. Some systems symlink /bin/csh to /bin/tcsh, making it almost impossible to distinguish between csh and tcsh. In case VIM guesses wrong you can set the "filetype_csh" variable. For using csh: g:filetype_csh

```
        :let g:filetype_csh = "csh"
```

For using tcsh:

```
        :let g:filetype_csh = "tcsh"
```

Any script with a tcsh extension or a standard tcsh filename (.tcshrc, tcsh.tcshrc, tcsh.login) will have filetype tcsh. All other tcsh/csh scripts will be classified as tcsh, UNLESS the "filetype_csh" variable exists. If the "filetype_csh" variable exists, the filetype will be set to the value of the variable.

CYNLIB cynlib.vim ft-cynlib-syntax

Cynlib files are C++ files that use the Cynlib class library to enable hardware modelling and simulation using C++. Typically Cynlib files have a .cc or a .cpp extension, which makes it very difficult to distinguish them from a normal C++ file. Thus, to enable Cynlib highlighting for .cc files, add this line to your .vimrc file:

```
:let cynlib_cyntax_for_cc=1
```

Similarly for cpp files (this extension is only usually used in Windows)

```
:let cynlib_cyntax_for_cpp=1
```

To disable these again, use this:

```
:unlet cynlib_cyntax_for_cc
:unlet cynlib_cyntax_for_cpp
```

CWEB cweb.vim ft-cweb-syntax

Files matching "*.w" could be Progress or cweb. If the automatic detection doesn't work for you, or you don't edit Progress at all, use this in your startup vimrc:

```
:let filetype_w = "cweb"
```

DESKTOP desktop.vim ft-desktop-syntax

Primary goal of this syntax file is to highlight .desktop and .directory files according to freedesktop.org standard:
http://standards.freedesktop.org/desktop-entry-spec/latest/
But actually almost none implements this standard fully. Thus it will highlight all Unix ini files. But you can force strict highlighting according to standard by placing this in your vimrc file:

```
:let enforce_freedesktop_standard = 1
```

DIFF diff.vim

The diff highlighting normally finds translated headers. This can be slow if there are very long lines in the file. To disable translations:

```
:let diff_translations = 0
```

Also see diff-slow .

DIRCOLORS dircolors.vim ft-dircolors-syntax

The dircolors utility highlighting definition has one option. It exists to provide compatibility with the Slackware GNU/Linux distributions version of the command. It adds a few keywords that are generally ignored by most versions. On Slackware systems, however, the utility accepts the keywords and uses them for processing. To enable the Slackware keywords add the following line to your startup file:

```
let dircolors_is_slackware = 1
```

DOCBOOK docbk.vim ft-docbk-syntax docbook

DOCBOOK XML   docbkxml.vim   ft-docbkxml-syntax
DOCBOOK SGML   docbksgml.vim   ft-docbksgml-syntax

There are two types of DocBook files: SGML and XML. To specify what type you
are using the "b:docbk_type" variable should be set. Vim does this for you
automatically if it can recognize the type. When Vim can't guess it the type
defaults to XML.
You can set the type manually:
        :let docbk_type = "sgml"
or:
        :let docbk_type = "xml"
You need to do this before loading the syntax file, which is complicated.
Simpler is setting the filetype to "docbkxml" or "docbksgml":
        :set filetype=docbksgml
or:
        :set filetype=docbkxml

You can specify the DocBook version:
        :let docbk_ver = 3
When not set 4 is used.

DOSBATCH   dosbatch.vim   ft-dosbatch-syntax

There is one option with highlighting DOS batch files. This covers new
extensions to the Command Interpreter introduced with Windows 2000 and
is controlled by the variable dosbatch_cmdextversion. For Windows NT
this should have the value 1, and for Windows 2000 it should be 2.
Select the version you want with the following line:

   :let dosbatch_cmdextversion = 1

If this variable is not defined it defaults to a value of 2 to support
Windows 2000.

A second option covers whether *.btm files should be detected as type
"dosbatch" (MS-DOS batch files) or type "btm" (4DOS batch files). The latter
is used by default. You may select the former with the following line:

   :let g:dosbatch_syntax_for_btm = 1

If this variable is undefined or zero, btm syntax is selected.

DOXYGEN   doxygen.vim   doxygen-syntax

Doxygen generates code documentation using a special documentation format
(similar to Javadoc). This syntax script adds doxygen highlighting to c, cpp,
idl and php files, and should also work with java.

There are a few of ways to turn on doxygen formatting. It can be done
explicitly or in a modeline by appending '.doxygen' to the syntax of the file.
Example:
        :set syntax=c.doxygen

or

```
// vim:syntax=c.doxygen
```

It can also be done automatically for C, C++, C#, IDL and PHP files by setting the global or buffer-local variable load_doxygen_syntax. This is done by adding the following to your .vimrc.

```
:let g:load_doxygen_syntax=1
```

There are a couple of variables that have an effect on syntax highlighting, and are to do with non-standard highlighting options.

Variable	Default	Effect
g:doxygen_enhanced_color g:doxygen_enhanced_colour	0	Use non-standard highlighting for doxygen comments.
doxygen_my_rendering	0	Disable rendering of HTML bold, italic and html_my_rendering underline.
doxygen_javadoc_autobrief	1	Set to 0 to disable javadoc autobrief colour highlighting.
doxygen_end_punctuation	'[.]'	Set to regexp match for the ending punctuation of brief

There are also some hilight groups worth mentioning as they can be useful in configuration.

Highlight	Effect
doxygenErrorComment	The colour of an end-comment when missing punctuation in a code, verbatim or dot section
doxygenLinkError	The colour of an end-comment when missing the \endlink from a \link section.

DTD dtd.vim ft-dtd-syntax

The DTD syntax highlighting is case sensitive by default. To disable case-sensitive highlighting, add the following line to your startup file:

```
:let dtd_ignore_case=1
```

The DTD syntax file will highlight unknown tags as errors. If this is annoying, it can be turned off by setting:

```
:let dtd_no_tag_errors=1
```

before sourcing the dtd.vim syntax file.
Parameter entity names are highlighted in the definition using the 'Type' highlighting group and 'Comment' for punctuation and '%'.
Parameter entity instances are highlighted using the 'Constant' highlighting group and the 'Type' highlighting group for the delimiters % and ;. This can be turned off by setting:

```
:let dtd_no_param_entities=1
```

The DTD syntax file is also included by xml.vim to highlight included dtd's.

EIFFEL eiffel.vim ft-eiffel-syntax

While Eiffel is not case-sensitive, its style guidelines are, and the
syntax highlighting file encourages their use. This also allows to
highlight class names differently. If you want to disable case-sensitive
highlighting, add the following line to your startup file:

```
:let eiffel_ignore_case=1
```

Case still matters for class names and TODO marks in comments.

Conversely, for even stricter checks, add one of the following lines:

```
:let eiffel_strict=1
:let eiffel_pedantic=1
```

Setting eiffel_strict will only catch improper capitalization for the
five predefined words "Current", "Void", "Result", "Precursor", and
"NONE", to warn against their accidental use as feature or class names.

Setting eiffel_pedantic will enforce adherence to the Eiffel style
guidelines fairly rigorously (like arbitrary mixes of upper- and
lowercase letters as well as outdated ways to capitalize keywords).

If you want to use the lower-case version of "Current", "Void",
"Result", and "Precursor", you can use

```
:let eiffel_lower_case_predef=1
```

instead of completely turning case-sensitive highlighting off.

Support for ISE's proposed new creation syntax that is already
experimentally handled by some compilers can be enabled by:

```
:let eiffel_ise=1
```

Finally, some vendors support hexadecimal constants. To handle them, add

```
:let eiffel_hex_constants=1
```

to your startup file.

EUPHORIA euphoria3.vim euphoria4.vim ft-euphoria-syntax

Two syntax highlighting files exists for Euphoria. One for Euphoria
version 3.1.1, which is the default syntax highlighting file, and one for
Euphoria version 4.0.5 or later.

Euphoria version 3.1.1 (http://www.rapideuphoria.com/) is still necessary
for developing applications for the DOS platform, which Euphoria version 4
(http://www.openeuphoria.org/) does not support.

The following file extensions are auto-detected as Euphoria file type:

	*.e, *.eu, *.ew, *.ex, *.exu, *.exw
	*.E, *.EU, *.EW, *.EX, *.EXU, *.EXW

To select syntax highlighting file for Euphoria, as well as for
auto-detecting the *.e and *.E file extensions as Euphoria file type,
add the following line to your startup file:

	:let filetype_euphoria="euphoria3"

	or

	:let filetype_euphoria="euphoria4"

ERLANG	erlang.vim	ft-erlang-syntax

Erlang is a functional programming language developed by Ericsson. Files with
the following extensions are recognized as Erlang files: erl, hrl, yaws.

The BIFs (built-in functions) are highlighted by default. To disable this,
put the following line in your vimrc:

	:let g:erlang_highlight_bifs = 0

To enable highlighting some special atoms, put this in your vimrc:

	:let g:erlang_highlight_special_atoms = 1

FLEXWIKI	flexwiki.vim	ft-flexwiki-syntax

FlexWiki is an ASP.NET-based wiki package available at http://www.flexwiki.com
NOTE: this site currently doesn't work, on Wikipedia is mentioned that
development stopped in 2009.

Syntax highlighting is available for the most common elements of FlexWiki
syntax. The associated ftplugin script sets some buffer-local options to make
editing FlexWiki pages more convenient. FlexWiki considers a newline as the
start of a new paragraph, so the ftplugin sets 'tw'=0 (unlimited line length),
'wrap' (wrap long lines instead of using horizontal scrolling), 'linebreak'
(to wrap at a character in 'breakat' instead of at the last char on screen),
and so on. It also includes some keymaps that are disabled by default.

If you want to enable the keymaps that make "j" and "k" and the cursor keys
move up and down by display lines, add this to your .vimrc:
	:let flexwiki_maps = 1

FORM form.vim ft-form-syntax

The coloring scheme for syntax elements in the FORM file uses the default modes Conditional, Number, Statement, Comment, PreProc, Type, and String, following the language specifications in 'Symbolic Manipulation with FORM' by J.A.M. Vermaseren, CAN, Netherlands, 1991.

If you want include your own changes to the default colors, you have to redefine the following syntax groups:

- formConditional
- formNumber
- formStatement
- formHeaderStatement
- formComment
- formPreProc
- formDirective
- formType
- formString

Note that the form.vim syntax file implements FORM preprocessor commands and directives per default in the same syntax group.

A predefined enhanced color mode for FORM is available to distinguish between header statements and statements in the body of a FORM program. To activate this mode define the following variable in your vimrc file

```
:let form_enhanced_color=1
```

The enhanced mode also takes advantage of additional color features for a dark gvim display. Here, statements are colored LightYellow instead of Yellow, and conditionals are LightBlue for better distinction.

FORTRAN fortran.vim ft-fortran-syntax

Default highlighting and dialect

Highlighting appropriate for Fortran 2008 is used by default. This choice should be appropriate for most users most of the time because Fortran 2008 is almost a superset of previous versions (Fortran 2003, 95, 90, and 77).

Fortran source code form

Fortran code can be in either fixed or free source form. Note that the syntax highlighting will not be correct if the form is incorrectly set.

When you create a new fortran file, the syntax script assumes fixed source form. If you always use free source form, then

```
:let fortran_free_source=1
```

in your .vimrc prior to the :syntax on command. If you always use fixed source form, then

```
:let fortran_fixed_source=1
```

in your .vimrc prior to the :syntax on command.

If the form of the source code depends, in a non-standard way, upon the file

extension, then it is most convenient to set fortran_free_source in a ftplugin file. For more information on ftplugin files, see ftplugin . Note that this will work only if the "filetype plugin indent on" command precedes the "syntax on" command in your .vimrc file.

When you edit an existing fortran file, the syntax script will assume free source form if the fortran_free_source variable has been set, and assumes fixed source form if the fortran_fixed_source variable has been set. If neither of these variables have been set, the syntax script attempts to determine which source form has been used by examining the file extension using conventions common to the ifort, gfortran, Cray, NAG, and PathScale compilers (.f, .for, .f77 for fixed-source, .f90, .f95, .f03, .f08 for free-source). If none of this works, then the script examines the first five columns of the first 500 lines of your file. If no signs of free source form are detected, then the file is assumed to be in fixed source form. The algorithm should work in the vast majority of cases. In some cases, such as a file that begins with 500 or more full-line comments, the script may incorrectly decide that the fortran code is in fixed form. If that happens, just add a non-comment statement beginning anywhere in the first five columns of the first twenty-five lines, save (:w) and then reload (:e!) the file.

Tabs in fortran files
Tabs are not recognized by the Fortran standards. Tabs are not a good idea in fixed format fortran source code which requires fixed column boundaries. Therefore, tabs are marked as errors. Nevertheless, some programmers like using tabs. If your fortran files contain tabs, then you should set the variable fortran_have_tabs in your .vimrc with a command such as
    :let fortran_have_tabs=1
placed prior to the :syntax on command. Unfortunately, the use of tabs will mean that the syntax file will not be able to detect incorrect margins.

Syntax folding of fortran files
If you wish to use foldmethod=syntax, then you must first set the variable fortran_fold with a command such as
    :let fortran_fold=1
to instruct the syntax script to define fold regions for program units, that is main programs starting with a program statement, subroutines, function subprograms, block data subprograms, interface blocks, and modules. If you also set the variable fortran_fold_conditionals with a command such as
    :let fortran_fold_conditionals=1
then fold regions will also be defined for do loops, if blocks, and select case constructs. If you also set the variable fortran_fold_multilinecomments with a command such as
    :let fortran_fold_multilinecomments=1
then fold regions will also be defined for three or more consecutive comment lines. Note that defining fold regions can be slow for large files.

If fortran_fold, and possibly fortran_fold_conditionals and/or fortran_fold_multilinecomments, have been set, then vim will fold your file if you set foldmethod=syntax. Comments or blank lines placed between two program units are not folded because they are seen as not belonging to any program unit.

More precise fortran syntax

If you set the variable fortran_more_precise with a command such as
    :let fortran_more_precise=1
then the syntax coloring will be more precise but slower. In particular, statement labels used in do, goto and arithmetic if statements will be recognized, as will construct names at the end of a do, if, select or forall construct.

Non-default fortran dialects
The syntax script supports two Fortran dialects: f08 and F. You will probably find the default highlighting (f08) satisfactory. A few legacy constructs deleted or declared obsolescent in the 2008 standard are highlighted as todo items.

If you use F, the advantage of setting the dialect appropriately is that other legacy features excluded from F will be highlighted as todo items and that free source form will be assumed.

The dialect can be selected in various ways. If all your fortran files use the same dialect, set the global variable fortran_dialect in your .vimrc prior to your syntax on statement. The case-sensitive, permissible values of fortran_dialect are "f08" or "F". Invalid values of fortran_dialect are ignored.

If the dialect depends upon the file extension, then it is most convenient to set a buffer-local variable in a ftplugin file. For more information on ftplugin files, see ftplugin . For example, if all your fortran files with an .f90 extension are written in the F subset, your ftplugin file should contain the code
```
    let s:extfname = expand("%:e")
    if s:extfname ==? "f90"
        let b:fortran_dialect="F"
    else
        unlet! b:fortran_dialect
    endif
```
Note that this will work only if the "filetype plugin indent on" command precedes the "syntax on" command in your .vimrc file.

Finer control is necessary if the file extension does not uniquely identify the dialect. You can override the default dialect, on a file-by-file basis, by including a comment with the directive "fortran_dialect=xx" (where xx=F or f08) in one of the first three lines in your file. For example, your older .f files may be legacy code but your newer ones may be F codes, and you would identify the latter by including in the first three lines of those files a Fortran comment of the form
```
  ! fortran_dialect=F
```

For previous versions of the syntax, you may have set fortran_dialect to the now-obsolete values "f77", "f90", "f95", or "elf". Such settings will be silently handled as "f08". Users of "elf" may wish to experiment with "F" instead.

The syntax/fortran.vim script contains embedded comments that tell you how to comment and/or uncomment some lines to (a) activate recognition of some non-standard, vendor-supplied intrinsics and (b) to prevent features deleted

or declared obsolescent in the 2008 standard from being highlighted as todo items.

Limitations
Parenthesis checking does not catch too few closing parentheses. Hollerith strings are not recognized. Some keywords may be highlighted incorrectly because Fortran90 has no reserved words.

For further information related to fortran, see ft-fortran-indent and ft-fortran-plugin .

FVWM CONFIGURATION FILES fvwm.vim ft-fvwm-syntax

In order for Vim to recognize Fvwm configuration files that do not match the patterns fvwmrc or fvwm2rc , you must put additional patterns appropriate to your system in your myfiletypes.vim file. For these patterns, you must set the variable "b:fvwm_version" to the major version number of Fvwm, and the 'filetype' option to fvwm.

For example, to make Vim identify all files in /etc/X11/fvwm2/ as Fvwm2 configuration files, add the following:

```
:au! BufNewFile,BufRead /etc/X11/fvwm2/*  let b:fvwm_version = 2 |
                                        \ set filetype=fvwm
```

If you'd like Vim to highlight all valid color names, tell it where to find the color database (rgb.txt) on your system. Do this by setting "rgb_file" to its location. Assuming your color database is located in /usr/X11/lib/X11/, you should add the line

```
:let rgb_file = "/usr/X11/lib/X11/rgb.txt"
```

to your .vimrc file.

GSP gsp.vim ft-gsp-syntax

The default coloring style for GSP pages is defined by html.vim , and the coloring for java code (within java tags or inline between backticks) is defined by java.vim . The following HTML groups defined in html.vim are redefined to incorporate and highlight inline java code:

```
htmlString
htmlValue
htmlEndTag
htmlTag
htmlTagN
```

Highlighting should look fine most of the places where you'd see inline java code, but in some special cases it may not. To add another HTML group where you will have inline java code where it does not highlight correctly, just copy the line you want from html.vim and add gspJava to the contains clause.

The backticks for inline java are highlighted according to the htmlError
group to make them easier to see.

GROFF groff.vim ft-groff-syntax

The groff syntax file is a wrapper for nroff.vim , see the notes
under that heading for examples of use and configuration. The purpose
of this wrapper is to set up groff syntax extensions by setting the
filetype from a modeline or in a personal filetype definitions file
(see filetype.txt).

HASKELL haskell.vim lhaskell.vim ft-haskell-syntax

The Haskell syntax files support plain Haskell code as well as literate
Haskell code, the latter in both Bird style and TeX style. The Haskell
syntax highlighting will also highlight C preprocessor directives.

If you want to highlight delimiter characters (useful if you have a
light-coloured background), add to your .vimrc:

```
:let hs_highlight_delimiters = 1
```

To treat True and False as keywords as opposed to ordinary identifiers,
add:

```
:let hs_highlight_boolean = 1
```

To also treat the names of primitive types as keywords:

```
:let hs_highlight_types = 1
```

And to treat the names of even more relatively common types as keywords:

```
:let hs_highlight_more_types = 1
```

If you want to highlight the names of debugging functions, put in
your .vimrc:

```
:let hs_highlight_debug = 1
```

The Haskell syntax highlighting also highlights C preprocessor
directives, and flags lines that start with # but are not valid
directives as erroneous. This interferes with Haskell's syntax for
operators, as they may start with #. If you want to highlight those
as operators as opposed to errors, put in your .vimrc:

```
:let hs_allow_hash_operator = 1
```

The syntax highlighting for literate Haskell code will try to
automatically guess whether your literate Haskell code contains
TeX markup or not, and correspondingly highlight TeX constructs
or nothing at all. You can override this globally by putting
in your .vimrc

```
:let lhs_markup = none
```

for no highlighting at all, or

```
:let lhs_markup = tex
```

to force the highlighting to always try to highlight TeX markup.
For more flexibility, you may also use buffer local versions of
this variable, so e.g.

```
:let b:lhs_markup = tex
```

will force TeX highlighting for a particular buffer. It has to be

set before turning syntax highlighting on for the buffer or
loading a file.

HTML html.vim ft-html-syntax

The coloring scheme for tags in the HTML file works as follows.

The <> of opening tags are colored differently than the </> of a closing tag.
This is on purpose! For opening tags the 'Function' color is used, while for
closing tags the 'Type' color is used (See syntax.vim to check how those are
defined for you)

Known tag names are colored the same way as statements in C. Unknown tag
names are colored with the same color as the <> or </> respectively which
makes it easy to spot errors

Note that the same is true for argument (or attribute) names. Known attribute
names are colored differently than unknown ones.

Some HTML tags are used to change the rendering of text. The following tags
are recognized by the html.vim syntax coloring file and change the way normal
text is shown: <B> <I> <U> <EM> <STRONG> (<EM> is used as an alias for <I>,
while <STRONG> as an alias for <B>), <H1> - <H6>, <HEAD>, <TITLE> and <A>, but
only if used as a link (that is, it must include a href as in
<A href="somefile.html">).

If you want to change how such text is rendered, you must redefine the
following syntax groups:

- htmlBold
- htmlBoldUnderline
- htmlBoldUnderlineItalic
- htmlUnderline
- htmlUnderlineItalic
- htmlItalic
- htmlTitle for titles
- htmlH1 - htmlH6 for headings

To make this redefinition work you must redefine them all with the exception
of the last two (htmlTitle and htmlH[1-6], which are optional) and define the
following variable in your vimrc (this is due to the order in which the files
are read during initialization)

```
:let html_my_rendering=1
```

If you'd like to see an example download mysyntax.vim at
http://www.fleiner.com/vim/download.html

You can also disable this rendering by adding the following line to your
vimrc file:

```
:let html_no_rendering=1
```

HTML comments are rather special (see an HTML reference document for the
details), and the syntax coloring scheme will highlight all errors.

However, if you prefer to use the wrong style (starts with <!-- and
ends with -->) you can define
        :let html_wrong_comments=1

JavaScript and Visual Basic embedded inside HTML documents are highlighted as
'Special' with statements, comments, strings and so on colored as in standard
programming languages. Note that only JavaScript and Visual Basic are currently
supported, no other scripting language has been added yet.

Embedded and inlined cascading style sheets (CSS) are highlighted too.

There are several html preprocessor languages out there. html.vim has been
written such that it should be trivial to include it. To do so add the
following two lines to the syntax coloring file for that language
(the example comes from the asp.vim file):

    runtime! syntax/html.vim
    syn cluster htmlPreproc add=asp

Now you just need to make sure that you add all regions that contain
the preprocessor language to the cluster htmlPreproc.

HTML/OS (by Aestiva)   htmlos.vim   ft-htmlos-syntax

The coloring scheme for HTML/OS works as follows:

Functions and variable names are the same color by default, because VIM
doesn't specify different colors for Functions and Identifiers. To change
this (which is recommended if you want function names to be recognizable in a
different color) you need to add the following line to either your ~/.vimrc:
  :hi Function term=underline cterm=bold ctermfg=LightGray

Of course, the ctermfg can be a different color if you choose.

Another issues that HTML/OS runs into is that there is no special filetype to
signify that it is a file with HTML/OS coding. You can change this by opening
a file and turning on HTML/OS syntax by doing the following:
  :set syntax=htmlos

Lastly, it should be noted that the opening and closing characters to begin a
block of HTML/OS code can either be << or [[and >> or]], respectively.

IA64   ia64.vim   intel-itanium   ft-ia64-syntax

Highlighting for the Intel Itanium 64 assembly language. See asm.vim for
how to recognize this filetype.

To have *.inc files be recognized as IA64, add this to your .vimrc file:
        :let g:filetype_inc = "ia64"

INFORM   inform.vim   ft-inform-syntax

Inform highlighting includes symbols provided by the Inform Library, as most programs make extensive use of it. If do not wish Library symbols to be highlighted add this to your vim startup:

```
:let inform_highlight_simple=1
```

By default it is assumed that Inform programs are Z-machine targeted, and highlights Z-machine assembly language symbols appropriately. If you intend your program to be targeted to a Glulx/Glk environment you need to add this to your startup sequence:

```
:let inform_highlight_glulx=1
```

This will highlight Glulx opcodes instead, and also adds glk() to the set of highlighted system functions.

The Inform compiler will flag certain obsolete keywords as errors when it encounters them. These keywords are normally highlighted as errors by Vim. To prevent such error highlighting, you must add this to your startup sequence:

```
:let inform_suppress_obsolete=1
```

By default, the language features highlighted conform to Compiler version 6.30 and Library version 6.11. If you are using an older Inform development environment, you may with to add this to your startup sequence:

```
:let inform_highlight_old=1
```

IDL idl.vim idl-syntax

IDL (Interface Definition Language) files are used to define RPC calls. In Microsoft land, this is also used for defining COM interfaces and calls.

IDL's structure is simple enough to permit a full grammar based approach to rather than using a few heuristics. The result is large and somewhat repetitive but seems to work.

There are some Microsoft extensions to idl files that are here. Some of them are disabled by defining idl_no_ms_extensions.

The more complex of the extensions are disabled by defining idl_no_extensions.

Variable	Effect
idl_no_ms_extensions	Disable some of the Microsoft specific extensions
idl_no_extensions	Disable complex extensions
idlsyntax_showerror	Show IDL errors (can be rather intrusive, but quite helpful)
idlsyntax_showerror_soft	Use softer colours by default for errors

JAVA java.vim ft-java-syntax

The java.vim syntax highlighting file offers several options:

In Java 1.0.2 it was never possible to have braces inside parens, so this was
flagged as an error. Since Java 1.1 this is possible (with anonymous
classes), and therefore is no longer marked as an error. If you prefer the old
way, put the following line into your vim startup file:
        :let java_mark_braces_in_parens_as_errors=1

All identifiers in java.lang.* are always visible in all classes. To
highlight them use:
        :let java_highlight_java_lang_ids=1

You can also highlight identifiers of most standard Java packages if you
download the javaid.vim script at http://www.fleiner.com/vim/download.html.
If you prefer to only highlight identifiers of a certain package, say java.io
use the following:
        :let java_highlight_java_io=1
Check the javaid.vim file for a list of all the packages that are supported.

Function names are not highlighted, as the way to find functions depends on
how you write Java code. The syntax file knows two possible ways to highlight
functions:

If you write function declarations that are always indented by either
a tab, 8 spaces or 2 spaces you may want to set
        :let java_highlight_functions="indent"
However, if you follow the Java guidelines about how functions and classes are
supposed to be named (with respect to upper and lowercase), use
        :let java_highlight_functions="style"
If both options do not work for you, but you would still want function
declarations to be highlighted create your own definitions by changing the
definitions in java.vim or by creating your own java.vim which includes the
original one and then adds the code to highlight functions.

In Java 1.1 the functions System.out.println() and System.err.println() should
only be used for debugging. Therefore it is possible to highlight debugging
statements differently. To do this you must add the following definition in
your startup file:
        :let java_highlight_debug=1
The result will be that those statements are highlighted as 'Special'
characters. If you prefer to have them highlighted differently you must define
new highlightings for the following groups.:
    Debug, DebugSpecial, DebugString, DebugBoolean, DebugType
which are used for the statement itself, special characters used in debug
strings, strings, boolean constants and types (this, super) respectively. I
have opted to chose another background for those statements.

Javadoc is a program that takes special comments out of Java program files and
creates HTML pages. The standard configuration will highlight this HTML code
similarly to HTML files (see html.vim). You can even add Javascript
and CSS inside this code (see below). There are four differences however:
  1. The title (all characters up to the first '.' which is followed by
     some white space or up to the first '@') is colored differently (to change
     the color change the group CommentTitle).
  2. The text is colored as 'Comment'.

  3. HTML comments are colored as 'Special'
  4. The special Javadoc tags (@see, @param, ...) are highlighted as specials
     and the argument (for @see, @param, @exception) as Function.
To turn this feature off add the following line to your startup file:
```
:let java_ignore_javadoc=1
```

If you use the special Javadoc comment highlighting described above you
can also turn on special highlighting for Javascript, visual basic
scripts and embedded CSS (stylesheets). This makes only sense if you
actually have Javadoc comments that include either Javascript or embedded
CSS. The options to use are
```
:let java_javascript=1
:let java_css=1
:let java_vb=1
```

In order to highlight nested parens with different colors define colors
for javaParen, javaParen1 and javaParen2, for example with
```
:hi link javaParen Comment
```
or
```
:hi javaParen ctermfg=blue guifg=#0000ff
```

If you notice highlighting errors while scrolling backwards, which are fixed
when redrawing with CTRL-L, try setting the "java_minlines" internal variable
to a larger number:
```
:let java_minlines = 50
```
This will make the syntax synchronization start 50 lines before the first
displayed line. The default value is 10. The disadvantage of using a larger
number is that redrawing can become slow.

LACE lace.vim ft-lace-syntax

Lace (Language for Assembly of Classes in Eiffel) is case insensitive, but the
style guide lines are not. If you prefer case insensitive highlighting, just
define the vim variable 'lace_case_insensitive' in your startup file:
```
:let lace_case_insensitive=1
```

LEX lex.vim ft-lex-syntax

Lex uses brute-force synchronizing as the "^%%$" section delimiter
gives no clue as to what section follows. Consequently, the value for
```
:syn sync minlines=300
```
may be changed by the user if s/he is experiencing synchronization
difficulties (such as may happen with large lex files).

LIFELINES lifelines.vim ft-lifelines-syntax

To highlight deprecated functions as errors, add in your .vimrc:

```
:let g:lifelines_deprecated = 1
```

LISP lisp.vim ft-lisp-syntax

The lisp syntax highlighting provides two options:

```
        g:lisp_instring : if it exists, then "(...)" strings are highlighted
                          as if the contents of the string were lisp.
                          Useful for AutoLisp.
        g:lisp_rainbow  : if it exists and is nonzero, then differing levels
                          of parenthesization will receive different
                          highlighting.
```

The g:lisp_rainbow option provides 10 levels of individual colorization for the parentheses and backquoted parentheses. Because of the quantity of colorization levels, unlike non-rainbow highlighting, the rainbow mode specifies its highlighting using ctermfg and guifg, thereby bypassing the usual colorscheme control using standard highlighting groups. The actual highlighting used depends on the dark/bright setting (see 'bg').

LITE lite.vim ft-lite-syntax

There are two options for the lite syntax highlighting.

If you like SQL syntax highlighting inside Strings, use this:

```
        :let lite_sql_query = 1
```

For syncing, minlines defaults to 100. If you prefer another value, you can set "lite_minlines" to the value you desire. Example:

```
        :let lite_minlines = 200
```

LPC lpc.vim ft-lpc-syntax

LPC stands for a simple, memory-efficient language: Lars Pensjö C. The file name of LPC is usually *.c. Recognizing these files as LPC would bother users writing only C programs. If you want to use LPC syntax in Vim, you should set a variable in your .vimrc file:

```
        :let lpc_syntax_for_c = 1
```

If it doesn't work properly for some particular C or LPC files, use a modeline. For a LPC file:

```
        // vim:set ft=lpc:
```

For a C file that is recognized as LPC:

```
        // vim:set ft=c:
```

If you don't want to set the variable, use the modeline in EVERY LPC file.

There are several implementations for LPC, we intend to support most widely

used ones. Here the default LPC syntax is for MudOS series, for MudOS v22
and before, you should turn off the sensible modifiers, and this will also
assert the new efuns after v22 to be invalid, don't set this variable when
you are using the latest version of MudOS:

```
:let lpc_pre_v22 = 1
```

For LpMud 3.2 series of LPC:

```
:let lpc_compat_32 = 1
```

For LPC4 series of LPC:

```
:let lpc_use_lpc4_syntax = 1
```

For uLPC series of LPC:
uLPC has been developed to Pike, so you should use Pike syntax
instead, and the name of your source file should be *.pike

LUA lua.vim ft-lua-syntax

The Lua syntax file can be used for versions 4.0, 5.0, 5.1 and 5.2 (5.2 is
the default). You can select one of these versions using the global variables
lua_version and lua_subversion. For example, to activate Lua
5.1 syntax highlighting, set the variables like this:

```
:let lua_version = 5
:let lua_subversion = 1
```

MAIL mail.vim ft-mail.vim

Vim highlights all the standard elements of an email (headers, signatures,
quoted text and URLs / email addresses). In keeping with standard conventions,
signatures begin in a line containing only "--" followed optionally by
whitespaces and end with a newline.

Vim treats lines beginning with ']', '}', '|', '>' or a word followed by '>'
as quoted text. However Vim highlights headers and signatures in quoted text
only if the text is quoted with '>' (optionally followed by one space).

By default mail.vim synchronises syntax to 100 lines before the first
displayed line. If you have a slow machine, and generally deal with emails
with short headers, you can change this to a smaller value:

```
:let mail_minlines = 30
```

MAKE make.vim ft-make-syntax

In makefiles, commands are usually highlighted to make it easy for you to spot
errors. However, this may be too much coloring for you. You can turn this
feature off by using:

```
:let make_no_commands = 1
```

MAPLE maple.vim ft-maple-syntax

Maple V, by Waterloo Maple Inc, supports symbolic algebra. The language supports many packages of functions which are selectively loaded by the user. The standard set of packages' functions as supplied in Maple V release 4 may be highlighted at the user's discretion. Users may place in their .vimrc file:

```
:let mvpkg_all= 1
```

to get all package functions highlighted, or users may select any subset by choosing a variable/package from the table below and setting that variable to 1, also in their .vimrc file (prior to sourcing $VIMRUNTIME/syntax/syntax.vim).

Table of Maple V Package Function Selectors

mv_DEtools	mv_genfunc	mv_networks	mv_process
mv_Galois	mv_geometry	mv_numapprox	mv_simplex
mv_GaussInt	mv_grobner	mv_numtheory	mv_stats
mv_LREtools	mv_group	mv_orthopoly	mv_student
mv_combinat	mv_inttrans	mv_padic	mv_sumtools
mv_combstruct	mv_liesymm	mv_plots	mv_tensor
mv_difforms	mv_linalg	mv_plottools	mv_totorder
mv_finance	mv_logic	mv_powseries	

MATHEMATICA mma.vim ft-mma-syntax ft-mathematica-syntax

Empty *.m files will automatically be presumed to be Matlab files unless you have the following in your .vimrc:

```
let filetype_m = "mma"
```

MOO moo.vim ft-moo-syntax

If you use C-style comments inside expressions and find it mangles your highlighting, you may want to use extended (slow!) matches for C-style comments:

```
:let moo_extended_cstyle_comments = 1
```

To disable highlighting of pronoun substitution patterns inside strings:

```
:let moo_no_pronoun_sub = 1
```

To disable highlighting of the regular expression operator '%|', and matching '%(' and '%)' inside strings:

```
:let moo_no_regexp = 1
```

Unmatched double quotes can be recognized and highlighted as errors:

```
:let moo_unmatched_quotes = 1
```

To highlight builtin properties (.name, .location, .programmer etc.):

```
:let moo_builtin_properties = 1
```

Unknown builtin functions can be recognized and highlighted as errors. If you use this option, add your own extensions to the mooKnownBuiltinFunction group. To enable this option:

```
:let moo_unknown_builtin_functions = 1
```

An example of adding sprintf() to the list of known builtin functions:

```
:syn keyword mooKnownBuiltinFunction sprintf contained
```

MSQL msql.vim ft-msql-syntax

There are two options for the msql syntax highlighting.

If you like SQL syntax highlighting inside Strings, use this:

```
:let msql_sql_query = 1
```

For syncing, minlines defaults to 100. If you prefer another value, you can set "msql_minlines" to the value you desire. Example:

```
:let msql_minlines = 200
```

N1QL n1ql.vim ft-n1ql-syntax

N1QL is a SQL-like declarative language for manipulating JSON documents in Couchbase Server databases.

Vim syntax highlights N1QL statements, keywords, operators, types, comments, and special values. Vim ignores syntactical elements specific to SQL or its many dialects, like COLUMN or CHAR, that don't exist in N1QL.

NCF ncf.vim ft-ncf-syntax

There is one option for NCF syntax highlighting.

If you want to have unrecognized (by ncf.vim) statements highlighted as errors, use this:

```
:let ncf_highlight_unknowns = 1
```

If you don't want to highlight these errors, leave it unset.

NROFF nroff.vim ft-nroff-syntax

The nroff syntax file works with AT&T n/troff out of the box. You need to activate the GNU groff extra features included in the syntax file before you can use them.

For example, Linux and BSD distributions use groff as their default text processing package. In order to activate the extra syntax highlighting features for groff, add the following option to your start-up files:

```
:let b:nroff_is_groff = 1
```

Groff is different from the old AT&T n/troff that you may still find in Solaris. Groff macro and request names can be longer than 2 characters and there are extensions to the language primitives. For example, in AT&T troff you access the year as a 2-digit number with the request \(yr. In groff you can use the same request, recognized for compatibility, or you can use groff's native syntax, \[yr]. Furthermore, you can use a 4-digit year directly: \[year]. Macro requests can be longer than 2 characters, for example, GNU mm accepts the requests ".VERBON" and ".VERBOFF" for creating verbatim environments.

In order to obtain the best formatted output g/troff can give you, you should follow a few simple rules about spacing and punctuation.

1. Do not leave empty spaces at the end of lines.

2. Leave one space and one space only after an end-of-sentence period, exclamation mark, etc.

3. For reasons stated below, it is best to follow all period marks with a carriage return.

The reason behind these unusual tips is that g/n/troff have a line breaking algorithm that can be easily upset if you don't follow the rules given above.

Unlike TeX, troff fills text line-by-line, not paragraph-by-paragraph and, furthermore, it does not have a concept of glue or stretch, all horizontal and vertical space input will be output as is.

Therefore, you should be careful about not using more space between sentences than you intend to have in your final document. For this reason, the common practice is to insert a carriage return immediately after all punctuation marks. If you want to have "even" text in your final processed output, you need to maintain regular spacing in the input text. To mark both trailing spaces and two or more spaces after a punctuation as an error, use:

```
:let nroff_space_errors = 1
```

Another technique to detect extra spacing and other errors that will interfere with the correct typesetting of your file, is to define an eye-catching highlighting definition for the syntax groups "nroffDefinition" and "nroffDefSpecial" in your configuration files. For example:

```
  hi def nroffDefinition term=italic cterm=italic gui=reverse
  hi def nroffDefSpecial term=italic,bold cterm=italic,bold
                        \ gui=reverse,bold
```

If you want to navigate preprocessor entries in your source file as easily as with section markers, you can activate the following option in your .vimrc file:

```
        let b:preprocs_as_sections = 1
```

As well, the syntax file adds an extra paragraph marker for the extended paragraph macro (.XP) in the ms package.

Finally, there is a groff.vim syntax file that can be used for enabling groff syntax highlighting either on a file basis or globally by default.

OCAML ocaml.vim ft-ocaml-syntax

The OCaml syntax file handles files having the following prefixes: .ml, .mli, .mll and .mly. By setting the following variable

```
        :let ocaml_revised = 1
```

you can switch from standard OCaml-syntax to revised syntax as supported by the camlp4 preprocessor. Setting the variable

```
        :let ocaml_noend_error = 1
```

prevents highlighting of "end" as error, which is useful when sources contain very long structures that Vim does not synchronize anymore.

PAPP papp.vim ft-papp-syntax

The PApp syntax file handles .papp files and, to a lesser extend, .pxml and .pxsl files which are all a mixture of perl/xml/html/other using xml as the top-level file format. By default everything inside phtml or pxml sections is treated as a string with embedded preprocessor commands. If you set the variable:

```
        :let papp_include_html=1
```

in your startup file it will try to syntax-hilight html code inside phtml sections, but this is relatively slow and much too colourful to be able to edit sensibly. ;)

The newest version of the papp.vim syntax file can usually be found at http://papp.plan9.de.

PASCAL pascal.vim ft-pascal-syntax

Files matching "*.p" could be Progress or Pascal. If the automatic detection doesn't work for you, or you don't edit Progress at all, use this in your startup vimrc:

```
:let filetype_p = "pascal"
```

The Pascal syntax file has been extended to take into account some extensions provided by Turbo Pascal, Free Pascal Compiler and GNU Pascal Compiler. Delphi keywords are also supported. By default, Turbo Pascal 7.0 features are enabled. If you prefer to stick with the standard Pascal keywords, add the following line to your startup file:

```
:let pascal_traditional=1
```

To switch on Delphi specific constructions (such as one-line comments, keywords, etc):

```
:let pascal_delphi=1
```

The option pascal_symbol_operator controls whether symbol operators such as +, *, .., etc. are displayed using the Operator color or not. To colorize symbol operators, add the following line to your startup file:

```
:let pascal_symbol_operator=1
```

Some functions are highlighted by default. To switch it off:

```
:let pascal_no_functions=1
```

Furthermore, there are specific variables for some compilers. Besides pascal_delphi, there are pascal_gpc and pascal_fpc. Default extensions try to match Turbo Pascal.

```
:let pascal_gpc=1
```

or

```
:let pascal_fpc=1
```

To ensure that strings are defined on a single line, you can define the pascal_one_line_string variable.

```
:let pascal_one_line_string=1
```

If you dislike <Tab> chars, you can set the pascal_no_tabs variable. Tabs will be highlighted as Error.

```
:let pascal_no_tabs=1
```

PERL perl.vim ft-perl-syntax

There are a number of possible options to the perl syntax highlighting.

Inline POD highlighting is now turned on by default. If you don't wish
to have the added complexity of highlighting POD embedded within Perl
files, you may set the 'perl_include_pod' option to 0:

```
:let perl_include_pod = 0
```

To reduce the complexity of parsing (and increase performance) you can switch
off two elements in the parsing of variable names and contents.

To handle package references in variable and function names not differently
from the rest of the name (like 'PkgName::' in '$PkgName::VarName'):

```
:let perl_no_scope_in_variables = 1
```

(In Vim 6.x it was the other way around: "perl_want_scope_in_variables"
enabled it.)

If you do not want complex things like '@{${"foo"}}' to be parsed:

```
:let perl_no_extended_vars = 1
```

(In Vim 6.x it was the other way around: "perl_extended_vars" enabled it.)

The coloring strings can be changed. By default strings and qq friends will be
highlighted like the first line. If you set the variable
perl_string_as_statement, it will be highlighted as in the second line.

```
   "hello world!"; qq|hello world|;
   ^^^^^^^^^^^^^^NN^^^^^^^^^^^^^^^N      (unlet perl_string_as_statement)
   S^^^^^^^^^^^^SNNSSS^^^^^^^^^^^SN      (let perl_string_as_statement)
```

(^ = perlString, S = perlStatement, N = None at all)

The syncing has 3 options. The first two switch off some triggering of
synchronization and should only be needed in case it fails to work properly.
If while scrolling all of a sudden the whole screen changes color completely
then you should try and switch off one of those. Let me know if you can figure
out the line that causes the mistake.

One triggers on "^\s*sub\s*" and the other on "^[$@%]" more or less.

```
:let perl_no_sync_on_sub
:let perl_no_sync_on_global_var
```

Below you can set the maximum distance VIM should look for starting points for
its attempts in syntax highlighting.

```
:let perl_sync_dist = 100
```

If you want to use folding with perl, set perl_fold:

```
:let perl_fold = 1
```

If you want to fold blocks in if statements, etc. as well set the following:

```
:let perl_fold_blocks = 1
```

Subroutines are folded by default if 'perl_fold' is set. If you do not want this, you can set 'perl_nofold_subs':

```
:let perl_nofold_subs = 1
```

Anonymous subroutines are not folded by default; you may enable their folding via 'perl_fold_anonymous_subs':

```
:let perl_fold_anonymous_subs = 1
```

Packages are also folded by default if 'perl_fold' is set. To disable this behavior, set 'perl_nofold_packages':

```
:let perl_nofold_packages = 1
```

PHP3 and PHP4 php.vim php3.vim ft-php-syntax ft-php3-syntax

[note: previously this was called "php3", but since it now also supports php4 it has been renamed to "php"]

There are the following options for the php syntax highlighting.

If you like SQL syntax highlighting inside Strings:

```
let php_sql_query = 1
```

For highlighting the Baselib methods:

```
let php_baselib = 1
```

Enable HTML syntax highlighting inside strings:

```
let php_htmlInStrings = 1
```

Using the old colorstyle:

```
let php_oldStyle = 1
```

Enable highlighting ASP-style short tags:

```
let php_asp_tags = 1
```

Disable short tags:

```
let php_noShortTags = 1
```

For highlighting parent error] or):

```
let php_parent_error_close = 1
```

For skipping a php end tag, if there exists an open (or [without a closing one:

```
  let php_parent_error_open = 1
```

Enable folding for classes and functions:

```
  let php_folding = 1
```

Selecting syncing method:

```
  let php_sync_method = x
```

x = -1 to sync by search (default),
x > 0 to sync at least x lines backwards,
x = 0 to sync from start.

PLAINTEX plaintex.vim ft-plaintex-syntax

TeX is a typesetting language, and plaintex is the file type for the "plain" variant of TeX. If you never want your *.tex files recognized as plain TeX, see ft-tex-plugin .

This syntax file has the option

```
        let g:plaintex_delimiters = 1
```

if you want to highlight brackets "[]" and braces "{}".

PPWIZARD ppwiz.vim ft-ppwiz-syntax

PPWizard is a preprocessor for HTML and OS/2 INF files

This syntax file has the options:

- ppwiz_highlight_defs : determines highlighting mode for PPWizard's definitions. Possible values are

  ppwiz_highlight_defs = 1 : PPWizard #define statements retain the colors of their contents (e.g. PPWizard macros and variables)

  ppwiz_highlight_defs = 2 : preprocessor #define and #evaluate statements are shown in a single color with the exception of line continuation symbols

  The default setting for ppwiz_highlight_defs is 1.

- ppwiz_with_html : If the value is 1 (the default), highlight literal HTML code; if 0, treat HTML code like ordinary text.

PHTML phtml.vim ft-phtml-syntax

There are two options for the phtml syntax highlighting.

If you like SQL syntax highlighting inside Strings, use this:

```
:let phtml_sql_query = 1
```

For syncing, minlines defaults to 100. If you prefer another value, you can set "phtml_minlines" to the value you desire. Example:

```
:let phtml_minlines = 200
```

POSTSCRIPT postscr.vim ft-postscr-syntax

There are several options when it comes to highlighting PostScript.

First which version of the PostScript language to highlight. There are currently three defined language versions, or levels. Level 1 is the original and base version, and includes all extensions prior to the release of level 2. Level 2 is the most common version around, and includes its own set of extensions prior to the release of level 3. Level 3 is currently the highest level supported. You select which level of the PostScript language you want highlighted by defining the postscr_level variable as follows:

```
:let postscr_level=2
```

If this variable is not defined it defaults to 2 (level 2) since this is the most prevalent version currently.

Note, not all PS interpreters will support all language features for a particular language level. In particular the %!PS-Adobe-3.0 at the start of PS files does NOT mean the PostScript present is level 3 PostScript!

If you are working with Display PostScript, you can include highlighting of Display PS language features by defining the postscr_display variable as follows:

```
:let postscr_display=1
```

If you are working with Ghostscript, you can include highlighting of Ghostscript specific language features by defining the variable postscr_ghostscript as follows:

```
:let postscr_ghostscript=1
```

PostScript is a large language, with many predefined elements. While it useful to have all these elements highlighted, on slower machines this can cause Vim to slow down. In an attempt to be machine friendly font names and character encodings are not highlighted by default. Unless you are working explicitly with either of these this should be ok. If you want them to be highlighted you should set one or both of the following variables:

```
        :let postscr_fonts=1
        :let postscr_encodings=1
```

There is a stylistic option to the highlighting of and, or, and not. In PostScript the function of these operators depends on the types of their operands - if the operands are booleans then they are the logical operators, if they are integers then they are binary operators. As binary and logical operators can be highlighted differently they have to be highlighted one way or the other. By default they are treated as logical operators. They can be highlighted as binary operators by defining the variable postscr_andornot_binary as follows:

```
        :let postscr_andornot_binary=1
```

PRINTCAP + TERMCAP ptcap.vim ft-printcap-syntax ft-ptcap-syntax ft-termcap-syntax

This syntax file applies to the printcap and termcap databases.

In order for Vim to recognize printcap/termcap files that do not match the patterns *printcap*, or *termcap*, you must put additional patterns appropriate to your system in your myfiletypefile file. For these patterns, you must set the variable "b:ptcap_type" to either "print" or "term", and then the 'filetype' option to ptcap.

For example, to make Vim identify all files in /etc/termcaps/ as termcap files, add the following:

```
   :au BufNewFile,BufRead /etc/termcaps/* let b:ptcap_type = "term" |
                                        \ set filetype=ptcap
```

If you notice highlighting errors while scrolling backwards, which are fixed when redrawing with CTRL-L, try setting the "ptcap_minlines" internal variable to a larger number:

```
   :let ptcap_minlines = 50
```

(The default is 20 lines.)

PROGRESS progress.vim ft-progress-syntax

Files matching "*.w" could be Progress or cweb. If the automatic detection doesn't work for you, or you don't edit cweb at all, use this in your startup vimrc:

```
   :let filetype_w = "progress"
```

The same happens for "*.i", which could be assembly, and "*.p", which could be Pascal. Use this if you don't use assembly and Pascal:

```
   :let filetype_i = "progress"
   :let filetype_p = "progress"
```

PYTHON python.vim ft-python-syntax

There are six options to control Python syntax highlighting.

For highlighted numbers:
        :let python_no_number_highlight = 1

For highlighted builtin functions:
        :let python_no_builtin_highlight = 1

For highlighted standard exceptions:
        :let python_no_exception_highlight = 1

For highlighted doctests and code inside:
        :let python_no_doctest_highlight = 1
or
        :let python_no_doctest_code_highlight = 1
(first option implies second one).

For highlighted trailing whitespace and mix of spaces and tabs:
        :let python_space_error_highlight = 1

If you want all possible Python highlighting (the same as setting the
preceding last option and unsetting all other ones):
        :let python_highlight_all = 1

Note: only existence of these options matter, not their value. You can replace
      1 above with anything.

QUAKE quake.vim ft-quake-syntax

The Quake syntax definition should work for most any FPS (First Person
Shooter) based on one of the Quake engines. However, the command names vary
a bit between the three games (Quake, Quake 2, and Quake 3 Arena) so the
syntax definition checks for the existence of three global variables to allow
users to specify what commands are legal in their files. The three variables
can be set for the following effects:

set to highlight commands only available in Quake:
        :let quake_is_quake1 = 1

set to highlight commands only available in Quake 2:
        :let quake_is_quake2 = 1

set to highlight commands only available in Quake 3 Arena:
        :let quake_is_quake3 = 1

Any combination of these three variables is legal, but might highlight more
commands than are actually available to you by the game.

READLINE readline.vim ft-readline-syntax

The readline library is primarily used by the BASH shell, which adds quite a

few commands and options to the ones already available. To highlight these items as well you can add the following to your vimrc or just type it in the command line before loading a file with the readline syntax:

```
let readline_has_bash = 1
```

This will add highlighting for the commands that BASH (version 2.05a and later, and part earlier) adds.

RESTRUCTURED TEXT rst.vim ft-rst-syntax

You may set what syntax definitions should be used for code blocks via

```
let rst_syntax_code_list = ['vim', 'lisp', ...]
```

REXX rexx.vim ft-rexx-syntax

If you notice highlighting errors while scrolling backwards, which are fixed when redrawing with CTRL-L, try setting the "rexx_minlines" internal variable to a larger number:

```
:let rexx_minlines = 50
```

This will make the syntax synchronization start 50 lines before the first displayed line. The default value is 10. The disadvantage of using a larger number is that redrawing can become slow.

Vim tries to guess what type a ".r" file is. If it can't be detected (from comment lines), the default is "r". To make the default rexx add this line to your .vimrc: g:filetype_r

```
:let g:filetype_r = "r"
```

RUBY ruby.vim ft-ruby-syntax

Ruby: Operator highlighting	ruby_operators
Ruby: Whitespace errors	ruby_space_errors
Ruby: Folding	ruby_fold ruby_foldable_groups
Ruby: Reducing expensive operations	ruby_no_expensive ruby_minlines
Ruby: Spellchecking strings	ruby_spellcheck_strings

Ruby: Operator highlighting ruby_operators

Operators can be highlighted by defining "ruby_operators":

```
:let ruby_operators = 1
```

Ruby: Whitespace errors ruby_space_errors

Whitespace errors can be highlighted by defining "ruby_space_errors":

```
:let ruby_space_errors = 1
```

This will highlight trailing whitespace and tabs preceded by a space character as errors. This can be refined by defining "ruby_no_trail_space_error" and "ruby_no_tab_space_error" which will ignore trailing whitespace and tabs after spaces respectively.

                                        ruby_fold   ruby_foldable_groups
Ruby: Folding

Folding can be enabled by defining "ruby_fold":

```
:let ruby_fold = 1
```

This will set the value of 'foldmethod' to "syntax" locally to the current buffer or window, which will enable syntax-based folding when editing Ruby filetypes.

Default folding is rather detailed, i.e., small syntax units like "if", "do", "%w[]" may create corresponding fold levels.

You can set "ruby_foldable_groups" to restrict which groups are foldable:

```
:let ruby_foldable_groups = 'if case %'
```

The value is a space-separated list of keywords:

keyword	meaning
ALL	Most block syntax (default)
NONE	Nothing
if	"if" or "unless" block
def	"def" block
class	"class" block
module	"module" block
do	"do" block
begin	"begin" block
case	"case" block
for	"for", "while", "until" loops
{	Curly bracket block or hash literal
[	Array literal
%	Literal with "%" notation, e.g.: %w(STRING), %!STRING!
/	Regexp
string	String and shell command output (surrounded by ', ", `)
:	Symbol
#	Multiline comment
<<	Here documents
__END__	Source code after "__END__" directive

                                                ruby_no_expensive
Ruby: Reducing expensive operations

By default, the "end" keyword is colorized according to the opening statement of the block it closes. While useful, this feature can be expensive; if you experience slow redrawing (or you are on a terminal with poor color support) you may want to turn it off by defining the "ruby_no_expensive" variable:

```
:let ruby_no_expensive = 1
```

In this case the same color will be used for all control keywords.

ruby_minlines

If you do want this feature enabled, but notice highlighting errors while scrolling backwards, which are fixed when redrawing with CTRL-L, try setting the "ruby_minlines" variable to a value larger than 50:

```
:let ruby_minlines = 100
```

Ideally, this value should be a number of lines large enough to embrace your largest class or module.

ruby_spellcheck_strings

Ruby: Spellchecking strings

Ruby syntax will perform spellchecking of strings if you define "ruby_spellcheck_strings":

```
:let ruby_spellcheck_strings = 1
```

SCHEME

scheme.vim ft-scheme-syntax

By default only R7RS keywords are highlighted and properly indented.

scheme.vim also supports extensions of the CHICKEN Scheme->C compiler. Define b:is_chicken or g:is_chicken, if you need them.

SDL

sdl.vim ft-sdl-syntax

The SDL highlighting probably misses a few keywords, but SDL has so many of them it's almost impossibly to cope.

The new standard, SDL-2000, specifies that all identifiers are case-sensitive (which was not so before), and that all keywords can be used either completely lowercase or completely uppercase. To have the highlighting reflect this, you can set the following variable:

```
:let sdl_2000=1
```

This also sets many new keywords. If you want to disable the old keywords, which is probably a good idea, use:

```
:let SDL_no_96=1
```

The indentation is probably also incomplete, but right now I am very satisfied with it for my own projects.

SED

sed.vim ft-sed-syntax

To make tabs stand out from regular blanks (accomplished by using Todo
highlighting on the tabs), define "highlight_sedtabs" by putting

        :let highlight_sedtabs = 1

in the vimrc file. (This special highlighting only applies for tabs
inside search patterns, replacement texts, addresses or text included
by an Append/Change/Insert command.) If you enable this option, it is
also a good idea to set the tab width to one character; by doing that,
you can easily count the number of tabs in a string.

Bugs:

  The transform command (y) is treated exactly like the substitute
  command. This means that, as far as this syntax file is concerned,
  transform accepts the same flags as substitute, which is wrong.
  (Transform accepts no flags.) I tolerate this bug because the
  involved commands need very complex treatment (95 patterns, one for
  each plausible pattern delimiter).

SGML   sgml.vim   ft-sgml-syntax

The coloring scheme for tags in the SGML file works as follows.

The <> of opening tags are colored differently than the </> of a closing tag.
This is on purpose! For opening tags the 'Function' color is used, while for
closing tags the 'Type' color is used (See syntax.vim to check how those are
defined for you)

Known tag names are colored the same way as statements in C. Unknown tag
names are not colored which makes it easy to spot errors.

Note that the same is true for argument (or attribute) names. Known attribute
names are colored differently than unknown ones.

Some SGML tags are used to change the rendering of text. The following tags
are recognized by the sgml.vim syntax coloring file and change the way normal
text is shown: <varname> <emphasis> <command> <function> <literal>
<replaceable> <ulink> and <link>.

If you want to change how such text is rendered, you must redefine the
following syntax groups:

    - sgmlBold
    - sgmlBoldItalic
    - sgmlUnderline
    - sgmlItalic
    - sgmlLink for links

To make this redefinition work you must redefine them all and define the
following variable in your vimrc (this is due to the order in which the files
are read during initialization)

```
   let sgml_my_rendering=1

You can also disable this rendering by adding the following line to your
vimrc file:
   let sgml_no_rendering=1

(Adapted from the html.vim help text by Claudio Fleiner <claudio@fleiner.com>)


                ft-posix-synax   ft-dash-syntax
SH              sh.vim    ft-sh-syntax    ft-bash-syntax    ft-ksh-syntax

This covers syntax highlighting for the older Unix (Bourne) sh, and newer
shells such as bash, dash, posix, and the Korn shells.

Vim attempts to determine which shell type is in use by specifying that
various filenames are of specific types, e.g.:

    ksh : .kshrc* *.ksh
    bash: .bashrc* bashrc bash.bashrc .bash_profile* *.bash

See $VIMRUNTIME/filetype.vim for the full list of patterns.  If none of these
cases pertain, then the first line of the file is examined (ex. looking for
/bin/sh  /bin/ksh  /bin/bash).  If the first line specifies a shelltype, then
that shelltype is used.  However some files (ex. .profile) are known to be
shell files but the type is not apparent.  Furthermore, on many systems sh is
symbolically linked to "bash" (Linux, Windows+cygwin) or "ksh" (Posix).

One may specify a global default by instantiating one of the following
variables in your <.vimrc>:

   ksh:
        let g:is_kornshell = 1
   posix:  (using this is the nearly the same as setting g:is_kornshell to 1)
        let g:is_posix     = 1
   bash:
        let g:is_bash      = 1
   sh: (default) Bourne shell
        let g:is_sh        = 1

   (dash users should use posix)

If there's no "#! ..." line, and the user hasn't availed himself/herself of a
default sh.vim syntax setting as just shown, then syntax/sh.vim will assume
the Bourne shell syntax.  No need to quote RFCs or market penetration
statistics in error reports, please -- just select the default version of the
sh your system uses and install the associated "let..." in your <.vimrc>.

The syntax/sh.vim file provides several levels of syntax-based folding:

        let g:sh_fold_enabled= 0     (default, no syntax folding)
        let g:sh_fold_enabled= 1     (enable function folding)
        let g:sh_fold_enabled= 2     (enable heredoc folding)
        let g:sh_fold_enabled= 4     (enable if/do/for folding)
```

then various syntax items (ie. HereDocuments and function bodies) become
syntax-foldable (see :syn-fold). You also may add these together
to get multiple types of folding:

```
        let g:sh_fold_enabled= 3     (enables function and heredoc folding)
```

If you notice highlighting errors while scrolling backwards which are fixed
when one redraws with CTRL-L, try setting the "sh_minlines" internal variable
to a larger number. Example:

```
        let sh_minlines = 500
```

This will make syntax synchronization start 500 lines before the first
displayed line. The default value is 200. The disadvantage of using a larger
number is that redrawing can become slow.

If you don't have much to synchronize on, displaying can be very slow. To
reduce this, the "sh_maxlines" internal variable can be set. Example:

```
        let sh_maxlines = 100
```

The default is to use the twice sh_minlines. Set it to a smaller number to
speed up displaying. The disadvantage is that highlight errors may appear.

syntax/sh.vim tries to flag certain problems as errors; usually things like
extra ']'s, 'done's, 'fi's, etc. If you find the error handling problematic
for your purposes, you may suppress such error highlighting by putting
the following line in your .vimrc:

```
        let g:sh_no_error= 1
```

Sh: EMBEDDING LANGUAGES sh-embed sh-awk

You may wish to embed languages into sh. I'll give an example courtesy of
Lorance Stinson on how to do this with awk as an example. Put the following
file into $HOME/.vim/after/syntax/sh/awkembed.vim:

```
    " AWK Embedding:
    " ==============
    " Shamelessly ripped from aspperl.vim by Aaron Hope.
    if exists("b:current_syntax")
      unlet b:current_syntax
    endif
    syn include @AWKScript syntax/awk.vim
    syn region AWKScriptCode matchgroup=AWKCommand start=+[=\\]\@<!'+ skip=+\\'+ end=+'+ co
    syn region AWKScriptEmbedded matchgroup=AWKCommand start=+\<awk\>+ skip=+\\$+ end=+[=\'
    syn cluster shCommandSubList add=AWKScriptEmbedded
    hi def link AWKCommand Type
```

This code will then let the awk code in the single quotes:

```
        awk '...awk code here...'
```

be highlighted using the awk highlighting syntax. Clearly this may be
extended to other languages.

SPEEDUP   spup.vim   ft-spup-syntax
(AspenTech plant simulator)

The Speedup syntax file has some options:

- strict_subsections : If this variable is defined, only keywords for
  sections and subsections will be highlighted as statements but not
  other keywords (like WITHIN in the OPERATION section).

- highlight_types : Definition of this variable causes stream types
  like temperature or pressure to be highlighted as Type, not as a
  plain Identifier. Included are the types that are usually found in
  the DECLARE section; if you defined own types, you have to include
  them in the syntax file.

- oneline_comments : this value ranges from 1 to 3 and determines the
  highlighting of # style comments.

  oneline_comments = 1 : allow normal Speedup code after an even
  number of #s.

  oneline_comments = 2 : show code starting with the second # as
  error. This is the default setting.

  oneline_comments = 3 : show the whole line as error if it contains
  more than one #.

Since especially OPERATION sections tend to become very large due to
PRESETting variables, syncing may be critical. If your computer is
fast enough, you can increase minlines and/or maxlines near the end of
the syntax file.

SQL   sql.vim   ft-sql-syntax
                                              sqlinformix.vim   ft-sqlinformix-syntax
                                              sqlanywhere.vim   ft-sqlanywhere-syntax

While there is an ANSI standard for SQL, most database engines add their own
custom extensions. Vim currently supports the Oracle and Informix dialects of
SQL. Vim assumes "*.sql" files are Oracle SQL by default.

Vim currently has SQL support for a variety of different vendors via syntax
scripts. You can change Vim's default from Oracle to any of the current SQL
supported types. You can also easily alter the SQL dialect being used on a
buffer by buffer basis.

For more detailed instructions see ft_sql.txt .

TCSH   tcsh.vim   ft-tcsh-syntax

This covers the shell named "tcsh". It is a superset of csh. See csh.vim
for how the filetype is detected.

Tcsh does not allow \" in strings unless the "backslash_quote" shell variable
is set. If you want VIM to assume that no backslash quote constructs exist add
this line to your .vimrc:

```
:let tcsh_backslash_quote = 0
```

If you notice highlighting errors while scrolling backwards, which are fixed
when redrawing with CTRL-L, try setting the "tcsh_minlines" internal variable
to a larger number:

```
:let tcsh_minlines = 1000
```

This will make the syntax synchronization start 1000 lines before the first
displayed line. If you set "tcsh_minlines" to "fromstart", then
synchronization is done from the start of the file. The default value for
tcsh_minlines is 100. The disadvantage of using a larger number is that
redrawing can become slow.

TEX tex.vim ft-tex-syntax latex-syntax

Tex Contents

tex-folding g:tex_fold_enabled

Tex: Want Syntax Folding?

As of version 28 of <syntax/tex.vim>, syntax-based folding of parts, chapters,
sections, subsections, etc are supported. Put

```
let g:tex_fold_enabled=1
```

in your <.vimrc>, and :set fdm=syntax. I suggest doing the latter via a
modeline at the end of your LaTeX file:

```
% vim: fdm=syntax
```

If your system becomes too slow, then you might wish to look into

```
https://vimhelp.appspot.com/vim_faq.txt.html#faq-29.7
```

g:tex_nospell

Tex: No Spell Checking Wanted

If you don't want spell checking anywhere in your LaTeX document, put
```
let g:tex_nospell=1
```
into your .vimrc. If you merely wish to suppress spell checking inside comments only, see g:tex_comment_nospell .

tex-nospell g:tex_comment_nospell

Tex: Don't Want Spell Checking In Comments?

Some folks like to include things like source code in comments and so would prefer that spell checking be disabled in comments in LaTeX files. To do this, put the following in your <.vimrc>:
```
let g:tex_comment_nospell= 1
```
If you want to suppress spell checking everywhere inside your LaTeX document, see g:tex_nospell .

tex-verb g:tex_verbspell

Tex: Want Spell Checking in Verbatim Zones?

Often verbatim regions are used for things like source code; seldom does one want source code spell-checked. However, for those of you who do want your verbatim zones spell-checked, put the following in your <.vimrc>:
```
let g:tex_verbspell= 1
```

tex-runon tex-stopzone

Tex: Run-on Comments or MathZones

The <syntax/tex.vim> highlighting supports TeX, LaTeX, and some AmsTeX. The highlighting supports three primary zones/regions: normal, texZone, and texMathZone. Although considerable effort has been made to have these zones terminate properly, zones delineated by $..$ and $$..$$ cannot be synchronized as there's no difference between start and end patterns. Consequently, a special "TeX comment" has been provided
```
%stopzone
```
which will forcibly terminate the highlighting of either a texZone or a texMathZone.

tex-slow tex-sync

Tex: Slow Syntax Highlighting?

If you have a slow computer, you may wish to reduce the values for
```
:syn sync maxlines=200
:syn sync minlines=50
```
(especially the latter). If your computer is fast, you may wish to increase them. This primarily affects synchronizing (i.e. just what group, if any, is the text at the top of the screen supposed to be in?).

Another cause of slow highlighting is due to syntax-driven folding; see tex-folding for a way around this.

g:tex_fast

Finally, if syntax highlighting is still too slow, you may set

```
        :let g:tex_fast= ""
```

in your .vimrc. Used this way, the g:tex_fast variable causes the syntax highlighting script to avoid defining any regions and associated synchronization. The result will be much faster syntax highlighting; the price: you will no longer have as much highlighting or any syntax-based folding, and you will be missing syntax-based error checking.

You may decide that some syntax is acceptable; you may use the following table selectively to enable just some syntax highlighting:

```
    b : allow bold and italic syntax
    c : allow texComment syntax
    m : allow texMatcher syntax (ie. {...} and [...])
    M : allow texMath syntax
    p : allow parts, chapter, section, etc syntax
    r : allow texRefZone syntax (nocite, bibliography, label, pageref, eqref)
    s : allow superscript/subscript regions
    S : allow texStyle syntax
    v : allow verbatim syntax
    V : allow texNewEnv and texNewCmd syntax
```

As an example, let g:tex_fast= "M" will allow math-associated highlighting but suppress all the other region-based syntax highlighting.
(also see: g:tex_conceal and tex-supersub)

                                                tex-morecommands tex-package
Tex: Want To Highlight More Commands?

LaTeX is a programmable language, and so there are thousands of packages full of specialized LaTeX commands, syntax, and fonts. If you're using such a package you'll often wish that the distributed syntax/tex.vim would support it. However, clearly this is impractical. So please consider using the techniques in mysyntaxfile-add to extend or modify the highlighting provided by syntax/tex.vim. Please consider uploading any extensions that you write, which typically would go in $HOME/after/syntax/tex/[pkgname].vim, to http://vim.sf.net/.

                                                tex-error g:tex_no_error
Tex: Excessive Error Highlighting?

The <tex.vim> supports lexical error checking of various sorts. Thus, although the error checking is ofttimes very useful, it can indicate errors where none actually are. If this proves to be a problem for you, you may put in your <.vimrc> the following statement:

```
        let g:tex_no_error=1
```

and all error checking by <syntax/tex.vim> will be suppressed.

                                                                tex-math
Tex: Need a new Math Group?

If you want to include a new math group in your LaTeX, the following code shows you an example as to how you might do so:

```
        call TexNewMathZone(sfx,mathzone,starform)
```
You'll want to provide the new math group with a unique suffix
(currently, A-L and V-Z are taken by <syntax/tex.vim> itself).
As an example, consider how eqnarray is set up by <syntax/tex.vim>:
```
        call TexNewMathZone("D","eqnarray",1)
```
You'll need to change "mathzone" to the name of your new math group,
and then to the call to it in .vim/after/syntax/tex.vim.
The "starform" variable, if true, implies that your new math group
has a starred form (ie. eqnarray*).

tex-style b:tex_stylish

Tex: Starting a New Style?

One may use "\makeatletter" in *.tex files, thereby making the use of "@" in
commands available. However, since the *.tex file doesn't have one of the
following suffices: sty cls clo dtx ltx, the syntax highlighting will flag
such use of @ as an error. To solve this:

```
        :let b:tex_stylish = 1
        :set ft=tex
```

Putting "let g:tex_stylish=1" into your <.vimrc> will make <syntax/tex.vim>
always accept such use of @.

tex-cchar tex-cole tex-conceal

Tex: Taking Advantage of Conceal Mode

If you have 'conceallevel' set to 2 and if your encoding is utf-8, then a
number of character sequences can be translated into appropriate utf-8 glyphs,
including various accented characters, Greek characters in MathZones, and
superscripts and subscripts in MathZones. Not all characters can be made into
superscripts or subscripts; the constraint is due to what utf-8 supports.
In fact, only a few characters are supported as subscripts.

One way to use this is to have vertically split windows (see CTRL-W_v); one
with 'conceallevel' at 0 and the other at 2; and both using 'scrollbind' .

g:tex_conceal

Tex: Selective Conceal Mode

You may selectively use conceal mode by setting g:tex_conceal in your
<.vimrc>. By default, g:tex_conceal is set to "admgs" to enable concealment
for the following sets of characters:

```
        a = accents/ligatures
        b = bold and italic
        d = delimiters
        m = math symbols
        g = Greek
        s = superscripts/subscripts
```

By leaving one or more of these out, the associated conceal-character
substitution will not be made.

g:tex_isk g:tex_stylish

Tex: Controlling iskeyword

Normally, LaTeX keywords support 0-9, a-z, A-z, and 192-255 only. Latex keywords don't support the underscore - except when in *.sty files. The syntax highlighting script handles this with the following logic:

```
* If g:tex_stylish exists and is 1
        then the file will be treated as a "sty" file, so the "_"
        will be allowed as part of keywords
        (regardless of g:tex_isk)
* Else if the file's suffix is sty, cls, clo, dtx, or ltx,
        then the file will be treated as a "sty" file, so the "_"
        will be allowed as part of keywords
        (regardless of g:tex_isk)

* If g:tex_isk exists, then it will be used for the local 'iskeyword'
* Else the local 'iskeyword' will be set to 48-57,a-z,A-Z,192-255
```

tex-supersub g:tex_superscripts g:tex_subscripts

Tex: Fine Subscript and Superscript Control

See tex-conceal for how to enable concealed character replacement.

See g:tex_conceal for selectively concealing accents, bold/italic, math, Greek, and superscripts/subscripts.

One may exert fine control over which superscripts and subscripts one wants syntax-based concealment for (see :syn-cchar). Since not all fonts support all characters, one may override the concealed-replacement lists; by default these lists are given by:

```
    let g:tex_superscripts= "[0-9a-zA-W.,:;+-<>/()=]"
    let g:tex_subscripts= "[0-9aehijklmnoprstuvx,+-/().]"
```

For example, I use Luxi Mono Bold; it doesn't support subscript characters for "hklmnpst", so I put

```
        let g:tex_subscripts= "[0-9aeijoruvx,+-/().]"
```

in ~/.vim/ftplugin/tex/tex.vim in order to avoid having inscrutable utf-8 glyphs appear.

TF tf.vim ft-tf-syntax

There is one option for the tf syntax highlighting.

For syncing, minlines defaults to 100. If you prefer another value, you can set "tf_minlines" to the value you desire. Example:

```
:let tf_minlines = your choice
```

VIM vim.vim ft-vim-syntax

g:vimsyn_minlines g:vimsyn_maxlines

There is a trade-off between more accurate syntax highlighting versus screen

updating speed. To improve accuracy, you may wish to increase the g:vimsyn_minlines variable. The g:vimsyn_maxlines variable may be used to improve screen updating rates (see :syn-sync for more on this).

```
g:vimsyn_minlines : used to set synchronization minlines
g:vimsyn_maxlines : used to set synchronization maxlines

(g:vim_minlines and g:vim_maxlines are deprecated variants of
these two options)
```

g:vimsyn_embed

The g:vimsyn_embed option allows users to select what, if any, types of embedded script highlighting they wish to have.

```
g:vimsyn_embed == 0   : don't support any embedded scripts
g:vimsyn_embed =~ 'l' : support embedded lua
g:vimsyn_embed =~ 'm' : support embedded mzscheme
g:vimsyn_embed =~ 'p' : support embedded perl
g:vimsyn_embed =~ 'P' : support embedded python
g:vimsyn_embed =~ 'r' : support embedded ruby
g:vimsyn_embed =~ 't' : support embedded tcl
```

By default, g:vimsyn_embed is a string supporting interpreters that your vim itself supports. Concatenate multiple characters to support multiple types of embedded interpreters; ie. g:vimsyn_embed= "mp" supports embedded mzscheme and embedded perl.

g:vimsyn_folding

Some folding is now supported with syntax/vim.vim:

```
g:vimsyn_folding == 0 or doesn't exist: no syntax-based folding
g:vimsyn_folding =~ 'a' : augroups
g:vimsyn_folding =~ 'f' : fold functions
g:vimsyn_folding =~ 'l' : fold lua      script
g:vimsyn_folding =~ 'm' : fold mzscheme script
g:vimsyn_folding =~ 'p' : fold perl     script
g:vimsyn_folding =~ 'P' : fold python   script
g:vimsyn_folding =~ 'r' : fold ruby     script
g:vimsyn_folding =~ 't' : fold tcl      script
```

g:vimsyn_noerror

Not all error highlighting that syntax/vim.vim does may be correct; Vim script is a difficult language to highlight correctly. A way to suppress error highlighting is to put the following line in your vimrc :

```
let g:vimsyn_noerror = 1
```

XF86CONFIG xf86conf.vim ft-xf86conf-syntax

The syntax of XF86Config file differs in XFree86 v3.x and v4.x. Both variants are supported. Automatic detection is used, but is far from perfect. You may need to specify the version manually. Set the variable

xf86conf_xfree86_version to 3 or 4 according to your XFree86 version in
your .vimrc. Example:
        :let xf86conf_xfree86_version=3
When using a mix of versions, set the b:xf86conf_xfree86_version variable.

Note that spaces and underscores in option names are not supported. Use
"SyncOnGreen" instead of "__s yn con gr_e_e_n" if you want the option name
highlighted.

XML xml.vim ft-xml-syntax

Xml namespaces are highlighted by default. This can be inhibited by
setting a global variable:

        :let g:xml_namespace_transparent=1

xml-folding
The xml syntax file provides syntax folding (see :syn-fold) between
start and end tags. This can be turned on by

        :let g:xml_syntax_folding = 1
        :set foldmethod=syntax

Note: syntax folding might slow down syntax highlighting significantly,
especially for large files.

X Pixmaps (XPM) xpm.vim ft-xpm-syntax

xpm.vim creates its syntax items dynamically based upon the contents of the
XPM file. Thus if you make changes e.g. in the color specification strings,
you have to source it again e.g. with ":set syn=xpm".

To copy a pixel with one of the colors, yank a "pixel" with "yl" and insert it
somewhere else with "P".

Do you want to draw with the mouse? Try the following:
```
:function! GetPixel()
:   let c = getline(".")[col(".") - 1]
:   echo c
:   exe "noremap <LeftMouse> <LeftMouse>r".c
:   exe "noremap <LeftDrag>  <LeftMouse>r".c
:endfunction
:noremap <RightMouse> <LeftMouse>:call GetPixel()<CR>
:set guicursor=n:hor20          " to see the color beneath the cursor
```
This turns the right button into a pipette and the left button into a pen.
It will work with XPM files that have one character per pixel only and you
must not click outside of the pixel strings, but feel free to improve it.

It will look much better with a font in a quadratic cell size, e.g. for X:
        :set guifont=-*-clean-medium-r-*-*-8-*-*-*-*-80-*

YAML yaml.vim ft-yaml-syntax

g:yaml_schema b:yaml_schema

A YAML schema is a combination of a set of tags and a mechanism for resolving non-specific tags. For user this means that YAML parser may, depending on plain scalar contents, treat plain scalar (which can actually be only string and nothing else) as a value of the other type: null, boolean, floating-point, integer. `g:yaml_schema` option determines according to which schema values will be highlighted specially. Supported schemas are

Schema	Description
failsafe	No additional highlighting.
json	Supports JSON-style numbers, booleans and null.
core	Supports more number, boolean and null styles.
pyyaml	In addition to core schema supports highlighting timestamps, but there are some differences in what is recognized as numbers and many additional boolean values not present in core schema.

Default schema is `core`.

Note that schemas are not actually limited to plain scalars, but this is the only difference between schemas defined in YAML specification and the only difference defined in the syntax file.

ZSH zsh.vim ft-zsh-syntax

The syntax script for zsh allows for syntax-based folding:

```
:let g:zsh_fold_enable = 1
```

==

5. Defining a syntax :syn-define E410

Vim understands three types of syntax items:

1. Keyword
   It can only contain keyword characters, according to the 'iskeyword' option. It cannot contain other syntax items. It will only match with a complete word (there are no keyword characters before or after the match). The keyword "if" would match in "if(a=b)", but not in "ifdef x", because "(" is not a keyword character and "d" is.

2. Match
   This is a match with a single regexp pattern.

3. Region
   This starts at a match of the "start" regexp pattern and ends with a match with the "end" regexp pattern. Any other text can appear in between. A "skip" regexp pattern can be used to avoid matching the "end" pattern.

Several syntax ITEMs can be put into one syntax GROUP. For a syntax group you can give highlighting attributes. For example, you could have an item

to define a "/* .. */" comment and another one that defines a "// .." comment, and put them both in the "Comment" group. You can then specify that a "Comment" will be in bold font and have a blue color. You are free to make one highlight group for one syntax item, or put all items into one group. This depends on how you want to specify your highlighting attributes. Putting each item in its own group results in having to specify the highlighting for a lot of groups.

Note that a syntax group and a highlight group are similar. For a highlight group you will have given highlight attributes. These attributes will be used for the syntax group with the same name.

In case more than one item matches at the same position, the one that was defined LAST wins. Thus you can override previously defined syntax items by using an item that matches the same text. But a keyword always goes before a match or region. And a keyword with matching case always goes before a keyword with ignoring case.

PRIORITY :syn-priority

When several syntax items may match, these rules are used:

1. When multiple Match or Region items start in the same position, the item defined last has priority.
2. A Keyword has priority over Match and Region items.
3. An item that starts in an earlier position has priority over items that start in later positions.

DEFINING CASE :syn-case E390

:sy[ntax] case [match | ignore]
        This defines if the following ":syntax" commands will work with matching case, when using "match", or with ignoring case, when using "ignore". Note that any items before this are not affected, and all items until the next ":syntax case" command are affected.

:sy[ntax] case
        Show either "syntax case match" or "syntax case ignore" (translated).

SPELL CHECKING :syn-spell

:sy[ntax] spell [toplevel | notoplevel | default]
        This defines where spell checking is to be done for text that is not in a syntax item:

        toplevel: Text is spell checked.
        notoplevel: Text is not spell checked.
        default: When there is a @Spell cluster no spell checking.

        For text in syntax items use the @Spell and @NoSpell clusters
         spell-syntax . When there is no @Spell and no @NoSpell cluster then spell checking is done for "default" and "toplevel".

To activate spell checking the 'spell' option must be set.

:sy[ntax] spell
Show either "syntax spell toplevel", "syntax spell notoplevel" or "syntax spell default" (translated).

SYNTAX ISKEYWORD SETTING :syn-iskeyword

:sy[ntax] iskeyword [clear | {option}]
This defines the keyword characters. It's like the 'iskeyword' option for but only applies to syntax highlighting.

clear: Syntax specific iskeyword setting is disabled and the buffer-local 'iskeyword' setting is used.
{option} Set the syntax 'iskeyword' option to a new value.

Example:

```
:syntax iskeyword @,48-57,192-255,$,_
```

This would set the syntax specific iskeyword option to include all alphabetic characters, plus the numeric characters, all accented characters and also includes the "_" and the "$".

If no argument is given, the current value will be output.

Setting this option influences what /\k matches in syntax patterns and also determines where :syn-keyword will be checked for a new match.

It is recommended when writing syntax files, to use this command to set the correct value for the specific syntax language and not change the 'iskeyword' option.

DEFINING KEYWORDS :syn-keyword

:sy[ntax] keyword {group-name} [{options}] {keyword} .. [{options}]

This defines a number of keywords.

{group-name} Is a syntax group name such as "Comment".
[{options}] See :syn-arguments below.
{keyword} .. Is a list of keywords which are part of this group.

Example:

```
:syntax keyword   Type   int long char
```

The {options} can be given anywhere in the line. They will apply to all keywords given, also for options that come after a keyword. These examples do exactly the same:

```
:syntax keyword   Type   contained int long char
:syntax keyword   Type   int long contained char
:syntax keyword   Type   int long char contained
```

E789 E890

When you have a keyword with an optional tail, like Ex commands in Vim, you can put the optional characters inside [], to define all the variations at once:

```
:syntax keyword   vimCommand   ab[breviate] n[ext]
```

Don't forget that a keyword can only be recognized if all the characters are included in the 'iskeyword' option. If one character isn't, the keyword will never be recognized.
Multi-byte characters can also be used. These do not have to be in 'iskeyword'.
See :syn-iskeyword for defining syntax specific iskeyword settings.

A keyword always has higher priority than a match or region, the keyword is used if more than one item matches. Keywords do not nest and a keyword can't contain anything else.

Note that when you have a keyword that is the same as an option (even one that isn't allowed here), you can not use it. Use a match instead.

The maximum length of a keyword is 80 characters.

The same keyword can be defined multiple times, when its containment differs. For example, you can define the keyword once not contained and use one highlight group, and once contained, and use a different highlight group. Example:

```
:syn keyword vimCommand tag
:syn keyword vimSetting contained tag
```

When finding "tag" outside of any syntax item, the "vimCommand" highlight group is used. When finding "tag" in a syntax item that contains "vimSetting", the "vimSetting" group is used.

DEFINING MATCHES :syn-match

```
:sy[ntax] match {group-name} [{options}]
                [excludenl]
                [keepend]
                {pattern}
                [{options}]
```

This defines one match.

{group-name}	A syntax group name such as "Comment".
[{options}]	See :syn-arguments below.
[excludenl]	Don't make a pattern with the end-of-line "$" extend a containing match or region. Must be given before the pattern. :syn-excludenl
keepend	Don't allow contained matches to go past a match with the end pattern. See :syn-keepend .
{pattern}	The search pattern that defines the match. See :syn-pattern below.

Note that the pattern may match more than one line, which makes the match depend on where Vim starts searching for the pattern. You need to make sure syncing takes care of this.

Example (match a character constant):

```
:syntax match Character /'.'/hs=s+1,he=e-1
```

DEFINING REGIONS :syn-region :syn-start :syn-skip :syn-end E398 E399

```
:sy[ntax] region {group-name} [{options}]
                [matchgroup={group-name}]
                [keepend]
                [extend]
                [excludenl]
                start={start_pattern} ..
                [skip={skip_pattern}]
                end={end_pattern} ..
                [{options}]
```

This defines one region. It may span several lines.

{group-name}	A syntax group name such as "Comment".
[{options}]	See :syn-arguments below.
[matchgroup={group-name}]	The syntax group to use for the following start or end pattern matches only. Not used for the text in between the matched start and end patterns. Use NONE to reset to not using a different group for the start or end match. See :syn-matchgroup .
keepend	Don't allow contained matches to go past a match with the end pattern. See :syn-keepend .
extend	Override a "keepend" for an item this region is contained in. See :syn-extend .
excludenl	Don't make a pattern with the end-of-line "$" extend a containing match or item. Only useful for end patterns. Must be given before the patterns it applies to. :syn-excludenl
start={start_pattern}	The search pattern that defines the start of the region. See :syn-pattern below.
skip={skip_pattern}	The search pattern that defines text inside the region where not to look for the end pattern. See :syn-pattern below.
end={end_pattern}	The search pattern that defines the end of the region. See :syn-pattern below.

Example:

```
:syntax region String   start=+"+  skip=+\\"+  end=+"+
```

The start/skip/end patterns and the options can be given in any order. There can be zero or one skip pattern. There must be one or more start and end patterns. This means that you can omit the skip

pattern, but you must give at least one start and one end pattern. It is allowed to have white space before and after the equal sign (although it mostly looks better without white space).

When more than one start pattern is given, a match with one of these is sufficient. This means there is an OR relation between the start patterns. The last one that matches is used. The same is true for the end patterns.

The search for the end pattern starts right after the start pattern. Offsets are not used for this. This implies that the match for the end pattern will never overlap with the start pattern.

The skip and end pattern can match across line breaks, but since the search for the pattern can start in any line it often does not do what you want. The skip pattern doesn't avoid a match of an end pattern in the next line. Use single-line patterns to avoid trouble.

Note: The decision to start a region is only based on a matching start pattern. There is no check for a matching end pattern. This does NOT work:

```
:syn region First  start="("  end=":"
:syn region Second start="("  end=";"
```

The Second always matches before the First (last defined pattern has higher priority). The Second region then continues until the next ';', no matter if there is a ':' before it. Using a match does work:

```
:syn match First  "(\_.\{-}:"
:syn match Second "(\_.\{-};"
```

This pattern matches any character or line break with "_." and repeats that with "\{-}" (repeat as few as possible).

:syn-keepend

By default, a contained match can obscure a match for the end pattern. This is useful for nesting. For example, a region that starts with "{" and ends with "}", can contain another region. An encountered "}" will then end the contained region, but not the outer region:

```
{           starts outer "{}" region
    {       starts contained "{}" region
    }       ends contained "{}" region
}           ends outer "{} region
```

If you don't want this, the "keepend" argument will make the matching of an end pattern of the outer region also end any contained item. This makes it impossible to nest the same region, but allows for contained items to highlight parts of the end pattern, without causing that to skip the match with the end pattern. Example:

```
:syn match  vimComment +"[^"]\+$+
:syn region vimCommand start="set" end="$" contains=vimComment keepend
```

The "keepend" makes the vimCommand always end at the end of the line, even though the contained vimComment includes a match with the <EOL>.

When "keepend" is not used, a match with an end pattern is retried after each contained match. When "keepend" is included, the first encountered match with an end pattern is used, truncating any contained matches.

:syn-extend

The "keepend" behavior can be changed by using the "extend" argument. When an item with "extend" is contained in an item that uses "keepend", the "keepend" is ignored and the containing region will be extended.
This can be used to have some contained items extend a region while others don't. Example:

```
:syn region htmlRef start=+<a>+ end=+</a>+ keepend contains=htmlItem,htmlScript
:syn match htmlItem +<[^>]*>+ contained
:syn region htmlScript start=+<script+ end=+</script[^>]*>+ contained extend
```

Here the htmlItem item does not make the htmlRef item continue further, it is only used to highlight the <> items. The htmlScript item does extend the htmlRef item.

Another example:

```
:syn region xmlFold start="<a>" end="</a>" fold transparent keepend extend
```

This defines a region with "keepend", so that its end cannot be changed by contained items, like when the "" is matched to highlight it differently. But when the xmlFold region is nested (it includes itself), the "extend" applies, so that the "" of a nested region only ends that region, and not the one it is contained in.

:syn-excludenl

When a pattern for a match or end pattern of a region includes a '$' to match the end-of-line, it will make a region item that it is contained in continue on the next line. For example, a match with "\\$" (backslash at the end of the line) can make a region continue that would normally stop at the end of the line. This is the default behavior. If this is not wanted, there are two ways to avoid it:

1. Use "keepend" for the containing item. This will keep all contained matches from extending the match or region. It can be used when all contained items must not extend the containing item.
2. Use "excludenl" in the contained item. This will keep that match from extending the containing match or region. It can be used if only some contained items must not extend the containing item. "excludenl" must be given before the pattern it applies to.

:syn-matchgroup

"matchgroup" can be used to highlight the start and/or end pattern differently than the body of the region. Example:

```
:syntax region String matchgroup=Quote start=+"+  skip=+\\"+  end=+"+
```

This will highlight the quotes with the "Quote" group, and the text in between with the "String" group.
The "matchgroup" is used for all start and end patterns that follow, until the next "matchgroup". Use "matchgroup=NONE" to go back to not using a matchgroup.

In a start or end pattern that is highlighted with "matchgroup" the contained items of the region are not used. This can be used to avoid that a contained item matches in the start or end pattern match. When using "transparent", this does not apply to a start or end pattern match that is highlighted with "matchgroup".

Here is an example, which highlights three levels of parentheses in
different colors:

```
:sy region par1 matchgroup=par1 start=/(/ end=/)/ contains=par2
:sy region par2 matchgroup=par2 start=/(/ end=/)/ contains=par3 contained
:sy region par3 matchgroup=par3 start=/(/ end=/)/ contains=par1 contained
:hi par1 ctermfg=red guifg=red
:hi par2 ctermfg=blue guifg=blue
:hi par3 ctermfg=darkgreen guifg=darkgreen
```

E849

The maximum number of syntax groups is 19999.

==

6. :syntax arguments :syn-arguments

The :syntax commands that define syntax items take a number of arguments.
The common ones are explained here. The arguments may be given in any order
and may be mixed with patterns.

Not all commands accept all arguments. This table shows which arguments
can not be used for all commands:

E395

	contains	oneline	fold	display	extend	concealends
:syntax keyword	-	-	-	-	-	-
:syntax match	yes	-	yes	yes	yes	-
:syntax region	yes	yes	yes	yes	yes	yes

These arguments can be used for all three commands:

- conceal
- cchar
- contained
- containedin
- nextgroup
- transparent
- skipwhite
- skipnl
- skipempty

conceal conceal :syn-conceal

When the "conceal" argument is given, the item is marked as concealable.
Whether or not it is actually concealed depends on the value of the
'conceallevel' option. The 'concealcursor' option is used to decide whether
concealable items in the current line are displayed unconcealed to be able to
edit the line.
Another way to conceal text is with matchadd() .

concealends :syn-concealends

When the "concealends" argument is given, the start and end matches of
the region, but not the contents of the region, are marked as concealable.
Whether or not they are actually concealed depends on the setting on the
'conceallevel' option. The ends of a region can only be concealed separately

in this way when they have their own highlighting via "matchgroup"

cchar :syn-cchar
E844

The "cchar" argument defines the character shown in place of the item when it is concealed (setting "cchar" only makes sense when the conceal argument is given.) If "cchar" is not set then the default conceal character defined in the 'listchars' option is used. The character cannot be a control character such as Tab. Example:

```
:syntax match Entity "&amp;" conceal cchar=&
```

See hl-Conceal for highlighting.

contained :syn-contained

When the "contained" argument is given, this item will not be recognized at the top level, but only when it is mentioned in the "contains" field of another match. Example:

```
:syntax keyword Todo    TODO    contained
:syntax match   Comment "//.*"  contains=Todo
```

display :syn-display

If the "display" argument is given, this item will be skipped when the detected highlighting will not be displayed. This will speed up highlighting, by skipping this item when only finding the syntax state for the text that is to be displayed.

Generally, you can use "display" for match and region items that meet these conditions:
- The item does not continue past the end of a line. Example for C: A region for a "/*" comment can't contain "display", because it continues on the next line.
- The item does not contain items that continue past the end of the line or make it continue on the next line.
- The item does not change the size of any item it is contained in. Example for C: A match with "\\$" in a preprocessor match can't have "display", because it may make that preprocessor match shorter.
- The item does not allow other items to match that didn't match otherwise, and that item may extend the match too far. Example for C: A match for a "//" comment can't use "display", because a "/*" inside that comment would match then and start a comment which extends past the end of the line.

Examples, for the C language, where "display" can be used:
- match with a number
- match with a label

transparent :syn-transparent

If the "transparent" argument is given, this item will not be highlighted itself, but will take the highlighting of the item it is contained in. This is useful for syntax items that don't need any highlighting but are used only to skip over a part of the text.

The "contains=" argument is also inherited from the item it is contained in, unless a "contains" argument is given for the transparent item itself. To avoid that unwanted items are contained, use "contains=NONE". Example, which highlights words in strings, but makes an exception for "vim":

```
:syn match myString /'[^']*'/ contains=myWord,myVim
:syn match myWord   /\<[a-z]*\>/ contained
:syn match myVim    /\<vim\>/ transparent contained contains=NONE
:hi link myString String
:hi link myWord   Comment
```

Since the "myVim" match comes after "myWord" it is the preferred match (last match in the same position overrules an earlier one). The "transparent" argument makes the "myVim" match use the same highlighting as "myString". But it does not contain anything. If the "contains=NONE" argument would be left out, then "myVim" would use the contains argument from myString and allow "myWord" to be contained, which will be highlighted as a Constant. This happens because a contained match doesn't match inside itself in the same position, thus the "myVim" match doesn't overrule the "myWord" match here.

When you look at the colored text, it is like looking at layers of contained items. The contained item is on top of the item it is contained in, thus you see the contained item. When a contained item is transparent, you can look through, thus you see the item it is contained in. In a picture:

```
               look from here

           |   |   |   |   |   |
           V   V   V   V   V   V

              xxxx       yyy          more contained items
           .....................       contained item (transparent)
       ============================    first item
```

The 'x', 'y' and '=' represent a highlighted syntax item. The '.' represent a transparent group.

What you see is:

```
       =======xxxx=======yyy========
```

Thus you look through the transparent "....".

oneline :syn-oneline

The "oneline" argument indicates that the region does not cross a line boundary. It must match completely in the current line. However, when the region has a contained item that does cross a line boundary, it continues on the next line anyway. A contained item can be used to recognize a line continuation pattern. But the "end" pattern must still match in the first line, otherwise the region doesn't even start.

When the start pattern includes a "\n" to match an end-of-line, the end pattern must be found in the same line as where the start pattern ends. The

end pattern may also include an end-of-line. Thus the "oneline" argument means that the end of the start pattern and the start of the end pattern must be within one line. This can't be changed by a skip pattern that matches a line break.

fold   :syn-fold

The "fold" argument makes the fold level increase by one for this item. Example:

```
:syn region myFold start="{" end="}" transparent fold
:syn sync fromstart
:set foldmethod=syntax
```

This will make each {} block form one fold.

The fold will start on the line where the item starts, and end where the item ends. If the start and end are within the same line, there is no fold. The 'foldnestmax' option limits the nesting of syntax folds.
{not available when Vim was compiled without |+folding| feature}

:syn-contains E405 E406 E407 E408 E409

contains={group-name},..

The "contains" argument is followed by a list of syntax group names. These groups will be allowed to begin inside the item (they may extend past the containing group's end). This allows for recursive nesting of matches and regions. If there is no "contains" argument, no groups will be contained in this item. The group names do not need to be defined before they can be used here.

contains=ALL
: If the only item in the contains list is "ALL", then all groups will be accepted inside the item.

contains=ALLBUT,{group-name},..
: If the first item in the contains list is "ALLBUT", then all groups will be accepted inside the item, except the ones that are listed. Example:

```
:syntax region Block start="{" end="}" ... contains=ALLBUT,Function
```

contains=TOP
: If the first item in the contains list is "TOP", then all groups will be accepted that don't have the "contained" argument.

contains=TOP,{group-name},..
: Like "TOP", but excluding the groups that are listed.

contains=CONTAINED
: If the first item in the contains list is "CONTAINED", then all groups will be accepted that have the "contained" argument.

contains=CONTAINED,{group-name},..
: Like "CONTAINED", but excluding the groups that are

listed.

The {group-name} in the "contains" list can be a pattern. All group names that match the pattern will be included (or excluded, if "ALLBUT" is used). The pattern cannot contain white space or a ','. Example:

```
... contains=Comment.*,Keyw[0-3]
```

The matching will be done at moment the syntax command is executed. Groups that are defined later will not be matched. Also, if the current syntax command defines a new group, it is not matched. Be careful: When putting syntax commands in a file you can't rely on groups NOT being defined, because the file may have been sourced before, and ":syn clear" doesn't remove the group names.

The contained groups will also match in the start and end patterns of a region. If this is not wanted, the "matchgroup" argument can be used :syn-matchgroup . The "ms=" and "me=" offsets can be used to change the region where contained items do match. Note that this may also limit the area that is highlighted

containedin={group-name}... :syn-containedin

The "containedin" argument is followed by a list of syntax group names. The item will be allowed to begin inside these groups. This works as if the containing item has a "contains=" argument that includes this item.

The {group-name}... can be used just like for "contains", as explained above.

This is useful when adding a syntax item afterwards. An item can be told to be included inside an already existing item, without changing the definition of that item. For example, to highlight a word in a C comment after loading the C syntax:

```
:syn keyword myword HELP containedin=cComment contained
```

Note that "contained" is also used, to avoid that the item matches at the top level.

Matches for "containedin" are added to the other places where the item can appear. A "contains" argument may also be added as usual. Don't forget that keywords never contain another item, thus adding them to "containedin" won't work.

nextgroup={group-name},.. :syn-nextgroup

The "nextgroup" argument is followed by a list of syntax group names, separated by commas (just like with "contains", so you can also use patterns).

If the "nextgroup" argument is given, the mentioned syntax groups will be tried for a match, after the match or region ends. If none of the groups have a match, highlighting continues normally. If there is a match, this group will be used, even when it is not mentioned in the "contains" field of the current group. This is like giving the mentioned group priority over all other groups. Example:

```
   :syntax match  ccFoobar  "Foo.\{-}Bar"  contains=ccFoo
   :syntax match  ccFoo     "Foo"           contained nextgroup=ccFiller
   :syntax region ccFiller  start="."  matchgroup=ccBar  end="Bar"  contained
```

This will highlight "Foo" and "Bar" differently, and only when there is a "Bar" after "Foo". In the text line below, "f" shows where ccFoo is used for highlighting, and "bbb" where ccBar is used.

```
   Foo asdfasd Bar asdf Foo asdf Bar asdf
   fff         bbb      fff      bbb
```

Note the use of ".\{-}" to skip as little as possible until the next Bar. when ".*" would be used, the "asdf" in between "Bar" and "Foo" would be highlighted according to the "ccFoobar" group, because the ccFooBar match would include the first "Foo" and the last "Bar" in the line (see pattern).

skipwhite :syn-skipwhite
skipnl :syn-skipnl
skipempty :syn-skipempty

These arguments are only used in combination with "nextgroup". They can be used to allow the next group to match after skipping some text:

skipwhite	skip over space and tab characters
skipnl	skip over the end of a line
skipempty	skip over empty lines (implies a "skipnl")

When "skipwhite" is present, the white space is only skipped if there is no next group that matches the white space.

When "skipnl" is present, the match with nextgroup may be found in the next line. This only happens when the current item ends at the end of the current line! When "skipnl" is not present, the nextgroup will only be found after the current item in the same line.

When skipping text while looking for a next group, the matches for other groups are ignored. Only when no next group matches, other items are tried for a match again. This means that matching a next group and skipping white space and <EOL>s has a higher priority than other items.

Example:

```
  :syn match ifstart "\<if.*"     nextgroup=ifline skipwhite skipempty
  :syn match ifline  "[^ \t].*" nextgroup=ifline skipwhite skipempty contained
  :syn match ifline  "endif"    contained
```

Note that the "[^ \t].*" match matches all non-white text. Thus it would also match "endif". Therefore the "endif" match is put last, so that it takes precedence.
Note that this example doesn't work for nested "if"s. You need to add "contains" arguments to make that work (omitted for simplicity of the example).

IMPLICIT CONCEAL :syn-conceal-implicit

:sy[ntax] conceal [on|off]

This defines if the following ":syntax" commands will define keywords, matches or regions with the "conceal" flag set. After ":syn conceal on", all subsequent ":syn keyword", ":syn match" or ":syn region" defined will have the "conceal" flag set implicitly. ":syn conceal off" returns to the normal state where the "conceal" flag must be given explicitly.

:sy[ntax] conceal
This defines if the following ":syntax" commands will define keywords, matches or regions with the "conceal" flag set. After ":syn conceal on", all subsequent ":syn keyword", ":syn match" or ":syn region" defined will have the "conceal" flag set implicitly. ":syn conceal off" returns to the normal state where the "conceal" flag must be given explicitly.

:sy[ntax] conceal
Show either "syntax conceal on" or "syntax conceal off" (translated).

==
7. Syntax patterns :syn-pattern E401 E402

In the syntax commands, a pattern must be surrounded by two identical characters. This is like it works for the ":s" command. The most common to use is the double quote. But if the pattern contains a double quote, you can use another character that is not used in the pattern. Examples:

```
:syntax region Comment  start="/\*"  end="\*/"
:syntax region String   start=+"+    end=+"+   skip=+\\"+
```

See pattern for the explanation of what a pattern is. Syntax patterns are always interpreted like the 'magic' option is set, no matter what the actual value of 'magic' is. And the patterns are interpreted like the 'l' flag is not included in 'cpoptions'. This was done to make syntax files portable and independent of 'compatible' and 'magic' settings.

Try to avoid patterns that can match an empty string, such as "[a-z]*". This slows down the highlighting a lot, because it matches everywhere.

:syn-pattern-offset
The pattern can be followed by a character offset. This can be used to change the highlighted part, and to change the text area included in the match or region (which only matters when trying to match other items). Both are relative to the matched pattern. The character offset for a skip pattern can be used to tell where to continue looking for an end pattern.

The offset takes the form of "{what}={offset}"
The {what} can be one of seven strings:

```
ms      Match Start     offset for the start of the matched text
me      Match End       offset for the end of the matched text
hs      Highlight Start offset for where the highlighting starts
he      Highlight End   offset for where the highlighting ends
rs      Region Start    offset for where the body of a region starts
re      Region End      offset for where the body of a region ends
lc      Leading Context offset past "leading context" of pattern
```

The {offset} can be:

```
s       start of the matched pattern
s+{nr}  start of the matched pattern plus {nr} chars to the right
s-{nr}  start of the matched pattern plus {nr} chars to the left
e       end of the matched pattern
e+{nr}  end of the matched pattern plus {nr} chars to the right
```

e-{nr} end of the matched pattern plus {nr} chars to the left
{nr}   (for "lc" only): start matching {nr} chars right of the start

Examples: "ms=s+1", "hs=e-2", "lc=3".

Although all offsets are accepted after any pattern, they are not always
meaningful. This table shows which offsets are actually used:

```
                    ms   me   hs   he   rs   re   lc
match item          yes  yes  yes  yes  -    -    yes
region item start   yes  -    yes  -    yes  -    yes
region item skip    -    yes  -    -    -    -    yes
region item end     -    yes  -    yes  -    yes  yes
```

Offsets can be concatenated, with a ',' in between. Example:
```
  :syn match String  /"[^"]*"/hs=s+1,he=e-1

    some "string" text
         ^^^^^^               highlighted
```

Notes:
- There must be no white space between the pattern and the character
  offset(s).
- The highlighted area will never be outside of the matched text.
- A negative offset for an end pattern may not always work, because the end
  pattern may be detected when the highlighting should already have stopped.
- Before Vim 7.2 the offsets were counted in bytes instead of characters.
  This didn't work well for multi-byte characters, so it was changed with the
  Vim 7.2 release.
- The start of a match cannot be in a line other than where the pattern
  matched. This doesn't work: "a\nb"ms=e. You can make the highlighting
  start in another line, this does work: "a\nb"hs=e.

Example (match a comment but don't highlight the /* and */):
```
  :syntax region Comment start="/\*"hs=e+1 end="\*/"he=s-1

        /* this is a comment */
          ^^^^^^^^^^^^^^^^^^     highlighted
```

A more complicated Example:
```
  :syn region Exa matchgroup=Foo start="foo"hs=s+2,rs=e+2 matchgroup=Bar end="bar"me=e-1,he

         abcfoostringbarabc
            mmmmmmmmmmm     match
              sssrrreee     highlight start/region/end ("Foo", "Exa" and "Bar")
```

Leading context   :syn-lc   :syn-leading   :syn-context

Note: This is an obsolete feature, only included for backwards compatibility
with previous Vim versions. It's now recommended to use the /\@<= construct
in the pattern.

The "lc" offset specifies leading context -- a part of the pattern that must
be present, but is not considered part of the match. An offset of "lc=n" will

cause Vim to step back n columns before attempting the pattern match, allowing characters which have already been matched in previous patterns to also be used as leading context for this match. This can be used, for instance, to specify that an "escaping" character must not precede the match:

```
:syn match ZNoBackslash "[^\\]z"ms=s+1
:syn match WNoBackslash "[^\\]w"lc=1
:syn match Underline "_\+"

        ___zzzz ___wwww
        ^^^     ^^^     matches Underline
            ^ ^         matches ZNoBackslash
                  ^^^^  matches WNoBackslash
```

The "ms" offset is automatically set to the same value as the "lc" offset, unless you set "ms" explicitly.

Multi-line patterns :syn-multi-line

The patterns can include "\n" to match an end-of-line. Mostly this works as expected, but there are a few exceptions.

When using a start pattern with an offset, the start of the match is not allowed to start in a following line. The highlighting can start in a following line though. Using the "\zs" item also requires that the start of the match doesn't move to another line.

The skip pattern can include the "\n", but the search for an end pattern will continue in the first character of the next line, also when that character is matched by the skip pattern. This is because redrawing may start in any line halfway a region and there is no check if the skip pattern started in a previous line. For example, if the skip pattern is "a\nb" and an end pattern is "b", the end pattern does match in the second line of this:

```
x x a
b x x
```

Generally this means that the skip pattern should not match any characters after the "\n".

External matches :syn-ext-match

These extra regular expression items are available in region patterns:

/\z(/\z(\) E50 E52 E879

\z(\) Marks the sub-expression as "external", meaning that it can be accessed from another pattern match. Currently only usable in defining a syntax region start pattern.

/\z1 /\z2 /\z3 /\z4 /\z5
/\z6 /\z7 /\z8 /\z9 E66 E67

\z1 ... \z9 Matches the same string that was matched by the corresponding sub-expression in a previous start pattern match.

Sometimes the start and end patterns of a region need to share a common sub-expression. A common example is the "here" document in Perl and many Unix shells. This effect can be achieved with the "\z" special regular expression items, which marks a sub-expression as "external", in the sense that it can be referenced from outside the pattern in which it is defined. The here-document example, for instance, can be done like this:

```
:syn region hereDoc start="<<\z(\I\i*\)" end="^\z1$"
```

As can be seen here, the \z actually does double duty. In the start pattern, it marks the "\(\I\i*\)" sub-expression as external; in the end pattern, it changes the \z1 back-reference into an external reference referring to the first external sub-expression in the start pattern. External references can also be used in skip patterns:

```
:syn region foo start="start \(\I\i*\)" skip="not end \z1" end="end \z1"
```

Note that normal and external sub-expressions are completely orthogonal and indexed separately; for instance, if the pattern "\z(..\)\(..\)" is applied to the string "aabb", then \1 will refer to "bb" and \z1 will refer to "aa". Note also that external sub-expressions cannot be accessed as back-references within the same pattern like normal sub-expressions. If you want to use one sub-expression as both a normal and an external sub-expression, you can nest the two, as in "\(\z(...\)\)".

Note that only matches within a single line can be used. Multi-line matches cannot be referred to.

==
8. Syntax clusters :syn-cluster E400

```
:sy[ntax] cluster {cluster-name} [contains={group-name}..]
                                 [add={group-name}..]
                                 [remove={group-name}..]
```

This command allows you to cluster a list of syntax groups together under a single name.

```
        contains={group-name}..
                The cluster is set to the specified list of groups.
        add={group-name}..
                The specified groups are added to the cluster.
        remove={group-name}..
                The specified groups are removed from the cluster.
```

A cluster so defined may be referred to in a contains=.., containedin=.., nextgroup=.., add=.. or remove=.. list with a "@" prefix. You can also use this notation to implicitly declare a cluster before specifying its contents.

Example:

```
   :syntax match Thing "# [^#]\+ #" contains=@ThingMembers
   :syntax cluster ThingMembers contains=ThingMember1,ThingMember2
```

As the previous example suggests, modifications to a cluster are effectively retroactive; the membership of the cluster is checked at the last minute, so to speak:

```
   :syntax keyword A aaa
   :syntax keyword B bbb
   :syntax cluster AandB contains=A
   :syntax match Stuff "( aaa bbb )" contains=@AandB
   :syntax cluster AandB add=B    " now both keywords are matched in Stuff
```

This also has implications for nested clusters:

```
   :syntax keyword A aaa
   :syntax keyword B bbb
   :syntax cluster SmallGroup contains=B
   :syntax cluster BigGroup contains=A,@SmallGroup
   :syntax match Stuff "( aaa bbb )" contains=@BigGroup
   :syntax cluster BigGroup remove=B    " no effect, since B isn't in BigGroup
   :syntax cluster SmallGroup remove=B  " now bbb isn't matched within Stuff
```

E848

The maximum number of clusters is 9767.

==========

9. Including syntax files :syn-include E397

It is often useful for one language's syntax file to include a syntax file for a related language. Depending on the exact relationship, this can be done in two different ways:

- If top-level syntax items in the included syntax file are to be allowed at the top level in the including syntax, you can simply use the :runtime command:

```
  " In cpp.vim:
  :runtime! syntax/c.vim
  :unlet b:current_syntax
```

- If top-level syntax items in the included syntax file are to be contained within a region in the including syntax, you can use the ":syntax include" command:

:sy[ntax] include [@{grouplist-name}] {file-name}

All syntax items declared in the included file will have the "contained" flag added. In addition, if a group list is specified, all top-level syntax items in the included file will be added to that list.

```
   " In perl.vim:
   :syntax include @Pod <sfile>:p:h/pod.vim
   :syntax region perlPOD start="^=head" end="^=cut" contains=@Pod
```

When {file-name} is an absolute path (starts with "/", "c:", "$VAR" or "<sfile>") that file is sourced. When it is a relative path (e.g., "syntax/pod.vim") the file is searched for in 'runtimepath'. All matching files are loaded. Using a relative path is recommended, because it allows a user to replace the included file with his own version, without replacing the file that does the ":syn

include".

E847

The maximum number of includes is 999.

==
10. Synchronizing :syn-sync E403 E404

Vim wants to be able to start redrawing in any position in the document. To make this possible it needs to know the syntax state at the position where redrawing starts.

:sy[ntax] sync [ccomment [group-name] | minlines={N} | ...]

There are four ways to synchronize:
1. Always parse from the start of the file.
   :syn-sync-first
2. Based on C-style comments. Vim understands how C-comments work and can figure out if the current line starts inside or outside a comment.
   :syn-sync-second
3. Jumping back a certain number of lines and start parsing there.
   :syn-sync-third
4. Searching backwards in the text for a pattern to sync on.
   :syn-sync-fourth

:syn-sync-maxlines :syn-sync-minlines
For the last three methods, the line range where the parsing can start is limited by "minlines" and "maxlines".

If the "minlines={N}" argument is given, the parsing always starts at least that many lines backwards. This can be used if the parsing may take a few lines before it's correct, or when it's not possible to use syncing.

If the "maxlines={N}" argument is given, the number of lines that are searched for a comment or syncing pattern is restricted to N lines backwards (after adding "minlines"). This is useful if you have few things to sync on and a slow machine. Example:
```
:syntax sync maxlines=500 ccomment
```

:syn-sync-linebreaks
When using a pattern that matches multiple lines, a change in one line may cause a pattern to no longer match in a previous line. This means has to start above where the change was made. How many lines can be specified with the "linebreaks" argument. For example, when a pattern may include one line break use this:
```
:syntax sync linebreaks=1
```
The result is that redrawing always starts at least one line before where a change was made. The default value for "linebreaks" is zero. Usually the value for "minlines" is bigger than "linebreaks".

First syncing method: :syn-sync-first

```
:syntax sync fromstart
```

The file will be parsed from the start. This makes syntax highlighting
accurate, but can be slow for long files. Vim caches previously parsed text,
so that it's only slow when parsing the text for the first time. However,
when making changes some part of the text needs to be parsed again (worst
case: to the end of the file).

Using "fromstart" is equivalent to using "minlines" with a very large number.

Second syncing method: :syn-sync-second :syn-sync-ccomment

For the second method, only the "ccomment" argument needs to be given.
Example:
```
:syntax sync ccomment
```

When Vim finds that the line where displaying starts is inside a C-style
comment, the last region syntax item with the group-name "Comment" will be
used. This requires that there is a region with the group-name "Comment"!
An alternate group name can be specified, for example:
```
:syntax sync ccomment javaComment
```
This means that the last item specified with "syn region javaComment" will be
used for the detected C comment region. This only works properly if that
region does have a start pattern "\/*" and an end pattern "*\/".

The "maxlines" argument can be used to restrict the search to a number of
lines. The "minlines" argument can be used to at least start a number of
lines back (e.g., for when there is some construct that only takes a few
lines, but it hard to sync on).

Note: Syncing on a C comment doesn't work properly when strings are used
that cross a line and contain a "*/". Since letting strings cross a line
is a bad programming habit (many compilers give a warning message), and the
chance of a "*/" appearing inside a comment is very small, this restriction
is hardly ever noticed.

Third syncing method: :syn-sync-third

For the third method, only the "minlines={N}" argument needs to be given.
Vim will subtract {N} from the line number and start parsing there. This
means {N} extra lines need to be parsed, which makes this method a bit slower.
Example:
```
:syntax sync minlines=50
```

"lines" is equivalent to "minlines" (used by older versions).

Fourth syncing method: :syn-sync-fourth

The idea is to synchronize on the end of a few specific regions, called a
sync pattern. Only regions can cross lines, so when we find the end of some
region, we might be able to know in which syntax item we are. The search
starts in the line just above the one where redrawing starts. From there

the search continues backwards in the file.

This works just like the non-syncing syntax items. You can use contained matches, nextgroup, etc. But there are a few differences:
- Keywords cannot be used.
- The syntax items with the "sync" keyword form a completely separated group of syntax items. You can't mix syncing groups and non-syncing groups.
- The matching works backwards in the buffer (line by line), instead of forwards.
- A line continuation pattern can be given. It is used to decide which group of lines need to be searched like they were one line. This means that the search for a match with the specified items starts in the first of the consecutive that contain the continuation pattern.
- When using "nextgroup" or "contains", this only works within one line (or group of continued lines).
- When using a region, it must start and end in the same line (or group of continued lines). Otherwise the end is assumed to be at the end of the line (or group of continued lines).
- When a match with a sync pattern is found, the rest of the line (or group of continued lines) is searched for another match. The last match is used. This is used when a line can contain both the start end the end of a region (e.g., in a C-comment like /* this */, the last "*/" is used).

There are two ways how a match with a sync pattern can be used:
1. Parsing for highlighting starts where redrawing starts (and where the search for the sync pattern started). The syntax group that is expected to be valid there must be specified. This works well when the regions that cross lines cannot contain other regions.
2. Parsing for highlighting continues just after the match. The syntax group that is expected to be present just after the match must be specified. This can be used when the previous method doesn't work well. It's much slower, because more text needs to be parsed.

Both types of sync patterns can be used at the same time.

Besides the sync patterns, other matches and regions can be specified, to avoid finding unwanted matches.

[The reason that the sync patterns are given separately, is that mostly the search for the sync point can be much simpler than figuring out the highlighting. The reduced number of patterns means it will go (much) faster.]

syn-sync-grouphere E393 E394

:syntax sync match {sync-group-name} grouphere {group-name} "pattern" ..

Define a match that is used for syncing. {group-name} is the name of a syntax group that follows just after the match. Parsing of the text for highlighting starts just after the match. A region must exist for this {group-name}. The first one defined will be used. "NONE" can be used for when there is no syntax group after the match.

syn-sync-groupthere

:syntax sync match {sync-group-name} groupthere {group-name} "pattern" ..

Like "grouphere", but {group-name} is the name of a syntax group that is to be used at the start of the line where searching for the sync point started. The text between the match and the start of the sync pattern searching is assumed not to change the syntax highlighting. For example, in C you could search backwards for "/*" and "*/". If "/*" is found first, you know that you are inside a comment, so the "groupthere" is "cComment". If "*/" is found first, you know that you are not in a comment, so the "groupthere" is "NONE". (in practice it's a bit more complicated, because the "/*" and "*/" could appear inside a string. That's left as an exercise to the reader...).

:syntax sync match ..
:syntax sync region ..

Without a "groupthere" argument. Define a region or match that is skipped while searching for a sync point.

syn-sync-linecont

:syntax sync linecont {pattern}

When {pattern} matches in a line, it is considered to continue in the next line. This means that the search for a sync point will consider the lines to be concatenated.

If the "maxlines={N}" argument is given too, the number of lines that are searched for a match is restricted to N. This is useful if you have very few things to sync on and a slow machine. Example:

```
:syntax sync maxlines=100
```

You can clear all sync settings with:

```
:syntax sync clear
```

You can clear specific sync patterns with:

```
:syntax sync clear {sync-group-name} ..
```

==

11. Listing syntax items :syntax :sy :syn :syn-list

This command lists all the syntax items:

:sy[ntax] [list]

To show the syntax items for one syntax group:

:sy[ntax] list {group-name}

To list the syntax groups in one cluster: E392

:sy[ntax] list @{cluster-name}

See above for other arguments for the ":syntax" command.

Note that the ":syntax" command can be abbreviated to ":sy", although ":syn" is mostly used, because it looks better.

==
12. Highlight command   :highlight   :hi   E28   E411   E415

There are three types of highlight groups:
- The ones used for specific languages. For these the name starts with the
  name of the language. Many of these don't have any attributes, but are
  linked to a group of the second type.
- The ones used for all syntax languages.
- The ones used for the 'highlight' option.
                                                              hitest.vim
You can see all the groups currently active with this command:
    :so $VIMRUNTIME/syntax/hitest.vim
This will open a new window containing all highlight group names, displayed
in their own color.

                                                  :colo   :colorscheme   E185
:colo[rscheme]   Output the name of the currently active color scheme.
                        This is basically the same as
                                :echo g:colors_name
                       In case g:colors_name has not been defined :colo will
                        output "default". When compiled without the +eval
                        feature it will output "unknown".

:colo[rscheme] {name}   Load color scheme {name}. This searches 'runtimepath'
                        for the file "colors/{name}.vim". The first one that
                        is found is loaded.
                        Also searches all plugins in 'packpath', first below
                        "start" and then under "opt".

                        Doesn't work recursively, thus you can't use
                        ":colorscheme" in a color scheme script.

                        To customize a colorscheme use another name, e.g.
                        "~/.vim/colors/mine.vim", and use `:runtime` to load
                        the original colorscheme:
                                runtime colors/evening.vim
                                hi Statement ctermfg=Blue guifg=Blue

                       Before the color scheme will be loaded the
                         ColorSchemePre autocommand event is triggered.
                        After the color scheme has been loaded the
                         ColorScheme autocommand event is triggered.
                        For info about writing a colorscheme file:
                                :edit $VIMRUNTIME/colors/README.txt

:hi[ghlight]   List all the current highlight groups that have
                        attributes set.

:hi[ghlight] {group-name}
                        List one highlight group.

:hi[ghlight] clear   Reset all highlighting to the defaults. Removes all
                        highlighting for groups added by the user!

Uses the current value of 'background' to decide which
default colors to use.

:hi[ghlight] clear {group-name}
:hi[ghlight] {group-name} NONE
Disable the highlighting for one highlight group. It
is _not_ set back to the default colors.

:hi[ghlight] [default] {group-name} {key}={arg} ..
Add a highlight group, or change the highlighting for
an existing group.
See highlight-args for the {key}={arg} arguments.
See :highlight-default for the optional [default]
argument.

Normally a highlight group is added once when starting up. This sets the
default values for the highlighting. After that, you can use additional
highlight commands to change the arguments that you want to set to non-default
values. The value "NONE" can be used to switch the value off or go back to
the default value.

A simple way to change colors is with the :colorscheme command. This loads
a file with ":highlight" commands such as this:

```
:hi Comment  gui=bold
```

Note that all settings that are not included remain the same, only the
specified field is used, and settings are merged with previous ones. So, the
result is like this single command has been used:

```
:hi Comment  term=bold ctermfg=Cyan guifg=#80a0ff gui=bold
```

:highlight-verbose
When listing a highlight group and 'verbose' is non-zero, the listing will
also tell where it was last set. Example:

```
:verbose hi Comment
Comment        xxx term=bold ctermfg=4 guifg=Blue
    Last set from /home/mool/vim/vim7/runtime/syntax/syncolor.vim
```

When ":hi clear" is used then the script where this command is used will be
mentioned for the default values. See :verbose-cmd for more information.

highlight-args E416 E417 E423
There are three types of terminals for highlighting:
term a normal terminal (vt100, xterm)
cterm a color terminal (MS-DOS console, color-xterm, these have the "Co"
termcap entry)
gui the GUI

For each type the highlighting can be given. This makes it possible to use
the same syntax file on all terminals, and use the optimal highlighting.

1. highlight arguments for normal terminals

bold underline undercurl

                                        inverse   italic   standout
                                        nocombine   strikethrough
term={attr-list}   attr-list   highlight-term   E418
        attr-list is a comma separated list (without spaces) of the
        following items (in any order):
                bold
                underline
                undercurl   not always available
                strikethrough   not always available
                reverse
                inverse   same as reverse
                italic
                standout
                nocombine   override attributes instead of combining them
                NONE   no attributes used (used to reset it)

        Note that "bold" can be used here and by using a bold font. They
        have the same effect.
        "undercurl" is a curly underline. When "undercurl" is not possible
        then "underline" is used. In general "undercurl" and "strikethrough"
        is only available in the GUI. The color is set with highlight-guisp .

start={term-list}   highlight-start   E422
stop={term-list}   term-list   highlight-stop
        These lists of terminal codes can be used to get
        non-standard attributes on a terminal.

        The escape sequence specified with the "start" argument
        is written before the characters in the highlighted
        area. It can be anything that you want to send to the
        terminal to highlight this area. The escape sequence
        specified with the "stop" argument is written after the
        highlighted area. This should undo the "start" argument.
        Otherwise the screen will look messed up.

        The {term-list} can have two forms:

        1. A string with escape sequences.
           This is any string of characters, except that it can't start with
           "t_" and blanks are not allowed. The <> notation is recognized
           here, so you can use things like "<Esc>" and "<Space>". Example:
                start=<Esc>[27h;<Esc>[<Space>r;

        2. A list of terminal codes.
           Each terminal code has the form "t_xx", where "xx" is the name of
           the termcap entry. The codes have to be separated with commas.
           White space is not allowed. Example:
                start=t_C1,t_BL
           The terminal codes must exist for this to work.

2. highlight arguments for color terminals

cterm={attr-list}   highlight-cterm

See above for the description of {attr-list} attr-list .
The "cterm" argument is likely to be different from "term", when
colors are used. For example, in a normal terminal comments could
be underlined, in a color terminal they can be made Blue.
Note: Many terminals (e.g., DOS console) can't mix these attributes
with coloring. Use only one of "cterm=" OR "ctermfg=" OR "ctermbg=".

ctermfg={color-nr} highlight-ctermfg E421
ctermbg={color-nr} highlight-ctermbg
The {color-nr} argument is a color number. Its range is zero to
(not including) the number given by the termcap entry "Co".
The actual color with this number depends on the type of terminal
and its settings. Sometimes the color also depends on the settings of
"cterm". For example, on some systems "cterm=bold ctermfg=3" gives
another color, on others you just get color 3.

For an xterm this depends on your resources, and is a bit
unpredictable. See your xterm documentation for the defaults. The
colors for a color-xterm can be changed from the .Xdefaults file.
Unfortunately this means that it's not possible to get the same colors
for each user. See xterm-color for info about color xterms.

The MSDOS standard colors are fixed (in a console window), so these
have been used for the names. But the meaning of color names in X11
are fixed, so these color settings have been used, to make the
highlighting settings portable (complicated, isn't it?). The
following names are recognized, with the color number used:

cterm-colors

NR-16	NR-8	COLOR NAME
0	0	Black
1	4	DarkBlue
2	2	DarkGreen
3	6	DarkCyan
4	1	DarkRed
5	5	DarkMagenta
6	3	Brown, DarkYellow
7	7	LightGray, LightGrey, Gray, Grey
8	0*	DarkGray, DarkGrey
9	4*	Blue, LightBlue
10	2*	Green, LightGreen
11	6*	Cyan, LightCyan
12	1*	Red, LightRed
13	5*	Magenta, LightMagenta
14	3*	Yellow, LightYellow
15	7*	White

The number under "NR-16" is used for 16-color terminals ('t_Co'
greater than or equal to 16). The number under "NR-8" is used for
8-color terminals ('t_Co' less than 16). The '*' indicates that the
bold attribute is set for ctermfg. In many 8-color terminals (e.g.,
"linux"), this causes the bright colors to appear. This doesn't work
for background colors! Without the '*' the bold attribute is removed.
If you want to set the bold attribute in a different way, put a

"cterm=" argument AFTER the "ctermfg=" or "ctermbg=" argument. Or use a number instead of a color name.

The case of the color names is ignored.
Note that for 16 color ansi style terminals (including xterms), the numbers in the NR-8 column is used. Here '*' means 'add 8' so that Blue is 12, DarkGray is 8 etc.

Note that for some color terminals these names may result in the wrong colors!

You can also use "NONE" to remove the color.

:hi-normal-cterm
When setting the "ctermfg" or "ctermbg" colors for the Normal group, these will become the colors used for the non-highlighted text.
Example:
```
:highlight Normal ctermfg=grey ctermbg=darkblue
```
When setting the "ctermbg" color for the Normal group, the 'background' option will be adjusted automatically, under the condition that the color is recognized and 'background' was not set explicitly. This causes the highlight groups that depend on 'background' to change! This means you should set the colors for Normal first, before setting other colors.
When a colorscheme is being used, changing 'background' causes it to be reloaded, which may reset all colors (including Normal). First delete the "g:colors_name" variable when you don't want this.

When you have set "ctermfg" or "ctermbg" for the Normal group, Vim needs to reset the color when exiting. This is done with the "op" termcap entry t_op . If this doesn't work correctly, try setting the 't_op' option in your .vimrc.

E419 E420
When Vim knows the normal foreground and background colors, "fg" and "bg" can be used as color names. This only works after setting the colors for the Normal group and for the MS-DOS console. Example, for reverse video:
```
:highlight Visual ctermfg=bg ctermbg=fg
```
Note that the colors are used that are valid at the moment this command are given. If the Normal group colors are changed later, the "fg" and "bg" colors will not be adjusted.

3. highlight arguments for the GUI

gui={attr-list} highlight-gui
These give the attributes to use in the GUI mode.
See attr-list for a description.
Note that "bold" can be used here and by using a bold font. They have the same effect.
Note that the attributes are ignored for the "Normal" group.

font={font-name} highlight-font
font-name is the name of a font, as it is used on the system Vim

runs on. For X11 this is a complicated name, for example:
font=-misc-fixed-bold-r-normal--14-130-75-75-c-70-iso8859-1

The font-name "NONE" can be used to revert to the default font.
When setting the font for the "Normal" group, this becomes the default
font (until the 'guifont' option is changed; the last one set is
used).
The following only works with Motif and Athena, not with other GUIs:
When setting the font for the "Menu" group, the menus will be changed.
When setting the font for the "Tooltip" group, the tooltips will be
changed.
All fonts used, except for Menu and Tooltip, should be of the same
character size as the default font! Otherwise redrawing problems will
occur.
To use a font name with an embedded space or other special character,
put it in single quotes. The single quote cannot be used then.
Example:
    :hi comment font='Monospace 10'

guifg={color-name}   highlight-guifg
guibg={color-name}   highlight-guibg
guisp={color-name}   highlight-guisp
These give the foreground (guifg), background (guibg) and special
(guisp) color to use in the GUI. "guisp" is used for undercurl and
strikethrough.
There are a few special names:
        NONE   no color (transparent)
        bg   use normal background color
        background   use normal background color
        fg   use normal foreground color
        foreground   use normal foreground color
To use a color name with an embedded space or other special character,
put it in single quotes. The single quote cannot be used then.
Example:
    :hi comment guifg='salmon pink'

                                                            gui-colors
Suggested color names (these are available on most systems):
    Red   LightRed   DarkRed
    Green   LightGreen   DarkGreen   SeaGreen
    Blue   LightBlue   DarkBlue   SlateBlue
    Cyan   LightCyan   DarkCyan
    Magenta   LightMagenta   DarkMagenta
    Yellow   LightYellow   Brown   DarkYellow
    Gray   LightGray   DarkGray
    Black   White
    Orange   Purple   Violet

In the Win32 GUI version, additional system colors are available. See
 win32-colors .

You can also specify a color by its Red, Green and Blue values.
The format is "#rrggbb", where
        "rr"   is the Red value

"gg"   is the Green value
"bb"   is the Blue value
All values are hexadecimal, range from "00" to "ff". Examples:
:highlight Comment guifg=#11f0c3 guibg=#ff00ff

highlight-groups highlight-default
These are the default highlighting groups. These groups are used by the 'highlight' option default. Note that the highlighting depends on the value of 'background'. You can see the current settings with the ":highlight" command.

hl-ColorColumn
ColorColumn used for the columns set with 'colorcolumn'

hl-Conceal
Conceal placeholder characters substituted for concealed text (see 'conceallevel')

hl-Cursor
Cursor the character under the cursor

hl-CursorIM
CursorIM like Cursor, but used when in IME mode CursorIM

hl-CursorColumn
CursorColumn the screen column that the cursor is in when 'cursorcolumn' is set

hl-CursorLine
CursorLine the screen line that the cursor is in when 'cursorline' is set

hl-Directory
Directory directory names (and other special names in listings)

hl-DiffAdd
DiffAdd diff mode: Added line diff.txt

hl-DiffChange
DiffChange diff mode: Changed line diff.txt

hl-DiffDelete
DiffDelete diff mode: Deleted line diff.txt

hl-DiffText
DiffText diff mode: Changed text within a changed line diff.txt

hl-EndOfBuffer
EndOfBuffer filler lines (~) after the last line in the buffer. By default, this is highlighted like hl-NonText .

hl-ErrorMsg
ErrorMsg error messages on the command line

hl-VertSplit
VertSplit the column separating vertically split windows

hl-Folded
Folded line used for closed folds

hl-FoldColumn
FoldColumn 'foldcolumn'

hl-SignColumn
SignColumn column where signs are displayed

hl-IncSearch
IncSearch 'incsearch' highlighting; also used for the text replaced with ":s///c"

hl-LineNr
LineNr Line number for ":number" and ":#" commands, and when 'number' or 'relativenumber' option is set.

hl-CursorLineNr

CursorLineNr Like LineNr when 'cursorline' or 'relativenumber' is set for the cursor line.

hl-MatchParen

MatchParen The character under the cursor or just before it, if it is a paired bracket, and its match. pi_paren.txt

hl-ModeMsg

ModeMsg 'showmode' message (e.g., "-- INSERT --")

hl-MoreMsg

MoreMsg more-prompt

hl-NonText

NonText '@' at the end of the window, characters from 'showbreak' and other characters that do not really exist in the text (e.g., ">" displayed when a double-wide character doesn't fit at the end of the line).

hl-Normal

Normal normal text

hl-Pmenu

Pmenu Popup menu: normal item.

hl-PmenuSel

PmenuSel Popup menu: selected item.

hl-PmenuSbar

PmenuSbar Popup menu: scrollbar.

hl-PmenuThumb

PmenuThumb Popup menu: Thumb of the scrollbar.

hl-Question

Question hit-enter prompt and yes/no questions

hl-QuickFixLine

QuickFixLine Current quickfix item in the quickfix window.

hl-Search

Search Last search pattern highlighting (see 'hlsearch').
Also used for similar items that need to stand out.

hl-SpecialKey

SpecialKey Meta and special keys listed with ":map", also for text used to show unprintable characters in the text, 'listchars'.
Generally: text that is displayed differently from what it really is.

hl-SpellBad

SpellBad Word that is not recognized by the spellchecker. spell
This will be combined with the highlighting used otherwise.

hl-SpellCap

SpellCap Word that should start with a capital. spell
This will be combined with the highlighting used otherwise.

hl-SpellLocal

SpellLocal Word that is recognized by the spellchecker as one that is used in another region. spell
This will be combined with the highlighting used otherwise.

hl-SpellRare

SpellRare Word that is recognized by the spellchecker as one that is hardly ever used. spell
This will be combined with the highlighting used otherwise.

hl-StatusLine

StatusLine status line of current window

hl-StatusLineNC
StatusLineNC status lines of not-current windows
              Note: if this is equal to "StatusLine" Vim will use "^^^" in
              the status line of the current window.
hl-StatusLineTerm
StatusLineTerm status line of current window, if it is a terminal window.
hl-StatusLineTermNC
StatusLineTermNC status lines of not-current windows that is a terminal
              window.
hl-TabLine
TabLine   tab pages line, not active tab page label
hl-TabLineFill
TabLineFill   tab pages line, where there are no labels
hl-TabLineSel
TabLineSel   tab pages line, active tab page label
hl-Terminal
Terminal   terminal window (see terminal-size-color)
hl-Title
Title   titles for output from ":set all", ":autocmd" etc.
hl-Visual
Visual   Visual mode selection
hl-VisualNOS
VisualNOS   Visual mode selection when vim is "Not Owning the Selection".
              Only X11 Gui's gui-x11 and xterm-clipboard supports this.
hl-WarningMsg
WarningMsg   warning messages
hl-WildMenu
WildMenu   current match in 'wildmenu' completion

hl-User1 hl-User1..9 hl-User9
The 'statusline' syntax allows the use of 9 different highlights in the
statusline and ruler (via 'rulerformat'). The names are User1 to User9.

For the GUI you can use the following groups to set the colors for the menu,
scrollbars and tooltips. They don't have defaults. This doesn't work for the
Win32 GUI. Only three highlight arguments have any effect here: font, guibg,
and guifg.

hl-Menu
Menu   Current font, background and foreground colors of the menus.
              Also used for the toolbar.
              Applicable highlight arguments: font, guibg, guifg.

              NOTE: For Motif and Athena the font argument actually
              specifies a fontset at all times, no matter if 'guifontset' is
              empty, and as such it is tied to the current :language when
              set.

hl-Scrollbar
Scrollbar   Current background and foreground of the main window's
              scrollbars.
              Applicable highlight arguments: guibg, guifg.

hl-Tooltip

```
Tooltip         Current font, background and foreground of the tooltips.
                Applicable highlight arguments: font, guibg, guifg.

                NOTE: For Motif and Athena the font argument actually
                specifies a fontset at all times, no matter if 'guifontset' is
                empty, and as such it is tied to the current  :language  when
                set.

==============================================================================
13. Linking groups              :hi-link   :highlight-link   E412   E413

When you want to use the same highlighting for several syntax groups, you
can do this more easily by linking the groups into one common highlight
group, and give the color attributes only for that group.

To set a link:

    :hi[ghlight][!] [default] link {from-group} {to-group}

To remove a link:

    :hi[ghlight][!] [default] link {from-group} NONE

Notes:                                                          E414
- If the {from-group} and/or {to-group} doesn't exist, it is created.  You
  don't get an error message for a non-existing group.
- As soon as you use a ":highlight" command for a linked group, the link is
  removed.
- If there are already highlight settings for the {from-group}, the link is
  not made, unless the '!' is given.  For a ":highlight link" command in a
  sourced file, you don't get an error message.  This can be used to skip
  links for groups that already have settings.

                                            :hi-default   :highlight-default
The [default] argument is used for setting the default highlighting for a
group.  If highlighting has already been specified for the group the command
will be ignored.  Also when there is an existing link.

Using [default] is especially useful to overrule the highlighting of a
specific syntax file.  For example, the C syntax file contains:
        :highlight default link cComment Comment
If you like Question highlighting for C comments, put this in your vimrc file:
        :highlight link cComment Question
Without the "default" in the C syntax file, the highlighting would be
overruled when the syntax file is loaded.

==============================================================================
14. Cleaning up                                         :syn-clear   E391

If you want to clear the syntax stuff for the current buffer, you can use this
command:
  :syntax clear

This command should be used when you want to switch off syntax highlighting,
```

or when you want to switch to using another syntax. It's normally not needed
in a syntax file itself, because syntax is cleared by the autocommands that
load the syntax file.
The command also deletes the "b:current_syntax" variable, since no syntax is
loaded after this command.

If you want to disable syntax highlighting for all buffers, you need to remove
the autocommands that load the syntax files:
  :syntax off

What this command actually does, is executing the command
  :source $VIMRUNTIME/syntax/nosyntax.vim
See the "nosyntax.vim" file for details. Note that for this to work
$VIMRUNTIME must be valid. See $VIMRUNTIME .

To clean up specific syntax groups for the current buffer:
  :syntax clear {group-name} ..
This removes all patterns and keywords for {group-name}.

To clean up specific syntax group lists for the current buffer:
  :syntax clear @{grouplist-name} ..
This sets {grouplist-name}'s contents to an empty list.

                                                    :syntax-reset   :syn-reset
If you have changed the colors and messed them up, use this command to get the
defaults back:

  :syntax reset

It is a bit of a wrong name, since it does not reset any syntax items, it only
affects the highlighting.

This doesn't change the colors for the 'highlight' option.

Note that the syntax colors that you set in your vimrc file will also be reset
back to their Vim default.
Note that if you are using a color scheme, the colors defined by the color
scheme for syntax highlighting will be lost.

What this actually does is:

        let g:syntax_cmd = "reset"
        runtime! syntax/syncolor.vim

Note that this uses the 'runtimepath' option.

                                                              syncolor
If you want to use different colors for syntax highlighting, you can add a Vim
script file to set these colors. Put this file in a directory in
'runtimepath' which comes after $VIMRUNTIME, so that your settings overrule
the default colors. This way these colors will be used after the ":syntax
reset" command.

For Unix you can use the file ~/.vim/after/syntax/syncolor.vim. Example:

```
        if &background == "light"
          highlight comment ctermfg=darkgreen guifg=darkgreen
        else
          highlight comment ctermfg=green guifg=green
        endif
```

E679

Do make sure this syncolor.vim script does not use a "syntax on", set the 'background' option or uses a "colorscheme" command, because it results in an endless loop.

Note that when a color scheme is used, there might be some confusion whether your defined colors are to be used or the colors from the scheme. This depends on the color scheme file. See :colorscheme .

syntax_cmd

The "syntax_cmd" variable is set to one of these values when the syntax/syncolor.vim files are loaded:

"on"	":syntax on" command. Highlight colors are overruled but links are kept
"enable"	":syntax enable" command. Only define colors for groups that don't have highlighting yet. Use ":syntax default".
"reset"	":syntax reset" command or loading a color scheme. Define all the colors.
"skip"	Don't define colors. Used to skip the default settings when a syncolor.vim file earlier in 'runtimepath' has already set them.

==

15. Highlighting tags tag-highlight

If you want to highlight all the tags in your file, you can use the following mappings.

```
        <F11>   -- Generate tags.vim file, and highlight tags.
        <F12>   -- Just highlight tags based on existing tags.vim file.

  :map <F11>  :sp tags<CR>:%s/^\([^     :]*:\)\=\([^    ]*\).*/syntax keyword Tag \2/<CR>:w
  :map <F12>  :so tags.vim<CR>
```

WARNING: The longer the tags file, the slower this will be, and the more memory Vim will consume.

Only highlighting typedefs, unions and structs can be done too. For this you must use Exuberant ctags (found at http://ctags.sf.net).

Put these lines in your Makefile:

```
# Make a highlight file for types.  Requires Exuberant ctags and awk
types: types.vim
types.vim: *.[ch]
        ctags --c-kinds=gstu -o- *.[ch] |\
                awk 'BEGIN{printf("syntax keyword Type\t")}\
```

```
                    {printf("%s ", $$1)}END{print ""}' > $@
```

And put these lines in your .vimrc:

```
   " load the types.vim highlighting file, if it exists
   autocmd BufRead,BufNewFile *.[ch] let fname = expand('<afile>:p:h') . '/types.vim'
   autocmd BufRead,BufNewFile *.[ch] if filereadable(fname)
   autocmd BufRead,BufNewFile *.[ch]   exe 'so ' . fname
   autocmd BufRead,BufNewFile *.[ch] endif
```

==
16. Window-local syntax   :ownsyntax

Normally all windows on a buffer share the same syntax settings. It is
possible, however, to set a particular window on a file to have its own
private syntax setting. A possible example would be to edit LaTeX source
with conventional highlighting in one window, while seeing the same source
highlighted differently (so as to hide control sequences and indicate bold,
italic etc regions) in another. The 'scrollbind' option is useful here.

To set the current window to have the syntax "foo", separately from all other
windows on the buffer:

```
   :ownsyntax foo
```

                                                        w:current_syntax
This will set the "w:current_syntax" variable to "foo". The value of
"b:current_syntax" does not change. This is implemented by saving and
restoring "b:current_syntax", since the syntax files do set
"b:current_syntax". The value set by the syntax file is assigned to
"w:current_syntax".
Note: This resets the 'spell', 'spellcapcheck' and 'spellfile' options.

Once a window has its own syntax, syntax commands executed from other windows
on the same buffer (including :syntax clear) have no effect. Conversely,
syntax commands executed from that window do not affect other windows on the
same buffer.

A window with its own syntax reverts to normal behavior when another buffer
is loaded into that window or the file is reloaded.
When splitting the window, the new window will use the original syntax.

==
17. Color xterms   xterm-color   color-xterm

Most color xterms have only eight colors. If you don't get colors with the
default setup, it should work with these lines in your .vimrc:

```
   :if &term =~ "xterm"
   :  if has("terminfo")
   :    set t_Co=8
   :    set t_Sf=<Esc>[3%p1%dm
   :    set t_Sb=<Esc>[4%p1%dm
   :  else
   :    set t_Co=8
   :    set t_Sf=<Esc>[3%dm
   :    set t_Sb=<Esc>[4%dm
```

```
   :  endif
   :endif
       [<Esc> is a real escape, type CTRL-V <Esc>]
```

You might want to change the first "if" to match the name of your terminal,
e.g. "dtterm" instead of "xterm".

Note: Do these settings BEFORE doing ":syntax on". Otherwise the colors may
be wrong.

xiterm rxvt

The above settings have been mentioned to work for xiterm and rxvt too.
But for using 16 colors in an rxvt these should work with terminfo:

```
        :set t_AB=<Esc>[%?%p1%{8}%<%t25;%p1%{40}%+%e5;%p1%{32}%+%;%dm
        :set t_AF=<Esc>[%?%p1%{8}%<%t22;%p1%{30}%+%e1;%p1%{22}%+%;%dm
```

colortest.vim

To test your color setup, a file has been included in the Vim distribution.
To use it, execute this command:

```
   :runtime syntax/colortest.vim
```

Some versions of xterm (and other terminals, like the Linux console) can
output lighter foreground colors, even though the number of colors is defined
at 8. Therefore Vim sets the "cterm=bold" attribute for light foreground
colors, when 't_Co' is 8.

xfree-xterm

To get 16 colors or more, get the newest xterm version (which should be
included with XFree86 3.3 and later). You can also find the latest version
at:

```
        http://invisible-island.net/xterm/xterm.html
```

Here is a good way to configure it. This uses 88 colors and enables the
termcap-query feature, which allows Vim to ask the xterm how many colors it
supports.

```
        ./configure --disable-bold-color --enable-88-color --enable-tcap-query
```

If you only get 8 colors, check the xterm compilation settings.
(Also see UTF8-xterm for using this xterm with UTF-8 character encoding).

This xterm should work with these lines in your .vimrc (for 16 colors):

```
   :if has("terminfo")
   :  set t_Co=16
   :  set t_AB=<Esc>[%?%p1%{8}%<%t%p1%{40}%+%e%p1%{92}%+%;%dm
   :  set t_AF=<Esc>[%?%p1%{8}%<%t%p1%{30}%+%e%p1%{82}%+%;%dm
   :else
   :  set t_Co=16
   :  set t_Sf=<Esc>[3%dm
   :  set t_Sb=<Esc>[4%dm
   :endif
       [<Esc> is a real escape, type CTRL-V <Esc>]
```

Without +terminfo , Vim will recognize these settings, and automatically
translate cterm colors of 8 and above to "<Esc>[9%dm" and "<Esc>[10%dm".
Colors above 16 are also translated automatically.

For 256 colors this has been reported to work:

```
   :set t_AB=<Esc>[48;5;%dm
   :set t_AF=<Esc>[38;5;%dm
```

Or just set the TERM environment variable to "xterm-color" or "xterm-16color"
and try if that works.

You probably want to use these X resources (in your ~/.Xdefaults file):

```
        XTerm*color0:                   #000000
        XTerm*color1:                   #c00000
        XTerm*color2:                   #008000
        XTerm*color3:                   #808000
        XTerm*color4:                   #0000c0
        XTerm*color5:                   #c000c0
        XTerm*color6:                   #008080
        XTerm*color7:                   #c0c0c0
        XTerm*color8:                   #808080
        XTerm*color9:                   #ff6060
        XTerm*color10:                  #00ff00
        XTerm*color11:                  #ffff00
        XTerm*color12:                  #8080ff
        XTerm*color13:                  #ff40ff
        XTerm*color14:                  #00ffff
        XTerm*color15:                  #ffffff
        Xterm*cursorColor:              Black
```

[Note: The cursorColor is required to work around a bug, which changes the
cursor color to the color of the last drawn text. This has been fixed by a
newer version of xterm, but not everybody is using it yet.]

To get these right away, reload the .Xdefaults file to the X Option database
Manager (you only need to do this when you just changed the .Xdefaults file):

```
  xrdb -merge ~/.Xdefaults
```

xterm-blink xterm-blinking-cursor

To make the cursor blink in an xterm, see tools/blink.c. Or use Thomas
Dickey's xterm above patchlevel 107 (see above for where to get it), with
these resources:

```
        XTerm*cursorBlink:      on
        XTerm*cursorOnTime:     400
        XTerm*cursorOffTime:    250
        XTerm*cursorColor:      White
```

hpterm-color

These settings work (more or less) for an hpterm, which only supports 8
foreground colors:

```
   :if has("terminfo")
   :  set t_Co=8
   :  set t_Sf=<Esc>[&v%p1%dS
   :  set t_Sb=<Esc>[&v7S
   :else
   :  set t_Co=8
   :  set t_Sf=<Esc>[&v%dS
   :  set t_Sb=<Esc>[&v7S
```

```
  :endif
      [<Esc> is a real escape, type CTRL-V <Esc>]
```

Eterm enlightened-terminal

These settings have been reported to work for the Enlightened terminal emulator, or Eterm. They might work for all xterm-like terminals that use the bold attribute to get bright colors. Add an ":if" like above when needed.

```
:set t_Co=16
:set t_AF=^[[%?%p1%{8}%<%t3%p1%d%e%p1%{22}%+%d;1%;m
:set t_AB=^[[%?%p1%{8}%<%t4%p1%d%e%p1%{32}%+%d;1%;m
```

TTpro-telnet

These settings should work for TTpro telnet. Tera Term Pro is a freeware / open-source program for MS-Windows.

```
set t_Co=16
set t_AB=^[[%?%p1%{8}%<%t%p1%{40}%+%e%p1%{32}%+5;%;%dm
set t_AF=^[[%?%p1%{8}%<%t%p1%{30}%+%e%p1%{22}%+1;%;%dm
```

Also make sure TTpro's Setup / Window / Full Color is enabled, and make sure that Setup / Font / Enable Bold is NOT enabled.
(info provided by John Love-Jensen <eljay@Adobe.COM>)

==

18. When syntax is slow :syntime

This is aimed at authors of a syntax file.

If your syntax causes redrawing to be slow, here are a few hints on making it faster. To see slowness switch on some features that usually interfere, such as 'relativenumber' and folding .

Note: this is only available when compiled with the +profile feature.
You many need to build Vim with "huge" features.

To find out what patterns are consuming most time, get an overview with this sequence:

```
:syntime on
[ redraw the text at least once with CTRL-L ]
:syntime report
```

This will display a list of syntax patterns that were used, sorted by the time it took to match them against the text.

:syntime on	Start measuring syntax times. This will add some overhead to compute the time spent on syntax pattern matching.
:syntime off	Stop measuring syntax times.
:syntime clear	Set all the counters to zero, restart measuring.
:syntime report	Show the syntax items used since ":syntime on" in the current window. Use a wider display to see more of the output.

The list is sorted by total time. The columns are:

TOTAL	Total time in seconds spent on matching this pattern.
COUNT	Number of times the pattern was used.
MATCH	Number of times the pattern actually matched
SLOWEST	The longest time for one try.
AVERAGE	The average time for one try.
NAME	Name of the syntax item. Note that this is not unique.
PATTERN	The pattern being used.

Pattern matching gets slow when it has to try many alternatives. Try to include as much literal text as possible to reduce the number of ways a pattern does NOT match.

When using the "\@<=" and "\@<!" items, add a maximum size to avoid trying at all positions in the current and previous line. For example, if the item is literal text specify the size of that text (in bytes):

"<\@<=span"	Matches "span" in "<span". This tries matching with "<" in many places.
"<\@1<=span"	Matches the same, but only tries one byte before "span".

vim:tw=78:sw=4:ts=8:noet:ft=help:norl:

spell.txt For Vim version 8.1. Last change: 2018 Mar 29

VIM REFERENCE MANUAL by Bram Moolenaar

Spell checking spell

1. Quick start spell-quickstart
2. Remarks on spell checking spell-remarks
3. Generating a spell file spell-mkspell
4. Spell file format spell-file-format

{Vi does not have any of these commands}

Spell checking is not available when the +syntax feature has been disabled at compile time.

Note: There also is a vimspell plugin. If you have it you can do ":help vimspell" to find about it. But you will probably want to get rid of the plugin and use the 'spell' option instead, it works better.

==========

1. Quick start spell-quickstart E756

This command switches on spell checking:

```
:setlocal spell spelllang=en_us
```

This switches on the 'spell' option and specifies to check for US English.

The words that are not recognized are highlighted with one of these:

SpellBad	word not recognized	hl-SpellBad
SpellCap	word not capitalised	hl-SpellCap
SpellRare	rare word	hl-SpellRare
SpellLocal	wrong spelling for selected region	hl-SpellLocal

Vim only checks words for spelling, there is no grammar check.

If the 'mousemodel' option is set to "popup" and the cursor is on a badly spelled word or it is "popup_setpos" and the mouse pointer is on a badly spelled word, then the popup menu will contain a submenu to replace the bad word. Note: this slows down the appearance of the popup menu. Note for GTK: don't release the right mouse button until the menu appears, otherwise it won't work.

To search for the next misspelled word:

]s

]s Move to next misspelled word after the cursor.
A count before the command can be used to repeat.
'wrapscan' applies.

[s

[s		Like "]s" but search backwards, find the misspelled
		word before the cursor. Doesn't recognize words
		split over two lines, thus may stop at words that are
		not highlighted as bad. Does not stop at word with
		missing capital at the start of a line.

]S
]S		Like "]s" but only stop at bad words, not at rare
		words or words for another region.

[S
[S		Like "]S" but search backwards.

To add words to your own word list:

zg
zg		Add word under the cursor as a good word to the first
		name in 'spellfile'. A count may precede the command
		to indicate the entry in 'spellfile' to be used. A
		count of two uses the second entry.

		In Visual mode the selected characters are added as a
		word (including white space!).
		When the cursor is on text that is marked as badly
		spelled then the marked text is used.
		Otherwise the word under the cursor, separated by
		non-word characters, is used.

		If the word is explicitly marked as bad word in
		another spell file the result is unpredictable.

zG
zG		Like "zg" but add the word to the internal word list
		 internal-wordlist .

zw
zw		Like "zg" but mark the word as a wrong (bad) word.
		If the word already appears in 'spellfile' it is
		turned into a comment line. See spellfile-cleanup
		for getting rid of those.

zW
zW		Like "zw" but add the word to the internal word list
		 internal-wordlist .

zuw
zug		Undo zw and zg , remove the word from the entry in
		'spellfile'. Count used as with zg .

zuW
zuG		Undo zW and zG , remove the word from the internal
		word list. Count used as with zg .

:spe :spellgood

:[count]spe[llgood] {word}
Add {word} as a good word to 'spellfile', like with zg . Without count the first name is used, with a count of two the second entry, etc.

:spe[llgood]! {word} Add {word} as a good word to the internal word list, like with zG .

:spellw :spellwrong

:[count]spellw[rong] {word}
Add {word} as a wrong (bad) word to 'spellfile', as with zw . Without count the first name is used, with a count of two the second entry, etc.

:spellw[rong]! {word} Add {word} as a wrong (bad) word to the internal word list, like with zW .

:[count]spellu[ndo] {word} :spellu :spellundo
Like zuw . [count] used as with :spellgood .

:spellu[ndo]! {word} Like zuW . [count] used as with :spellgood .

After adding a word to 'spellfile' with the above commands its associated ".spl" file will automatically be updated and reloaded. If you change 'spellfile' manually you need to use the :mkspell command. This sequence of commands mostly works well:

```
:edit <file in 'spellfile'>
(make changes to the spell file)
:mkspell! %
```

More details about the 'spellfile' format below spell-wordlist-format .

internal-wordlist

The internal word list is used for all buffers where 'spell' is set. It is not stored, it is lost when you exit Vim. It is also cleared when 'encoding' is set.

Finding suggestions for bad words:

z=

z= For the word under/after the cursor suggest correctly spelled words. This also works to find alternatives for a word that is not highlighted as a bad word, e.g., when the word after it is bad.
In Visual mode the highlighted text is taken as the word to be replaced.
The results are sorted on similarity to the word being replaced.
This may take a long time. Hit CTRL-C when you get bored.

If the command is used without a count the

alternatives are listed and you can enter the number of your choice or press <Enter> if you don't want to replace. You can also use the mouse to click on your choice (only works if the mouse can be used in Normal mode and when there are no line wraps). Click on the first line (the header) to cancel.

The suggestions listed normally replace a highlighted bad word. Sometimes they include other text, in that case the replaced text is also listed after a "<".

If a count is used that suggestion is used, without prompting. For example, "1z=" always takes the first suggestion.

If 'verbose' is non-zero a score will be displayed with the suggestions to indicate the likeliness to the badly spelled word (the higher the score the more different).
When a word was replaced the redo command "." will repeat the word replacement. This works like "ciw", the good word and <Esc>. This does NOT work for Thai and other languages without spaces between words.

:spellr :spellrepall E752 E753

:spellr[epall] Repeat the replacement done by z= for all matches with the replaced word in the current window.

In Insert mode, when the cursor is after a badly spelled word, you can use CTRL-X s to find suggestions. This works like Insert mode completion. Use CTRL-N to use the next suggestion, CTRL-P to go back. i_CTRL-X_s

The 'spellsuggest' option influences how the list of suggestions is generated and sorted. See 'spellsuggest' .

The 'spellcapcheck' option is used to check the first word of a sentence starts with a capital. This doesn't work for the first word in the file. When there is a line break right after a sentence the highlighting of the next line may be postponed. Use CTRL-L when needed. Also see set-spc-auto for how it can be set automatically when 'spelllang' is set.

Vim counts the number of times a good word is encountered. This is used to sort the suggestions: words that have been seen before get a small bonus, words that have been seen often get a bigger bonus. The COMMON item in the affix file can be used to define common words, so that this mechanism also works in a new or short file spell-COMMON .

==
2. Remarks on spell checking spell-remarks

PERFORMANCE

Vim does on-the-fly spell checking. To make this work fast the word list is loaded in memory. Thus this uses a lot of memory (1 Mbyte or more). There

might also be a noticeable delay when the word list is loaded, which happens when 'spell' is set and when 'spelllang' is set while 'spell' was already set. To minimize the delay each word list is only loaded once, it is not deleted when 'spelllang' is made empty or 'spell' is reset. When 'encoding' is set all the word lists are reloaded, thus you may notice a delay then too.

REGIONS

A word may be spelled differently in various regions. For example, English comes in (at least) these variants:

en	all regions
en_au	Australia
en_ca	Canada
en_gb	Great Britain
en_nz	New Zealand
en_us	USA

Words that are not used in one region but are used in another region are highlighted with SpellLocal hl-SpellLocal .

Always use lowercase letters for the language and region names.

When adding a word with zg or another command it's always added for all regions. You can change that by manually editing the 'spellfile'. See spell-wordlist-format . Note that the regions as specified in the files in 'spellfile' are only used when all entries in 'spelllang' specify the same region (not counting files specified by their .spl name).

spell-german

Specific exception: For German these special regions are used:

de	all German words accepted
de_de	old and new spelling
de_19	old spelling
de_20	new spelling
de_at	Austria
de_ch	Switzerland

spell-russian

Specific exception: For Russian these special regions are used:

ru	all Russian words accepted
ru_ru	"IE" letter spelling
ru_yo	"YO" letter spelling

spell-yiddish

Yiddish requires using "utf-8" encoding, because of the special characters used. If you are using latin1 Vim will use transliterated (romanized) Yiddish instead. If you want to use transliterated Yiddish with utf-8 use "yi-tr". In a table:

'encoding'	'spelllang'	
utf-8	yi	Yiddish
latin1	yi	transliterated Yiddish
utf-8	yi-tr	transliterated Yiddish

spell-cjk

Chinese, Japanese and other East Asian characters are normally marked as errors, because spell checking of these characters is not supported. If 'spelllang' includes "cjk", these characters are not marked as errors. This is useful when editing text with spell checking while some Asian words are present.

SPELL FILES

spell-load

Vim searches for spell files in the "spell" subdirectory of the directories in 'runtimepath'. The name is: LL.EEE.spl, where:

```
        LL      the language name
        EEE     the value of 'encoding'
```

The value for "LL" comes from 'spelllang', but excludes the region name. Examples:

```
        'spelllang'     LL
        en_us           en
        en-rare         en-rare
        medical_ca      medical
```

Only the first file is loaded, the one that is first in 'runtimepath'. If this succeeds then additionally files with the name LL.EEE.add.spl are loaded. All the ones that are found are used.

If no spell file is found the SpellFileMissing autocommand event is triggered. This may trigger the spellfile.vim plugin to offer you downloading the spell file.

Additionally, the files related to the names in 'spellfile' are loaded. These are the files that zg and zw add good and wrong words to.

Exceptions:
- Vim uses "latin1" when 'encoding' is "iso-8859-15". The euro sign doesn't matter for spelling.
- When no spell file for 'encoding' is found "ascii" is tried. This only works for languages where nearly all words are ASCII, such as English. It helps when 'encoding' is not "latin1", such as iso-8859-2, and English text is being edited. For the ".add" files the same name as the found main spell file is used.

For example, with these values:

```
        'runtimepath' is "~/.vim,/usr/share/vim70,~/.vim/after"
        'encoding'    is "iso-8859-2"
        'spelllang'   is "pl"
```

Vim will look for:

1. ~/.vim/spell/pl.iso-8859-2.spl
2. /usr/share/vim70/spell/pl.iso-8859-2.spl
3. ~/.vim/spell/pl.iso-8859-2.add.spl
4. /usr/share/vim70/spell/pl.iso-8859-2.add.spl
5. ~/.vim/after/spell/pl.iso-8859-2.add.spl

This assumes 1. is not found and 2. is found.

If 'encoding' is "latin1" Vim will look for:
1. ~/.vim/spell/pl.latin1.spl
2. /usr/share/vim70/spell/pl.latin1.spl
3. ~/.vim/after/spell/pl.latin1.spl
4. ~/.vim/spell/pl.ascii.spl
5. /usr/share/vim70/spell/pl.ascii.spl
6. ~/.vim/after/spell/pl.ascii.spl

This assumes none of them are found (Polish doesn't make sense when leaving out the non-ASCII characters).

Spelling for EBCDIC is currently not supported.

A spell file might not be available in the current 'encoding'. See spell-mkspell about how to create a spell file. Converting a spell file with "iconv" will NOT work!

Note: on VMS ".{enc}.spl" is changed to "_{enc}.spl" to avoid trouble with filenames.

spell-sug-file E781

If there is a file with exactly the same name as the ".spl" file but ending in ".sug", that file will be used for giving better suggestions. It isn't loaded before suggestions are made to reduce memory use.

E758 E759 E778 E779 E780 E782

When loading a spell file Vim checks that it is properly formatted. If you get an error the file may be truncated, modified or intended for another Vim version.

SPELLFILE CLEANUP spellfile-cleanup

The zw command turns existing entries in 'spellfile' into comment lines. This avoids having to write a new file every time, but results in the file only getting longer, never shorter. To clean up the comment lines in all ".add" spell files do this:

```
:runtime spell/cleanadd.vim
```

This deletes all comment lines, except the ones that start with "##". Use "##" lines to add comments that you want to keep.

You can invoke this script as often as you like. A variable is provided to skip updating files that have been changed recently. Set it to the number of seconds that has passed since a file was changed before it will be cleaned. For example, to clean only files that were not changed in the last hour:

```
let g:spell_clean_limit = 60 * 60
```

The default is one second.

WORDS

Vim uses a fixed method to recognize a word. This is independent of 'iskeyword', so that it also works in help files and for languages that include characters like '-' in 'iskeyword'. The word characters do depend on 'encoding'.

The table with word characters is stored in the main .spl file. Therefore it matters what the current locale is when generating it! A .add.spl file does not contain a word table though.

For a word that starts with a digit the digit is ignored, unless the word as a whole is recognized. Thus if "3D" is a word and "D" is not then "3D" is recognized as a word, but if "3D" is not a word then only the "D" is marked as bad. Hex numbers in the form 0x12ab and 0X12AB are recognized.

WORD COMBINATIONS

It is possible to spell-check words that include a space. This is used to recognize words that are invalid when used by themselves, e.g. for "et al.". It can also be used to recognize "the the" and highlight it.

The number of spaces is irrelevant. In most cases a line break may also appear. However, this makes it difficult to find out where to start checking for spelling mistakes. When you make a change to one line and only that line is redrawn Vim won't look in the previous line, thus when "et" is at the end of the previous line "al." will be flagged as an error. And when you type "the<CR>the" the highlighting doesn't appear until the first line is redrawn. Use CTRL-L to redraw right away. "[s" will also stop at a word combination with a line break.

When encountering a line break Vim skips characters such as '*', '>' and '"', so that comments in C, shell and Vim code can be spell checked.

SYNTAX HIGHLIGHTING spell-syntax

Files that use syntax highlighting can specify where spell checking should be done:

1.	everywhere	default
2.	in specific items	use "contains=@Spell"
3.	everywhere but specific items	use "contains=@NoSpell"

For the second method adding the @NoSpell cluster will disable spell checking again. This can be used, for example, to add @Spell to the comments of a program, and add @NoSpell for items that shouldn't be checked.
Also see :syn-spell for text that is not in a syntax item.

VIM SCRIPTS

If you want to write a Vim script that does something with spelling, you may find these functions useful:

```
    spellbadword()      find badly spelled word at the cursor
    spellsuggest()      get list of spelling suggestions
    soundfold()         get the sound-a-like version of a word
```

SETTING 'spellcapcheck' AUTOMATICALLY *set-spc-auto*

After the 'spelllang' option has been set successfully, Vim will source the files "spell/LANG.vim" in 'runtimepath'. "LANG" is the value of 'spelllang' up to the first comma, dot or underscore. This can be used to set options specifically for the language, especially 'spellcapcheck'.

The distribution includes a few of these files. Use this command to see what they do:

```
:next $VIMRUNTIME/spell/*.vim
```

Note that the default scripts don't set 'spellcapcheck' if it was changed from the default value. This assumes the user prefers another value then.

DOUBLE SCORING *spell-double-scoring*

The 'spellsuggest' option can be used to select "double" scoring. This mechanism is based on the principle that there are two kinds of spelling mistakes:

1. You know how to spell the word, but mistype something. This results in a small editing distance (character swapped/omitted/inserted) and possibly a word that sounds completely different.

2. You don't know how to spell the word and type something that sounds right. The edit distance can be big but the word is similar after sound-folding.

Since scores for these two mistakes will be very different we use a list for each and mix them.

The sound-folding is slow and people that know the language won't make the second kind of mistakes. Therefore 'spellsuggest' can be set to select the preferred method for scoring the suggestions.

==========

3. Generating a spell file *spell-mkspell*

Vim uses a binary file format for spelling. This greatly speeds up loading the word list and keeps it small.

.aff *.dic* *Myspell*

You can create a Vim spell file from the .aff and .dic files that Myspell uses. Myspell is used by OpenOffice.org and Mozilla. The OpenOffice .oxt files are zip files which contain the .aff and .dic files. You should be able to find them here:

http://extensions.services.openoffice.org/dictionary

The older, OpenOffice 2 files may be used if this doesn't work:

http://wiki.services.openoffice.org/wiki/Dictionaries

You can also use a plain word list. The results are the same, the choice
depends on what word lists you can find.

If you install Aap (from www.a-a-p.org) you can use the recipes in the
runtime/spell/??/ directories. Aap will take care of downloading the files,
apply patches needed for Vim and build the .spl file.

Make sure your current locale is set properly, otherwise Vim doesn't know what
characters are upper/lower case letters. If the locale isn't available (e.g.,
when using an MS-Windows codepage on Unix) add tables to the .aff file
 spell-affix-chars . If the .aff file doesn't define a table then the word
table of the currently active spelling is used. If spelling is not active
then Vim will try to guess.

                                                        :mksp   :mkspell
:mksp[ell][!] [-ascii] {outname} {inname} ...
                        Generate a Vim spell file from word lists. Example:
                :mkspell /tmp/nl nl_NL.words
                                                                E751
                        When {outname} ends in ".spl" it is used as the output
                        file name. Otherwise it should be a language name,
                        such as "en", without the region name. The file
                        written will be "{outname}.{encoding}.spl", where
                        {encoding} is the value of the 'encoding' option.

                        When the output file already exists [!] must be used
                        to overwrite it.

                        When the [-ascii] argument is present, words with
                        non-ascii characters are skipped. The resulting file
                        ends in "ascii.spl".

                        The input can be the Myspell format files {inname}.aff
                        and {inname}.dic. If {inname}.aff does not exist then
                        {inname} is used as the file name of a plain word
                        list.

                        Multiple {inname} arguments can be given to combine
                        regions into one Vim spell file. Example:
              :mkspell ~/.vim/spell/en /tmp/en_US /tmp/en_CA /tmp/en_AU
                       This combines the English word lists for US, CA and AU
                        into one en.spl file.
                        Up to eight regions can be combined. E754   E755
                        The REP and SAL items of the first .aff file where
                        they appear are used. spell-REP   spell-SAL
                                                                E845
                        This command uses a lot of memory, required to find
                        the optimal word tree (Polish, Italian and Hungarian
                        require several hundred Mbyte). The final result will
                        be much smaller, because compression is used. To
                        avoid running out of memory compression will be done
                        now and then. This can be tuned with the 'mkspellmem'
                        option.

After the spell file was written and it was being used
in a buffer it will be reloaded automatically.

:mksp[ell] [-ascii] {name}.{enc}.add
Like ":mkspell" above, using {name}.{enc}.add as the
input file and producing an output file in the same
directory that has ".spl" appended.

:mksp[ell] [-ascii] {name}
Like ":mkspell" above, using {name} as the input file
and producing an output file in the same directory
that has ".{enc}.spl" appended.

Vim will report the number of duplicate words. This might be a mistake in the list of words. But sometimes it is used to have different prefixes and suffixes for the same basic word to avoid them combining (e.g. Czech uses this). If you want Vim to report all duplicate words set the 'verbose' option.

Since you might want to change a Myspell word list for use with Vim the following procedure is recommended:

1. Obtain the xx_YY.aff and xx_YY.dic files from Myspell.
2. Make a copy of these files to xx_YY.orig.aff and xx_YY.orig.dic.
3. Change the xx_YY.aff and xx_YY.dic files to remove bad words, add missing words, define word characters with FOL/LOW/UPP, etc. The distributed "*.diff" files can be used.
4. Start Vim with the right locale and use :mkspell to generate the Vim spell file.
5. Try out the spell file with ":set spell spelllang=xx" if you wrote it in a spell directory in 'runtimepath', or ":set spelllang=xx.enc.spl" if you wrote it somewhere else.

When the Myspell files are updated you can merge the differences:
1. Obtain the new Myspell files as xx_YY.new.aff and xx_UU.new.dic.
2. Use Vimdiff to see what changed:
vimdiff xx_YY.orig.dic xx_YY.new.dic
3. Take over the changes you like in xx_YY.dic.
You may also need to change xx_YY.aff.
4. Rename xx_YY.new.dic to xx_YY.orig.dic and xx_YY.new.aff to xx_YY.new.aff.

SPELL FILE VERSIONS E770 E771 E772

Spell checking is a relatively new feature in Vim, thus it's possible that the .spl file format will be changed to support more languages. Vim will check the validity of the spell file and report anything wrong.

E771: Old spell file, needs to be updated
This spell file is older than your Vim. You need to update the .spl file.

E772: Spell file is for newer version of Vim
This means the spell file was made for a later version of Vim. You need to update Vim.

E770: Unsupported section in spell file
This means the spell file was made for a later version of Vim and contains a section that is required for the spell file to work. In this case it's probably a good idea to upgrade your Vim.

SPELL FILE DUMP

If for some reason you want to check what words are supported by the currently used spelling files, use this command:

:spelldump :spelld

:spelld[ump] Open a new window and fill it with all currently valid words. Compound words are not included.
Note: For some languages the result may be enormous, causing Vim to run out of memory.

:spelld[ump]! Like ":spelldump" and include the word count. This is the number of times the word was found while updating the screen. Words that are in COMMON items get a starting count of 10.

The format of the word list is used spell-wordlist-format . You should be able to read it with ":mkspell" to generate one .spl file that includes all the words.

When all entries to 'spelllang' use the same regions or no regions at all then the region information is included in the dumped words. Otherwise only words for the current region are included and no "/regions" line is generated.

Comment lines with the name of the .spl file are used as a header above the words that were generated from that .spl file.

SPELL FILE MISSING spell-SpellFileMissing spellfile.vim

If the spell file for the language you are using is not available, you will get an error message. But if the "spellfile.vim" plugin is active it will offer you to download the spell file. Just follow the instructions, it will ask you where to write the file (there must be a writable directory in 'runtimepath' for this).

The plugin has a default place where to look for spell files, on the Vim ftp server. If you want to use another location or another protocol, set the g:spellfile_URL variable to the directory that holds the spell files. The netrw plugin is used for getting the file, look there for the specific syntax of the URL. Example:

```
let g:spellfile_URL = 'http://ftp.vim.org/vim/runtime/spell'
```

You may need to escape special characters.

The plugin will only ask about downloading a language once. If you want to try again anyway restart Vim, or set g:spellfile_URL to another value (e.g., prepend a space).

To avoid using the "spellfile.vim" plugin do this in your vimrc file:

```
let loaded_spellfile_plugin = 1
```

Instead of using the plugin you can define a SpellFileMissing autocommand to handle the missing file yourself. You can use it like this:

```
:au SpellFileMissing * call Download_spell_file(expand('<amatch>'))
```

Thus the <amatch> item contains the name of the language. Another important value is 'encoding', since every encoding has its own spell file. With two exceptions:
- For ISO-8859-15 (latin9) the name "latin1" is used (the encodings only differ in characters not used in dictionary words).
- The name "ascii" may also be used for some languages where the words use only ASCII letters for most of the words.

The default "spellfile.vim" plugin uses this autocommand, if you define your autocommand afterwards you may want to use ":au! SpellFileMissing" to overrule it. If you define your autocommand before the plugin is loaded it will notice this and not do anything.

E797

Note that the SpellFileMissing autocommand must not change or destroy the buffer the user was editing.

==========

4. Spell file format spell-file-format

This is the format of the files that are used by the person who creates and maintains a word list.

Note that we avoid the word "dictionary" here. That is because the goal of spell checking differs from writing a dictionary (as in the book). For spelling we need a list of words that are OK, thus should not be highlighted. Person and company names will not appear in a dictionary, but do appear in a word list. And some old words are rarely used while they are common misspellings. These do appear in a dictionary but not in a word list.

There are two formats: A straight list of words and a list using affix compression. The files with affix compression are used by Myspell (Mozilla and OpenOffice.org). This requires two files, one with .aff and one with .dic extension.

FORMAT OF STRAIGHT WORD LIST spell-wordlist-format

The words must appear one per line. That is all that is required.

Additionally the following items are recognized:

- Empty and blank lines are ignored.

```
# comment
```

- Lines starting with a # are ignored (comment lines).

        /encoding=utf-8
- A line starting with "/encoding=", before any word, specifies the encoding
  of the file. After the second '=' comes an encoding name. This tells Vim
  to setup conversion from the specified encoding to 'encoding'. Thus you can
  use one word list for several target encodings.

        /regions=usca
- A line starting with "/regions=" specifies the region names that are
  supported. Each region name must be two ASCII letters. The first one is
  region 1. Thus "/regions=usca" has region 1 "us" and region 2 "ca".
  In an addition word list the region names should be equal to the main word
  list!

- Other lines starting with '/' are reserved for future use. The ones that
  are not recognized are ignored. You do get a warning message, so that you
  know something won't work.

- A "/" may follow the word with the following items:
    =   Case must match exactly.
    ?   Rare word.
    !   Bad (wrong) word.
    1 to 9   A region in which the word is valid. If no regions are
                specified the word is valid in all regions.

Example:

```
        # This is an example word list          comment
        /encoding=latin1                        encoding of the file
        /regions=uscagb                         regions "us", "ca" and "gb"
        example                                 word for all regions
        blah/12                                 word for regions "us" and "ca"
        vim/!                                   bad word
        Campbell/?3                             rare word in region 3 "gb"
        's mornings/=                           keep-case word
```

Note that when "/=" is used the same word with all upper-case letters is not
accepted. This is different from a word with mixed case that is automatically
marked as keep-case, those words may appear in all upper-case letters.

FORMAT WITH .AFF AND .DIC FILES aff-dic-format

There are two files: the basic word list and an affix file. The affix file
specifies settings for the language and can contain affixes. The affixes are
used to modify the basic words to get the full word list. This significantly
reduces the number of words, especially for a language like Polish. This is
called affix compression.

The basic word list and the affix file are combined with the ":mkspell"
command and results in a binary spell file. All the preprocessing has been
done, thus this file loads fast. The binary spell file format is described in
the source code (src/spell.c). But only developers need to know about it.

The preprocessing also allows us to take the Myspell language files and modify them before the Vim word list is made. The tools for this can be found in the "src/spell" directory.

The format for the affix and word list files is based on what Myspell uses (the spell checker of Mozilla and OpenOffice.org). A description can be found here:
	http://lingucomponent.openoffice.org/affix.readme
Note that affixes are case sensitive, this isn't obvious from the description.

Vim supports quite a few extras. They are described below spell-affix-vim . Attempts have been made to keep this compatible with other spell checkers, so that the same files can often be used. One other project that offers more than Myspell is Hunspell (http://hunspell.sf.net).

WORD LIST FORMAT spell-dic-format

A short example, with line numbers:

```
1	1234
2	aan
3	Als
4	Etten-Leur
5	et al.
6	's-Gravenhage
7	's-Gravenhaags
8	# word that differs between regions
9	kado/1
10	cadeau/2
11	TCP,IP
12	/the S affix may add a 's'
13	bedel/S
```

The first line contains the number of words. Vim ignores it, but you do get an error message if it's not there. E760

What follows is one word per line. White space at the end of the line is ignored, all other white space matters. The encoding is specified in the affix file spell-SET .

Comment lines start with '#' or '/'. See the example lines 8 and 12. Note that putting a comment after a word is NOT allowed:

```
someword	# comment that causes an error!
```

After the word there is an optional slash and flags. Most of these flags are letters that indicate the affixes that can be used with this word. These are specified with SFX and PFX lines in the .aff file, see spell-SFX and spell-PFX . Vim allows using other flag types with the FLAG item in the affix file spell-FLAG .

When the word only has lower-case letters it will also match with the word

starting with an upper-case letter.

When the word includes an upper-case letter, this means the upper-case letter is required at this position. The same word with a lower-case letter at this position will not match. When some of the other letters are upper-case it will not match either.

The word with all upper-case characters will always be OK,

word list	matches	does not match
als	als Als ALS	ALs AlS aLs aLS
Als	Als ALS	als ALs AlS aLs aLS
ALS	ALS	als Als ALs AlS aLs aLS
AlS	AlS ALS	als Als ALs aLs aLS

The KEEPCASE affix ID can be used to specifically match a word with identical case only, see below spell-KEEPCASE .

Note: in line 5 to 7 non-word characters are used. You can include any character in a word. When checking the text a word still only matches when it appears with a non-word character before and after it. For Myspell a word starting with a non-word character probably won't work.

In line 12 the word "TCP/IP" is defined. Since the slash has a special meaning the comma is used instead. This is defined with the SLASH item in the affix file, see spell-SLASH . Note that without this SLASH item the word will be "TCP,IP".

AFFIX FILE FORMAT

spell-aff-format spell-affix-vim

spell-affix-comment

Comment lines in the .aff file start with a '#':

```
# comment line
```

Items with a fixed number of arguments can be followed by a comment. But only if none of the arguments can contain white space. The comment must start with a "#" character. Example:

```
KEEPCASE =  # fix case for words with this flag
```

ENCODING

spell-SET

The affix file can be in any encoding that is supported by "iconv". However, in some cases the current locale should also be set properly at the time :mkspell is invoked. Adding FOL/LOW/UPP lines removes this requirement spell-FOL .

The encoding should be specified before anything where the encoding matters. The encoding applies both to the affix file and the dictionary file. It is done with a SET line:

```
        SET utf-8
```

The encoding can be different from the value of the 'encoding' option at the time ":mkspell" is used. Vim will then convert everything to 'encoding' and generate a spell file for 'encoding'. If some of the used characters to not fit in 'encoding' you will get an error message.

spell-affix-mbyte

When using a multi-byte encoding it's possible to use more different affix flags. But Myspell doesn't support that, thus you may not want to use it anyway. For compatibility use an 8-bit encoding.

INFORMATION

These entries in the affix file can be used to add information to the spell file. There are no restrictions on the format, but they should be in the right encoding.

spell-NAME spell-VERSION spell-HOME
spell-AUTHOR spell-EMAIL spell-COPYRIGHT

```
        NAME            Name of the language
        VERSION         1.0.1  with fixes
        HOME            http://www.myhome.eu
        AUTHOR          John Doe
        EMAIL           john AT Doe DOT net
        COPYRIGHT       LGPL
```

These fields are put in the .spl file as-is. The :spellinfo command can be used to view the info.

:spellinfo :spelli

```
:spelli[nfo]            Display the information for the spell file(s) used for
                        the current buffer.
```

CHARACTER TABLES

spell-affix-chars

When using an 8-bit encoding the affix file should define what characters are word characters. This is because the system where ":mkspell" is used may not support a locale with this encoding and isalpha() won't work. For example when using "cp1250" on Unix.

E761 E762 spell-FOL
spell-LOW spell-UPP

Three lines in the affix file are needed. Simplistic example:

```
        FOL  áëñ
        LOW  áëñ
        UPP  ÁËÑ
```

All three lines must have exactly the same number of characters.

The "FOL" line specifies the case-folded characters. These are used to compare words while ignoring case. For most encodings this is identical to the lower case line.

The "LOW" line specifies the characters in lower-case. Mostly it's equal to the "FOL" line.

The "UPP" line specifies the characters with upper-case. That is, a character is upper-case where it's different from the character at the same position in "FOL".

An exception is made for the German sharp s ß. The upper-case version is "SS". In the FOL/LOW/UPP lines it should be included, so that it's recognized as a word character, but use the ß character in all three.

ASCII characters should be omitted, Vim always handles these in the same way. When the encoding is UTF-8 no word characters need to be specified.

E763

Vim allows you to use spell checking for several languages in the same file. You can list them in the 'spelllang' option. As a consequence all spell files for the same encoding must use the same word characters, otherwise they can't be combined without errors.

If you get an E763 warning that the word tables differ you need to update your ".spl" spell files. If you downloaded the files, get the latest version of all spell files you use. If you are only using one, e.g., German, then also download the recent English spell files. Otherwise generate the .spl file again with :mkspell . If you still get errors check the FOL, LOW and UPP lines in the used .aff files.

The XX.ascii.spl spell file generated with the "-ascii" argument will not contain the table with characters, so that it can be combine with spell files for any encoding. The .add.spl files also do not contain the table.

MID-WORD CHARACTERS

spell-midword

Some characters are only to be considered word characters if they are used in between two ordinary word characters. An example is the single quote: It is often used to put text in quotes, thus it can't be recognized as a word character, but when it appears in between word characters it must be part of the word. This is needed to detect a spelling error such as they'are. That should be they're, but since "they" and "are" are words themselves that would go unnoticed.

These characters are defined with MIDWORD in the .aff file. Example:

```
MIDWORD '-
```

FLAG TYPES

spell-FLAG

Flags are used to specify the affixes that can be used with a word and for other properties of the word. Normally single-character flags are used. This limits the number of possible flags, especially for 8-bit encodings. The FLAG item can be used if more affixes are to be used. Possible values:

```
        FLAG long       use two-character flags
        FLAG num        use numbers, from 1 up to 65000
        FLAG caplong    use one-character flags without A-Z and two-character
                        flags that start with A-Z
```

With "FLAG num" the numbers in a list of affixes need to be separated with a comma: "234,2143,1435". This method is inefficient, but useful if the file is generated with a program.

When using "caplong" the two-character flags all start with a capital: "Aa", "B1", "BB", etc. This is useful to use one-character flags for the most common items and two-character flags for uncommon items.

Note: When using utf-8 only characters up to 65000 may be used for flags.

Note: even when using "num" or "long" the number of flags available to compounding and prefixes is limited to about 250.

AFFIXES

spell-PFX spell-SFX

The usual PFX (prefix) and SFX (suffix) lines are supported (see the Myspell documentation or the Aspell manual: http://aspell.net/man-html/Affix-Compression.html).

Summary:

```
        SFX L Y 2
        SFX L 0 re [^x]
        SFX L 0 ro x
```

The first line is a header and has four fields:

```
        SFX {flag} {combine} {count}
```

{flag} The name used for the suffix. Mostly it's a single letter, but other characters can be used, see spell-FLAG .

{combine} Can be 'Y' or 'N'. When 'Y' then the word plus suffix can also have a prefix. When 'N' then a prefix is not allowed.

{count} The number of lines following. If this is wrong you will get an error message.

For PFX the fields are exactly the same.

The basic format for the following lines is:

```
        SFX {flag} {strip} {add} {condition} {extra}
```

{flag} Must be the same as the {flag} used in the first line.

{strip} Characters removed from the basic word. There is no check if the characters are actually there, only the length is used (in bytes). This better match the {condition}, otherwise strange things may happen. If the {strip} length is equal to or

longer than the basic word the suffix won't be used.
When {strip} is 0 (zero) then nothing is stripped.

{add}	Characters added to the basic word, after removing {strip}.
Optionally there is a '/' followed by flags. The flags apply
to the word plus affix. See spell-affix-flags

{condition}	A simplistic pattern. Only when this matches with a basic
word will the suffix be used for that word. This is normally
for using one suffix letter with different {add} and {strip}
fields for words with different endings.
When {condition} is a . (dot) there is no condition.
The pattern may contain:
- Literal characters.
- A set of characters in []. [abc] matches a, b and c.
A dash is allowed for a range [a-c], but this is
Vim-specific.
- A set of characters that starts with a ^, meaning the
complement of the specified characters. [^abc] matches any
character but a, b and c.

{extra}	Optional extra text:
# comment	Comment is ignored
-	Hunspell uses this, ignored

For PFX the fields are the same, but the {strip}, {add} and {condition} apply to the start of the word.

Note: Myspell ignores any extra text after the relevant info. Vim requires this text to start with a "#" so that mistakes don't go unnoticed. Example:

```
SFX F 0 in   [^i]n      # Spion > Spionin
SFX F 0 nen  in         # Bauerin > Bauerinnen
```

However, to avoid lots of errors in affix files written for Myspell, you can add the IGNOREEXTRA flag.

Apparently Myspell allows an affix name to appear more than once. Since this might also be a mistake, Vim checks for an extra "S". The affix files for Myspell that use this feature apparently have this flag. Example:

```
SFX a Y 1 S
SFX a 0 an .

SFX a Y 2 S
SFX a 0 en .
SFX a 0 on .
```

## AFFIX FLAGS	spell-affix-flags

This is a feature that comes from Hunspell: The affix may specify flags. This works similar to flags specified on a basic word. The flags apply to the basic word plus the affix (but there are restrictions). Example:

```
SFX S Y 1
SFX S 0 s .

SFX A Y 1
SFX A 0 able/S .
```

When the dictionary file contains "drink/AS" then these words are possible:

```
drink
drinks          uses S suffix
drinkable       uses A suffix
drinkables      uses A suffix and then S suffix
```

Generally the flags of the suffix are added to the flags of the basic word, both are used for the word plus suffix. But the flags of the basic word are only used once for affixes, except that both one prefix and one suffix can be used when both support combining.

Specifically, the affix flags can be used for:
- Suffixes on suffixes, as in the example above. This works once, thus you can have two suffixes on a word (plus one prefix).
- Making the word with the affix rare, by using the spell-RARE flag.
- Exclude the word with the affix from compounding, by using the spell-COMPOUNDFORBIDFLAG flag.
- Allow the word with the affix to be part of a compound word on the side of the affix with the spell-COMPOUNDPERMITFLAG .
- Use the NEEDCOMPOUND flag: word plus affix can only be used as part of a compound word. spell-NEEDCOMPOUND
- Compound flags: word plus affix can be part of a compound word at the end, middle, start, etc. The flags are combined with the flags of the basic word. spell-compound
- NEEDAFFIX: another affix is needed to make a valid word.
- CIRCUMFIX, as explained just below.

IGNOREEXTRA spell-IGNOREEXTRA

Normally Vim gives an error for an extra field that does not start with '#'. This avoids errors going unnoticed. However, some files created for Myspell or Hunspell may contain many entries with an extra field. Use the IGNOREEXTRA flag to avoid lots of errors.

CIRCUMFIX spell-CIRCUMFIX

The CIRCUMFIX flag means a prefix and suffix must be added at the same time. If a prefix has the CIRCUMFIX flag than only suffixes with the CIRCUMFIX flag can be added, and the other way around.
An alternative is to only specify the suffix, and give the that suffix two flags: The required prefix and the NEEDAFFIX flag. spell-NEEDAFFIX

PFXPOSTPONE spell-PFXPOSTPONE

When an affix file has very many prefixes that apply to many words it's not possible to build the whole word list in memory. This applies to Hebrew (a list with all words is over a Gbyte). In that case applying prefixes must be postponed. This makes spell checking slower. It is indicated by this keyword in the .aff file:

```
PFXPOSTPONE
```

Only prefixes without a chop string and without flags can be postponed. Prefixes with a chop string or with flags will still be included in the word list. An exception if the chop string is one character and equal to the last character of the added string, but in lower case. Thus when the chop string is used to allow the following word to start with an upper case letter.

WORDS WITH A SLASH spell-SLASH

The slash is used in the .dic file to separate the basic word from the affix letters and other flags. Unfortunately, this means you cannot use a slash in a word. Thus "TCP/IP" is not a word but "TCP" with the flags "IP". To include a slash in the word put a backslash before it: "TCP\/IP". In the rare case you want to use a backslash inside a word you need to use two backslashes. Any other use of the backslash is reserved for future expansion.

KEEP-CASE WORDS spell-KEEPCASE

In the affix file a KEEPCASE line can be used to define the affix name used for keep-case words. Example:

```
KEEPCASE =
```

This flag is not supported by Myspell. It has the meaning that case matters. This can be used if the word does not have the first letter in upper case at the start of a sentence. Example:

```
word list       matches                 does not match
's morgens/=    's morgens              'S morgens 's Morgens 'S MORGENS
's Morgens      's Morgens 'S MORGENS   'S morgens 's morgens
```

The flag can also be used to avoid that the word matches when it is in all upper-case letters.

RARE WORDS spell-RARE

In the affix file a RARE line can be used to define the affix name used for rare words. Example:

```
RARE ?
```

Rare words are highlighted differently from bad words. This is to be used for words that are correct for the language, but are hardly ever used and could be

a typing mistake anyway. When the same word is found as good it won't be highlighted as rare.

This flag can also be used on an affix, so that a basic word is not rare but the basic word plus affix is rare spell-affix-flags . However, if the word also appears as a good word in another way (e.g., in another region) it won't be marked as rare.

BAD WORDS spell-BAD

In the affix file a BAD line can be used to define the affix name used for bad words. Example:

```
BAD !
```

This can be used to exclude words that would otherwise be good. For example "the the" in the .dic file:

```
the the/!
```

Once a word has been marked as bad it won't be undone by encountering the same word as good.

The flag also applies to the word with affixes, thus this can be used to mark a whole bunch of related words as bad.

spell-FORBIDDENWORD

FORBIDDENWORD can be used just like BAD. For compatibility with Hunspell.

spell-NEEDAFFIX

The NEEDAFFIX flag is used to require that a word is used with an affix. The word itself is not a good word (unless there is an empty affix). Example:

```
NEEDAFFIX +
```

COMPOUND WORDS spell-compound

A compound word is a longer word made by concatenating words that appear in the .dic file. To specify which words may be concatenated a character is used. This character is put in the list of affixes after the word. We will call this character a flag here. Obviously these flags must be different from any affix IDs used.

spell-COMPOUNDFLAG

The Myspell compatible method uses one flag, specified with COMPOUNDFLAG. All words with this flag combine in any order. This means there is no control over which word comes first. Example:

```
COMPOUNDFLAG c
```

spell-COMPOUNDRULE

A more advanced method to specify how compound words can be formed uses multiple items with multiple flags. This is not compatible with Myspell 3.0.

```
Let's start with an example:
        COMPOUNDRULE c+
        COMPOUNDRULE se

The first line defines that words with the "c" flag can be concatenated in any
order.  The second line defines compound words that are made of one word with
the "s" flag and one word with the "e" flag.  With this dictionary:
        bork/c
        onion/s
        soup/e

You can make these words:
        bork
        borkbork
        borkborkbork
        (etc.)
        onion
        soup
        onionsoup

The COMPOUNDRULE item may appear multiple times.  The argument is made out of
one or more groups, where each group can be:
        one flag                        e.g., c
        alternate flags inside []       e.g., [abc]
Optionally this may be followed by:
        *       the group appears zero or more times, e.g., sm*e
        +       the group appears one or more times, e.g., c+
        ?       the group appears zero times or once, e.g., x?

This is similar to the regexp pattern syntax (but not the same!).  A few
examples with the sequence of word flags they require:
    COMPOUNDRULE x+         x xx xxx etc.
    COMPOUNDRULE yz         yz
    COMPOUNDRULE x+z        xz xxz xxxz etc.
    COMPOUNDRULE yx+        yx yxx yxxx etc.
    COMPOUNDRULE xy?z       xz xyz

    COMPOUNDRULE [abc]z    az bz cz
    COMPOUNDRULE [abc]+z   az aaz abaz bz baz bcbz cz caz cbaz etc.
    COMPOUNDRULE a[xyz]+   ax axx axyz ay ayx ayzz az azy azxy etc.
    COMPOUNDRULE sm*e       se sme smme smmme etc.
    COMPOUNDRULE s[xyz]*e  se sxe sxye sxyxe sye syze sze szye szyxe  etc.

A specific example: Allow a compound to be made of two words and a dash:
        In the .aff file:
            COMPOUNDRULE sde
            NEEDAFFIX x
            COMPOUNDWORDMAX 3
            COMPOUNDMIN 1
        In the .dic file:
            start/s
            end/e
            -/xd
```

This allows for the word "start-end", but not "startend".

An additional implied rule is that, without further flags, a word with a prefix cannot be compounded after another word, and a word with a suffix cannot be compounded with a following word. Thus the affix cannot appear on the inside of a compound word. This can be changed with the
 spell-COMPOUNDPERMITFLAG .

spell-NEEDCOMPOUND

The NEEDCOMPOUND flag is used to require that a word is used as part of a compound word. The word itself is not a good word. Example:

```
NEEDCOMPOUND &
```

spell-ONLYINCOMPOUND

The ONLYINCOMPOUND does exactly the same as NEEDCOMPOUND. Supported for compatibility with Hunspell.

spell-COMPOUNDMIN

The minimal character length of a word used for compounding is specified with COMPOUNDMIN. Example:

```
COMPOUNDMIN 5
```

When omitted there is no minimal length. Obviously you could just leave out the compound flag from short words instead, this feature is present for compatibility with Myspell.

spell-COMPOUNDWORDMAX

The maximum number of words that can be concatenated into a compound word is specified with COMPOUNDWORDMAX. Example:

```
COMPOUNDWORDMAX 3
```

When omitted there is no maximum. It applies to all compound words.

To set a limit for words with specific flags make sure the items in COMPOUNDRULE where they appear don't allow too many words.

spell-COMPOUNDSYLMAX

The maximum number of syllables that a compound word may contain is specified with COMPOUNDSYLMAX. Example:

```
COMPOUNDSYLMAX 6
```

This has no effect if there is no SYLLABLE item. Without COMPOUNDSYLMAX there is no limit on the number of syllables.

If both COMPOUNDWORDMAX and COMPOUNDSYLMAX are defined, a compound word is accepted if it fits one of the criteria, thus is either made from up to COMPOUNDWORDMAX words or contains up to COMPOUNDSYLMAX syllables.

spell-COMPOUNDFORBIDFLAG

The COMPOUNDFORBIDFLAG specifies a flag that can be used on an affix. It means that the word plus affix cannot be used in a compound word. Example:

```
affix file:
        COMPOUNDFLAG c
```

```
		COMPOUNDFORBIDFLAG x
		SFX a Y 2
		SFX a 0 s   .
		SFX a 0 ize/x .
	dictionary:
		word/c
		util/ac
```

This allows for "wordutil" and "wordutils" but not "wordutilize".
Note: this doesn't work for postponed prefixes yet.

spell-COMPOUNDPERMITFLAG

The COMPOUNDPERMITFLAG specifies a flag that can be used on an affix. It means that the word plus affix can also be used in a compound word in a way where the affix ends up halfway the word. Without this flag that is not allowed.
Note: this doesn't work for postponed prefixes yet.

spell-COMPOUNDROOT

The COMPOUNDROOT flag is used for words in the dictionary that are already a compound. This means it counts for two words when checking the compounding rules. Can also be used for an affix to count the affix as a compounding word.

spell-CHECKCOMPOUNDPATTERN

CHECKCOMPOUNDPATTERN is used to define patterns that, when matching at the position where two words are compounded together forbids the compound.
For example:

```
	CHECKCOMPOUNDPATTERN o e
```

This forbids compounding if the first word ends in "o" and the second word starts with "e".

The arguments must be plain text, no patterns are actually supported, despite the item name. Case is always ignored.

The Hunspell feature to use three arguments and flags is not supported.

spell-NOCOMPOUNDSUGS

This item indicates that using compounding to make suggestions is not a good idea. Use this when compounding is used with very short or one-character words. E.g. to make numbers out of digits. Without this flag creating suggestions would spend most time trying all kind of weird compound words.

```
	NOCOMPOUNDSUGS
```

spell-SYLLABLE

The SYLLABLE item defines characters or character sequences that are used to count the number of syllables in a word. Example:

```
	SYLLABLE aáeéiíoóöõuúüûy/aa/au/ea/ee/ei/ie/oa/oe/oo/ou/uu/ui
```

Before the first slash is the set of characters that are counted for one syllable, also when repeated and mixed, until the next character that is not in this set. After the slash come sequences of characters that are counted

for one syllable. These are preferred over using characters from the set.
With the example "ideeen" has three syllables, counted by "i", "ee" and "e".

Only case-folded letters need to be included.

Another way to restrict compounding was mentioned above: Adding the
spell-COMPOUNDFORBIDFLAG flag to an affix causes all words that are made
with that affix to not be used for compounding.

UNLIMITED COMPOUNDING spell-NOBREAK

For some languages, such as Thai, there is no space in between words. This
looks like all words are compounded. To specify this use the NOBREAK item in
the affix file, without arguments:

```
NOBREAK
```

Vim will try to figure out where one word ends and a next starts. When there
are spelling mistakes this may not be quite right.

spell-COMMON

Common words can be specified with the COMMON item. This will give better
suggestions when editing a short file. Example:

```
COMMON  the of to and a in is it you that he was for on are
```

The words must be separated by white space, up to 25 per line.
When multiple regions are specified in a ":mkspell" command the common words
for all regions are combined and used for all regions.

spell-NOSPLITSUGS

This item indicates that splitting a word to make suggestions is not a good
idea. Split-word suggestions will appear only when there are few similar
words.

```
NOSPLITSUGS
```

spell-NOSUGGEST

The flag specified with NOSUGGEST can be used for words that will not be
suggested. Can be used for obscene words.

```
NOSUGGEST %
```

REPLACEMENTS spell-REP

In the affix file REP items can be used to define common mistakes. This is
used to make spelling suggestions. The items define the "from" text and the
"to" replacement. Example:

```
REP 4
REP f ph
REP ph f
```

```
REP k ch
REP ch k
```

The first line specifies the number of REP lines following. Vim ignores the number, but it must be there (for compatibility with Myspell).

Don't include simple one-character replacements or swaps. Vim will try these anyway. You can include whole words if you want to, but you might want to use the "file:" item in 'spellsuggest' instead.

You can include a space by using an underscore:

```
REP the_the the
```

SIMILAR CHARACTERS spell-MAP E783

In the affix file MAP items can be used to define letters that are very much alike. This is mostly used for a letter with different accents. This is used to prefer suggestions with these letters substituted. Example:

```
MAP 2
MAP eéëêè
MAP uüùúû
```

The first line specifies the number of MAP lines following. Vim ignores the number, but the line must be there.

Each letter must appear in only one of the MAP items. It's a bit more efficient if the first letter is ASCII or at least one without accents.

.SUG FILE spell-NOSUGFILE

When soundfolding is specified in the affix file then ":mkspell" will normally produce a .sug file next to the .spl file. This file is used to find suggestions by their sound-a-like form quickly. At the cost of a lot of memory (the amount depends on the number of words, :mkspell will display an estimate when it's done).

To avoid producing a .sug file use this item in the affix file:

```
NOSUGFILE
```

Users can simply omit the .sug file if they don't want to use it.

SOUND-A-LIKE spell-SAL

In the affix file SAL items can be used to define the sounds-a-like mechanism to be used. The main items define the "from" text and the "to" replacement. Simplistic example:

```
SAL CIA                 X
```

```
        SAL CH                  X
        SAL C                   K
        SAL K                   K
```

There are a few rules and this can become quite complicated. An explanation how it works can be found in the Aspell manual: http://aspell.net/man-html/Phonetic-Code.html.

There are a few special items:

```
        SAL followup            true
        SAL collapse_result     true
        SAL remove_accents      true
```

"1" has the same meaning as "true". Any other value means "false".

SIMPLE SOUNDFOLDING

spell-SOFOFROM spell-SOFOTO

The SAL mechanism is complex and slow. A simpler mechanism is mapping all characters to another character, mapping similar sounding characters to the same character. At the same time this does case folding. You can not have both SAL items and simple soundfolding.

There are two items required: one to specify the characters that are mapped and one that specifies the characters they are mapped to. They must have exactly the same number of characters. Example:

```
    SOFOFROM abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ
    SOFOTO   ebctefghejklnnepkrstevvkesebctefghejklnnepkrstevvkes
```

In the example all vowels are mapped to the same character 'e'. Another method would be to leave out all vowels. Some characters that sound nearly the same and are often mixed up, such as 'm' and 'n', are mapped to the same character. Don't do this too much, all words will start looking alike.

Characters that do not appear in SOFOFROM will be left out, except that all white space is replaced by one space. Sequences of the same character in SOFOFROM are replaced by one.

You can use the soundfold() function to try out the results. Or set the 'verbose' option to see the score in the output of the z= command.

UNSUPPORTED ITEMS

spell-affix-not-supported

These items appear in the affix file of other spell checkers. In Vim they are ignored, not supported or defined in another way.

ACCENT (Hunspell) spell-ACCENT
Use MAP instead. spell-MAP

BREAK (Hunspell) spell-BREAK
Define break points. Unclear how it works exactly.

Not supported.

CHECKCOMPOUNDCASE (Hunspell) spell-CHECKCOMPOUNDCASE
Disallow uppercase letters at compound word boundaries.
Not supported.

CHECKCOMPOUNDDUP (Hunspell) spell-CHECKCOMPOUNDDUP
Disallow using the same word twice in a compound. Not supported.

CHECKCOMPOUNDREP (Hunspell) spell-CHECKCOMPOUNDREP
Something about using REP items and compound words. Not supported.

CHECKCOMPOUNDTRIPLE (Hunspell) spell-CHECKCOMPOUNDTRIPLE
Forbid three identical characters when compounding. Not supported.

COMPLEXPREFIXES (Hunspell) spell-COMPLEXPREFIXES
Enables using two prefixes. Not supported.

COMPOUND (Hunspell) spell-COMPOUND
This is one line with the count of COMPOUND items, followed by that many COMPOUND lines with a pattern.
Remove the first line with the count and rename the other items to COMPOUNDRULE spell-COMPOUNDRULE

COMPOUNDFIRST (Hunspell) spell-COMPOUNDFIRST
Use COMPOUNDRULE instead. spell-COMPOUNDRULE

COMPOUNDBEGIN (Hunspell) spell-COMPOUNDBEGIN
Use COMPOUNDRULE instead. spell-COMPOUNDRULE

COMPOUNDEND (Hunspell) spell-COMPOUNDEND
Use COMPOUNDRULE instead. spell-COMPOUNDRULE

COMPOUNDMIDDLE (Hunspell) spell-COMPOUNDMIDDLE
Use COMPOUNDRULE instead. spell-COMPOUNDRULE

COMPOUNDRULES (Hunspell) spell-COMPOUNDRULES
Number of COMPOUNDRULE lines following. Ignored, but the argument must be a number.

COMPOUNDSYLLABLE (Hunspell) spell-COMPOUNDSYLLABLE
Use SYLLABLE and COMPOUNDSYLMAX instead. spell-SYLLABLE spell-COMPOUNDSYLMAX

KEY (Hunspell) spell-KEY
Define characters that are close together on the keyboard.
Used to give better suggestions. Not supported.

LANG (Hunspell) spell-LANG
This specifies language-specific behavior. This actually moves part of the language knowledge into the program,

therefore Vim does not support it. Each language property must be specified separately.

LEMMA_PRESENT (Hunspell) spell-LEMMA_PRESENT
Only needed for morphological analysis.

MAXNGRAMSUGS (Hunspell) spell-MAXNGRAMSUGS
Set number of n-gram suggestions. Not supported.

PSEUDOROOT (Hunspell) spell-PSEUDOROOT
Use NEEDAFFIX instead. spell-NEEDAFFIX

SUGSWITHDOTS (Hunspell) spell-SUGSWITHDOTS
Adds dots to suggestions. Vim doesn't need this.

SYLLABLENUM (Hunspell) spell-SYLLABLENUM
Not supported.

TRY (Myspell, Hunspell, others) spell-TRY
Vim does not use the TRY item, it is ignored. For making suggestions the actual characters in the words are used, that is much more efficient.

WORDCHARS (Hunspell) spell-WORDCHARS
Used to recognize words. Vim doesn't need it, because there is no need to separate words before checking them (using a trie instead of a hashtable).

vim:tw=78:sw=4:ts=8:noet:ft=help:norl:

diff.txt For Vim version 8.1. Last change: 2017 Oct 03

VIM REFERENCE MANUAL by Bram Moolenaar

diff vimdiff gvimdiff diff-mode

This file describes the +diff feature: Showing differences between two to eight versions of the same file.

The basics are explained in section 08.7 of the user manual.

{not in Vi}

==========

1. Starting diff mode start-vimdiff

The easiest way to start editing in diff mode is with the "vimdiff" command. This starts Vim as usual, and additionally sets up for viewing the differences between the arguments.

```
vimdiff file1 file2 [file3 [file4]]
```

This is equivalent to:

```
vim -d file1 file2 [file3 [file4]]
```

You may also use "gvimdiff" or "vim -d -g". The GUI is started then.
You may also use "viewdiff" or "gviewdiff". Vim starts in readonly mode then.
"r" may be prepended for restricted mode (see -Z).

The second and following arguments may also be a directory name. Vim will then append the file name of the first argument to the directory name to find the file.

This only works when a standard "diff" command is available. See 'diffexpr'.

Diffs are local to the current tab page tab-page . You can't see diffs with a window in another tab page. This does make it possible to have several diffs at the same time, each in their own tab page.

What happens is that Vim opens a window for each of the files. This is like using the -O argument. This uses vertical splits. If you prefer horizontal splits add the -o argument:

```
vimdiff -o file1 file2 [file3 [file4]]
```

If you always prefer horizontal splits include "horizontal" in 'diffopt'.

In each of the edited files these options are set:

```
        'diff'          on
        'scrollbind'    on
        'cursorbind'    on
        'scrollopt'     includes "hor"
        'wrap'          off
        'foldmethod'    "diff"
        'foldcolumn'    value from 'diffopt', default is 2
```

These options are set local to the window. When editing another file they are reset to the global value.
The options can still be overruled from a modeline when re-editing the file. However, 'foldmethod' and 'wrap' won't be set from a modeline when 'diff' is set.

The differences shown are actually the differences in the buffer. Thus if you make changes after loading a file, these will be included in the displayed diffs. You might have to do ":diffupdate" now and then, not all changes are immediately taken into account.

In your .vimrc file you could do something special when Vim was started in diff mode. You could use a construct like this:

```
        if &diff
           setup for diff mode
        else
           setup for non-diff mode
        endif
```

While already in Vim you can start diff mode in three ways.

E98
:diffs[plit] {filename} :diffs :diffsplit
Open a new window on the file {filename}. The options are set as for "vimdiff" for the current and the newly opened window. Also see 'diffexpr'.

:difft :diffthis
:difft[his] Make the current window part of the diff windows. This sets the options like for "vimdiff".

:diffp[atch] {patchfile} E816 :diffp :diffpatch
Use the current buffer, patch it with the diff found in {patchfile} and open a buffer on the result. The options are set as for "vimdiff".
{patchfile} can be in any format that the "patch" program understands or 'patchexpr' can handle.
Note that {patchfile} should only contain a diff for one file, the current file. If {patchfile} contains diffs for other files as well, the results are unpredictable. Vim changes directory to /tmp to avoid files in the current directory accidentally being patched. But it may still result in

various ".rej" files to be created. And when absolute path
names are present these files may get patched anyway.

To make these commands use a vertical split, prepend :vertical . Examples:

```
:vert diffsplit main.c~
:vert diffpatch /tmp/diff
```

If you always prefer a vertical split include "vertical" in 'diffopt'.

E96
There can be up to eight buffers with 'diff' set.

Since the option values are remembered with the buffer, you can edit another
file for a moment and come back to the same file and be in diff mode again.

:diffo :diffoff
:diffo[ff] Switch off diff mode for the current window. Resets related
options also when 'diff' was not set.

:diffo[ff]! Switch off diff mode for the current window and in all windows
in the current tab page where 'diff' is set. Resetting
related options only happens in a window that has 'diff' set,
if the current window does not have 'diff' set then no options
in it are changed.
Hidden buffers are also removed from the list of diff'ed
buffers.

The `:diffoff` command resets the relevant options to the values they had when
using `:diffsplit`, `:diffpatch` , `:diffthis`. or starting Vim in diff mode.
When using `:diffoff` twice the last saved values are restored.
Otherwise they are set to their default value:

```
'diff'          off
'scrollbind'    off
'cursorbind'    off
'scrollopt'     without "hor"
'wrap'          on
'foldmethod'    "manual"
'foldcolumn'    0
```

==
2. Viewing diffs view-diffs

The effect is that the diff windows show the same text, with the differences
highlighted. When scrolling the text, the 'scrollbind' option will make the
text in other windows to be scrolled as well. With vertical splits the text
should be aligned properly.

The alignment of text will go wrong when:
- 'wrap' is on, some lines will be wrapped and occupy two or more screen
  lines
- folds are open in one window but not another
- 'scrollbind' is off

- changes have been made to the text
- "filler" is not present in 'diffopt', deleted/inserted lines makes the
  alignment go wrong

All the buffers edited in a window where the 'diff' option is set will join in the diff. This is also possible for hidden buffers. They must have been edited in a window first for this to be possible. To get rid of the hidden buffers use `:diffoff!`.

:DiffOrig diff-original-file

Since 'diff' is a window-local option, it's possible to view the same buffer in diff mode in one window and "normal" in another window. It is also possible to view the changes you have made to a buffer since the file was loaded. Since Vim doesn't allow having two buffers for the same file, you need another buffer. This command is useful:

```
command DiffOrig vert new | set bt=nofile | r ++edit # | 0d_
      \ | diffthis | wincmd p | diffthis
```

(this is in vimrc_example.vim). Use ":DiffOrig" to see the differences between the current buffer and the file it was loaded from.

A buffer that is unloaded cannot be used for the diff. But it does work for hidden buffers. You can use ":hide" to close a window without unloading the buffer. If you don't want a buffer to remain used for the diff do ":set nodiff" before hiding it.

:dif :diffupdate

:dif[fupdate][!] Update the diff highlighting and folds.

Vim attempts to keep the differences updated when you make changes to the text. This mostly takes care of inserted and deleted lines. Changes within a line and more complicated changes do not cause the differences to be updated. To force the differences to be updated use:

```
:diffupdate
```

If the ! is included Vim will check if the file was changed externally and needs to be reloaded. It will prompt for each changed file, like `:checktime` was used.

Vim will show filler lines for lines that are missing in one window but are present in another. These lines were inserted in another file or deleted in this file. Removing "filler" from the 'diffopt' option will make Vim not display these filler lines.

Folds are used to hide the text that wasn't changed. See folding for all the commands that can be used with folds.

The context of lines above a difference that are not included in the fold can be set with the 'diffopt' option. For example, to set the context to three lines:

```
:set diffopt=filler,context:3
```

The diffs are highlighted with these groups:

hl-DiffAdd	DiffAdd	Added (inserted) lines. These lines exist in this buffer but not in another.
hl-DiffChange	DiffChange	Changed lines.
hl-DiffText	DiffText	Changed text inside a Changed line. Vim finds the first character that is different, and the last character that is different (searching from the end of the line). The text in between is highlighted. This means that parts in the middle that are still the same are highlighted anyway. The 'diffopt' flags "iwhite" and "icase" are used here.
hl-DiffDelete	DiffDelete	Deleted lines. Also called filler lines, because they don't really exist in this buffer.

==========
3. Jumping to diffs jumpto-diffs

Two commands can be used to jump to diffs:

[c
[c Jump backwards to the previous start of a change.
When a count is used, do it that many times.
]c
]c Jump forwards to the next start of a change.
When a count is used, do it that many times.

It is an error if there is no change for the cursor to move to.

==========
4. Diff copying copy-diffs E99 E100 E101 E102 E103
merge

There are two commands to copy text from one buffer to another. The result is that the buffers will be equal within the specified range.

:diffg :diffget
:[range]diffg[et] [bufspec]
Modify the current buffer to undo difference with another buffer. If [bufspec] is given, that buffer is used. If [bufspec] refers to the current buffer then nothing happens. Otherwise this only works if there is one other buffer in diff mode.
See below for [range].

:diffpu :diffput E793
:[range]diffpu[t] [bufspec]
Modify another buffer to undo difference with the current buffer. Just like ":diffget" but the other buffer is modified instead of the current one.
When [bufspec] is omitted and there is more than one other buffer in diff mode where 'modifiable' is set this fails.
See below for [range].

                                                        do
[count]do   Same as ":diffget" without range. The "o" stands for "obtain"
                ("dg" can't be used, it could be the start of "dgg"!). Note:
                this doesn't work in Visual mode.
                If you give a [count], it is used as the [bufspec] argument
                for ":diffget".

                                                        dp
[count]dp   Same as ":diffput" without range. Note: this doesn't work in
                Visual mode.
                If you give a [count], it is used as the [bufspec] argument
                for ":diffput".

When no [range] is given, the diff at the cursor position or just above it is affected. When [range] is used, Vim tries to only put or get the specified lines. When there are deleted lines, this may not always be possible.

There can be deleted lines below the last line of the buffer. When the cursor is on the last line in the buffer and there is no diff above this line, the ":diffget" and "do" commands will obtain lines from the other buffer.

To be able to get those lines from another buffer in a [range] it's allowed to use the last line number plus one. This command gets all diffs from the other buffer:

        :1,$+1diffget

Note that deleted lines are displayed, but not counted as text lines. You can't move the cursor into them. To fill the deleted lines with the lines from another buffer use ":diffget" on the line below them.
                                                                        E787
When the buffer that is about to be modified is read-only and the autocommand that is triggered by FileChangedRO changes buffers the command will fail. The autocommand must not change buffers.

The [bufspec] argument above can be a buffer number, a pattern for a buffer name or a part of a buffer name. Examples:

        :diffget   Use the other buffer which is in diff mode
        :diffget 3   Use buffer 3
        :diffget v2   Use the buffer which matches "v2" and is in
                                diff mode (e.g., "file.c.v2")

==
5. Diff options   diff-options

Also see 'diffopt' and the "diff" item of 'fillchars' .

                                                diff-slow   diff_translations
For very long lines, the diff syntax highlighting might be slow, especially since it tries to match all different kind of localisations. To disable localisations and speed up the syntax highlighting, set the global variable

g:diff_translations to zero:

```
    let g:diff_translations = 0
```

After setting this variable, reload the syntax script:

```
    set syntax=diff
```

FINDING THE DIFFERENCES diff-diffexpr

The 'diffexpr' option can be set to use something else than the standard "diff" program to compare two files and find the differences.

When 'diffexpr' is empty, Vim uses this command to find the differences between file1 and file2:

```
        diff file1 file2 > outfile
```

The ">" is replaced with the value of 'shellredir'.

The output of "diff" must be a normal "ed" style diff. Do NOT use a context diff. This example explains the format that Vim expects:

```
        1a2
        > bbb
        4d4
        < 111
        7c7
        < GGG
        ---
        > ggg
```

The "1a2" item appends the line "bbb".
The "4d4" item deletes the line "111".
The "7c7" item replaces the line "GGG" with "ggg".

When 'diffexpr' is not empty, Vim evaluates it to obtain a diff file in the format mentioned. These variables are set to the file names used:

```
        v:fname_in              original file
        v:fname_new             new version of the same file
        v:fname_out             resulting diff file
```

Additionally, 'diffexpr' should take care of "icase" and "iwhite" in the 'diffopt' option. 'diffexpr' cannot change the value of 'lines' and 'columns'.

Example (this does almost the same as 'diffexpr' being empty):

```
        set diffexpr=MyDiff()
        function MyDiff()
           let opt = ""
```

```
          if &diffopt =~ "icase"
            let opt = opt . "-i "
          endif
          if &diffopt =~ "iwhite"
            let opt = opt . "-b "
          endif
          silent execute "!diff -a --binary " . opt . v:fname_in . " " . v:fname_new .
              \  " > " . v:fname_out
        endfunction
```

The "-a" argument is used to force comparing the files as text, comparing as binaries isn't useful. The "--binary" argument makes the files read in binary mode, so that a CTRL-Z doesn't end the text on DOS.

E810 E97

Vim will do a test if the diff output looks alright. If it doesn't, you will get an error message. Possible causes:
- The "diff" program cannot be executed.
- The "diff" program doesn't produce normal "ed" style diffs (see above).
- The 'shell' and associated options are not set correctly. Try if filtering works with a command like ":!sort".
- You are using 'diffexpr' and it doesn't work.

If it's not clear what the problem is set the 'verbose' option to one or more to see more messages.

The self-installing Vim for MS-Windows includes a diff program. If you don't have it you might want to download a diff.exe. For example from http://gnuwin32.sourceforge.net/packages/diffutils.htm.

USING PATCHES diff-patchexpr

The 'patchexpr' option can be set to use something else than the standard "patch" program.

When 'patchexpr' is empty, Vim will call the "patch" program like this:

```
patch -o outfile origfile < patchfile
```

This should work fine with most versions of the "patch" program. Note that a CR in the middle of a line may cause problems, it is seen as a line break.

If the default doesn't work for you, set the 'patchexpr' to an expression that will have the same effect. These variables are set to the file names used:

```
v:fname_in              original file
v:fname_diff            patch file
v:fname_out             resulting patched file
```

Example (this does the same as 'patchexpr' being empty):

```
set patchexpr=MyPatch()
function MyPatch()
  :call system("patch -o " . v:fname_out . " " . v:fname_in .
```

```
          \  " < " . v:fname_diff)
      endfunction
```

Make sure that using the "patch" program doesn't have unwanted side effects.
For example, watch out for additionally generated files, which should be
deleted. It should just patch the file and nothing else.
   Vim will change directory to "/tmp" or another temp directory before
evaluating 'patchexpr'. This hopefully avoids that files in the current
directory are accidentally patched. Vim will also delete files starting with
v:fname_in and ending in ".rej" and ".orig".

 vim:tw=78:ts=8:noet:ft=help:norl:

autocmd.txt For Vim version 8.1. Last change: 2018 May 03

VIM REFERENCE MANUAL by Bram Moolenaar

Automatic commands autocommand autocommands

For a basic explanation, see section 40.3 in the user manual.

{Vi does not have any of these commands}

==========
1. Introduction autocmd-intro

You can specify commands to be executed automatically when reading or writing a file, when entering or leaving a buffer or window, and when exiting Vim. For example, you can create an autocommand to set the 'cindent' option for files matching *.c. You can also use autocommands to implement advanced features, such as editing compressed files (see gzip-example). The usual place to put autocommands is in your .vimrc or .exrc file.

E203 E204 E143 E855 E937 E952

WARNING: Using autocommands is very powerful, and may lead to unexpected side effects. Be careful not to destroy your text.
- It's a good idea to do some testing on an expendable copy of a file first. For example: If you use autocommands to decompress a file when starting to edit it, make sure that the autocommands for compressing when writing work correctly.
- Be prepared for an error halfway through (e.g., disk full). Vim will mostly be able to undo the changes to the buffer, but you may have to clean up the changes to other files by hand (e.g., compress a file that has been decompressed).
- If the BufRead* events allow you to edit a compressed file, the FileRead* events should do the same (this makes recovery possible in some rare cases). It's a good idea to use the same autocommands for the File* and Buf* events when possible.

==========
2. Defining autocommands autocmd-define

:au :autocmd

:au[tocmd] [group] {event} {pat} [nested] {cmd}
                        Add {cmd} to the list of commands that Vim will
                        execute automatically on {event} for a file matching
                        {pat} autocmd-patterns .
                        Note: A quote character is seen as argument to the
                        :autocmd and won't start a comment.
                        Vim always adds the {cmd} after existing autocommands,
                        so that the autocommands execute in the order in which
                        they were given. See autocmd-nested for [nested].

The special pattern <buffer> or <buffer=N> defines a buffer-local autocommand.
See autocmd-buflocal .

Note: The ":autocmd" command can only be followed by another command when the
'|' appears before {cmd}. This works:
        :augroup mine | au! BufRead | augroup END
But this sees "augroup" as part of the defined command:
        :augroup mine | au! BufRead * | augroup END
        :augroup mine | au BufRead * set tw=70 | augroup END
Instead you can put the group name into the command:
        :au! mine BufRead *
        :au mine BufRead * set tw=70
Or use `:execute`:
        :augroup mine | exe "au! BufRead *" | augroup END
        :augroup mine | exe "au BufRead * set tw=70" | augroup END

Note that special characters (e.g., "%", "<cword>") in the ":autocmd"
arguments are not expanded when the autocommand is defined. These will be
expanded when the Event is recognized, and the {cmd} is executed. The only
exception is that "<sfile>" is expanded when the autocmd is defined. Example:

        :au BufNewFile,BufRead *.html so <sfile>:h/html.vim

Here Vim expands <sfile> to the name of the file containing this line.

`:autocmd` adds to the list of autocommands regardless of whether they are
already present. When your .vimrc file is sourced twice, the autocommands
will appear twice. To avoid this, define your autocommands in a group, so
that you can easily clear them:

        augroup vimrc
          " Remove all vimrc autocommands
          autocmd!
          au BufNewFile,BufRead *.html so <sfile>:h/html.vim
        augroup END

If you don't want to remove all autocommands, you can instead use a variable
to ensure that Vim includes the autocommands only once:

        :if !exists("autocommands_loaded")
        : let autocommands_loaded = 1
        : au ...
        :endif

When the [group] argument is not given, Vim uses the current group (as defined with ":augroup"); otherwise, Vim uses the group defined with [group]. Note that [group] must have been defined before. You cannot define a new group with ":au group ..."; use ":augroup" for that.

While testing autocommands, you might find the 'verbose' option to be useful:
```
:set verbose=9
```
This setting makes Vim echo the autocommands as it executes them.

When defining an autocommand in a script, it will be able to call functions local to the script and use mappings local to the script. When the event is triggered and the command executed, it will run in the context of the script it was defined in. This matters if <SID> is used in a command.

When executing the commands, the message from one command overwrites a previous message. This is different from when executing the commands manually. Mostly the screen will not scroll up, thus there is no hit-enter prompt. When one command outputs two messages this can happen anyway.

==
3. Removing autocommands autocmd-remove

:au[tocmd]! [group] {event} {pat} [nested] {cmd}
Remove all autocommands associated with {event} and {pat}, and add the command {cmd}. See autocmd-nested for [nested].

:au[tocmd]! [group] {event} {pat}
Remove all autocommands associated with {event} and {pat}.

:au[tocmd]! [group] * {pat}
Remove all autocommands associated with {pat} for all events.

:au[tocmd]! [group] {event}
Remove ALL autocommands for {event}.
Warning: You should not do this without a group for BufRead and other common events, it can break plugins, syntax highlighting, etc.

:au[tocmd]! [group]
Remove ALL autocommands.
Note: a quote will be seen as argument to the :autocmd and won't start a comment.
Warning: You should normally not do this without a group, it breaks plugins, syntax highlighting, etc.

When the [group] argument is not given, Vim uses the current group (as defined with ":augroup"); otherwise, Vim uses the group defined with [group].

==
4. Listing autocommands autocmd-list

:au[tocmd] [group] {event} {pat}

Show the autocommands associated with {event} and {pat}.

:au[tocmd] [group] * {pat}
Show the autocommands associated with {pat} for all events.

:au[tocmd] [group] {event}
Show all autocommands for {event}.

:au[tocmd] [group] Show all autocommands.

If you provide the [group] argument, Vim lists only the autocommands for [group]; otherwise, Vim lists the autocommands for ALL groups. Note that this argument behavior differs from that for defining and removing autocommands.

In order to list buffer-local autocommands, use a pattern in the form <buffer> or <buffer=N>. See autocmd-buflocal .

:autocmd-verbose

When 'verbose' is non-zero, listing an autocommand will also display where it was last defined. Example:

```
:verbose autocmd BufEnter
FileExplorer  BufEnter
    *         call s:LocalBrowse(expand("<amatch>"))
        Last set from /usr/share/vim/vim-7.0/plugin/NetrwPlugin.vim
```

See :verbose-cmd for more information.

==
5. Events autocmd-events E215 E216

You can specify a comma-separated list of event names. No white space can be used in this list. The command applies to all the events in the list.

For READING FILES there are four kinds of events possible:

BufNewFile		starting to edit a non-existent file
BufReadPre	BufReadPost	starting to edit an existing file
FilterReadPre	FilterReadPost	read the temp file with filter output
FileReadPre	FileReadPost	any other file read

Vim uses only one of these four kinds when reading a file. The "Pre" and "Post" events are both triggered, before and after reading the file.

Note that the autocommands for the *ReadPre events and all the Filter events are not allowed to change the current buffer (you will get an error message if this happens). This is to prevent the file to be read into the wrong buffer.

Note that the 'modified' flag is reset AFTER executing the BufReadPost and BufNewFile autocommands. But when the 'modified' option was set by the autocommands, this doesn't happen.

You can use the 'eventignore' option to ignore a number of events or all events.

autocommand-events {event}

Vim recognizes the following events. Vim ignores the case of event names (e.g., you can use "BUFread" or "bufread" instead of "BufRead").

First an overview by function with a short explanation. Then the list alphabetically with full explanations autocmd-events-abc .

Name	triggered by
Reading	
BufNewFile	starting to edit a file that doesn't exist
BufReadPre	starting to edit a new buffer, before reading the file
BufRead	starting to edit a new buffer, after reading the file
BufReadPost	starting to edit a new buffer, after reading the file
BufReadCmd	before starting to edit a new buffer Cmd-event
FileReadPre	before reading a file with a ":read" command
FileReadPost	after reading a file with a ":read" command
FileReadCmd	before reading a file with a ":read" command Cmd-event
FilterReadPre	before reading a file from a filter command
FilterReadPost	after reading a file from a filter command
StdinReadPre	before reading from stdin into the buffer
StdinReadPost	After reading from the stdin into the buffer
Writing	
BufWrite	starting to write the whole buffer to a file
BufWritePre	starting to write the whole buffer to a file
BufWritePost	after writing the whole buffer to a file
BufWriteCmd	before writing the whole buffer to a file Cmd-event
FileWritePre	starting to write part of a buffer to a file
FileWritePost	after writing part of a buffer to a file
FileWriteCmd	before writing part of a buffer to a file Cmd-event
FileAppendPre	starting to append to a file
FileAppendPost	after appending to a file
FileAppendCmd	before appending to a file Cmd-event
FilterWritePre	starting to write a file for a filter command or diff
FilterWritePost	after writing a file for a filter command or diff
Buffers	
BufAdd	just after adding a buffer to the buffer list
BufCreate	just after adding a buffer to the buffer list
BufDelete	before deleting a buffer from the buffer list
BufWipeout	before completely deleting a buffer
TerminalOpen	after a terminal buffer was created
BufFilePre	before changing the name of the current buffer
BufFilePost	after changing the name of the current buffer
BufEnter	after entering a buffer

```
BufLeave                before leaving to another buffer
BufWinEnter             after a buffer is displayed in a window
BufWinLeave             before a buffer is removed from a window

BufUnload               before unloading a buffer
BufHidden               just after a buffer has become hidden
BufNew                  just after creating a new buffer

SwapExists              detected an existing swap file

        Options
FileType                when the 'filetype' option has been set
Syntax                  when the 'syntax' option has been set
EncodingChanged         after the 'encoding' option has been changed
TermChanged             after the value of 'term' has changed
OptionSet               after setting any option

        Startup and exit
VimEnter                after doing all the startup stuff
GUIEnter                after starting the GUI successfully
GUIFailed               after starting the GUI failed
TermResponse            after the terminal response to  t_RV  is received

QuitPre                 when using `:quit`, before deciding whether to exit
ExitPre                 when using a command that may make Vim exit
VimLeavePre             before exiting Vim, before writing the viminfo file
VimLeave                before exiting Vim, after writing the viminfo file

        Various
FileChangedShell        Vim notices that a file changed since editing started
FileChangedShellPost    After handling a file changed since editing started
FileChangedRO           before making the first change to a read-only file

DirChanged              after the working directory has changed

ShellCmdPost            after executing a shell command
ShellFilterPost         after filtering with a shell command

CmdUndefined            a user command is used but it isn't defined
FuncUndefined           a user function is used but it isn't defined
SpellFileMissing        a spell file is used but it can't be found
SourcePre               before sourcing a Vim script
SourceCmd               before sourcing a Vim script  Cmd-event

VimResized              after the Vim window size changed
FocusGained             Vim got input focus
FocusLost               Vim lost input focus
CursorHold              the user doesn't press a key for a while
CursorHoldI             the user doesn't press a key for a while in Insert mode
CursorMoved             the cursor was moved in Normal mode
CursorMovedI            the cursor was moved in Insert mode

WinNew                  after creating a new window
TabNew                  after creating a new tab page
```

TabClosed	after closing a tab page
WinEnter	after entering another window
WinLeave	before leaving a window
TabEnter	after entering another tab page
TabLeave	before leaving a tab page
CmdwinEnter	after entering the command-line window
CmdwinLeave	before leaving the command-line window
CmdlineChanged	after a change was made to the command-line text
CmdlineEnter	after the cursor moves to the command line
CmdlineLeave	before the cursor leaves the command line
InsertEnter	starting Insert mode
InsertChange	when typing <Insert> while in Insert or Replace mode
InsertLeave	when leaving Insert mode
InsertCharPre	when a character was typed in Insert mode, before inserting it
TextChanged	after a change was made to the text in Normal mode
TextChangedI	after a change was made to the text in Insert mode when popup menu is not visible
TextChangedP	after a change was made to the text in Insert mode when popup menu visible
TextYankPost	after text has been yanked or deleted
ColorSchemePre	before loading a color scheme
ColorScheme	after loading a color scheme
RemoteReply	a reply from a server Vim was received
QuickFixCmdPre	before a quickfix command is run
QuickFixCmdPost	after a quickfix command is run
SessionLoadPost	after loading a session file
MenuPopup	just before showing the popup menu
CompleteDone	after Insert mode completion is done
User	to be used in combination with ":doautocmd"

The alphabetical list of autocommand events: autocmd-events-abc

BufCreate BufAdd

BufAdd or BufCreate Just after creating a new buffer which is added to the buffer list, or adding a buffer to the buffer list.
Also used just after a buffer in the buffer list has been renamed.
The BufCreate event is for historic reasons.
NOTE: When this autocommand is executed, the current buffer "%" may be different from the buffer being created "<afile>".
BufDelete

BufDelete
Before deleting a buffer from the buffer list. The BufUnload may be called first (if the buffer was loaded).
Also used just before a buffer in the buffer list is renamed.
NOTE: When this autocommand is executed, the current buffer "%" may be different from the buffer being deleted "<afile>" and "<abuf>". Don't change to another buffer, it will cause problems.

BufEnter
After entering a buffer. Useful for setting options for a file type. Also executed when starting to edit a buffer, after the BufReadPost autocommands.

BufFilePost
After changing the name of the current buffer with the ":file" or ":saveas" command.

BufFilePre
Before changing the name of the current buffer with the ":file" or ":saveas" command.

BufHidden
Just after a buffer has become hidden. That is, when there are no longer windows that show the buffer, but the buffer is not unloaded or deleted. Not used for ":qa" or ":q" when exiting Vim.
NOTE: When this autocommand is executed, the current buffer "%" may be different from the buffer being unloaded "<afile>".

BufLeave
Before leaving to another buffer. Also when leaving or closing the current window and the new current window is not for the same buffer. Not used for ":qa" or ":q" when exiting Vim.

BufNew
Just after creating a new buffer. Also used just after a buffer has been renamed. When the buffer is added to the buffer list BufAdd will be triggered too.
NOTE: When this autocommand is executed, the current buffer "%" may be different from the buffer being created "<afile>".

BufNewFile
When starting to edit a file that doesn't exist. Can be used to read in a skeleton file.

BufRead or BufReadPost
When starting to edit a new buffer, after reading the file into the buffer, before executing the modelines. See BufWinEnter for when you need to do something after processing the modelines.
This does NOT work for ":r file". Not used

when the file doesn't exist. Also used after
successfully recovering a file.
Also triggered for the filetypedetect group
when executing ":filetype detect" and when
writing an unnamed buffer in a way that the
buffer gets a name.
BufReadCmd

BufReadCmd Before starting to edit a new buffer. Should
read the file into the buffer. Cmd-event
BufReadPre E200 E201

BufReadPre When starting to edit a new buffer, before
reading the file into the buffer. Not used
if the file doesn't exist.
BufUnload

BufUnload Before unloading a buffer. This is when the
text in the buffer is going to be freed. This
may be after a BufWritePost and before a
BufDelete. Also used for all buffers that are
loaded when Vim is going to exit.
NOTE: When this autocommand is executed, the
current buffer "%" may be different from the
buffer being unloaded "<afile>".
Don't change to another buffer or window, it
will cause problems!
When exiting and v:dying is 2 or more this
event is not triggered.
BufWinEnter

BufWinEnter After a buffer is displayed in a window. This
can be when the buffer is loaded (after
processing the modelines) or when a hidden
buffer is displayed in a window (and is no
longer hidden).
Does not happen for :split without
arguments, since you keep editing the same
buffer, or ":split" with a file that's already
open in a window, because it re-uses an
existing buffer. But it does happen for a
":split" with the name of the current buffer,
since it reloads that buffer.
Does not happen for a terminal window, because
it starts in Terminal-Job mode and Normal mode
commands won't work. Use TerminalOpen instead.
BufWinLeave

BufWinLeave Before a buffer is removed from a window.
Not when it's still visible in another window.
Also triggered when exiting. It's triggered
before BufUnload or BufHidden.
NOTE: When this autocommand is executed, the
current buffer "%" may be different from the
buffer being unloaded "<afile>".
When exiting and v:dying is 2 or more this
event is not triggered.
BufWipeout

BufWipeout Before completely deleting a buffer. The

BufUnload and BufDelete events may be called first (if the buffer was loaded and was in the buffer list). Also used just before a buffer is renamed (also when it's not in the buffer list).
NOTE: When this autocommand is executed, the current buffer "%" may be different from the buffer being deleted "<afile>".
Don't change to another buffer, it will cause problems.

BufWrite BufWritePre

BufWrite or BufWritePre — Before writing the whole buffer to a file.

BufWriteCmd

BufWriteCmd — Before writing the whole buffer to a file.
Should do the writing of the file and reset 'modified' if successful, unless '+' is in 'cpo' and writing to another file cpo-+ .
The buffer contents should not be changed.
When the command resets 'modified' the undo information is adjusted to mark older undo states as 'modified', like :write does.
Cmd-event

BufWritePost

BufWritePost — After writing the whole buffer to a file (should undo the commands for BufWritePre).

CmdUndefined

CmdUndefined — When a user command is used but it isn't defined. Useful for defining a command only when it's used. The pattern is matched against the command name. Both <amatch> and <afile> are set to the name of the command.
NOTE: Autocompletion won't work until the command is defined. An alternative is to always define the user command and have it invoke an autoloaded function. See autoload .

CmdlineChanged

CmdlineChanged — After a change was made to the text in the command line. Be careful not to mess up the command line, it may cause Vim to lock up.
<afile> is set to a single character, indicating the type of command-line.
cmdwin-char

CmdlineEnter

CmdlineEnter — After moving the cursor to the command line, where the user can type a command or search string.
<afile> is set to a single character, indicating the type of command-line.
cmdwin-char

CmdlineLeave

CmdlineLeave — Before leaving the command line.
Also when abandoning the command line, after typing CTRL-C or <Esc>.
When the commands result in an error the

command line is still executed.
<afile> is set to a single character,
indicating the type of command-line.
cmdwin-char

CmdwinEnter

CmdwinEnter After entering the command-line window.
Useful for setting options specifically for
this special type of window. This is
triggered _instead_ of BufEnter and WinEnter.
<afile> is set to a single character,
indicating the type of command-line.
cmdwin-char

CmdwinLeave

CmdwinLeave Before leaving the command-line window.
Useful to clean up any global setting done
with CmdwinEnter. This is triggered _instead_
of BufLeave and WinLeave.
<afile> is set to a single character,
indicating the type of command-line.
cmdwin-char

ColorScheme

ColorScheme After loading a color scheme. :colorscheme
The pattern is matched against the
colorscheme name. <afile> can be used for the
name of the actual file where this option was
set, and <amatch> for the new colorscheme
name.

ColorSchemePre

ColorSchemePre Before loading a color scheme. :colorscheme
Useful to setup removing things added by a
color scheme, before another one is loaded.

CompleteDone

CompleteDone After Insert mode completion is done. Either
when something was completed or abandoning
completion. ins-completion
The v:completed_item variable contains
information about the completed item.

CursorHold

CursorHold When the user doesn't press a key for the time
specified with 'updatetime'. Not re-triggered
until the user has pressed a key (i.e. doesn't
fire every 'updatetime' ms if you leave Vim to
make some coffee. :) See CursorHold-example
for previewing tags.
This event is only triggered in Normal mode.
It is not triggered when waiting for a command
argument to be typed, or a movement after an
operator.
While recording the CursorHold event is not
triggered. q
<CursorHold>

Internally the autocommand is triggered by the
<CursorHold> key. In an expression mapping
getchar() may see this character.

Note: Interactive commands cannot be used for
this event. There is no hit-enter prompt,
the screen is updated directly (when needed).
Note: In the future there will probably be
another option to set the time.
Hint: to force an update of the status lines
use:
:let &ro = &ro
{only on Amiga, Unix, Win32, MSDOS and all GUI
versions}

CursorHoldI

CursorHoldI Just like CursorHold, but in Insert mode.
Not triggered when waiting for another key,
e.g. after CTRL-V, and not when in CTRL-X mode
insert_expand .

CursorMoved

CursorMoved After the cursor was moved in Normal or Visual
mode. Also when the text of the cursor line
has been changed, e.g., with "x", "rx" or "p".
Not triggered when there is typeahead or when
an operator is pending.
For an example see match-parens .
Careful: This is triggered very often, don't
do anything that the user does not expect or
that is slow.

CursorMovedI

CursorMovedI After the cursor was moved in Insert mode.
Not triggered when the popup menu is visible.
Otherwise the same as CursorMoved.

EncodingChanged

EncodingChanged Fires off after the 'encoding' option has been
changed. Useful to set up fonts, for example.

FileAppendCmd

FileAppendCmd Before appending to a file. Should do the
appending to the file. Use the '[and ']
marks for the range of lines. Cmd-event

FileAppendPost

FileAppendPost After appending to a file.

FileAppendPre

FileAppendPre Before appending to a file. Use the '[and ']
marks for the range of lines.

FileChangedRO

FileChangedRO Before making the first change to a read-only
file. Can be used to check-out the file from
a source control system. Not triggered when
the change was caused by an autocommand.
This event is triggered when making the first
change in a buffer or the first change after
'readonly' was set, just before the change is

applied to the text.
WARNING: If the autocommand moves the cursor the effect of the change is undefined.
E788
It is not allowed to change to another buffer here. You can reload the buffer but not edit another one.
E881
If the number of lines changes saving for undo may fail and the change will be aborted.
DirChanged

DirChanged — The working directory has changed in response to the :cd or :lcd commands, or as a result of the 'autochdir' option.
The pattern can be:
"window" to trigger on `:lcd
"global" to trigger on `:cd`
"auto" to trigger on 'autochdir'.
"drop" to trigger on editing a file
<afile> is set to the new directory name.
ExitPre

ExitPre — When using `:quit`, `:wq` in a way it makes Vim exit, or using `:qall`, just after QuitPre. Can be used to close any non-essential window. Exiting may still be cancelled if there is a modified buffer that isn't automatically saved, use VimLeavePre for really exiting.
FileChangedShell

FileChangedShell — When Vim notices that the modification time of a file has changed since editing started. Also when the file attributes of the file change or when the size of the file changes. timestamp
Mostly triggered after executing a shell command, but also with a :checktime command or when gvim regains input focus.
This autocommand is triggered for each changed file. It is not used when 'autoread' is set and the buffer was not changed. If a FileChangedShell autocommand is present the warning message and prompt is not given.
The v:fcs_reason variable is set to indicate what happened and v:fcs_choice can be used to tell Vim what to do next.
NOTE: When this autocommand is executed, the current buffer "%" may be different from the buffer that was changed, which is in "<afile>".
NOTE: The commands must not change the current buffer, jump to another buffer or delete a buffer. E246 E811
NOTE: This event never nests, to avoid an endless loop. This means that while executing commands for the FileChangedShell event no

other FileChangedShell event will be triggered.

FileChangedShellPost — After handling a file that was changed outside of Vim. Can be used to update the statusline.

FileEncoding — Obsolete. It still works and is equivalent to EncodingChanged.

FileReadCmd — Before reading a file with a ":read" command. Should do the reading of the file. Cmd-event

FileReadPost — After reading a file with a ":read" command. Note that Vim sets the '[and '] marks to the first and last line of the read. This can be used to operate on the lines just read.

FileReadPre — Before reading a file with a ":read" command.

FileType — When the 'filetype' option has been set. The pattern is matched against the filetype. <afile> can be used for the name of the file where this option was set, and <amatch> for the new value of 'filetype'. Navigating to another window or buffer is not allowed. See filetypes.

FileWriteCmd — Before writing to a file, when not writing the whole buffer. Should do the writing to the file. Should not change the buffer. Use the '[and '] marks for the range of lines. Cmd-event

FileWritePost — After writing to a file, when not writing the whole buffer.

FileWritePre — Before writing to a file, when not writing the whole buffer. Use the '[and '] marks for the range of lines.

FilterReadPost — After reading a file from a filter command. Vim checks the pattern against the name of the current buffer as with FilterReadPre. Not triggered when 'shelltemp' is off.

FilterReadPre — Before reading a file from a filter command. Vim checks the pattern against the name of the current buffer, not the name of the temporary file that is the output of the filter command. Not triggered when 'shelltemp' is off.

FilterWritePost — After writing a file for a filter command or making a diff.

Vim checks the pattern against the name of
the current buffer as with FilterWritePre.
Not triggered when 'shelltemp' is off.

FilterWritePre

FilterWritePre Before writing a file for a filter command or making a diff.
Vim checks the pattern against the name of the current buffer, not the name of the temporary file that is the output of the filter command.
Not triggered when 'shelltemp' is off.

FocusGained

FocusGained When Vim got input focus. Only for the GUI version and a few console versions where this can be detected.

FocusLost

FocusLost When Vim lost input focus. Only for the GUI version and a few console versions where this can be detected. May also happen when a dialog pops up.

FuncUndefined

FuncUndefined When a user function is used but it isn't defined. Useful for defining a function only when it's used. The pattern is matched against the function name. Both <amatch> and <afile> are set to the name of the function.
NOTE: When writing Vim scripts a better alternative is to use an autoloaded function.
See autoload-functions .

GUIEnter

GUIEnter After starting the GUI successfully, and after opening the window. It is triggered before VimEnter when using gvim. Can be used to position the window from a .gvimrc file:

```
:autocmd GUIEnter * winpos 100 50
```

GUIFailed

GUIFailed After starting the GUI failed. Vim may continue to run in the terminal, if possible (only on Unix and alikes, when connecting the X server fails). You may want to quit Vim:

```
:autocmd GUIFailed * qall
```

InsertChange

InsertChange When typing <Insert> while in Insert or Replace mode. The v:insertmode variable indicates the new mode.
Be careful not to move the cursor or do anything else that the user does not expect.

InsertCharPre

InsertCharPre When a character is typed in Insert mode, before inserting the char.
The v:char variable indicates the char typed and can be changed during the event to insert a different character. When v:char is set to more than one character this text is

inserted literally.
It is not allowed to change the text |textlock|.
The event is not triggered when 'paste' is set. {only with the +eval feature}

InsertEnter

InsertEnter — Just before starting Insert mode. Also for Replace mode and Virtual Replace mode. The |v:insertmode| variable indicates the mode.
Be careful not to do anything else that the user does not expect.
The cursor is restored afterwards. If you do not want that set |v:char| to a non-empty string.

InsertLeave

InsertLeave — When leaving Insert mode. Also when using CTRL-O |i_CTRL-O|. But not for |i_CTRL-C|.

MenuPopup

MenuPopup — Just before showing the popup menu (under the right mouse button). Useful for adjusting the menu for what is under the cursor or mouse pointer.
The pattern is matched against a single character representing the mode:

n	Normal
v	Visual
o	Operator-pending
i	Insert
c	Command line

OptionSet

OptionSet — After setting an option. The pattern is matched against the long option name.
The |v:option_old| variable indicates the old option value, |v:option_new| variable indicates the newly set value, the |v:option_type| variable indicates whether it's global or local scoped and |<amatch>| indicates what option has been set.

Is not triggered on startup and for the 'key' option for obvious reasons.

Usage example: Check for the existence of the directory in the 'backupdir' and 'undodir' options, create the directory if it doesn't exist yet.

Note: It's a bad idea to reset an option during this autocommand, this may break a plugin. You can always use `:noa` to prevent triggering this autocommand.

QuickFixCmdPre

QuickFixCmdPre — Before a quickfix command is run (|:make|, |:lmake|, |:grep|, |:lgrep|, |:grepadd|,

:lgrepadd , :vimgrep , :lvimgrep ,
:vimgrepadd , :lvimgrepadd , :cscope ,
:cfile , :cgetfile , :caddfile , :lfile ,
:lgetfile , :laddfile , :helpgrep ,
:lhelpgrep , :cexpr , :cgetexpr ,
:caddexpr , :cbuffer , :cgetbuffer ,
:caddbuffer).
The pattern is matched against the command
being run. When :grep is used but 'grepprg'
is set to "internal" it still matches "grep".
This command cannot be used to set the
'makeprg' and 'grepprg' variables.
If this command causes an error, the quickfix
command is not executed.

QuickFixCmdPost

QuickFixCmdPost Like QuickFixCmdPre, but after a quickfix
command is run, before jumping to the first
location. For :cfile and :lfile commands
it is run after error file is read and before
moving to the first error.
See QuickFixCmdPost-example .

QuitPre

QuitPre When using `:quit`, `:wq` or `:qall`, before
deciding whether it closes the current window
or quits Vim. Can be used to close any
non-essential window if the current window is
the last ordinary window.
Also see ExitPre .

RemoteReply

RemoteReply When a reply from a Vim that functions as
server was received server2client() . The
pattern is matched against the {serverid}.
<amatch> is equal to the {serverid} from which
the reply was sent, and <afile> is the actual
reply string.
Note that even if an autocommand is defined,
the reply should be read with remote_read()
to consume it.

SessionLoadPost

SessionLoadPost After loading the session file created using
the :mksession command.

ShellCmdPost

ShellCmdPost After executing a shell command with :!cmd ,
:shell , :make and :grep . Can be used to
check for any changed files.

ShellFilterPost

ShellFilterPost After executing a shell command with
":{range}!cmd", ":w !cmd" or ":r !cmd".
Can be used to check for any changed files.

SourcePre

SourcePre Before sourcing a Vim script. :source
<afile> is the name of the file being sourced.

SourceCmd

SourceCmd When sourcing a Vim script. :source

<afile> is the name of the file being sourced.
The autocommand must source this file.
Cmd-event

SpellFileMissing

SpellFileMissing When trying to load a spell checking file and it can't be found. The pattern is matched against the language. <amatch> is the language, 'encoding' also matters. See spell-SpellFileMissing .

StdinReadPost

StdinReadPost After reading from the stdin into the buffer, before executing the modelines. Only used when the "-" argument was used when Vim was started -- .

StdinReadPre

StdinReadPre Before reading from stdin into the buffer. Only used when the "-" argument was used when Vim was started -- .

SwapExists

SwapExists Detected an existing swap file when starting to edit a file. Only when it is possible to select a way to handle the situation, when Vim would ask the user what to do.
The v:swapname variable holds the name of the swap file found, <afile> the file being edited. v:swapcommand may contain a command to be executed in the opened file.
The commands should set the v:swapchoice variable to a string with one character to tell Vim what should be done next:

```
'o'     open read-only
'e'     edit the file anyway
'r'     recover
'd'     delete the swap file
'q'     quit, don't edit the file
'a'     abort, like hitting CTRL-C
```

When set to an empty string the user will be asked, as if there was no SwapExists autocmd.
E812
It is not allowed to change to another buffer, change a buffer name or change directory here.
{only available with the +eval feature}

Syntax

Syntax When the 'syntax' option has been set. The pattern is matched against the syntax name. <afile> can be used for the name of the file where this option was set, and <amatch> for the new value of 'syntax'.
See :syn-on .

TabClosed

TabClosed After closing a tab page.

TabEnter

TabEnter Just after entering a tab page. tab-page

After triggering the WinEnter and before triggering the BufEnter event.

TabLeave

TabLeave Just before leaving a tab page. tab-page A WinLeave event will have been triggered first.

TabNew

TabNew When a tab page was created. tab-page A WinEnter event will have been triggered first, TabEnter follows.

TermChanged

TermChanged After the value of 'term' has changed. Useful for re-loading the syntax file to update the colors, fonts and other terminal-dependent settings. Executed for all loaded buffers.

TerminalOpen

TerminalOpen Just after a terminal buffer was created, with `:terminal` or term_start() . This event is triggered even if the buffer is created without a window, with the ++hidden option.

TermResponse

TermResponse After the response to t_RV is received from the terminal. The value of v:termresponse can be used to do things depending on the terminal version. Note that this event may be triggered halfway executing another event, especially if file I/O, a shell command or anything else that takes time is involved.

TextChanged

TextChanged After a change was made to the text in the current buffer in Normal mode. That is when b:changedtick has changed.
Not triggered when there is typeahead or when an operator is pending.
Careful: This is triggered very often, don't do anything that the user does not expect or that is slow.

TextChangedI

TextChangedI After a change was made to the text in the current buffer in Insert mode.
Not triggered when the popup menu is visible.
Otherwise the same as TextChanged.

TextChangedP

TextChangedP After a change was made to the text in the current buffer in Insert mode, only when the popup menu is visible. Otherwise the same as TextChanged.

TextYankPost

TextYankPost After text has been yanked or deleted in the current buffer. The following values of v:event can be used to determine the operation that triggered this autocmd:
operator The operation performed.
regcontents Text that was stored in the

register, as a list of lines, like with: getreg(r, 1, 1)

regname — Name of the register or empty string for the unnamed register.

regtype — Type of the register, see getregtype() .

Not triggered when quote_ is used nor when called recursively.
It is not allowed to change the buffer text, see textlock .
{only when compiled with the +eval feature}

User

User — Never executed automatically. To be used for autocommands that are only executed with ":doautocmd".
Note that when `:doautocmd User MyEvent` is used while there are no matching autocommands, you will get an error. If you don't want that, define a dummy autocommand yourself.

UserGettingBored

UserGettingBored — When the user presses the same key 42 times. Just kidding! :-)

VimEnter

VimEnter — After doing all the startup stuff, including loading .vimrc files, executing the "-c cmd" arguments, creating all windows and loading the buffers in them.
Just before this event is triggered the v:vim_did_enter variable is set, so that you can do:

```
if v:vim_did_enter
  call s:init()
else
  au VimEnter * call s:init()
endif
```

VimLeave

VimLeave — Before exiting Vim, just after writing the .viminfo file. Executed only once, like VimLeavePre.
To detect an abnormal exit use v:dying .
When v:dying is 2 or more this event is not triggered.

VimLeavePre

VimLeavePre — Before exiting Vim, just before writing the .viminfo file. This is executed only once, if there is a match with the name of what happens to be the current buffer when exiting.
Mostly useful with a "*" pattern.

```
:autocmd VimLeavePre * call CleanupStuff()
```

To detect an abnormal exit use v:dying .
When v:dying is 2 or more this event is not triggered.

VimResized

VimResized After the Vim window was resized, thus 'lines' and/or 'columns' changed. Not when starting up though.

WinEnter

WinEnter After entering another window. Not done for the first window, when Vim has just started. Useful for setting the window height.
If the window is for another buffer, Vim executes the BufEnter autocommands after the WinEnter autocommands.
Note: For split and tabpage commands the WinEnter event is triggered after the split or tab command but before the file is loaded.

WinLeave

WinLeave Before leaving a window. If the window to be entered next is for a different buffer, Vim executes the BufLeave autocommands before the WinLeave autocommands (but not for ":new"). Not used for ":qa" or ":q" when exiting Vim.

WinNew

WinNew When a new window was created. Not done for the first window, when Vim has just started. Before a WinEnter event.

==========

6. Patterns autocmd-patterns {pat}

The {pat} argument can be a comma separated list. This works as if the command was given with each pattern separately. Thus this command:

```
:autocmd BufRead *.txt,*.info set et
```

Is equivalent to:

```
:autocmd BufRead *.txt set et
:autocmd BufRead *.info set et
```

The file pattern {pat} is tested for a match against the file name in one of two ways:

1. When there is no '/' in the pattern, Vim checks for a match against only the tail part of the file name (without its leading directory path).
2. When there is a '/' in the pattern, Vim checks for a match against both the short file name (as you typed it) and the full file name (after expanding it to a full path and resolving symbolic links).

The special pattern <buffer> or <buffer=N> is used for buffer-local autocommands autocmd-buflocal . This pattern is not matched against the name of a buffer.

Examples:

```
:autocmd BufRead *.txt          set et
```

Set the 'et' option for all text files.

```
:autocmd BufRead /vim/src/*.c   set cindent
```

Set the 'cindent' option for C files in the /vim/src directory.

```
        :autocmd BufRead /tmp/*.c       set ts=5
```

If you have a link from "/tmp/test.c" to "/home/nobody/vim/src/test.c", and you start editing "/tmp/test.c", this autocommand will match.

Note: To match part of a path, but not from the root directory, use a '*' as the first character. Example:

```
        :autocmd BufRead */doc/*.txt    set tw=78
```

This autocommand will for example be executed for "/tmp/doc/xx.txt" and "/usr/home/piet/doc/yy.txt". The number of directories does not matter here.

The file name that the pattern is matched against is after expanding wildcards. Thus if you issue this command:

```
        :e $ROOTDIR/main.$EXT
```

The argument is first expanded to:

```
        /usr/root/main.py
```

Before it's matched with the pattern of the autocommand. Careful with this when using events like FileReadCmd, the value of <amatch> may not be what you expect.

Environment variables can be used in a pattern:

```
        :autocmd BufRead $VIMRUNTIME/doc/*.txt  set expandtab
```

And ~ can be used for the home directory (if $HOME is defined):

```
        :autocmd BufWritePost ~/.vimrc   so ~/.vimrc
        :autocmd BufRead ~archive/*      set readonly
```

The environment variable is expanded when the autocommand is defined, not when the autocommand is executed. This is different from the command!

file-pattern

The pattern is interpreted like mostly used in file names:

*	matches any sequence of characters; Unusual: includes path separators
?	matches any single character
\?	matches a '?'
.	matches a '.'
~	matches a '~'
,	separates patterns
\,	matches a ','
{ }	like \(\) in a pattern
,	inside { }: like | in a pattern
\}	literal }
\{	literal {
\\\{n,m\}	like \{n,m} in a pattern
\	special meaning like in a pattern
[ch]	matches 'c' or 'h'
[^ch]	match any character but 'c' and 'h'

Note that for all systems the '/' character is used for path separator (even MS-DOS and OS/2). This was done because the backslash is difficult to use in a pattern and to make the autocommands portable across different systems.

It is possible to use pattern items, but they may not work as expected,
because of the translation done for the above.

autocmd-changes
Matching with the pattern is done when an event is triggered. Changing the
buffer name in one of the autocommands, or even deleting the buffer, does not
change which autocommands will be executed. Example:

```
au BufEnter *.foo  bdel
au BufEnter *.foo  set modified
```

This will delete the current buffer and then set 'modified' in what has become
the current buffer instead. Vim doesn't take into account that "*.foo"
doesn't match with that buffer name. It matches "*.foo" with the name of the
buffer at the moment the event was triggered.

However, buffer-local autocommands will not be executed for a buffer that has
been wiped out with :bwipe . After deleting the buffer with :bdel the
buffer actually still exists (it becomes unlisted), thus the autocommands are
still executed.

==
7. Buffer-local autocommands autocmd-buflocal autocmd-buffer-local
                                  <buffer=N> <buffer=abuf> E680

Buffer-local autocommands are attached to a specific buffer. They are useful
if the buffer does not have a name and when the name does not match a specific
pattern. But it also means they must be explicitly added to each buffer.

Instead of a pattern buffer-local autocommands use one of these forms:
```
<buffer>        current buffer
<buffer=99>     buffer number 99
<buffer=abuf>   using <abuf> (only when executing autocommands)
                 <abuf>
```

Examples:
```
:au CursorHold <buffer>  echo 'hold'
:au CursorHold <buffer=33>  echo 'hold'
:au BufNewFile * au CursorHold <buffer=abuf>  echo 'hold'
```

All the commands for autocommands also work with buffer-local autocommands,
simply use the special string instead of the pattern. Examples:
```
:au! * <buffer>                 " remove buffer-local autocommands for
                                " current buffer
:au! * <buffer=33>              " remove buffer-local autocommands for
                                " buffer #33
:bufdo :au! CursorHold <buffer>  " remove autocmd for given event for all
                                " buffers
:au * <buffer>                  " list buffer-local autocommands for
                                " current buffer
```

Note that when an autocommand is defined for the current buffer, it is stored
with the buffer number. Thus it uses the form "<buffer=12>", where 12 is the
number of the current buffer. You will see this when listing autocommands,

for example.

To test for presence of buffer-local autocommands use the exists() function as follows:
```
:if exists("#CursorHold#<buffer=12>") | ... | endif
:if exists("#CursorHold#<buffer>") | ... | endif    " for current buffer
```

When a buffer is wiped out its buffer-local autocommands are also gone, of course. Note that when deleting a buffer, e.g., with ":bdel", it is only unlisted, the autocommands are still present. In order to see the removal of buffer-local autocommands:
```
:set verbose=6
```

It is not possible to define buffer-local autocommands for a non-existent buffer.

==
8. Groups autocmd-groups

Autocommands can be put together in a group. This is useful for removing or executing a group of autocommands. For example, all the autocommands for syntax highlighting are put in the "highlight" group, to be able to execute ":doautoall highlight BufRead" when the GUI starts.

When no specific group is selected, Vim uses the default group. The default group does not have a name. You cannot execute the autocommands from the default group separately; you can execute them only by executing autocommands for all groups.

Normally, when executing autocommands automatically, Vim uses the autocommands for all groups. The group only matters when executing autocommands with ":doautocmd" or ":doautoall", or when defining or deleting autocommands.

The group name can contain any characters except white space. The group name "end" is reserved (also in uppercase).

The group name is case sensitive. Note that this is different from the event name!

:aug[roup] {name} :aug :augroup
Define the autocmd group name for the following ":autocmd" commands. The name "end" or "END" selects the default group.
To avoid confusion, the name should be different from existing {event} names, as this most likely will not do what you intended.

:aug[roup]! {name} :augroup-delete E367 W19 E936
Delete the autocmd group {name}. Don't use this if there is still an autocommand using this group! You will get a warning if doing it anyway. when the group is the current group you will get error E936.

To enter autocommands for a specific group, use this method:
1. Select the group with ":augroup {name}".
2. Delete any old autocommands with ":au!".
3. Define the autocommands.
4. Go back to the default group with "augroup END".

Example:
```
:augroup uncompress
:  au!
:  au BufEnter *.gz     %!gunzip
:augroup END
```

This prevents having the autocommands defined twice (e.g., after sourcing the .vimrc file again).

==
9. Executing autocommands   autocmd-execute

Vim can also execute Autocommands non-automatically. This is useful if you have changed autocommands, or when Vim has executed the wrong autocommands (e.g., the file pattern match was wrong).

Note that the 'eventignore' option applies here too. Events listed in this option will not cause any commands to be executed.

                                              :do   :doau   :doautocmd   E217
:do[autocmd] [<nomodeline>] [group] {event} [fname]
                        Apply the autocommands matching [fname] (default:
                        current file name) for {event} to the current buffer.
                        You can use this when the current file name does not
                        match the right pattern, after changing settings, or
                        to execute autocommands for a certain event.
                        It's possible to use this inside an autocommand too,
                        so you can base the autocommands for one extension on
                        another extension. Example:
                                :au BufEnter *.cpp so ~/.vimrc_cpp
                                :au BufEnter *.cpp doau BufEnter x.c
                       Be careful to avoid endless loops. See
                         autocmd-nested .

                        When the [group] argument is not given, Vim executes
                        the autocommands for all groups. When the [group]
                        argument is included, Vim executes only the matching
                        autocommands for that group. Note: if you use an
                        undefined group name, Vim gives you an error message.
                                                              <nomodeline>
                        After applying the autocommands the modelines are
                        processed, so that their settings overrule the
                        settings from autocommands, like what happens when
                        editing a file. This is skipped when the <nomodeline>
                        argument is present. You probably want to use
                        <nomodeline> for events that are not used when loading
                        a buffer, such as User .
                        Processing modelines is also skipped when no

matching autocommands were executed.

:doautoa :doautoall
:doautoa[ll] [<nomodeline>] [group] {event} [fname]
Like ":doautocmd", but apply the autocommands to each loaded buffer. Note that [fname] is used to select the autocommands, not the buffers to which they are applied.
Careful: Don't use this for autocommands that delete a buffer, change to another buffer or change the contents of a buffer; the result is unpredictable.
This command is intended for autocommands that set options, change highlighting, and things like that.

==
10. Using autocommands autocmd-use

For WRITING FILES there are four possible sets of events. Vim uses only one of these sets for a write command:

BufWriteCmd	BufWritePre	BufWritePost	writing the whole buffer
	FilterWritePre	FilterWritePost	writing to filter temp file
FileAppendCmd	FileAppendPre	FileAppendPost	appending to a file
FileWriteCmd	FileWritePre	FileWritePost	any other file write

When there is a matching "*Cmd" autocommand, it is assumed it will do the writing. No further writing is done and the other events are not triggered.
Cmd-event

Note that the *WritePost commands should undo any changes to the buffer that were caused by the *WritePre commands; otherwise, writing the file will have the side effect of changing the buffer.

Before executing the autocommands, the buffer from which the lines are to be written temporarily becomes the current buffer. Unless the autocommands change the current buffer or delete the previously current buffer, the previously current buffer is made the current buffer again.

The *WritePre and *AppendPre autocommands must not delete the buffer from which the lines are to be written.

The '[and '] marks have a special position:
- Before the *ReadPre event the '[mark is set to the line just above where the new lines will be inserted.
- Before the *ReadPost event the '[mark is set to the first line that was just read, the '] mark to the last line.
- Before executing the *WriteCmd, *WritePre and *AppendPre autocommands the '[mark is set to the first line that will be written, the '] mark to the last line.

Careful: '[and '] change when using commands that change the buffer.

In commands which expect a file name, you can use "<afile>" for the file name that is being read :<afile> (you can also use "%" for the current file name). "<abuf>" can be used for the buffer number of the currently effective

buffer. This also works for buffers that don't have a name. But it doesn't
work for files without a buffer (e.g., with ":r file").

                                                        gzip-example
Examples for reading and writing compressed files:
```
  :augroup gzip
  :  autocmd!
  :  autocmd BufReadPre,FileReadPre     *.gz set bin
  :  autocmd BufReadPost,FileReadPost   *.gz '[,']!gunzip
  :  autocmd BufReadPost,FileReadPost   *.gz set nobin
  :  autocmd BufReadPost,FileReadPost   *.gz execute ":doautocmd BufReadPost " . expand("%
  :  autocmd BufWritePost,FileWritePost *.gz !mv <afile> <afile>:r
  :  autocmd BufWritePost,FileWritePost *.gz !gzip <afile>:r

  :  autocmd FileAppendPre              *.gz !gunzip <afile>
  :  autocmd FileAppendPre              *.gz !mv <afile>:r <afile>
  :  autocmd FileAppendPost             *.gz !mv <afile> <afile>:r
  :  autocmd FileAppendPost             *.gz !gzip <afile>:r
  :augroup END
```

The "gzip" group is used to be able to delete any existing autocommands with
":autocmd!", for when the file is sourced twice.

("<afile>:r" is the file name without the extension, see :_%:)

The commands executed for the BufNewFile, BufRead/BufReadPost, BufWritePost,
FileAppendPost and VimLeave events do not set or reset the changed flag of the
buffer. When you decompress the buffer with the BufReadPost autocommands, you
can still exit with ":q". When you use ":undo" in BufWritePost to undo the
changes made by BufWritePre commands, you can still do ":q" (this also makes
"ZZ" work). If you do want the buffer to be marked as modified, set the
'modified' option.

To execute Normal mode commands from an autocommand, use the ":normal"
command. Use with care! If the Normal mode command is not finished, the user
needs to type characters (e.g., after ":normal m" you need to type a mark
name).

If you want the buffer to be unmodified after changing it, reset the
'modified' option. This makes it possible to exit the buffer with ":q"
instead of ":q!".

                                                  autocmd-nested   E218
By default, autocommands do not nest. If you use ":e" or ":w" in an
autocommand, Vim does not execute the BufRead and BufWrite autocommands for
those commands. If you do want this, use the "nested" flag for those commands
in which you want nesting. For example:
```
  :autocmd FileChangedShell *.c nested e!
```
The nesting is limited to 10 levels to get out of recursive loops.

It's possible to use the ":au" command in an autocommand. This can be a
self-modifying command! This can be useful for an autocommand that should
execute only once.

If you want to skip autocommands for one command, use the :noautocmd command modifier or the 'eventignore' option.

Note: When reading a file (with ":read file" or with a filter command) and the last line in the file does not have an <EOL>, Vim remembers this. At the next write (with ":write file" or with a filter command), if the same line is written again as the last line in a file AND 'binary' is set, Vim does not supply an <EOL>. This makes a filter command on the just read lines write the same file as was read, and makes a write command on just filtered lines write the same file as was read from the filter. For example, another way to write a compressed file:

```
:autocmd FileWritePre *.gz   set bin|'[,']!gzip
:autocmd FileWritePost *.gz  undo|set nobin
```

autocommand-pattern

You can specify multiple patterns, separated by commas. Here are some examples:

```
:autocmd BufRead   *          set tw=79 nocin ic infercase fo=2croq
:autocmd BufRead   .letter    set tw=72 fo=2tcrq
:autocmd BufEnter  .letter    set dict=/usr/lib/dict/words
:autocmd BufLeave  .letter    set dict=
:autocmd BufRead,BufNewFile   *.c,*.h set tw=0 cin noic
:autocmd BufEnter  *.c,*.h    abbr FOR for (i = 0; i < 3; ++i)<CR>{<CR>}<Esc>O
:autocmd BufLeave  *.c,*.h    unabbr FOR
```

For makefiles (makefile, Makefile, imakefile, makefile.unix, etc.):

```
:autocmd BufEnter  ?akefile*  set include=^s\=include
:autocmd BufLeave  ?akefile*  set include&
```

To always start editing C files at the first function:

```
:autocmd BufRead   *.c,*.h    1;/^{
```

Without the "1;" above, the search would start from wherever the file was entered, rather than from the start of the file.

skeleton template

To read a skeleton (template) file when opening a new file:

```
:autocmd BufNewFile  *.c      0r ~/vim/skeleton.c
:autocmd BufNewFile  *.h      0r ~/vim/skeleton.h
:autocmd BufNewFile  *.java   0r ~/vim/skeleton.java
```

To insert the current date and time in a *.html file when writing it:

```
:autocmd BufWritePre,FileWritePre *.html   ks|call LastMod()|'s
:fun LastMod()
:  if line("$") > 20
:    let l = 20
:  else
:    let l = line("$")
```

```
  :  endif
  :  exe "1," . l . "g/Last modified: /s/Last modified: .*/Last modified: " .
  :  \ strftime("%Y %b %d")
  :endfun
```

You need to have a line "Last modified: <date time>" in the first 20 lines
of the file for this to work. Vim replaces <date time> (and anything in the
same line after it) with the current date and time. Explanation:

```
        ks              mark current position with mark 's'
        call LastMod()  call the LastMod() function to do the work
        's              return the cursor to the old position
```

The LastMod() function checks if the file is shorter than 20 lines, and then
uses the ":g" command to find lines that contain "Last modified: ". For those
lines the ":s" command is executed to replace the existing date with the
current one. The ":execute" command is used to be able to use an expression
for the ":g" and ":s" commands. The date is obtained with the strftime()
function. You can change its argument to get another date string.

When entering :autocmd on the command-line, completion of events and command
names may be done (with <Tab>, CTRL-D, etc.) where appropriate.

Vim executes all matching autocommands in the order that you specify them.
It is recommended that your first autocommand be used for all files by using
"*" as the file pattern. This means that you can define defaults you like
here for any settings, and if there is another matching autocommand it will
override these. But if there is no other matching autocommand, then at least
your default settings are recovered (if entering this file from another for
which autocommands did match). Note that "*" will also match files starting
with ".", unlike Unix shells.

autocmd-searchpat

Autocommands do not change the current search patterns. Vim saves the current
search patterns before executing autocommands then restores them after the
autocommands finish. This means that autocommands do not affect the strings
highlighted with the 'hlsearch' option. Within autocommands, you can still
use search patterns normally, e.g., with the "n" command.
If you want an autocommand to set the search pattern, such that it is used
after the autocommand finishes, use the ":let @/ =" command.
The search-highlighting cannot be switched off with ":nohlsearch" in an
autocommand. Use the 'h' flag in the 'viminfo' option to disable search-
highlighting when starting Vim.

Cmd-event

When using one of the "*Cmd" events, the matching autocommands are expected to
do the file reading, writing or sourcing. This can be used when working with
a special kind of file, for example on a remote system.
CAREFUL: If you use these events in a wrong way, it may have the effect of
making it impossible to read or write the matching files! Make sure you test
your autocommands properly. Best is to use a pattern that will never match a
normal file name, for example "ftp://*".

When defining a BufReadCmd it will be difficult for Vim to recover a crashed
editing session. When recovering from the original file, Vim reads only those
parts of a file that are not found in the swap file. Since that is not

possible with a BufReadCmd, use the :preserve command to make sure the original file isn't needed for recovery. You might want to do this only when you expect the file to be modified.

For file read and write commands the v:cmdarg variable holds the "++enc=" and "++ff=" argument that are effective. These should be used for the command that reads/writes the file. The v:cmdbang variable is one when "!" was used, zero otherwise.

See the $VIMRUNTIME/plugin/netrwPlugin.vim for examples.

==
11. Disabling autocommands autocmd-disable

To disable autocommands for some time use the 'eventignore' option. Note that this may cause unexpected behavior, make sure you restore 'eventignore' afterwards, using a :try block with :finally .

:noautocmd :noa
To disable autocommands for just one command use the ":noautocmd" command modifier. This will set 'eventignore' to "all" for the duration of the following command. Example:

```
:noautocmd w fname.gz
```

This will write the file without triggering the autocommands defined by the gzip plugin.

vim:tw=78:ts=8:noet:ft=help:norl:

filetype.txt For Vim version 8.1. Last change: 2018 Apr 18

VIM REFERENCE MANUAL by Bram Moolenaar

Filetypes filetype file-type

1. Filetypes filetypes
2. Filetype plugin filetype-plugins
3. Docs for the default filetype plugins. ftplugin-docs

Also see autocmd.txt .

{Vi does not have any of these commands}

==
1. Filetypes filetypes file-types

Vim can detect the type of file that is edited. This is done by checking the
file name and sometimes by inspecting the contents of the file for specific
text.

:filetype :filet
To enable file type detection, use this command in your vimrc:
	:filetype on
Each time a new or existing file is edited, Vim will try to recognize the type
of the file and set the 'filetype' option. This will trigger the FileType
event, which can be used to set the syntax highlighting, set options, etc.

NOTE: Filetypes and 'compatible' don't work together well, since being Vi
compatible means options are global. Resetting 'compatible' is recommended,
if you didn't do that already.

Detail: The ":filetype on" command will load one of these files:
		Amiga	$VIMRUNTIME/filetype.vim
		Mac	$VIMRUNTIME:filetype.vim
		MS-DOS	$VIMRUNTIME\filetype.vim
		RiscOS	Vim:Filetype
		Unix	$VIMRUNTIME/filetype.vim
		VMS	$VIMRUNTIME/filetype.vim
	This file is a Vim script that defines autocommands for the
	BufNewFile and BufRead events. If the file type is not found by the
	name, the file $VIMRUNTIME/scripts.vim is used to detect it from the
	contents of the file.
	When the GUI is running or will start soon, the menu.vim script is
	also sourced. See 'go-M' about avoiding that.

To add your own file types, see new-filetype below. To search for help on a
filetype prepend "ft-" and optionally append "-syntax", "-indent" or
"-plugin". For example:
	:help ft-vim-indent
	:help ft-vim-syntax
	:help ft-man-plugin

If the file type is not detected automatically, or it finds the wrong type,
you can either set the 'filetype' option manually, or add a modeline to your
file. Example, for an IDL file use the command:
	:set filetype=idl

or add this modeline to the file:
	/* vim: set filetype=idl : */

:filetype-plugin-on
You can enable loading the plugin files for specific file types with:
	:filetype plugin on
If filetype detection was not switched on yet, it will be as well.
This actually loads the file "ftplugin.vim" in 'runtimepath'.
The result is that when a file is edited its plugin file is loaded (if there
is one for the detected filetype). filetype-plugin

:filetype-plugin-off
You can disable it again with:
	:filetype plugin off
The filetype detection is not switched off then. But if you do switch off
filetype detection, the plugins will not be loaded either.
This actually loads the file "ftplugof.vim" in 'runtimepath'.

:filetype-indent-on
You can enable loading the indent file for specific file types with:
	:filetype indent on
If filetype detection was not switched on yet, it will be as well.
This actually loads the file "indent.vim" in 'runtimepath'.
The result is that when a file is edited its indent file is loaded (if there
is one for the detected filetype). indent-expression

:filetype-indent-off
You can disable it again with:
	:filetype indent off
The filetype detection is not switched off then. But if you do switch off
filetype detection, the indent files will not be loaded either.
This actually loads the file "indoff.vim" in 'runtimepath'.
This disables auto-indenting for files you will open. It will keep working in
already opened files. Reset 'autoindent', 'cindent', 'smartindent' and/or
'indentexpr' to disable indenting in an opened file.

:filetype-off
To disable file type detection, use this command:
	:filetype off
This will keep the flags for "plugin" and "indent", but since no file types
are being detected, they won't work until the next ":filetype on".

Overview: :filetype-overview

command	detection	plugin	indent
:filetype on	on	unchanged	unchanged
:filetype off	off	unchanged	unchanged

```
:filetype plugin on             on              on              unchanged
:filetype plugin off            unchanged       off             unchanged
:filetype indent on             on              unchanged       on
:filetype indent off            unchanged       unchanged       off
:filetype plugin indent on      on              on              on
:filetype plugin indent off     unchanged       off             off
```

To see the current status, type:

```
        :filetype
```

The output looks something like this:

```
        filetype detection:ON  plugin:ON  indent:OFF
```

The file types are also used for syntax highlighting. If the ":syntax on" command is used, the file type detection is installed too. There is no need to do ":filetype on" after ":syntax on".

To disable one of the file types, add a line in your filetype file, see remove-filetype .

filetype-detect

To detect the file type again:

```
        :filetype detect
```

Use this if you started with an empty file and typed text that makes it possible to detect the file type. For example, when you entered this in a shell script: "#!/bin/csh".

When filetype detection was off, it will be enabled first, like the "on" argument was used.

filetype-overrule

When the same extension is used for two filetypes, Vim tries to guess what kind of file it is. This doesn't always work. A number of global variables can be used to overrule the filetype used for certain extensions:

file name	variable		
*.asa	g:filetype_asa	ft-aspvbs-syntax	ft-aspperl-syntax
*.asp	g:filetype_asp	ft-aspvbs-syntax	ft-aspperl-syntax
*.asm	g:asmsyntax	ft-asm-syntax	
*.prg	g:filetype_prg		
*.pl	g:filetype_pl		
*.inc	g:filetype_inc		
*.w	g:filetype_w	ft-cweb-syntax	
*.i	g:filetype_i	ft-progress-syntax	
*.p	g:filetype_p	ft-pascal-syntax	
*.sh	g:bash_is_sh	ft-sh-syntax	
*.tex	g:tex_flavor	ft-tex-plugin	

filetype-ignore

To avoid that certain files are being inspected, the g:ft_ignore_pat variable is used. The default value is set like this:

```
        :let g:ft_ignore_pat = '\.\(Z\|gz\|bz2\|zip\|tgz\)$'
```

This means that the contents of compressed files are not inspected.

new-filetype

If a file type that you want to use is not detected yet, there are four ways

to add it. In any way, it's better not to modify the $VIMRUNTIME/filetype.vim file. It will be overwritten when installing a new version of Vim.

A. If you want to overrule all default file type checks.
   This works by writing one file for each filetype. The disadvantage is that means there can be many files. The advantage is that you can simply drop this file in the right directory to make it work.
                                                        ftdetect

   1. Create your user runtime directory. You would normally use the first item of the 'runtimepath' option. Then create the directory "ftdetect" inside it. Example for Unix:
      :!mkdir ~/.vim
      :!mkdir ~/.vim/ftdetect

   2. Create a file that contains an autocommand to detect the file type. Example:
      au BufRead,BufNewFile *.mine   set filetype=mine
     Note that there is no "augroup" command, this has already been done when sourcing your file. You could also use the pattern "*" and then check the contents of the file to recognize it.
      Write this file as "mine.vim" in the "ftdetect" directory in your user runtime directory. For example, for Unix:
      :w ~/.vim/ftdetect/mine.vim

   3. To use the new filetype detection you must restart Vim.

   The files in the "ftdetect" directory are used after all the default checks, thus they can overrule a previously detected file type. But you can also use :setfiletype to keep a previously detected filetype.

B. If you want to detect your file after the default file type checks.

   This works like A above, but instead of setting 'filetype' unconditionally use ":setfiletype". This will only set 'filetype' if no file type was detected yet. Example:
      au BufRead,BufNewFile *.txt   setfiletype text

   You can also use the already detected file type in your command. For example, to use the file type "mypascal" when "pascal" has been detected:
      au BufRead,BufNewFile *   if &ft == 'pascal' | set ft=mypascal
                                                                | endif

C. If your file type can be detected by the file name.
   1. Create your user runtime directory. You would normally use the first item of the 'runtimepath' option. Example for Unix:
      :!mkdir ~/.vim

   2. Create a file that contains autocommands to detect the file type. Example:
      " my filetype file
      if exists("did_load_filetypes")
        finish
      endif
      augroup filetypedetect

```
        au! BufRead,BufNewFile *.mine         setfiletype mine
        au! BufRead,BufNewFile *.xyz          setfiletype drawing
      augroup END
```
Write this file as "filetype.vim" in your user runtime directory. For example, for Unix:
```
:w ~/.vim/filetype.vim
```

3. To use the new filetype detection you must restart Vim.

Your filetype.vim will be sourced before the default FileType autocommands have been installed. Your autocommands will match first, and the ":setfiletype" command will make sure that no other autocommands will set 'filetype' after this.

new-filetype-scripts

D. If your filetype can only be detected by inspecting the contents of the file.

1. Create your user runtime directory. You would normally use the first item of the 'runtimepath' option. Example for Unix:
```
:!mkdir ~/.vim
```

2. Create a vim script file for doing this. Example:
```
    if did_filetype()       " filetype already set..
      finish                " ..don't do these checks
    endif
    if getline(1) =~ '^#!.*\<mine\>'
      setfiletype mine
    elseif getline(1) =~? '\<drawing\>'
      setfiletype drawing
    endif
```
See $VIMRUNTIME/scripts.vim for more examples.
Write this file as "scripts.vim" in your user runtime directory. For example, for Unix:
```
:w ~/.vim/scripts.vim
```

3. The detection will work right away, no need to restart Vim.

Your scripts.vim is loaded before the default checks for file types, which means that your rules override the default rules in $VIMRUNTIME/scripts.vim.

remove-filetype

If a file type is detected that is wrong for you, install a filetype.vim or scripts.vim to catch it (see above). You can set 'filetype' to a non-existing name to avoid that it will be set later anyway:
```
:set filetype=ignored
```

If you are setting up a system with many users, and you don't want each user to add/remove the same filetypes, consider writing the filetype.vim and scripts.vim files in a runtime directory that is used for everybody. Check the 'runtimepath' for a directory to use. If there isn't one, set 'runtimepath' in the system-vimrc . Be careful to keep the default directories!

autocmd-osfiletypes

NOTE: this code is currently disabled, as the RISC OS implementation was removed. In the future this will use the 'filetype' option.

On operating systems which support storing a file type with the file, you can specify that an autocommand should only be executed if the file is of a certain type.

The actual type checking depends on which platform you are running Vim on; see your system's documentation for details.

To use osfiletype checking in an autocommand you should put a list of types to match in angle brackets in place of a pattern, like this:

```
:au BufRead *.html,<&faf;HTML>  runtime! syntax/html.vim
```

This will match:

- Any file whose name ends in ".html"
- Any file whose type is "&faf" or "HTML", where the meaning of these types depends on which version of Vim you are using.
  Unknown types are considered NOT to match.

You can also specify a type and a pattern at the same time (in which case they must both match):

```
:au BufRead <&fff>diff*
```

This will match files of type "&fff" whose names start with "diff".

plugin-details

The "plugin" directory can be in any of the directories in the 'runtimepath' option. All of these directories will be searched for plugins and they are all loaded. For example, if this command:

```
set runtimepath
```

produces this output:

```
runtimepath=/etc/vim,~/.vim,/usr/local/share/vim/vim60
```

then Vim will load all plugins in these directories and below:

```
/etc/vim/plugin/
~/.vim/plugin/
/usr/local/share/vim/vim60/plugin/
```

Note that the last one is the value of $VIMRUNTIME which has been expanded.

Note that when using a plugin manager or packages many directories will be added to 'runtimepath'. These plugins each require their own directory, don't put them directly in ~/.vim/plugin.

What if it looks like your plugin is not being loaded? You can find out what happens when Vim starts up by using the -V argument:

```
vim -V2
```

You will see a lot of messages, in between them is a remark about loading the plugins. It starts with:

```
Searching for "plugin/**/*.vim" in
```

There you can see where Vim looks for your plugin scripts.

==
2. Filetype plugin filetype-plugins

When loading filetype plugins has been enabled :filetype-plugin-on , options will be set and mappings defined. These are all local to the buffer, they will not be used for other files.

Defining mappings for a filetype may get in the way of the mappings you define yourself. There are a few ways to avoid this:
1. Set the "maplocalleader" variable to the key sequence you want the mappings to start with. Example:
```
:let maplocalleader = ","
```
All mappings will then start with a comma instead of the default, which is a backslash. Also see <LocalLeader> .

2. Define your own mapping. Example:
```
:map ,p <Plug>MailQuote
```
You need to check the description of the plugin file below for the functionality it offers and the string to map to.
You need to define your own mapping before the plugin is loaded (before editing a file of that type). The plugin will then skip installing the default mapping.

no_mail_maps
3. Disable defining mappings for a specific filetype by setting a variable, which contains the name of the filetype. For the "mail" filetype this would be:
```
:let no_mail_maps = 1
```

no_plugin_maps
4. Disable defining mappings for all filetypes by setting a variable:
```
:let no_plugin_maps = 1
```

ftplugin-overrule
If a global filetype plugin does not do exactly what you want, there are three ways to change this:

1. Add a few settings.
You must create a new filetype plugin in a directory early in 'runtimepath'. For Unix, for example you could use this file:
```
vim ~/.vim/ftplugin/fortran.vim
```
You can set those settings and mappings that you would like to add. Note

that the global plugin will be loaded after this, it may overrule the settings that you do here. If this is the case, you need to use one of the following two methods.

2. Make a copy of the plugin and change it.
   You must put the copy in a directory early in 'runtimepath'. For Unix, for example, you could do this:
```
cp $VIMRUNTIME/ftplugin/fortran.vim ~/.vim/ftplugin/fortran.vim
```
  Then you can edit the copied file to your liking. Since the b:did_ftplugin variable will be set, the global plugin will not be loaded.
   A disadvantage of this method is that when the distributed plugin gets improved, you will have to copy and modify it again.

3. Overrule the settings after loading the global plugin.
   You must create a new filetype plugin in a directory from the end of 'runtimepath'. For Unix, for example, you could use this file:
```
vim ~/.vim/after/ftplugin/fortran.vim
```
  In this file you can change just those settings that you want to change.

==
3. Docs for the default filetype plugins. ftplugin-docs

CHANGELOG ft-changelog-plugin

Allows for easy entrance of Changelog entries in Changelog files. There are some commands, mappings, and variables worth exploring:

Options:

'comments'	is made empty to not mess up formatting.
'textwidth'	is set to 78, which is standard.
'formatoptions'	the 't' flag is added to wrap when inserting text.

Commands:

NewChangelogEntry	Adds a new Changelog entry in an intelligent fashion (see below).

Local mappings:

<Leader>o	Starts a new Changelog entry in an equally intelligent fashion (see below).

Global mappings:

	NOTE: The global mappings are accessed by sourcing the ftplugin/changelog.vim file first, e.g. with `runtime ftplugin/changelog.vim` in your .vimrc .
<Leader>o	Switches to the ChangeLog buffer opened for the current directory, or opens it in a new buffer if it exists in the current directory. Then it does the same as the local <Leader>o described above.

Variables:

g:changelog_timeformat	Deprecated; use g:changelog_dateformat instead.
g:changelog_dateformat	The date (and time) format used in ChangeLog entries.

```
                        The format accepted is the same as for the
                         strftime()  function.
                        The default is "%Y-%m-%d" which is the standard format
                        for many ChangeLog layouts.
g:changelog_username    The name and email address of the user.
                        The default is deduced from environment variables and
                        system files.  It searches /etc/passwd for the comment
                        part of the current user, which informally contains
                        the real name of the user up to the first separating
                        comma.  then it checks the $NAME environment variable
                        and finally runs `whoami` and `hostname` to build an
                        email address.  The final form is
                                Full Name  <user@host>

g:changelog_new_date_format
                        The format to use when creating a new date-entry.
                        The following table describes special tokens in the
                        string:
                                %%      insert a single '%' character
                                %d      insert the date from above
                                %u      insert the user from above
                                %p      insert result of b:changelog_entry_prefix
                                %c      where to position cursor when done
                        The default is "%d  %u\n\n\t* %p%c\n\n", which produces
                        something like (| is where cursor will be, unless at
                        the start of the line where it denotes the beginning
                        of the line)
                                |2003-01-14  Full Name  <user@host>
                                |
                                |       * prefix|

g:changelog_new_entry_format
                        The format used when creating a new entry.
                        The following table describes special tokens in the
                        string:
                                %p      insert result of b:changelog_entry_prefix
                                %c      where to position cursor when done
                        The default is "\t*%c", which produces something
                        similar to
                                |       * prefix|

g:changelog_date_entry_search
                        The search pattern to use when searching for a
                        date-entry.
                        The same tokens that can be used for
                        g:changelog_new_date_format can be used here as well.
                        The default is '^\s*%d\_s*%u' which finds lines
                        matching the form
                                |2003-01-14  Full Name  <user@host>
                       and some similar formats.

g:changelog_date_end_entry_search
                        The search pattern to use when searching for the end
                        of a date-entry.
```

The same tokens that can be used for
g:changelog_new_date_format can be used here as well.
The default is '^\s*$' which finds lines that contain
only whitespace or are completely empty.

b:changelog_name   b:changelog_name
Name of the ChangeLog file to look for.
The default is 'ChangeLog'.

b:changelog_path
Path of the ChangeLog to use for the current buffer.
The default is empty, thus looking for a file named
b:changelog_name in the same directory as the
current buffer. If not found, the parent directory of
the current buffer is searched. This continues
recursively until a file is found or there are no more
parent directories to search.

b:changelog_entry_prefix
Name of a function to call to generate a prefix to a
new entry. This function takes no arguments and
should return a string containing the prefix.
Returning an empty prefix is fine.
The default generates the shortest path between the
ChangeLog's pathname and the current buffers pathname.
In the future, it will also be possible to use other
variable contexts for this variable, for example, g:.

The Changelog entries are inserted where they add the least amount of text.
After figuring out the current date and user, the file is searched for an
entry beginning with the current date and user and if found adds another item
under it. If not found, a new entry and item is prepended to the beginning of
the Changelog.

FORTRAN   ft-fortran-plugin

Options:
'expandtab' is switched on to avoid tabs as required by the Fortran
standards unless the user has set fortran_have_tabs in .vimrc.
'textwidth' is set to 72 for fixed source format as required by the
Fortran standards and to 80 for free source format.
'formatoptions' is set to break code and comment lines and to preserve long
lines. You can format comments with gq .
For further discussion of fortran_have_tabs and the method used for the
detection of source format see ft-fortran-syntax .

GIT COMMIT   ft-gitcommit-plugin

One command, :DiffGitCached, is provided to show a diff of the current commit
in the preview window. It is equivalent to calling "git diff --cached" plus
any arguments given to the command.

MAIL ft-mail-plugin

Options:
'modeline' is switched off to avoid the danger of trojan horses, and to avoid that a Subject line with "Vim:" in it will cause an error message.
'textwidth' is set to 72. This is often recommended for e-mail.
'formatoptions' is set to break text lines and to repeat the comment leader in new lines, so that a leading ">" for quotes is repeated. You can also format quoted text with gq .

Local mappings:
<LocalLeader>q or \\MailQuote
Quotes the text selected in Visual mode, or from the cursor position to the end of the file in Normal mode. This means "> " is inserted in each line.

MAN ft-man-plugin :Man man.vim

Displays a manual page in a nice way. Also see the user manual find-manpage .

To start using the ":Man" command before any manual page was loaded, source this script from your startup vimrc file:

```
runtime ftplugin/man.vim
```

Options:
'iskeyword' the '.' character is added to be able to use CTRL-] on the manual page name.

Commands:
Man {name} Display the manual page for {name} in a window.
Man {number} {name}
Display the manual page for {name} in a section {number}.

Global mapping:
<Leader>K Displays the manual page for the word under the cursor.
<Plug>ManPreGetPage idem, allows for using a mapping:

```
nmap <F1> <Plug>ManPreGetPage<CR>
```

Local mappings:
CTRL-] Jump to the manual page for the word under the cursor.
CTRL-T Jump back to the previous manual page.
q Same as ":quit"

To use a vertical split instead of horizontal:

```
let g:ft_man_open_mode = 'vert'
```

To use a new tab:

```
let g:ft_man_open_mode = 'tab'
```

To enable folding use this:

```
let g:ft_man_folding_enable = 1
```

If you do not like the default folding, use an autocommand to add your desired folding style instead. For example:

```
autocmd FileType man setlocal foldmethod=indent foldenable
```

You may also want to set 'keywordprg' to make the K command open a manual page in a Vim window:

```
set keywordprg=:Man
```

MANPAGER manpager.vim

The :Man command allows you to turn Vim into a manpager (that syntax highlights manpages and follows linked manpages on hitting CTRL-]).

For bash,zsh,ksh or dash, add to the config file (.bashrc,.zshrc, ...)

```
export MANPAGER="vim -M +MANPAGER -"
```

For (t)csh, add to the config file

```
setenv MANPAGER "vim -M +MANPAGER -"
```

For fish, add to the config file

```
set -x MANPAGER "vim -M +MANPAGER -"
```

PDF ft-pdf-plugin

Two maps, <C-]> and <C-T>, are provided to simulate a tag stack for navigating the PDF. The following are treated as tags:

- The byte offset after "startxref" to the xref table
- The byte offset after the /Prev key in the trailer to an earlier xref table
- A line of the form "0123456789 00000 n" in the xref table
- An object reference like "1 0 R" anywhere in the PDF

These maps can be disabled with

```
:let g:no_pdf_maps = 1
```

PYTHON ft-python-plugin PEP8

By default the following options are set, in accordance with PEP8:

```
setlocal expandtab shiftwidth=4 softtabstop=4 tabstop=8
```

To disable this behaviour, set the following variable in your vimrc:

```
let g:python_recommended_style = 0
```

RPM SPEC ft-spec-plugin

Since the text for this plugin is rather long it has been put in a separate

file: pi_spec.txt .

RUST ft-rust

Since the text for this plugin is rather long it has been put in a separate
file: ft_rust.txt .

SQL ft-sql

Since the text for this plugin is rather long it has been put in a separate
file: ft_sql.txt .

TEX ft-tex-plugin g:tex_flavor

If the first line of a *.tex file has the form
```
	%&<format>
```
then this determined the file type: plaintex (for plain TeX), context (for
ConTeXt), or tex (for LaTeX). Otherwise, the file is searched for keywords to
choose context or tex. If no keywords are found, it defaults to plaintex.
You can change the default by defining the variable g:tex_flavor to the format
(not the file type) you use most. Use one of these:
```
	let g:tex_flavor = "plain"
	let g:tex_flavor = "context"
	let g:tex_flavor = "latex"
```
Currently no other formats are recognized.

VIM ft-vim-plugin

The Vim filetype plugin defines mappings to move to the start and end of
functions with [[and]]. Move around comments with]" and ["

The mappings can be disabled with:
```
	let g:no_vim_maps = 1
```

ZIMBU ft-zimbu-plugin

The Zimbu filetype plugin defines mappings to move to the start and end of
functions with [[and]].

The mappings can be disabled with:
```
	let g:no_zimbu_maps = 1
```

vim:tw=78:ts=8:noet:ft=help:norl:

eval.txt For Vim version 8.1. Last change: 2018 May 17

VIM REFERENCE MANUAL by Bram Moolenaar

Expression evaluation expression expr E15 eval

Using expressions is introduced in chapter 41 of the user manual usr_41.txt .

Note: Expression evaluation can be disabled at compile time. If this has been done, the features in this document are not available. See +eval and no-eval-feature .

{Vi does not have any of these commands}

==========

1. Variables variables

1.1 Variable types E712

There are nine types of variables:

Number A 32 or 64 bit signed number. expr-number Number
64-bit Numbers are available only when compiled with the +num64 feature.
Examples: -123 0x10 0177 0b1011

Float A floating point number. floating-point-format Float
{only when compiled with the |+float| feature}
Examples: 123.456 1.15e-6 -1.1e3

String A NUL terminated string of 8-bit unsigned characters (bytes). E928
expr-string Examples: "ab\txx\"--" 'x-z''a,c'

List An ordered sequence of items List .
Example: [1, 2, ['a', 'b']]

Dictionary An associative, unordered array: Each entry has a key and a value. Dictionary
Example: {'blue': "#0000ff", 'red': "#ff0000"}

Funcref A reference to a function Funcref .
Example: function("strlen")
It can be bound to a dictionary and arguments, it then works like a Partial.
Example: function("Callback", [arg], myDict)

Special v:false , v:true , v:none and v:null . Special

Job Used for a job, see job_start() . Job Jobs

Channel Used for a channel, see ch_open() . Channel Channels

The Number and String types are converted automatically, depending on how they are used.

Conversion from a Number to a String is by making the ASCII representation of the Number. Examples:
```
Number 123      -->     String "123"
Number 0        -->     String "0"
Number -1       -->     String "-1"
```
octal
Conversion from a String to a Number is done by converting the first digits to a number. Hexadecimal "0xf9", Octal "017", and Binary "0b10" numbers are recognized. If the String doesn't start with digits, the result is zero.
Examples:
```
String "456"    -->     Number 456
String "6bar"   -->     Number 6
String "foo"    -->     Number 0
String "0xf1"   -->     Number 241
String "0100"   -->     Number 64
String "0b101"  -->     Number 5
String "-8"     -->     Number -8
String "+8"     -->     Number 0
```

To force conversion from String to Number, add zero to it:
```
:echo "0100" + 0
64
```

To avoid a leading zero to cause octal conversion, or for using a different base, use str2nr() .

TRUE FALSE
For boolean operators Numbers are used. Zero is FALSE, non-zero is TRUE.
You can also use v:false and v:true . When TRUE is returned from a function it is the Number one, FALSE is the number zero.

Note that in the command:
```
:if "foo"
:" NOT executed
```
"foo" is converted to 0, which means FALSE. If the string starts with a non-zero number it means TRUE:
```
:if "8foo"
:" executed
```
To test for a non-empty string, use empty():
```
:if !empty("foo")
```

non-zero-arg
Function arguments often behave slightly different from TRUE : If the argument is present and it evaluates to a non-zero Number, v:true or a non-empty String, then the value is considered to be TRUE.
Note that " " and "0" are also non-empty strings, thus considered to be TRUE.
A List, Dictionary or Float is not a Number or String, thus evaluate to FALSE.

E745 E728 E703 E729 E730 E731 E908 E910 E913
List, Dictionary, Funcref, Job and Channel types are not automatically converted.

E805 E806 E808
When mixing Number and Float the Number is converted to Float. Otherwise there is no automatic conversion of Float. You can use str2float() for String to Float, printf() for Float to String and float2nr() for Float to Number.

E891 E892 E893 E894 E907 E911 E914
When expecting a Float a Number can also be used, but nothing else.

no-type-checking
You will not get an error if you try to change the type of a variable.

1.2 Function references

Funcref E695 E718
A Funcref variable is obtained with the function() function, the funcref() function or created with the lambda expression expr-lambda . It can be used in an expression in the place of a function name, before the parenthesis around the arguments, to invoke the function it refers to. Example:

```
:let Fn = function("MyFunc")
:echo Fn()
```

E704 E705 E707
A Funcref variable must start with a capital, "s:", "w:", "t:" or "b:". You can use "g:" but the following name must still start with a capital. You cannot have both a Funcref variable and a function with the same name.

A special case is defining a function and directly assigning its Funcref to a Dictionary entry. Example:
```
:function dict.init() dict
:   let self.val = 0
:endfunction
```

The key of the Dictionary can start with a lower case letter. The actual

function name is not used here. Also see numbered-function .

A Funcref can also be used with the :call command:
```
:call Fn()
:call dict.init()
```

The name of the referenced function can be obtained with string() .
```
:let func = string(Fn)
```

You can use call() to invoke a Funcref and use a list variable for the arguments:
```
:let r = call(Fn, mylist)
```

Partial

A Funcref optionally binds a Dictionary and/or arguments. This is also called a Partial. This is created by passing the Dictionary and/or arguments to function() or funcref(). When calling the function the Dictionary and/or arguments will be passed to the function. Example:

```
let Cb = function('Callback', ['foo'], myDict)
call Cb()
```

This will invoke the function as if using:
```
call myDict.Callback('foo')
```

This is very useful when passing a function around, e.g. in the arguments of ch_open() .

Note that binding a function to a Dictionary also happens when the function is a member of the Dictionary:

```
let myDict.myFunction = MyFunction
call myDict.myFunction()
```

Here MyFunction() will get myDict passed as "self". This happens when the "myFunction" member is accessed. When making assigning "myFunction" to otherDict and calling it, it will be bound to otherDict:

```
let otherDict.myFunction = myDict.myFunction
call otherDict.myFunction()
```

Now "self" will be "otherDict". But when the dictionary was bound explicitly this won't happen:

```
let myDict.myFunction = function(MyFunction, myDict)
let otherDict.myFunction = myDict.myFunction
call otherDict.myFunction()
```

Here "self" will be "myDict", because it was bound explicitly.

1.3 Lists

list List Lists E686

A List is an ordered sequence of items. An item can be of any type. Items

can be accessed by their index number. Items can be added and removed at any position in the sequence.

List creation

E696 E697

A List is created with a comma separated list of items in square brackets.
Examples:

```
:let mylist = [1, two, 3, "four"]
:let emptylist = []
```

An item can be any expression. Using a List for an item creates a List of Lists:

```
:let nestlist = [[11, 12], [21, 22], [31, 32]]
```

An extra comma after the last item is ignored.

List index

list-index E684

An item in the List can be accessed by putting the index in square brackets after the List. Indexes are zero-based, thus the first item has index zero.

```
:let item = mylist[0]          " get the first item: 1
:let item = mylist[2]          " get the third item: 3
```

When the resulting item is a list this can be repeated:

```
:let item = nestlist[0][1]     " get the first list, second item: 12
```

A negative index is counted from the end. Index -1 refers to the last item in the List, -2 to the last but one item, etc.

```
:let last = mylist[-1]         " get the last item: "four"
```

To avoid an error for an invalid index use the get() function. When an item is not available it returns zero or the default value you specify:

```
:echo get(mylist, idx)
:echo get(mylist, idx, "NONE")
```

List concatenation

Two lists can be concatenated with the "+" operator:

```
:let longlist = mylist + [5, 6]
:let mylist += [7, 8]
```

To prepend or append an item turn the item into a list by putting [] around it. To change a list in-place see list-modification below.

Sublist

sublist

A part of the List can be obtained by specifying the first and last index, separated by a colon in square brackets:

```
:let shortlist = mylist[2:-1]   " get List [3, "four"]
```

Omitting the first index is similar to zero. Omitting the last index is similar to -1.

```
:let endlist = mylist[2:]       " from item 2 to the end: [3, "four"]
:let shortlist = mylist[2:2]    " List with one item: [3]
:let otherlist = mylist[:]      " make a copy of the List
```

If the first index is beyond the last item of the List or the second item is before the first item, the result is an empty list. There is no error message.

If the second index is equal to or greater than the length of the list the length minus one is used:

```
:let mylist = [0, 1, 2, 3]
:echo mylist[2:8]               " result: [2, 3]
```

NOTE: mylist[s:e] means using the variable "s:e" as index. Watch out for using a single letter variable before the ":". Insert a space when needed: mylist[s : e].

List identity

list-identity

When variable "aa" is a list and you assign it to another variable "bb", both variables refer to the same list. Thus changing the list "aa" will also change "bb":

```
:let aa = [1, 2, 3]
:let bb = aa
:call add(aa, 4)
:echo bb
[1, 2, 3, 4]
```

Making a copy of a list is done with the `copy()` function. Using [:] also works, as explained above. This creates a shallow copy of the list: Changing a list item in the list will also change the item in the copied list:

```
:let aa = [[1, 'a'], 2, 3]
:let bb = copy(aa)
:call add(aa, 4)
:let aa[0][1] = 'aaa'
:echo aa
[[1, aaa], 2, 3, 4]
:echo bb
[[1, aaa], 2, 3]
```

To make a completely independent list use `deepcopy()`. This also makes a copy of the values in the list, recursively. Up to a hundred levels deep.

The operator "is" can be used to check if two variables refer to the same List. "isnot" does the opposite. In contrast "==" compares if two lists have the same value.

```
:let alist = [1, 2, 3]
:let blist = [1, 2, 3]
:echo alist is blist
0
:echo alist == blist
```

```
1
```

Note about comparing lists: Two lists are considered equal if they have the same length and all items compare equal, as with using "==". There is one exception: When comparing a number with a string they are considered different. There is no automatic type conversion, as with using "==" on variables. Example:

```
echo 4 == "4"
1
echo [4] == ["4"]
0
```

Thus comparing Lists is more strict than comparing numbers and strings. You can compare simple values this way too by putting them in a list:

```
:let a = 5
:let b = "5"
:echo a == b
1
:echo [a] == [b]
0
```

List unpack

To unpack the items in a list to individual variables, put the variables in square brackets, like list items:

```
:let [var1, var2] = mylist
```

When the number of variables does not match the number of items in the list this produces an error. To handle any extra items from the list append ";" and a variable name:

```
:let [var1, var2; rest] = mylist
```

This works like:

```
:let var1 = mylist[0]
:let var2 = mylist[1]
:let rest = mylist[2:]
```

Except that there is no error if there are only two items. "rest" will be an empty list then.

List modification

list-modification

To change a specific item of a list use :let this way:

```
:let list[4] = "four"
:let listlist[0][3] = item
```

To change part of a list you can specify the first and last item to be modified. The value must at least have the number of items in the range:

```
:let list[3:5] = [3, 4, 5]
```

Adding and removing items from a list is done with functions. Here are a few

```
examples:
        :call insert(list, 'a')         " prepend item 'a'
        :call insert(list, 'a', 3)      " insert item 'a' before list[3]
        :call add(list, "new")          " append String item
        :call add(list, [1, 2])         " append a List as one new item
        :call extend(list, [1, 2])      " extend the list with two more items
        :let i = remove(list, 3)        " remove item 3
        :unlet list[3]                  " idem
        :let l = remove(list, 3, -1)    " remove items 3 to last item
        :unlet list[3 : ]               " idem
        :call filter(list, 'v:val !~ "x"')  " remove items with an 'x'

Changing the order of items in a list:
        :call sort(list)                " sort a list alphabetically
        :call reverse(list)             " reverse the order of items
        :call uniq(sort(list))          " sort and remove duplicates
```

For loop

The :for loop executes commands for each item in a list. A variable is set to each item in the list in sequence. Example:

```
        :for item in mylist
        :   call Doit(item)
        :endfor
```

This works like:

```
        :let index = 0
        :while index < len(mylist)
        :   let item = mylist[index]
        :   :call Doit(item)
        :   let index = index + 1
        :endwhile
```

If all you want to do is modify each item in the list then the map() function will be a simpler method than a for loop.

Just like the :let command, :for also accepts a list of variables. This requires the argument to be a list of lists.

```
        :for [lnum, col] in [[1, 3], [2, 8], [3, 0]]
        :   call Doit(lnum, col)
        :endfor
```

This works like a :let command is done for each list item. Again, the types must remain the same to avoid an error.

It is also possible to put remaining items in a List variable:

```
        :for [i, j; rest] in listlist
        :   call Doit(i, j)
        :   if !empty(rest)
        :      echo "remainder: " . string(rest)
        :   endif
        :endfor
```

List functions

E714

Functions that are useful with a List:

```
:let r = call(funcname, list)   " call a function with an argument list
:if empty(list)                 " check if list is empty
:let l = len(list)              " number of items in list
:let big = max(list)            " maximum value in list
:let small = min(list)          " minimum value in list
:let xs = count(list, 'x')      " count nr of times 'x' appears in list
:let i = index(list, 'x')       " index of first 'x' in list
:let lines = getline(1, 10)     " get ten text lines from buffer
:call append('$', lines)        " append text lines in buffer
:let list = split("a b c")      " create list from items in a string
:let string = join(list, ', ')  " create string from list items
:let s = string(list)           " String representation of list
:call map(list, '">> " . v:val')  " prepend ">> " to each item
```

Don't forget that a combination of features can make things simple. For example, to add up all the numbers in a list:

```
:exe 'let sum = ' . join(nrlist, '+')
```

1.4 Dictionaries

dict Dictionaries Dictionary

A Dictionary is an associative array: Each entry has a key and a value. The entry can be located with the key. The entries are stored without a specific ordering.

Dictionary creation

E720 E721 E722 E723

A Dictionary is created with a comma separated list of entries in curly braces. Each entry has a key and a value, separated by a colon. Each key can only appear once. Examples:

```
:let mydict = {1: 'one', 2: 'two', 3: 'three'}
:let emptydict = {}
```

E713 E716 E717

A key is always a String. You can use a Number, it will be converted to a String automatically. Thus the String '4' and the number 4 will find the same entry. Note that the String '04' and the Number 04 are different, since the Number will be converted to the String '4'. The empty string can be used as a key.

A value can be any expression. Using a Dictionary for a value creates a nested Dictionary:

```
:let nestdict = {1: {11: 'a', 12: 'b'}, 2: {21: 'c'}}
```

An extra comma after the last entry is ignored.

Accessing entries

The normal way to access an entry is by putting the key in square brackets:

```
:let val = mydict["one"]
:let mydict["four"] = 4
```

You can add new entries to an existing Dictionary this way, unlike Lists.

For keys that consist entirely of letters, digits and underscore the following form can be used expr-entry :
```
:let val = mydict.one
:let mydict.four = 4
```

Since an entry can be any type, also a List and a Dictionary, the indexing and key lookup can be repeated:
```
:echo dict.key[idx].key
```

Dictionary to List conversion

You may want to loop over the entries in a dictionary. For this you need to turn the Dictionary into a List and pass it to :for .

Most often you want to loop over the keys, using the keys() function:
```
:for key in keys(mydict)
:   echo key . ': ' . mydict[key]
:endfor
```

The List of keys is unsorted. You may want to sort them first:
```
:for key in sort(keys(mydict))
```

To loop over the values use the values() function:
```
:for v in values(mydict)
:   echo "value: " . v
:endfor
```

If you want both the key and the value use the items() function. It returns a List in which each item is a List with two items, the key and the value:
```
:for [key, value] in items(mydict)
:   echo key . ': ' . value
:endfor
```

Dictionary identity

dict-identity

Just like Lists you need to use copy() and deepcopy() to make a copy of a Dictionary. Otherwise, assignment results in referring to the same Dictionary:
```
:let onedict = {'a': 1, 'b': 2}
:let adict = onedict
:let adict['a'] = 11
:echo onedict['a']
11
```

Two Dictionaries compare equal if all the key-value pairs compare equal. For more info see list-identity .

Dictionary modification

dict-modification

To change an already existing entry of a Dictionary, or to add a new entry, use :let this way:

```
:let dict[4] = "four"
:let dict['one'] = item
```

Removing an entry from a Dictionary is done with remove() or :unlet . Three ways to remove the entry with key "aaa" from dict:

```
:let i = remove(dict, 'aaa')
:unlet dict.aaa
:unlet dict['aaa']
```

Merging a Dictionary with another is done with extend() :

```
:call extend(adict, bdict)
```

This extends adict with all entries from bdict. Duplicate keys cause entries in adict to be overwritten. An optional third argument can change this. Note that the order of entries in a Dictionary is irrelevant, thus don't expect ":echo adict" to show the items from bdict after the older entries in adict.

Weeding out entries from a Dictionary can be done with filter() :

```
:call filter(dict, 'v:val =~ "x"')
```

This removes all entries from "dict" with a value not matching 'x'.

Dictionary function

Dictionary-function self E725 E862

When a function is defined with the "dict" attribute it can be used in a special way with a dictionary. Example:

```
:function Mylen() dict
:   return len(self.data)
:endfunction
:let mydict = {'data': [0, 1, 2, 3], 'len': function("Mylen")}
:echo mydict.len()
```

This is like a method in object oriented programming. The entry in the Dictionary is a Funcref . The local variable "self" refers to the dictionary the function was invoked from.

It is also possible to add a function without the "dict" attribute as a Funcref to a Dictionary, but the "self" variable is not available then.

numbered-function anonymous-function

To avoid the extra name for the function it can be defined and directly assigned to a Dictionary in this way:

```
:let mydict = {'data': [0, 1, 2, 3]}
:function mydict.len()
:   return len(self.data)
:endfunction
:echo mydict.len()
```

The function will then get a number and the value of dict.len is a Funcref

that references this function. The function can only be used through a
 Funcref . It will automatically be deleted when there is no Funcref
remaining that refers to it.

It is not necessary to use the "dict" attribute for a numbered function.

If you get an error for a numbered function, you can find out what it is with
a trick. Assuming the function is 42, the command is:
```
:function {42}
```

Functions for Dictionaries

E715

Functions that can be used with a Dictionary:
```
:if has_key(dict, 'foo')        " TRUE if dict has entry with key "foo"
:if empty(dict)                 " TRUE if dict is empty
:let l = len(dict)              " number of items in dict
:let big = max(dict)            " maximum value in dict
:let small = min(dict)          " minimum value in dict
:let xs = count(dict, 'x')      " count nr of times 'x' appears in dict
:let s = string(dict)           " String representation of dict
:call map(dict, '">> " . v:val')  " prepend ">> " to each item
```

1.5 More about variables

more-variables

If you need to know the type of a variable or expression, use the type()
function.

When the '!' flag is included in the 'viminfo' option, global variables that
start with an uppercase letter, and don't contain a lowercase letter, are
stored in the viminfo file viminfo-file .

When the 'sessionoptions' option contains "global", global variables that
start with an uppercase letter and contain at least one lowercase letter are
stored in the session file session-file .

variable name	can be stored where
my_var_6	not
My_Var_6	session file
MY_VAR_6	viminfo file

It's possible to form a variable name with curly braces, see
 curly-braces-names .

==

2. Expression syntax

expression-syntax

Expression syntax summary, from least to most significant:

```
 expr1  expr2
        expr2 ? expr1 : expr1   if-then-else
```

```
expr2  expr3
       expr3 || expr3 ..       logical OR

expr3  expr4
       expr4 && expr4 ..       logical AND

expr4  expr5
       expr5 == expr5          equal
       expr5 != expr5          not equal
       expr5 >  expr5          greater than
       expr5 >= expr5          greater than or equal
       expr5 <  expr5          smaller than
       expr5 <= expr5          smaller than or equal
       expr5 =~ expr5          regexp matches
       expr5 !~ expr5          regexp doesn't match

       expr5 ==? expr5         equal, ignoring case
       expr5 ==# expr5         equal, match case
       etc.                    As above, append ? for ignoring case, # for
                               matching case

       expr5 is expr5          same  List  instance
       expr5 isnot expr5       different  List  instance

expr5  expr6
       expr6 +  expr6 ..       number addition or list concatenation
       expr6 -  expr6 ..       number subtraction
       expr6 .  expr6 ..       string concatenation

expr6  expr7
       expr7 *  expr7 ..       number multiplication
       expr7 /  expr7 ..       number division
       expr7 %  expr7 ..       number modulo

expr7  expr8
       ! expr7                 logical NOT
       - expr7                 unary minus
       + expr7                 unary plus

expr8  expr9
       expr8[expr1]            byte of a String or item of a  List
       expr8[expr1 : expr1]    substring of a String or sublist of a  List
       expr8.name              entry in a  Dictionary
       expr8(expr1, ...)       function call with  Funcref  variable

expr9  number                  number constant
       "string"                string constant, backslash is special
       'string'                string constant, ' is doubled
       [expr1, ...]             List
       {expr1: expr1, ...}      Dictionary
       &option                 option value
       (expr1)                 nested expression
       variable                internal variable
       va{ria}ble              internal variable with curly braces
```

```
        $VAR                    environment variable
        @r                      contents of register 'r'
        function(expr1, ...)    function call
        func{ti}on(expr1, ...)  function call with curly braces
        {args -> expr1}         lambda expression
```

".." indicates that the operations in this level can be concatenated.
Example:

```
        &nu || &list && &shell == "csh"
```

All expressions within one level are parsed from left to right.

expr1 expr1 E109

expr2 ? expr1 : expr1

The expression before the '?' is evaluated to a number. If it evaluates to TRUE, the result is the value of the expression between the '?' and ':', otherwise the result is the value of the expression after the ':'.
Example:

```
        :echo lnum == 1 ? "top" : lnum
```

Since the first expression is an "expr2", it cannot contain another ?:. The other two expressions can, thus allow for recursive use of ?:.
Example:

```
        :echo lnum == 1 ? "top" : lnum == 1000 ? "last" : lnum
```

To keep this readable, using line-continuation is suggested:

```
        :echo lnum == 1
        :\      ? "top"
        :\      : lnum == 1000
        :\              ? "last"
        :\              : lnum
```

You should always put a space before the ':', otherwise it can be mistaken for use in a variable such as "a:1".

expr2 and expr3 expr2 expr3

```
expr3 || expr3 ..       logical OR              expr-barbar
expr4 && expr4 ..       logical AND             expr-&&
```

The "||" and "&&" operators take one argument on each side. The arguments are (converted to) Numbers. The result is:

```
    input                       output
n1      n2              n1 || n2        n1 && n2
 FALSE   FALSE           FALSE           FALSE
 FALSE   TRUE            TRUE            FALSE
```

```
 TRUE    FALSE           TRUE            FALSE
 TRUE    TRUE            TRUE            TRUE
```

The operators can be concatenated, for example:

```
        &nu || &list && &shell == "csh"
```

Note that "&&" takes precedence over "||", so this has the meaning of:

```
        &nu || (&list && &shell == "csh")
```

Once the result is known, the expression "short-circuits", that is, further arguments are not evaluated. This is like what happens in C. For example:

```
        let a = 1
        echo a || b
```

This is valid even if there is no variable called "b" because "a" is TRUE , so the result must be TRUE . Similarly below:

```
        echo exists("b") && b == "yes"
```

This is valid whether "b" has been defined or not. The second clause will only be evaluated if "b" has been defined.

expr4   expr4
-----

expr5 {cmp} expr5

Compare two expr5 expressions, resulting in a 0 if it evaluates to false, or 1 if it evaluates to true.

```
                        expr-==    expr-!=    expr->     expr->=
                        expr-<     expr-<=    expr-=~    expr-!~
                        expr-==#   expr-!=#   expr->#    expr->=#
                        expr-<#    expr-<=#   expr-=~#   expr-!~#
                        expr-==?   expr-!=?   expr->?    expr->=?
                        expr-<?    expr-<=?   expr-=~?   expr-!~?
                        expr-is   expr-isnot   expr-is#   expr-isnot#
                        expr-is?   expr-isnot?
                use 'ignorecase'    match case     ignore case
equal                       ==             ==#            ==?
not equal                   !=             !=#            !=?
greater than                >              >#             >?
greater than or equal       >=             >=#            >=?
smaller than                <              <#             <?
smaller than or equal       <=             <=#            <=?
regexp matches              =~             =~#            =~?
regexp doesn't match        !~             !~#            !~?
same instance               is             is#            is?
different instance          isnot          isnot#         isnot?
```

Examples:
"abc" ==# "Abc"   evaluates to 0
"abc" ==? "Abc"   evaluates to 1
"abc" == "Abc"   evaluates to 1 if 'ignorecase' is set, 0 otherwise

E691 E692
A List can only be compared with a List and only "equal", "not equal", "is" and "isnot" can be used. This compares the values of the list, recursively. Ignoring case means case is ignored when comparing item values.

E735 E736
A Dictionary can only be compared with a Dictionary and only "equal", "not equal", "is" and "isnot" can be used. This compares the key/values of the Dictionary recursively. Ignoring case means case is ignored when comparing item values.

E694
A Funcref can only be compared with a Funcref and only "equal", "not equal", "is" and "isnot" can be used. Case is never ignored. Whether arguments or a Dictionary are bound (with a partial) matters. The Dictionaries must also be equal (or the same, in case of "is") and the arguments must be equal (or the same).

To compare Funcrefs to see if they refer to the same function, ignoring bound Dictionary and arguments, use get() to get the function name:
```
if get(Part1, 'name') == get(Part2, 'name')
   " Part1 and Part2 refer to the same function
```

When using "is" or "isnot" with a List or a Dictionary this checks if the expressions are referring to the same List or Dictionary instance. A copy of a List is different from the original List . When using "is" without a List or a Dictionary it is equivalent to using "equal", using "isnot" equivalent to using "not equal". Except that a different type means the values are different:
```
echo 4 == '4'
1
echo 4 is '4'
0
echo 0 is []
0
```
"is#"/"isnot#" and "is?"/"isnot?" can be used to match and ignore case.

When comparing a String with a Number, the String is converted to a Number, and the comparison is done on Numbers. This means that:
```
echo 0 == 'x'
1
```
because 'x' converted to a Number is zero. However:
```
echo [0] == ['x']
0
```
Inside a List or Dictionary this conversion is not used.

When comparing two Strings, this is done with strcmp() or stricmp(). This results in the mathematical difference (comparing byte values), not necessarily the alphabetical difference in the local language.

When using the operators with a trailing '#', or the short version and 'ignorecase' is off, the comparing is done with strcmp(): case matters.

When using the operators with a trailing '?', or the short version and 'ignorecase' is set, the comparing is done with stricmp(): case is ignored.

'smartcase' is not used.

The "=~" and "!~" operators match the lefthand argument with the righthand argument, which is used as a pattern. See pattern for what a pattern is. This matching is always done like 'magic' was set and 'cpoptions' is empty, no matter what the actual value of 'magic' or 'cpoptions' is. This makes scripts portable. To avoid backslashes in the regexp pattern to be doubled, use a single-quote string, see literal-string .
Since a string is considered to be a single line, a multi-line pattern (containing \n, backslash-n) will not match. However, a literal NL character can be matched like an ordinary character. Examples:

```
"foo\nbar" =~ "\n"      evaluates to 1
"foo\nbar" =~ "\\n"     evaluates to 0
```

expr5 and expr6 expr5 expr6

---

expr6 + expr6 ..	Number addition or List concatenation		expr-+
expr6 - expr6 ..	Number subtraction		expr--
expr6 . expr6 ..	String concatenation		expr-.

For Lists only "+" is possible and then both expr6 must be a list. The result is a new list with the two lists Concatenated.

expr7 * expr7 ..	Number multiplication	expr-star
expr7 / expr7 ..	Number division	expr-/
expr7 % expr7 ..	Number modulo	expr-%

For all, except ".", Strings are converted to Numbers.
For bitwise operators see and() , or() and xor() .

Note the difference between "+" and ".":

```
"123" + "456" = 579
"123" . "456" = "123456"
```

Since '.' has the same precedence as '+' and '-', you need to read:

```
1 . 90 + 90.0
```

As:

```
(1 . 90) + 90.0
```

That works, since the String "190" is automatically converted to the Number 190, which can be added to the Float 90.0. However:

```
1 . 90 * 90.0
```

Should be read as:

```
1 . (90 * 90.0)
```

Since '.' has lower precedence than '*'. This does NOT work, since this attempts to concatenate a Float and a String.

When dividing a Number by zero the result depends on the value:
```
          0 / 0  = -0x80000000  (like NaN for Float)
         >0 / 0  =  0x7fffffff  (like positive infinity)
         <0 / 0  = -0x7fffffff  (like negative infinity)
        (before Vim 7.2 it was always 0x7fffffff)
```

When 64-bit Number support is enabled:
```
          0 / 0  = -0x8000000000000000  (like NaN for Float)
         >0 / 0  =  0x7fffffffffffffff  (like positive infinity)
         <0 / 0  = -0x7fffffffffffffff  (like negative infinity)
```

When the righthand side of '%' is zero, the result is 0.

None of these work for Funcref s.

. and % do not work for Float. E804

expr7 expr7

! expr7	logical NOT	expr-!
- expr7	unary minus	expr-unary--
+ expr7	unary plus	expr-unary-+

For '!' TRUE becomes FALSE , FALSE becomes TRUE (one).
For '-' the sign of the number is changed.
For '+' the number is unchanged.

A String will be converted to a Number first.

These three can be repeated and mixed. Examples:
```
        !-1         == 0
        !!8         == 1
        --9         == 9
```

expr8 expr8
-----
expr8[expr1]	item of String or List	expr-[] E111 E909 subscript

If expr8 is a Number or String this results in a String that contains the expr1'th single byte from expr8. expr8 is used as a String, expr1 as a Number. This doesn't recognize multi-byte encodings, see `byteidx()` for an alternative, or use `split()` to turn the string into a list of characters.

Index zero gives the first byte. This is like it works in C. Careful: text column numbers start with one! Example, to get the byte under the cursor:
```
        :let c = getline(".")[col(".") - 1]
```

If the length of the String is less than the index, the result is an empty String. A negative index always results in an empty string (reason: backward compatibility). Use [-1:] to get the last byte.

If expr8 is a List then it results the item at index expr1. See list-index for possible index values. If the index is out of range this results in an error. Example:

```
:let item = mylist[-1]          " get last item
```

Generally, if a List index is equal to or higher than the length of the List , or more negative than the length of the List , this results in an error.

expr8[expr1a : expr1b] substring or sublist expr-[:]

If expr8 is a Number or String this results in the substring with the bytes from expr1a to and including expr1b. expr8 is used as a String, expr1a and expr1b are used as a Number. This doesn't recognize multi-byte encodings, see byteidx() for computing the indexes.

If expr1a is omitted zero is used. If expr1b is omitted the length of the string minus one is used.

A negative number can be used to measure from the end of the string. -1 is the last character, -2 the last but one, etc.

If an index goes out of range for the string characters are omitted. If expr1b is smaller than expr1a the result is an empty string.

Examples:

```
:let c = name[-1:]              " last byte of a string
:let c = name[-2:-2]            " last but one byte of a string
:let s = line(".")[4:]          " from the fifth byte to the end
:let s = s[:-3]                 " remove last two bytes
```

slice

If expr8 is a List this results in a new List with the items indicated by the indexes expr1a and expr1b. This works like with a String, as explained just above. Also see sublist below. Examples:

```
:let l = mylist[:3]             " first four items
:let l = mylist[4:4]            " List with one item
:let l = mylist[:]              " shallow copy of a List
```

Using expr8[expr1] or expr8[expr1a : expr1b] on a Funcref results in an error.

Watch out for confusion between a namespace and a variable followed by a colon for a sublist:

```
mylist[n:]     " uses variable n
mylist[s:]     " uses namespace s:, error!
```

expr8.name entry in a Dictionary expr-entry

If expr8 is a Dictionary and it is followed by a dot, then the following name will be used as a key in the Dictionary . This is just like: expr8[name].

The name must consist of alphanumeric characters, just like a variable name,
but it may start with a number. Curly braces cannot be used.

There must not be white space before or after the dot.

Examples:
```
        :let dict = {"one": 1, 2: "two"}
        :echo dict.one
        :echo dict .2
```

Note that the dot is also used for String concatenation. To avoid confusion
always put spaces around the dot for String concatenation.

expr8(expr1, ...)   Funcref function call

When expr8 is a Funcref type variable, invoke the function it refers to.

expr9

number
------
number   number constant   expr-number
                                hex-number   octal-number   binary-number

Decimal, Hexadecimal (starting with 0x or 0X), Binary (starting with 0b or 0B)
and Octal (starting with 0).

floating-point-format
Floating point numbers can be written in two forms:

```
        [-+]{N}.{M}
        [-+]{N}.{M}[eE][-+]{exp}
```

{N} and {M} are numbers. Both {N} and {M} must be present and can only
contain digits.
[-+] means there is an optional plus or minus sign.
{exp} is the exponent, power of 10.
Only a decimal point is accepted, not a comma. No matter what the current
locale is.
{only when compiled with the |+float| feature}

Examples:
```
        123.456
        +0.0001
        55.0
        -0.123
        1.234e03
        1.0E-6
        -3.1416e+88
```

These are INVALID:

```
        3.              empty {M}
        1e40            missing .{M}
```

float-pi float-e

A few useful values to copy&paste:

```
        :let pi = 3.14159265359
        :let e  = 2.71828182846
```

Rationale:
Before floating point was introduced, the text "123.456" was interpreted as the two numbers "123" and "456", both converted to a string and concatenated, resulting in the string "123456". Since this was considered pointless, and we could not find it intentionally being used in Vim scripts, this backwards incompatibility was accepted in favor of being able to use the normal notation for floating point numbers.

floating-point-precision

The precision and range of floating points numbers depends on what "double" means in the library Vim was compiled with. There is no way to change this at runtime.

The default for displaying a Float is to use 6 decimal places, like using printf("%g", f). You can select something else when using the printf() function. Example:

```
        :echo printf('%.15e', atan(1))
       7.853981633974483e-01
```

string

string String expr-string E114

"string" string constant expr-quote

Note that double quotes are used.

A string constant accepts these special characters:

```
\...    three-digit octal number (e.g., "\316")
\..     two-digit octal number (must be followed by non-digit)
\.      one-digit octal number (must be followed by non-digit)
\x..    byte specified with two hex numbers (e.g., "\x1f")
\x.     byte specified with one hex number (must be followed by non-hex char)
\X..    same as \x..
\X.     same as \x.
\u....  character specified with up to 4 hex numbers, stored according to the
        current value of 'encoding' (e.g., "\u02a4")
\U....  same as \u but allows up to 8 hex numbers.
\b      backspace <BS>
\e      escape <Esc>
\f      formfeed <FF>
\n      newline <NL>
\r      return <CR>
\t      tab <Tab>
\\      backslash
\"      double quote
```

\<xxx> Special key named "xxx". e.g. "\<C-W>" for CTRL-W. This is for use
        in mappings, the 0x80 byte is escaped.
        To use the double quote character it must be escaped: "<M-\">".
        Don't use <Char-xxxx> to get a utf-8 character, use \uxxxx as
        mentioned above.

Note that "\xff" is stored as the byte 255, which may be invalid in some
encodings. Use "\u00ff" to store character 255 according to the current value
of 'encoding'.

Note that "\000" and "\x00" force the end of the string.

literal-string   literal-string   E115

'string'   string constant   expr-'

Note that single quotes are used.

This string is taken as it is. No backslashes are removed or have a special
meaning. The only exception is that two quotes stand for one quote.

Single quoted strings are useful for patterns, so that backslashes do not need
to be doubled. These two commands are equivalent:
        if a =~ "\\s*"
        if a =~ '\s*'

option   expr-option   E112   E113

&option   option value, local value if possible
&g:option   global option value
&l:option   local option value

Examples:
        echo "tabstop is " . &tabstop
        if &insertmode

Any option name can be used here. See options . When using the local value
and there is no buffer-local or window-local value, the global value is used
anyway.

register   expr-register   @r

@r   contents of register 'r'

The result is the contents of the named register, as a single string.
Newlines are inserted where required. To get the contents of the unnamed
register use @" or @@. See registers for an explanation of the available
registers.

When using the '=' register you get the expression itself, not what it
evaluates to. Use eval() to evaluate it.

nesting   expr-nesting   E110

(expr1)   nested expression

environment variable   expr-env

$VAR   environment variable

The String value of any environment variable. When it is not defined, the
result is an empty string.
                                                        expr-env-expand
Note that there is a difference between using $VAR directly and using
expand("$VAR"). Using it directly will only expand environment variables that
are known inside the current Vim session. Using expand() will first try using
the environment variables known inside the current Vim session. If that
fails, a shell will be used to expand the variable. This can be slow, but it
does expand all variables that the shell knows about. Example:
        :echo $shell
        :echo expand("$shell")
The first one probably doesn't echo anything, the second echoes the $shell
variable (if your shell supports it).

internal variable   expr-variable
----
variable   internal variable
See below internal-variables .

function call   expr-function   E116   E118   E119   E120
----
function(expr1, ...)   function call
See below functions .

lambda expression   expr-lambda   lambda

{args -> expr1}   lambda expression

A lambda expression creates a new unnamed function which returns the result of
evaluating expr1 . Lambda expressions differ from user-functions in
the following ways:

1. The body of the lambda expression is an expr1 and not a sequence of Ex
   commands.
2. The prefix "a:" should not be used for arguments. E.g.:
        :let F = {arg1, arg2 -> arg1 - arg2}
        :echo F(5, 2)
       3

The arguments are optional. Example:

```
:let F = {-> 'error function'}
:echo F()
error function
```

closure

Lambda expressions can access outer scope variables and arguments. This is often called a closure. Example where "i" and "a:arg" are used in a lambda while they already exist in the function scope. They remain valid even after the function returns:

```
:function Foo(arg)
:  let i = 3
:  return {x -> x + i - a:arg}
:endfunction
:let Bar = Foo(4)
:echo Bar(6)
5
```

Note that the variables must exist in the outer scope before the lamba is defined for this to work. See also :func-closure .

Lambda and closure support can be checked with:

```
if has('lambda')
```

Examples for using a lambda expression with sort() , map() and filter() :

```
:echo map([1, 2, 3], {idx, val -> val + 1})
[2, 3, 4]
:echo sort([3,7,2,1,4], {a, b -> a - b})
[1, 2, 3, 4, 7]
```

The lambda expression is also useful for Channel, Job and timer:

```
:let timer = timer_start(500,
                \ {-> execute("echo 'Handler called'", "")},
                \ {'repeat': 3})
Handler called
 Handler called
 Handler called
```

Note how execute() is used to execute an Ex command. That's ugly though.

Lambda expressions have internal names like '<lambda>42'. If you get an error for a lambda expression, you can find what it is with the following command:

```
:function {'<lambda>42'}
```

See also: numbered-function

==

3. Internal variable internal-variables E461

An internal variable name can be made up of letters, digits and '_'. But it cannot start with a digit. It's also possible to use curly braces, see curly-braces-names .

An internal variable is created with the ":let" command :let .
An internal variable is explicitly destroyed with the ":unlet" command :unlet .

Using a name that is not an internal variable or refers to a variable that has been destroyed results in an error.

There are several name spaces for variables. Which one is to be used is specified by what is prepended:

```
                (nothing) In a function: local to a function; otherwise: global
 buffer-variable      b:   Local to the current buffer.
 window-variable      w:   Local to the current window.
 tabpage-variable     t:   Local to the current tab page.
 global-variable      g:   Global.
 local-variable       l:   Local to a function.
 script-variable      s:   Local to a  :source 'ed Vim script.
 function-argument    a:   Function argument (only inside a function).
 vim-variable         v:   Global, predefined by Vim.
```

The scope name by itself can be used as a Dictionary . For example, to delete all script-local variables:

```
:for k in keys(s:)
:    unlet s:[k]
:endfor
```

buffer-variable b:var b:

A variable name that is preceded with "b:" is local to the current buffer. Thus you can have several "b:foo" variables, one for each buffer. This kind of variable is deleted when the buffer is wiped out or deleted with :bdelete .

One local buffer variable is predefined:

b:changedtick changetick

b:changedtick The total number of changes to the current buffer. It is incremented for each change. An undo command is also a change in this case. This can be used to perform an action only when the buffer has changed. Example:

```
:if my_changedtick != b:changedtick
:   let my_changedtick = b:changedtick
:   call My_Update()
:endif
```

You cannot change or delete the b:changedtick variable.

window-variable w:var w:

A variable name that is preceded with "w:" is local to the current window. It is deleted when the window is closed.

tabpage-variable t:var t:

A variable name that is preceded with "t:" is local to the current tab page, It is deleted when the tab page is closed. {not available when compiled without the +windows feature}

global-variable g:var g:

Inside functions global variables are accessed with "g:". Omitting this will access a variable local to a function. But "g:" can also be used in any other place if you like.

local-variable l:var l:

Inside functions local variables are accessed without prepending anything. But you can also prepend "l:" if you like. However, without prepending "l:" you may run into reserved variable names. For example "count". By itself it refers to "v:count". Using "l:count" you can have a local variable with the same name.

script-variable s:var

In a Vim script variables starting with "s:" can be used. They cannot be accessed from outside of the scripts, thus are local to the script.

They can be used in:
- commands executed while the script is sourced
- functions defined in the script
- autocommands defined in the script
- functions and autocommands defined in functions and autocommands which were defined in the script (recursively)
- user defined commands defined in the script

Thus not in:
- other scripts sourced from this one
- mappings
- menus
- etc.

Script variables can be used to avoid conflicts with global variable names. Take this example:

```
let s:counter = 0
function MyCounter()
  let s:counter = s:counter + 1
  echo s:counter
endfunction
command Tick call MyCounter()
```

You can now invoke "Tick" from any script, and the "s:counter" variable in that script will not be changed, only the "s:counter" in the script where "Tick" was defined is used.

Another example that does the same:

```
let s:counter = 0
command Tick let s:counter = s:counter + 1 | echo s:counter
```

When calling a function and invoking a user-defined command, the context for script variables is set to the script where the function or command was defined.

The script variables are also available when a function is defined inside a function that is defined in a script. Example:

```
let s:counter = 0
function StartCounting(incr)
  if a:incr
    function MyCounter()
```

```
      let s:counter = s:counter + 1
    endfunction
  else
    function MyCounter()
      let s:counter = s:counter - 1
    endfunction
  endif
endfunction
```

This defines the MyCounter() function either for counting up or counting down when calling StartCounting(). It doesn't matter from where StartCounting() is called, the s:counter variable will be accessible in MyCounter().

When the same script is sourced again it will use the same script variables. They will remain valid as long as Vim is running. This can be used to maintain a counter:

```
if !exists("s:counter")
  let s:counter = 1
  echo "script executed for the first time"
else
  let s:counter = s:counter + 1
  echo "script executed " . s:counter . " times now"
endif
```

Note that this means that filetype plugins don't get a different set of script variables for each buffer. Use local buffer variables instead b:var .

Predefined Vim variables: vim-variable v:var v:

v:beval_col — v:beval_col beval_col-variable

The number of the column, over which the mouse pointer is. This is the byte index in the v:beval_lnum line. Only valid while evaluating the 'balloonexpr' option.

v:beval_bufnr — v:beval_bufnr beval_bufnr-variable

The number of the buffer, over which the mouse pointer is. Only valid while evaluating the 'balloonexpr' option.

v:beval_lnum — v:beval_lnum beval_lnum-variable

The number of the line, over which the mouse pointer is. Only valid while evaluating the 'balloonexpr' option.

v:beval_text — v:beval_text beval_text-variable

The text under or after the mouse pointer. Usually a word as it is useful for debugging a C program. 'iskeyword' applies, but a dot and "->" before the position is included. When on a ']' the text before it is used, including the matching '[' and word before it. When on a Visual area within one line the highlighted text is used. Also see <cexpr> .
Only valid while evaluating the 'balloonexpr' option.

v:beval_winnr — v:beval_winnr beval_winnr-variable

v:beval_winnr	The number of the window, over which the mouse pointer is. Only valid while evaluating the 'balloonexpr' option. The first window has number zero (unlike most other places where a window gets a number).

v:beval_winid	The window-ID of the window, over which the mouse pointer is. Otherwise like v:beval_winnr.

v:char	Argument for evaluating 'formatexpr' and used for the typed character when using <expr> in an abbreviation :map-<expr> . It is also used by the InsertCharPre and InsertEnter events.

v:charconvert_from
	The name of the character encoding of a file to be converted. Only valid while evaluating the 'charconvert' option.

v:charconvert_to
	The name of the character encoding of a file after conversion. Only valid while evaluating the 'charconvert' option.

v:cmdarg	This variable is used for two purposes:
1. The extra arguments given to a file read/write command. Currently these are "++enc=" and "++ff=". This variable is set before an autocommand event for a file read/write command is triggered. There is a leading space to make it possible to append this variable directly after the read/write command. Note: The "+cmd" argument isn't included here, because it will be executed anyway.
2. When printing a PostScript file with ":hardcopy" this is the argument for the ":hardcopy" command. This can be used in 'printexpr'.

v:cmdbang	Set like v:cmdarg for a file read/write command. When a "!" was used the value is 1, otherwise it is 0. Note that this can only be used in autocommands. For user commands <bang> can be used.

v:completed_item
	Dictionary containing the complete-items for the most recently completed word after CompleteDone . The Dictionary is empty if the completion failed.

v:count	The count given for the last Normal mode command. Can be used to get the count before a mapping. Read-only. Example:
```
:map _x :<C-U>echo "the count is " . v:count<CR>
```
Note: The <C-U> is required to remove the line range that you

get when typing ':' after a count.
When there are two counts, as in "3d2w", they are multiplied,
just like what happens in the command, "d6w" for the example.
Also used for evaluating the 'formatexpr' option.
"count" also works, for backwards compatibility.

v:count1 *count1-variable*

v:count1 Just like "v:count", but defaults to one when no count is used.

v:ctype *ctype-variable*

v:ctype The current locale setting for characters of the runtime environment. This allows Vim scripts to be aware of the current locale encoding. Technical: it's the value of LC_CTYPE. When not using a locale the value is "C".
This variable can not be set directly, use the :language command.
See multi-lang .

v:dying *dying-variable*

v:dying Normally zero. When a deadly signal is caught it's set to one. When multiple signals are caught the number increases. Can be used in an autocommand to check if Vim didn't terminate normally. {only works on Unix}
Example:

```
:au VimLeave * if v:dying | echo "\nAAAAaaaarrrgggghhhh!!!\n" | endif
```

Note: if another deadly signal is caught when v:dying is one, VimLeave autocommands will not be executed.

v:errmsg *errmsg-variable*

v:errmsg Last given error message. It's allowed to set this variable.
Example:

```
:let v:errmsg = ""
:silent! next
:if v:errmsg != ""
:  ... handle error
```

"errmsg" also works, for backwards compatibility.

v:errors *errors-variable* *assert-return*

v:errors Errors found by assert functions, such as assert_true() .
This is a list of strings.
The assert functions append an item when an assert fails.
The return value indicates this: a one is returned if an item was added to v:errors, otherwise zero is returned.
To remove old results make it empty:

```
:let v:errors = []
```

If v:errors is set to anything but a list it is made an empty list by the assert function.

v:event *event-variable*

v:event Dictionary containing information about the current autocommand . The dictionary is emptied when the autocommand finishes, please refer to dict-identity for how to get an independent copy of it.

v:exception exception-variable

v:exception The value of the exception most recently caught and not finished. See also v:throwpoint and throw-variables . Example:

```
:try
:  throw "oops"
:catch /.*/
:  echo "caught" v:exception
:endtry
```

Output: "caught oops".

v:false false-variable

v:false A Number with value zero. Used to put "false" in JSON. See json_encode() . When used as a string this evaluates to "v:false".

```
echo v:false
v:false
```

That is so that eval() can parse the string back to the same value. Read-only.

v:fcs_reason fcs_reason-variable

v:fcs_reason The reason why the FileChangedShell event was triggered. Can be used in an autocommand to decide what to do and/or what to set v:fcs_choice to. Possible values:

deleted	file no longer exists
conflict	file contents, mode or timestamp was changed and buffer is modified
changed	file contents has changed
mode	mode of file changed
time	only file timestamp changed

v:fcs_choice fcs_choice-variable

v:fcs_choice What should happen after a FileChangedShell event was triggered. Can be used in an autocommand to tell Vim what to do with the affected buffer:

reload	Reload the buffer (does not work if the file was deleted).
ask	Ask the user what to do, as if there was no autocommand. Except that when only the timestamp changed nothing will happen.
<empty>	Nothing, the autocommand should do everything that needs to be done.

The default is empty. If another (invalid) value is used then Vim behaves like it is empty, there is no warning message.

v:fname_in fname_in-variable

v:fname_in The name of the input file. Valid while evaluating:

option	used for
'charconvert'	file to be converted
'diffexpr'	original file
'patchexpr'	original file
'printexpr'	file to be printed

And set to the swap file name for SwapExists .

v:fname_out — fname_out-variable

v:fname_out — The name of the output file. Only valid while evaluating:

option	used for
'charconvert'	resulting converted file (*)
'diffexpr'	output of diff
'patchexpr'	resulting patched file

(*) When doing conversion for a write command (e.g., ":w file") it will be equal to v:fname_in. When doing conversion for a read command (e.g., ":e file") it will be a temporary file and different from v:fname_in.

v:fname_new — fname_new-variable

v:fname_new — The name of the new version of the file. Only valid while evaluating 'diffexpr'.

v:fname_diff — fname_diff-variable

v:fname_diff — The name of the diff (patch) file. Only valid while evaluating 'patchexpr'.

v:folddashes — folddashes-variable

v:folddashes — Used for 'foldtext': dashes representing foldlevel of a closed fold.
Read-only in the sandbox . fold-foldtext

v:foldlevel — foldlevel-variable

v:foldlevel — Used for 'foldtext': foldlevel of closed fold.
Read-only in the sandbox . fold-foldtext

v:foldend — foldend-variable

v:foldend — Used for 'foldtext': last line of closed fold.
Read-only in the sandbox . fold-foldtext

v:foldstart — foldstart-variable

v:foldstart — Used for 'foldtext': first line of closed fold.
Read-only in the sandbox . fold-foldtext

v:hlsearch — hlsearch-variable

v:hlsearch — Variable that indicates whether search highlighting is on. Setting it makes sense only if 'hlsearch' is enabled which requires +extra_search . Setting this variable to zero acts like the :nohlsearch command, setting it to one acts like

```
let &hlsearch = &hlsearch
```

Note that the value is restored when returning from a function. function-search-undo .

v:insertmode — insertmode-variable

v:insertmode — Used for the InsertEnter and InsertChange autocommand events. Values:

i	Insert mode
r	Replace mode
v	Virtual Replace mode

v:key

v:key Key of the current item of a Dictionary . Only valid while evaluating the expression used with map() and filter() . Read-only.

v:lang

v:lang The current locale setting for messages of the runtime environment. This allows Vim scripts to be aware of the current language. Technical: it's the value of LC_MESSAGES. The value is system dependent.
This variable can not be set directly, use the :language command.
It can be different from v:ctype when messages are desired in a different language than what is used for character encoding. See multi-lang .

v:lc_time

v:lc_time The current locale setting for time messages of the runtime environment. This allows Vim scripts to be aware of the current language. Technical: it's the value of LC_TIME.
This variable can not be set directly, use the :language command. See multi-lang .

v:lnum

v:lnum Line number for the 'foldexpr' fold-expr , 'formatexpr' and 'indentexpr' expressions, tab page number for 'guitablabel' and 'guitabtooltip'. Only valid while one of these expressions is being evaluated. Read-only when in the sandbox .

v:mouse_win

v:mouse_win Window number for a mouse click obtained with getchar() . First window has number 1, like with winnr() . The value is zero when there was no mouse button click.

v:mouse_winid

v:mouse_winid Window ID for a mouse click obtained with getchar() .
The value is zero when there was no mouse button click.

v:mouse_lnum

v:mouse_lnum Line number for a mouse click obtained with getchar() .
This is the text line number, not the screen line number. The value is zero when there was no mouse button click.

v:mouse_col

v:mouse_col Column number for a mouse click obtained with getchar() .
This is the screen column number, like with virtcol() . The value is zero when there was no mouse button click.

v:none

v:none An empty String. Used to put an empty item in JSON. See json_encode() .
When used as a number this evaluates to zero.

When used as a string this evaluates to "v:none".
```
echo v:none
v:none
```
That is so that eval() can parse the string back to the same value. Read-only.

v:null *null-variable*

v:null An empty String. Used to put "null" in JSON. See json_encode() .
When used as a number this evaluates to zero.
When used as a string this evaluates to "v:null".
```
echo v:null
v:null
```
That is so that eval() can parse the string back to the same value. Read-only.

v:oldfiles *oldfiles-variable*

v:oldfiles List of file names that is loaded from the viminfo file on startup. These are the files that Vim remembers marks for. The length of the List is limited by the ' argument of the 'viminfo' option (default is 100).
When the viminfo file is not used the List is empty.
Also see :oldfiles and c_#< .
The List can be modified, but this has no effect on what is stored in the viminfo file later. If you use values other than String this will cause trouble.
{only when compiled with the |+viminfo| feature}

v:option_new

v:option_new New value of the option. Valid while executing an OptionSet autocommand.

v:option_old

v:option_old Old value of the option. Valid while executing an OptionSet autocommand.

v:option_type

v:option_type Scope of the set command. Valid while executing an OptionSet autocommand. Can be either "global" or "local"

v:operator *operator-variable*

v:operator The last operator given in Normal mode. This is a single character except for commands starting with <g> or <z>, in which case it is two characters. Best used alongside v:prevcount and v:register . Useful if you want to cancel Operator-pending mode and then use the operator, e.g.:
```
:omap O <Esc>:call MyMotion(v:operator)<CR>
```
The value remains set until another operator is entered, thus don't expect it to be empty.
v:operator is not set for :delete , :yank or other Ex commands.
Read-only.

v:prevcount *prevcount-variable*

v:prevcount The count given for the last but one Normal mode command. This is the v:count value of the previous command. Useful if you want to cancel Visual or Operator-pending mode and then

use the count, e.g.:
```
:vmap % <Esc>:call MyFilter(v:prevcount)<CR>
```
Read-only.

v:profiling v:profiling profiling-variable

v:profiling Normally zero. Set to one after using ":profile start". See profiling .

v:progname v:progname progname-variable

v:progname Contains the name (with path removed) with which Vim was invoked. Allows you to do special initialisations for view , evim etc., or any other name you might symlink to Vim. Read-only.

v:progpath v:progpath progpath-variable

v:progpath Contains the command with which Vim was invoked, including the path. Useful if you want to message a Vim server using a --remote-expr .
To get the full path use:
```
echo exepath(v:progpath)
```
If the path is relative it will be expanded to the full path, so that it still works after `:cd`. Thus starting "./vim" results in "/home/user/path/to/vim/src/vim".
On MS-Windows the executable may be called "vim.exe", but the ".exe" is not added to v:progpath.
Read-only.

v:register v:register register-variable

v:register The name of the register in effect for the current normal mode command (regardless of whether that command actually used a register). Or for the currently executing normal mode mapping (use this in custom commands that take a register).
If none is supplied it is the default register '"', unless 'clipboard' contains "unnamed" or "unnamedplus", then it is '*' or '+'.
Also see getreg() and setreg()

v:scrollstart v:scrollstart scrollstart-variable

v:scrollstart String describing the script or function that caused the screen to scroll up. It's only set when it is empty, thus the first reason is remembered. It is set to "Unknown" for a typed command.
This can be used to find out why your script causes the hit-enter prompt.

v:servername v:servername servername-variable

v:servername The resulting registered client-server-name if any.
Read-only.

v:searchforward v:searchforward searchforward-variable

Search direction: 1 after a forward search, 0 after a backward search. It is reset to forward when directly setting the last search pattern, see quote/ .

Note that the value is restored when returning from a
function. function-search-undo .
Read-write.

v:shell_error shell_error-variable
v:shell_error Result of the last shell command. When non-zero, the last
shell command had an error. When zero, there was no problem.
This only works when the shell returns the error code to Vim.
The value -1 is often used when the command could not be
executed. Read-only.
Example:

```
:!mv foo bar
:if v:shell_error
:  echo 'could not rename "foo" to "bar"!'
:endif
```

"shell_error" also works, for backwards compatibility.

v:statusmsg statusmsg-variable
v:statusmsg Last given status message. It's allowed to set this variable.

v:swapname swapname-variable
v:swapname Only valid when executing SwapExists autocommands: Name of
the swap file found. Read-only.

v:swapchoice swapchoice-variable
v:swapchoice SwapExists autocommands can set this to the selected choice
for handling an existing swap file:

```
'o'     Open read-only
'e'     Edit anyway
'r'     Recover
'd'     Delete swapfile
'q'     Quit
'a'     Abort
```

The value should be a single-character string. An empty value
results in the user being asked, as would happen when there is
no SwapExists autocommand. The default is empty.

v:swapcommand swapcommand-variable
v:swapcommand Normal mode command to be executed after a file has been
opened. Can be used for a SwapExists autocommand to have
another Vim open the file and jump to the right place. For
example, when jumping to a tag the value is ":tag tagname\r".
For ":edit +cmd file" the value is ":cmd\r".

v:t_TYPE v:t_bool t_bool-variable
v:t_bool Value of Boolean type. Read-only. See: type()
v:t_channel t_channel-variable
v:t_channel Value of Channel type. Read-only. See: type()
v:t_dict t_dict-variable
v:t_dict Value of Dictionary type. Read-only. See: type()
v:t_float t_float-variable
v:t_float Value of Float type. Read-only. See: type()
v:t_func t_func-variable
v:t_func Value of Funcref type. Read-only. See: type()

v:t_job
Value of Job type. Read-only. See: type()

v:t_list
Value of List type. Read-only. See: type()

v:t_none
Value of None type. Read-only. See: type()

v:t_number
Value of Number type. Read-only. See: type()

v:t_string
Value of String type. Read-only. See: type()

v:termresponse
The escape sequence returned by the terminal for the t_RV termcap entry. It is set when Vim receives an escape sequence that starts with ESC [or CSI and ends in a 'c', with only digits, ';' and '.' in between.
When this option is set, the TermResponse autocommand event is fired, so that you can react to the response from the terminal.
The response from a new xterm is: "<Esc>[Pp ; Pv ; Pc c". Pp is the terminal type: 0 for vt100 and 1 for vt220. Pv is the patch level (since this was introduced in patch 95, it's always 95 or bigger). Pc is always zero.
{only when compiled with |+termresponse| feature}

v:termblinkresp
The escape sequence returned by the terminal for the t_RC termcap entry. This is used to find out whether the terminal cursor is blinking. This is used by term_getcursor() .

v:termstyleresp
The escape sequence returned by the terminal for the t_RS termcap entry. This is used to find out what the shape of the cursor is. This is used by term_getcursor() .

v:termrbgresp
The escape sequence returned by the terminal for the t_RB termcap entry. This is used to find out what the terminal background color is, see 'background'.

v:termrfgresp
The escape sequence returned by the terminal for the t_RF termcap entry. This is used to find out what the terminal foreground color is.

v:termu7resp
The escape sequence returned by the terminal for the t_u7 termcap entry. This is used to find out what the terminal does with ambiguous width characters, see 'ambiwidth'.

v:testing
Must be set before using `test_garbagecollect_now()`.
Also, when set certain error messages won't be shown for 2 seconds. (e.g. "'dictionary' option is empty")

v:this_session this_session-variable

v:this_session Full filename of the last loaded or saved session file. See :mksession . It is allowed to set this variable. When no session file has been saved, this variable is empty. "this_session" also works, for backwards compatibility.

v:throwpoint throwpoint-variable

v:throwpoint The point where the exception most recently caught and not finished was thrown. Not set when commands are typed. See also v:exception and throw-variables . Example:

```
:try
:  throw "oops"
:catch /.*/
:  echo "Exception from" v:throwpoint
:endtry
```

Output: "Exception from test.vim, line 2"

v:true true-variable

v:true A Number with value one. Used to put "true" in JSON. See json_encode() . When used as a string this evaluates to "v:true".

```
echo v:true
v:true
```

That is so that eval() can parse the string back to the same value. Read-only.

v:val val-variable

v:val Value of the current item of a List or Dictionary . Only valid while evaluating the expression used with map() and filter() . Read-only.

v:version version-variable

v:version Version number of Vim: Major version number times 100 plus minor version number. Version 5.0 is 500. Version 5.1 (5.01) is 501. Read-only. "version" also works, for backwards compatibility.
Use has() to check if a certain patch was included, e.g.:

```
if has("patch-7.4.123")
```

Note that patch numbers are specific to the version, thus both version 5.0 and 5.1 may have a patch 123, but these are completely different.

v:vim_did_enter vim_did_enter-variable

v:vim_did_enter Zero until most of startup is done. It is set to one just before VimEnter autocommands are triggered.

v:warningmsg warningmsg-variable

v:warningmsg Last given warning message. It's allowed to set this variable.

v:windowid windowid-variable

v:windowid When any X11 based GUI is running or when running in a terminal and Vim connects to the X server (-X) this will be set to the window ID.

When an MS-Windows GUI is running this will be set to the
window handle.
Otherwise the value is zero.
Note: for windows inside Vim use winnr() or win_getid() ,
see window-ID .

==
4. Builtin Functions functions

See function-list for a list grouped by what the function is used for.

(Use CTRL-] on the function name to jump to the full explanation.)

USAGE RESULT DESCRIPTION

abs({expr}) Float or Number absolute value of {expr}
acos({expr}) Float arc cosine of {expr}
add({list}, {item}) List append {item} to List {list}
and({expr}, {expr}) Number bitwise AND
append({lnum}, {string}) Number append {string} below line {lnum}
append({lnum}, {list}) Number append lines {list} below line {lnum}
argc() Number number of files in the argument list
argidx() Number current index in the argument list
arglistid([{winnr} [, {tabnr}]]) Number argument list id
argv({nr}) String {nr} entry of the argument list
argv() List the argument list
assert_beeps({cmd}) Number assert {cmd} causes a beep
assert_equal({exp}, {act} [, {msg}])
Number assert {exp} is equal to {act}
assert_equalfile({fname-one}, {fname-two})
Number assert file contents is equal
assert_exception({error} [, {msg}])
Number assert {error} is in v:exception
assert_fails({cmd} [, {error}]) Number assert {cmd} fails
assert_false({actual} [, {msg}])
Number assert {actual} is false
assert_inrange({lower}, {upper}, {actual} [, {msg}])
Number assert {actual} is inside the range
assert_match({pat}, {text} [, {msg}])
Number assert {pat} matches {text}
assert_notequal({exp}, {act} [, {msg}])
Number assert {exp} is not equal {act}
assert_notmatch({pat}, {text} [, {msg}])
Number assert {pat} not matches {text}
assert_report({msg}) Number report a test failure
assert_true({actual} [, {msg}]) Number assert {actual} is true
asin({expr}) Float arc sine of {expr}
atan({expr}) Float arc tangent of {expr}
atan2({expr1}, {expr2}) Float arc tangent of {expr1} / {expr2}
balloon_show({expr}) none show {expr} inside the balloon
balloon_split({msg}) List split {msg} as used for a balloon
browse({save}, {title}, {initdir}, {default})
String put up a file requester
browsedir({title}, {initdir}) String put up a directory requester

```
bufexists({expr})               Number   TRUE  if buffer {expr} exists
buflisted({expr})               Number   TRUE  if buffer {expr} is listed
bufloaded({expr})               Number   TRUE  if buffer {expr} is loaded
bufname({expr})                 String  Name of the buffer {expr}
bufnr({expr} [, {create}])      Number  Number of the buffer {expr}
bufwinid({expr})                Number  window ID of buffer {expr}
bufwinnr({expr})                Number  window number of buffer {expr}
byte2line({byte})               Number  line number at byte count {byte}
byteidx({expr}, {nr})           Number  byte index of {nr}'th char in {expr}
byteidxcomp({expr}, {nr})       Number  byte index of {nr}'th char in {expr}
call({func}, {arglist} [, {dict}])
                                any     call {func} with arguments {arglist}
ceil({expr})                    Float   round {expr} up
ch_canread({handle})            Number  check if there is something to read
ch_close({handle})              none    close {handle}
ch_close_in({handle})           none    close in part of {handle}
ch_evalexpr({handle}, {expr} [, {options}])
                                any     evaluate {expr} on JSON {handle}
ch_evalraw({handle}, {string} [, {options}])
                                any     evaluate {string} on raw {handle}
ch_getbufnr({handle}, {what})   Number  get buffer number for {handle}/{what}
ch_getjob({channel})            Job     get the Job of {channel}
ch_info({handle})               String  info about channel {handle}
ch_log({msg} [, {handle}])      none    write {msg} in the channel log file
ch_logfile({fname} [, {mode}])  none    start logging channel activity
ch_open({address} [, {options}])
                                Channel open a channel to {address}
ch_read({handle} [, {options}]) String  read from {handle}
ch_readraw({handle} [, {options}])
                                String  read raw from {handle}
ch_sendexpr({handle}, {expr} [, {options}])
                                any     send {expr} over JSON {handle}
ch_sendraw({handle}, {string} [, {options}])
                                any     send {string} over raw {handle}
ch_setoptions({handle}, {options})
                                none    set options for {handle}
ch_status({handle} [, {options}])
                                String  status of channel {handle}
changenr()                      Number  current change number
char2nr({expr} [, {utf8}])      Number  ASCII/UTF8 value of first char in {expr}
cindent({lnum})                 Number  C indent for line {lnum}
clearmatches()                  none    clear all matches
col({expr})                     Number  column nr of cursor or mark
complete({startcol}, {matches}) none    set Insert mode completion
complete_add({expr})            Number  add completion match
complete_check()                Number  check for key typed during completion
confirm({msg} [, {choices} [, {default} [, {type}]]])
                                Number  number of choice picked by user
copy({expr})                    any     make a shallow copy of {expr}
cos({expr})                     Float   cosine of {expr}
cosh({expr})                    Float   hyperbolic cosine of {expr}
count({list}, {expr} [, {ic} [, {start}]])
                                Number  count how many {expr} are in {list}
cscope_connection([{num}, {dbpath} [, {prepend}]])
```

```
                                Number  checks existence of cscope connection
cursor({lnum}, {col} [, {off}])
                                Number  move cursor to {lnum}, {col}, {off}
cursor({list})                  Number  move cursor to position in {list}
debugbreak({pid})               Number  interrupt process being debugged
deepcopy({expr} [, {noref}])    any     make a full copy of {expr}
delete({fname} [, {flags}])     Number  delete the file or directory {fname}
deletebufline({expr}, {first}[, {last}])
                                Number  delete lines from buffer {expr}
did_filetype()                  Number   TRUE  if FileType autocmd event used
diff_filler({lnum})             Number  diff filler lines about {lnum}
diff_hlID({lnum}, {col})        Number  diff highlighting at {lnum}/{col}
empty({expr})                   Number   TRUE  if {expr} is empty
escape({string}, {chars})       String  escape {chars} in {string} with '\'
eval({string})                  any     evaluate {string} into its value
eventhandler()                  Number   TRUE  if inside an event handler
executable({expr})              Number  1 if executable {expr} exists
execute({command})              String  execute {command} and get the output
exepath({expr})                 String  full path of the command {expr}
exists({expr})                  Number   TRUE  if {expr} exists
extend({expr1}, {expr2} [, {expr3}])
                                List/Dict insert items of {expr2} into {expr1}
exp({expr})                     Float   exponential of {expr}
expand({expr} [, {nosuf} [, {list}]])
                                any     expand special keywords in {expr}
feedkeys({string} [, {mode}])   Number  add key sequence to typeahead buffer
filereadable({file})            Number   TRUE  if {file} is a readable file
filewritable({file})            Number   TRUE  if {file} is a writable file
filter({expr1}, {expr2})        List/Dict  remove items from {expr1} where
                                        {expr2} is 0
finddir({name} [, {path} [, {count}]])
                                String  find directory {name} in {path}
findfile({name} [, {path} [, {count}]])
                                String  find file {name} in {path}
float2nr({expr})                Number  convert Float {expr} to a Number
floor({expr})                   Float   round {expr} down
fmod({expr1}, {expr2})          Float   remainder of {expr1} / {expr2}
fnameescape({fname})            String  escape special characters in {fname}
fnamemodify({fname}, {mods})    String  modify file name
foldclosed({lnum})              Number  first line of fold at {lnum} if closed
foldclosedend({lnum})           Number  last line of fold at {lnum} if closed
foldlevel({lnum})               Number  fold level at {lnum}
foldtext()                      String  line displayed for closed fold
foldtextresult({lnum})          String  text for closed fold at {lnum}
foreground()                    Number  bring the Vim window to the foreground
funcref({name} [, {arglist}] [, {dict}])
                                Funcref reference to function {name}
function({name} [, {arglist}] [, {dict}])
                                Funcref named reference to function {name}
garbagecollect([{atexit}])      none    free memory, breaking cyclic references
get({list}, {idx} [, {def}])    any     get item {idx} from {list} or {def}
get({dict}, {key} [, {def}])    any     get item {key} from {dict} or {def}
get({func}, {what})             any     get property of funcref/partial {func}
getbufinfo([{expr}])            List    information about buffers
```

```
getbufline({expr}, {lnum} [, {end}])
                                List    lines {lnum} to {end} of buffer {expr}
getbufvar({expr}, {varname} [, {def}])
                                any     variable {varname} in buffer {expr}
getchangelist({expr})           List    list of change list items
getchar([expr])                 Number  get one character from the user
getcharmod()                    Number  modifiers for the last typed character
getcharsearch()                 Dict    last character search
getcmdline()                    String  return the current command-line
getcmdpos()                     Number  return cursor position in command-line
getcmdtype()                    String  return current command-line type
getcmdwintype()                 String  return current command-line window type
getcompletion({pat}, {type} [, {filtered}])
                                List    list of cmdline completion matches
getcurpos()                     List    position of the cursor
getcwd([{winnr} [, {tabnr}]])   String  get the current working directory
getfontname([{name}])           String  name of font being used
getfperm({fname})               String  file permissions of file {fname}
getfsize({fname})               Number  size in bytes of file {fname}
getftime({fname})               Number  last modification time of file
getftype({fname})               String  description of type of file {fname}
getjumplist([{winnr} [, {tabnr}]])
                                List    list of jump list items
getline({lnum})                 String  line {lnum} of current buffer
getline({lnum}, {end})          List    lines {lnum} to {end} of current buffer
getloclist({nr} [, {what}])     List    list of location list items
getmatches()                    List    list of current matches
getpid()                        Number  process ID of Vim
getpos({expr})                  List    position of cursor, mark, etc.
getqflist([{what}])             List    list of quickfix items
getreg([{regname} [, 1 [, {list}]]])
                                String or List   contents of register
getregtype([{regname}])         String  type of register
gettabinfo([{expr}])            List    list of tab pages
gettabvar({nr}, {varname} [, {def}])
                                any     variable {varname} in tab {nr} or {def}
gettabwinvar({tabnr}, {winnr}, {name} [, {def}])
                                any     {name} in {winnr} in tab page {tabnr}
getwininfo([{winid}])           List    list of info about each window
getwinpos([{timeout}])          List    X and Y coord in pixels of the Vim window
getwinposx()                    Number  X coord in pixels of the Vim window
getwinposy()                    Number  Y coord in pixels of the Vim window
getwinvar({nr}, {varname} [, {def}])
                                any     variable {varname} in window {nr}
glob({expr} [, {nosuf} [, {list} [, {alllinks}]]])
                                any     expand file wildcards in {expr}
glob2regpat({expr})             String  convert a glob pat into a search pat
globpath({path}, {expr} [, {nosuf} [, {list} [, {alllinks}]]])
                                String  do glob({expr}) for all dirs in {path}
has({feature})                  Number   TRUE  if feature {feature} supported
has_key({dict}, {key})          Number   TRUE  if {dict} has entry {key}
haslocaldir([{winnr} [, {tabnr}]])
                                Number   TRUE  if the window executed  :lcd
hasmapto({what} [, {mode} [, {abbr}]])
```

```
                                Number   TRUE  if mapping to {what} exists
histadd({history}, {item})      String  add an item to a history
histdel({history} [, {item}])   String  remove an item from a history
histget({history} [, {index}])  String  get the item {index} from a history
histnr({history})               Number  highest index of a history
hlexists({name})                Number   TRUE  if highlight group {name} exists
hlID({name})                    Number  syntax ID of highlight group {name}
hostname()                      String  name of the machine Vim is running on
iconv({expr}, {from}, {to})     String  convert encoding of {expr}
indent({lnum})                  Number  indent of line {lnum}
index({list}, {expr} [, {start} [, {ic}]])
                                Number  index in {list} where {expr} appears
input({prompt} [, {text} [, {completion}]])
                                String  get input from the user
inputdialog({prompt} [, {text} [, {completion}]])
                                String  like input() but in a GUI dialog
inputlist({textlist})           Number  let the user pick from a choice list
inputrestore()                  Number  restore typeahead
inputsave()                     Number  save and clear typeahead
inputsecret({prompt} [, {text}]) String like input() but hiding the text
insert({list}, {item} [, {idx}]) List   insert {item} in {list} [before {idx}]
invert({expr})                  Number  bitwise invert
isdirectory({directory})        Number   TRUE  if {directory} is a directory
islocked({expr})                Number   TRUE  if {expr} is locked
isnan({expr})                   Number   TRUE  if {expr} is NaN
items({dict})                   List    key-value pairs in {dict}
job_getchannel({job})           Channel get the channel handle for {job}
job_info([{job}])               Dict    get information about {job}
job_setoptions({job}, {options}) none   set options for {job}
job_start({command} [, {options}])
                                Job     start a job
job_status({job})               String  get the status of {job}
job_stop({job} [, {how}])       Number  stop {job}
join({list} [, {sep}])          String  join {list} items into one String
js_decode({string})             any     decode JS style JSON
js_encode({expr})               String  encode JS style JSON
json_decode({string})           any     decode JSON
json_encode({expr})             String  encode JSON
keys({dict})                    List    keys in {dict}
len({expr})                     Number  the length of {expr}
libcall({lib}, {func}, {arg})   String  call {func} in library {lib} with {arg}
libcallnr({lib}, {func}, {arg}) Number  idem, but return a Number
line({expr})                    Number  line nr of cursor, last line or mark
line2byte({lnum})               Number  byte count of line {lnum}
lispindent({lnum})              Number  Lisp indent for line {lnum}
localtime()                     Number  current time
log({expr})                     Float   natural logarithm (base e) of {expr}
log10({expr})                   Float   logarithm of Float {expr} to base 10
luaeval({expr} [, {expr}])      any     evaluate  Lua  expression
map({expr1}, {expr2})           List/Dict  change each item in {expr1} to {expr}
maparg({name} [, {mode} [, {abbr} [, {dict}]])
                                String or Dict
                                        rhs of mapping {name} in mode {mode}
mapcheck({name} [, {mode} [, {abbr}])
```

```
                                String  check for mappings matching {name}
match({expr}, {pat} [, {start} [, {count}]])
                                Number  position where {pat} matches in {expr}
matchadd({group}, {pattern} [, {priority} [, {id} [, {dict}]]])
                                Number  highlight {pattern} with {group}
matchaddpos({group}, {pos} [, {priority} [, {id} [, {dict}]]])
                                Number  highlight positions with {group}
matcharg({nr})                  List    arguments of  :match
matchdelete({id})               Number  delete match identified by {id}
matchend({expr}, {pat} [, {start} [, {count}]])
                                Number  position where {pat} ends in {expr}
matchlist({expr}, {pat} [, {start} [, {count}]])
                                List    match and submatches of {pat} in {expr}
matchstr({expr}, {pat} [, {start} [, {count}]])
                                String  {count}'th match of {pat} in {expr}
matchstrpos({expr}, {pat} [, {start} [, {count}]])
                                List    {count}'th match of {pat} in {expr}
max({expr})                     Number  maximum value of items in {expr}
min({expr})                     Number  minimum value of items in {expr}
mkdir({name} [, {path} [, {prot}]])
                                Number  create directory {name}
mode([expr])                    String  current editing mode
mzeval({expr})                  any     evaluate  MzScheme  expression
nextnonblank({lnum})            Number  line nr of non-blank line >= {lnum}
nr2char({expr} [, {utf8}])      String  single char with ASCII/UTF8 value {expr}
or({expr}, {expr})              Number  bitwise OR
pathshorten({expr})             String  shorten directory names in a path
perleval({expr})                any     evaluate  Perl  expression
pow({x}, {y})                   Float   {x} to the power of {y}
prevnonblank({lnum})            Number  line nr of non-blank line <= {lnum}
printf({fmt}, {expr1}...)       String  format text
prompt_addtext({buf}, {expr})   none    add text to a prompt buffer
prompt_setcallback({buf}, {expr}) none  set prompt callback function
prompt_setinterrupt({buf}, {text}) none set prompt interrupt function
prompt_setprompt({buf}, {text}) none    set prompt text
pumvisible()                    Number  whether popup menu is visible
pyeval({expr})                  any     evaluate  Python  expression
py3eval({expr})                 any     evaluate  python3  expression
pyxeval({expr})                 any     evaluate  python_x  expression
range({expr} [, {max} [, {stride}]])
                                List    items from {expr} to {max}
readfile({fname} [, {binary} [, {max}]])
                                List    get list of lines from file {fname}
reg_executing()                 String  get the executing register name
reg_recording()                 String  get the recording register name
reltime([{start} [, {end}]])    List    get time value
reltimefloat({time})            Float   turn the time value into a Float
reltimestr({time})              String  turn time value into a String
remote_expr({server}, {string} [, {idvar} [, {timeout}]])
                                String  send expression
remote_foreground({server})     Number  bring Vim server to the foreground
remote_peek({serverid} [, {retvar}])
                                Number  check for reply string
remote_read({serverid} [, {timeout}])
```

```
                                String  read reply string
remote_send({server}, {string} [, {idvar}])
                                String  send key sequence
remote_startserver({name})      none    become server {name}
                                String  send key sequence
remove({list}, {idx} [, {end}]) any     remove items {idx}-{end} from {list}
remove({dict}, {key})           any     remove entry {key} from {dict}
rename({from}, {to})            Number  rename (move) file from {from} to {to}
repeat({expr}, {count})         String  repeat {expr} {count} times
resolve({filename})             String  get filename a shortcut points to
reverse({list})                 List    reverse {list} in-place
round({expr})                   Float   round off {expr}
screenattr({row}, {col})        Number  attribute at screen position
screenchar({row}, {col})        Number  character at screen position
screencol()                     Number  current cursor column
screenrow()                     Number  current cursor row
search({pattern} [, {flags} [, {stopline} [, {timeout}]]])
                                Number  search for {pattern}
searchdecl({name} [, {global} [, {thisblock}]])
                                Number  search for variable declaration
searchpair({start}, {middle}, {end} [, {flags} [, {skip} [...]]])
                                Number  search for other end of start/end pair
searchpairpos({start}, {middle}, {end} [, {flags} [, {skip} [...]]])
                                List    search for other end of start/end pair
searchpos({pattern} [, {flags} [, {stopline} [, {timeout}]]])
                                List    search for {pattern}
server2client({clientid}, {string})
                                Number  send reply string
serverlist()                    String  get a list of available servers
setbufline({expr}, {lnum}, {line})
                                Number  set line {lnum} to {line} in buffer
                                        {expr}
setbufvar({expr}, {varname}, {val})
                                none    set {varname} in buffer {expr} to {val}
setcharsearch({dict})           Dict    set character search from {dict}
setcmdpos({pos})                Number  set cursor position in command-line
setfperm({fname}, {mode})       Number  set {fname} file permissions to {mode}
setline({lnum}, {line})         Number  set line {lnum} to {line}
setloclist({nr}, {list} [, {action} [, {what}]])
                                Number  modify location list using {list}
setmatches({list})              Number  restore a list of matches
setpos({expr}, {list})          Number  set the {expr} position to {list}
setqflist({list} [, {action} [, {what}]])
                                Number  modify quickfix list using {list}
setreg({n}, {v} [, {opt}])      Number  set register to value and type
settabvar({nr}, {varname}, {val}) none  set {varname} in tab page {nr} to {val}
settabwinvar({tabnr}, {winnr}, {varname}, {val})
                                none    set {varname} in window {winnr} in tab
                                        page {tabnr} to {val}
setwinvar({nr}, {varname}, {val}) none  set {varname} in window {nr} to {val}
sha256({string})                String  SHA256 checksum of {string}
shellescape({string} [, {special}])
                                String  escape {string} for use as shell
                                        command argument
```

```
shiftwidth()                    Number  effective value of 'shiftwidth'
simplify({filename})            String  simplify filename as much as possible
sin({expr})                     Float   sine of {expr}
sinh({expr})                    Float   hyperbolic sine of {expr}
sort({list} [, {func} [, {dict}]])
                                List    sort {list}, using {func} to compare
soundfold({word})               String  sound-fold {word}
spellbadword()                  String  badly spelled word at cursor
spellsuggest({word} [, {max} [, {capital}]])
                                List    spelling suggestions
split({expr} [, {pat} [, {keepempty}]])
                                List    make  List  from {pat} separated {expr}
sqrt({expr})                    Float   square root of {expr}
str2float({expr})               Float   convert String to Float
str2nr({expr} [, {base}])       Number  convert String to Number
strchars({expr} [, {skipcc}])   Number  character length of the String {expr}
strcharpart({str}, {start} [, {len}])
                                String  {len} characters of {str} at {start}
strdisplaywidth({expr} [, {col}]) Number display length of the String {expr}
strftime({format} [, {time}])   String  time in specified format
strgetchar({str}, {index})      Number  get char {index} from {str}
stridx({haystack}, {needle} [, {start}])
                                Number  index of {needle} in {haystack}
string({expr})                  String  String representation of {expr} value
strlen({expr})                  Number  length of the String {expr}
strpart({str}, {start} [, {len}])
                                String  {len} characters of {str} at {start}
strridx({haystack}, {needle} [, {start}])
                                Number  last index of {needle} in {haystack}
strtrans({expr})                String  translate string to make it printable
strwidth({expr})                Number  display cell length of the String {expr}
submatch({nr} [, {list}])       String or List
                                        specific match in ":s" or substitute()
substitute({expr}, {pat}, {sub}, {flags})
                                String  all {pat} in {expr} replaced with {sub}
synID({lnum}, {col}, {trans})   Number  syntax ID at {lnum} and {col}
synIDattr({synID}, {what} [, {mode}])
                                String  attribute {what} of syntax ID {synID}
synIDtrans({synID})             Number  translated syntax ID of {synID}
synconcealed({lnum}, {col})     List    info about concealing
synstack({lnum}, {col})         List    stack of syntax IDs at {lnum} and {col}
system({expr} [, {input}])      String  output of shell command/filter {expr}
systemlist({expr} [, {input}])  List    output of shell command/filter {expr}
tabpagebuflist([{arg}])         List    list of buffer numbers in tab page
tabpagenr([{arg}])              Number  number of current or last tab page
tabpagewinnr({tabarg} [, {arg}]) Number number of current window in tab page
taglist({expr} [, {filename}])  List    list of tags matching {expr}
tagfiles()                      List    tags files used
tan({expr})                     Float   tangent of {expr}
tanh({expr})                    Float   hyperbolic tangent of {expr}
tempname()                      String  name for a temporary file
term_dumpdiff({filename}, {filename} [, {options}])
                                Number  display difference between two dumps
term_dumpload({filename} [, {options}])
```

```
                                Number  displaying a screen dump
term_dumpwrite({buf}, {filename} [, {options}])
                                none    dump terminal window contents
term_getaltscreen({buf})        Number  get the alternate screen flag
term_getansicolors({buf})       List    get ANSI palette in GUI color mode
term_getattr({attr}, {what})    Number  get the value of attribute {what}
term_getcursor({buf})           List    get the cursor position of a terminal
term_getjob({buf})              Job     get the job associated with a terminal
term_getline({buf}, {row})      String  get a line of text from a terminal
term_getscrolled({buf})         Number  get the scroll count of a terminal
term_getsize({buf})             List    get the size of a terminal
term_getstatus({buf})           String  get the status of a terminal
term_gettitle({buf})            String  get the title of a terminal
term_gettty({buf}, [{input}])   String  get the tty name of a terminal
term_list()                     List    get the list of terminal buffers
term_scrape({buf}, {row})       List    get row of a terminal screen
term_sendkeys({buf}, {keys})    none    send keystrokes to a terminal
term_setansicolors({buf}, {colors})
                                none    set ANSI palette in GUI color mode
term_setkill({buf}, {how})      none    set signal to stop job in terminal
term_setrestore({buf}, {command}) none  set command to restore terminal
term_setsize({buf}, {rows}, {cols})
                                none    set the size of a terminal
term_start({cmd}, {options})    Job     open a terminal window and run a job
term_wait({buf} [, {time}])     Number  wait for screen to be updated
test_alloc_fail({id}, {countdown}, {repeat})
                                none    make memory allocation fail
test_autochdir()                none    enable 'autochdir' during startup
test_feedinput()                none    add key sequence to input buffer
test_garbagecollect_now()       none    free memory right now for testing
test_ignore_error({expr})       none    ignore a specific error
test_null_channel()             Channel null value for testing
test_null_dict()                Dict    null value for testing
test_null_job()                 Job     null value for testing
test_null_list()                List    null value for testing
test_null_partial()             Funcref null value for testing
test_null_string()              String  null value for testing
test_override({expr}, {val})    none    test with Vim internal overrides
test_settime({expr})            none    set current time for testing
timer_info([{id}])              List    information about timers
timer_pause({id}, {pause})      none    pause or unpause a timer
timer_start({time}, {callback} [, {options}])
                                Number  create a timer
timer_stop({timer})             none    stop a timer
timer_stopall()                 none    stop all timers
tolower({expr})                 String  the String {expr} switched to lowercase
toupper({expr})                 String  the String {expr} switched to uppercase
tr({src}, {fromstr}, {tostr})   String  translate chars of {src} in {fromstr}
                                        to chars in {tostr}
trim({text}[, {mask}])          String  trim characters in {mask} from {text}
trunc({expr})                   Float   truncate Float {expr}
type({name})                    Number  type of variable {name}
undofile({name})                String  undo file name for {name}
undotree()                      List    undo file tree
```

```
uniq({list} [, {func} [, {dict}]])
                                List    remove adjacent duplicates from a list
values({dict})                  List    values in {dict}
virtcol({expr})                 Number  screen column of cursor or mark
visualmode([expr])              String  last visual mode used
wildmenumode()                  Number  whether 'wildmenu' mode is active
win_findbuf({bufnr})            List    find windows containing {bufnr}
win_getid([{win} [, {tab}]])    Number  get window ID for {win} in {tab}
win_gotoid({expr})              Number  go to window with ID {expr}
win_id2tabwin({expr})           List    get tab and window nr from window ID
win_id2win({expr})              Number  get window nr from window ID
win_screenpos({nr})             List    get screen position of window {nr}
winbufnr({nr})                  Number  buffer number of window {nr}
wincol()                        Number  window column of the cursor
winheight({nr})                 Number  height of window {nr}
winline()                       Number  window line of the cursor
winnr([{expr}])                 Number  number of current window
winrestcmd()                    String  returns command to restore window sizes
winrestview({dict})             none    restore view of current window
winsaveview()                   Dict    save view of current window
winwidth({nr})                  Number  width of window {nr}
wordcount()                     Dict    get byte/char/word statistics
writefile({list}, {fname} [, {flags}])
                                Number  write list of lines to file {fname}
xor({expr}, {expr})             Number  bitwise XOR
```

```
abs({expr})                                                       abs()
```
Return the absolute value of {expr}. When {expr} evaluates to a Float abs() returns a Float . When {expr} can be converted to a Number abs() returns a Number . Otherwise abs() gives an error message and returns -1.
Examples:

```
:echo abs(1.456)
1.456
:echo abs(-5.456)
5.456
:echo abs(-4)
4
```

{only available when compiled with the |+float| feature}

```
acos({expr})                                                      acos()
```
Return the arc cosine of {expr} measured in radians, as a Float in the range of [0, pi].
{expr} must evaluate to a Float or a Number in the range [-1, 1].
Examples:

```
:echo acos(0)
1.570796
:echo acos(-0.5)
2.094395
```

{only available when compiled with the |+float| feature}

add({list}, {expr}) add()
Append the item {expr} to List {list}. Returns the resulting List. Examples:
```
:let alist = add([1, 2, 3], item)
:call add(mylist, "woodstock")
```
Note that when {expr} is a List it is appended as a single item. Use extend() to concatenate Lists. Use insert() to add an item at another position.

and({expr}, {expr}) and()
Bitwise AND on the two arguments. The arguments are converted to a number. A List, Dict or Float argument causes an error. Example:
```
:let flag = and(bits, 0x80)
```

append({lnum}, {expr}) append()
When {expr} is a List: Append each item of the List as a text line below line {lnum} in the current buffer. Otherwise append {expr} as one text line below line {lnum} in the current buffer. {lnum} can be zero to insert a line before the first one. Returns 1 for failure ({lnum} out of range or out of memory), 0 for success. Example:
```
:let failed = append(line('$'), "# THE END")
:let failed = append(0, ["Chapter 1", "the beginning"])
```

appendbufline({expr}, {lnum}, {text}) appendbufline()
Like append() but append the text in buffer {expr}.

For the use of {expr}, see bufname().

{lnum} is used like with append(). Note that using line() would use the current buffer, not the one appending to. Use "$" to append at the end of the buffer.

On success 0 is returned, on failure 1 is returned.

If {expr} is not a valid buffer or {lnum} is not valid, an error message is given. Example:
```
:let failed = appendbufline(13, 0, "# THE START")
```

argc() argc()
The result is the number of files in the argument list of the current window. See arglist.

argidx() argidx()
The result is the current index in the argument list. 0 is the first file. argc() - 1 is the last one. See arglist.

arglistid([{winnr} [, {tabnr}]]) arglistid()

Return the argument list ID. This is a number which identifies the argument list being used. Zero is used for the global argument list. See arglist .
Return -1 if the arguments are invalid.

Without arguments use the current window.
With {winnr} only use this window in the current tab page.
With {winnr} and {tabnr} use the window in the specified tab page.
{winnr} can be the window number or the window-ID .

argv()
argv([{nr}]) The result is the {nr}th file in the argument list of the current window. See arglist . "argv(0)" is the first one. Example:

```
:let i = 0
:while i < argc()
:  let f = escape(fnameescape(argv(i)), '.')
:  exe 'amenu Arg.' . f . ' :e ' . f . '<CR>'
:  let i = i + 1
:endwhile
```

Without the {nr} argument a List with the whole arglist is returned.

assert_beeps({cmd}) assert_beeps()
Run {cmd} and add an error message to v:errors if it does NOT produce a beep or visual bell.
Also see assert_fails() and assert-return .

assert_equal()
assert_equal({expected}, {actual} [, {msg}])
When {expected} and {actual} are not equal an error message is added to v:errors and 1 is returned. Otherwise zero is returned assert-return .
There is no automatic conversion, the String "4" is different from the Number 4. And the number 4 is different from the Float 4.0. The value of 'ignorecase' is not used here, case always matters.
When {msg} is omitted an error in the form "Expected {expected} but got {actual}" is produced.
Example:

```
assert_equal('foo', 'bar')
```

Will result in a string to be added to v:errors :

```
test.vim line 12: Expected 'foo' but got 'bar'
```

assert_equalfile()
assert_equalfile({fname-one}, {fname-two})
When the files {fname-one} and {fname-two} do not contain exactly the same text an error message is added to v:errors .
Also see assert-return .
When {fname-one} or {fname-two} does not exist the error will mention that.
Mainly useful with terminal-diff .

```
assert_exception({error} [, {msg}])                    assert_exception()
                When v:exception does not contain the string {error} an error
                message is added to  v:errors .  Also see  assert-return .
                This can be used to assert that a command throws an exception.
                Using the error number, followed by a colon, avoids problems
                with translations:
                        try
                          commandthatfails
                          call assert_false(1, 'command should have failed')
                        catch
                          call assert_exception('E492:')
                        endtry

assert_fails({cmd} [, {error}])                              assert_fails()
                Run {cmd} and add an error message to  v:errors  if it does
                NOT produce an error.  Also see  assert-return .
                When {error} is given it must match in  v:errmsg .
                Note that beeping is not considered an error, and some failing
                commands only beep.  Use  assert_beeps()  for those.

assert_false({actual} [, {msg}])                             assert_false()
                When {actual} is not false an error message is added to
                 v:errors , like with  assert_equal() .
                Also see  assert-return .
                A value is false when it is zero. When {actual} is not a
                number the assert fails.
                When {msg} is omitted an error in the form
                "Expected False but got {actual}" is produced.

assert_inrange({lower}, {upper}, {actual} [, {msg}])      assert_inrange()
                This asserts number values.  When {actual}  is lower than
                {lower} or higher than {upper} an error message is added to
                 v:errors .  Also see  assert-return .
                When {msg} is omitted an error in the form
                "Expected range {lower} - {upper}, but got {actual}" is
                produced.

                                                             assert_match()
assert_match({pattern}, {actual} [, {msg}])
                When {pattern} does not match {actual} an error message is
                added to  v:errors .  Also see  assert-return .

                {pattern} is used as with  =~ : The matching is always done
                like 'magic' was set and 'cpoptions' is empty, no matter what
                the actual value of 'magic' or 'cpoptions' is.

                {actual} is used as a string, automatic conversion applies.
                Use "^" and "$" to match with the start and end of the text.
                Use both to match the whole text.

                When {msg} is omitted an error in the form
                "Pattern {pattern} does not match {actual}" is produced.
                Example:
        assert_match('^f.*o$', 'foobar')
```

Will result in a string to be added to v:errors :
test.vim line 12: Pattern '^f.*o$' does not match 'foobar'

assert_notequal()
assert_notequal({expected}, {actual} [, {msg}])
The opposite of `assert_equal()`: add an error message to v:errors when {expected} and {actual} are equal.
Also see assert-return .

assert_notmatch()
assert_notmatch({pattern}, {actual} [, {msg}])
The opposite of `assert_match()`: add an error message to v:errors when {pattern} matches {actual}.
Also see assert-return .

assert_report({msg}) assert_report()
Report a test failure directly, using {msg}.
Always returns one.

assert_true({actual} [, {msg}]) assert_true()
When {actual} is not true an error message is added to v:errors , like with assert_equal() .
Also see assert-return .
A value is TRUE when it is a non-zero number. When {actual} is not a number the assert fails.
When {msg} is omitted an error in the form "Expected True but got {actual}" is produced.

asin({expr}) asin()
Return the arc sine of {expr} measured in radians, as a Float in the range of [-pi/2, pi/2].
{expr} must evaluate to a Float or a Number in the range [-1, 1].
Examples:
```
:echo asin(0.8)
0.927295
:echo asin(-0.5)
-0.523599
```
{only available when compiled with the |+float| feature}

atan({expr}) atan()
Return the principal value of the arc tangent of {expr}, in the range [-pi/2, +pi/2] radians, as a Float .
{expr} must evaluate to a Float or a Number .
Examples:
```
:echo atan(100)
1.560797
:echo atan(-4.01)
-1.326405
```
{only available when compiled with the |+float| feature}

atan2({expr1}, {expr2}) atan2()

Return the arc tangent of {expr1} / {expr2}, measured in radians, as a Float in the range [-pi, pi]. {expr1} and {expr2} must evaluate to a Float or a Number. Examples:

```
:echo atan2(-1, 1)
-0.785398
:echo atan2(1, -1)
2.356194
```

{only available when compiled with the |+float| feature}

balloon_show({expr}) balloon_show()

Show {expr} inside the balloon. For the GUI {expr} is used as a string. For a terminal {expr} can be a list, which contains the lines of the balloon. If {expr} is not a list it will be split with balloon_split().

Example:

```
func GetBalloonContent()
  " initiate getting the content
  return ''
endfunc
set balloonexpr=GetBalloonContent()

func BalloonCallback(result)
  call balloon_show(a:result)
endfunc
```

The intended use is that fetching the content of the balloon is initiated from 'balloonexpr'. It will invoke an asynchronous method, in which a callback invokes balloon_show(). The 'balloonexpr' itself can return an empty string or a placeholder.

When showing a balloon is not possible nothing happens, no error message.
{only available when compiled with the +balloon_eval or +balloon_eval_term feature}

balloon_split({msg}) balloon_split()

Split {msg} into lines to be displayed in a balloon. The splits are made for the current window size and optimize to show debugger output.
Returns a List with the split lines.
{only available when compiled with the +balloon_eval_term feature}

browse() browse()

browse({save}, {title}, {initdir}, {default})

Put up a file requester. This only works when "has("browse")" returns TRUE (only in some GUI versions).
The input fields are:

{save}	when TRUE, select file to write
{title}	title for the requester
{initdir}	directory to start browsing in

{default}   default file name
When the "Cancel" button is hit, something went wrong, or
browsing is not possible, an empty string is returned.

browsedir()
browsedir({title}, {initdir})
Put up a directory requester. This only works when
"has("browse")" returns TRUE (only in some GUI versions).
On systems where a directory browser is not supported a file
browser is used. In that case: select a file in the directory
to be used.
The input fields are:
{title}   title for the requester
{initdir}   directory to start browsing in
When the "Cancel" button is hit, something went wrong, or
browsing is not possible, an empty string is returned.

bufexists({expr}) bufexists()
The result is a Number, which is TRUE if a buffer called
{expr} exists.
If the {expr} argument is a number, buffer numbers are used.
Number zero is the alternate buffer for the current window.

If the {expr} argument is a string it must match a buffer name
exactly. The name can be:
- Relative to the current directory.
- A full path.
- The name of a buffer with 'buftype' set to "nofile".
- A URL name.
Unlisted buffers will be found.
Note that help files are listed by their short name in the
output of :buffers , but bufexists() requires using their
long name to be able to find them.
bufexists() may report a buffer exists, but to use the name
with a :buffer command you may need to use expand() . Esp
for MS-Windows 8.3 names in the form "c:\DOCUME~1"
Use "bufexists(0)" to test for the existence of an alternate
file name.
buffer_exists()
Obsolete name: buffer_exists().

buflisted({expr}) buflisted()
The result is a Number, which is TRUE if a buffer called
{expr} exists and is listed (has the 'buflisted' option set).
The {expr} argument is used like with bufexists() .

bufloaded({expr}) bufloaded()
The result is a Number, which is TRUE if a buffer called
{expr} exists and is loaded (shown in a window or hidden).
The {expr} argument is used like with bufexists() .

bufname({expr}) bufname()
The result is the name of a buffer, as it is displayed by the
":ls" command.

If {expr} is a Number, that buffer number's name is given.
Number zero is the alternate buffer for the current window.
If {expr} is a String, it is used as a file-pattern to match
with the buffer names. This is always done like 'magic' is
set and 'cpoptions' is empty. When there is more than one
match an empty string is returned.
"" or "%" can be used for the current buffer, "#" for the
alternate buffer.
A full match is preferred, otherwise a match at the start, end
or middle of the buffer name is accepted. If you only want a
full match then put "^" at the start and "$" at the end of the
pattern.
Listed buffers are found first. If there is a single match
with a listed buffer, that one is returned. Next unlisted
buffers are searched for.
If the {expr} is a String, but you want to use it as a buffer
number, force it to be a Number by adding zero to it:

```
:echo bufname("3" + 0)
```

If the buffer doesn't exist, or doesn't have a name, an empty
string is returned.

```
bufname("#")            alternate buffer name
bufname(3)              name of buffer 3
bufname("%")            name of current buffer
bufname("file2")        name of buffer where "file2" matches.
```

buffer_name()
Obsolete name: buffer_name().

bufnr()

bufnr({expr} [, {create}])
The result is the number of a buffer, as it is displayed by
the ":ls" command. For the use of {expr}, see bufname()
above.
If the buffer doesn't exist, -1 is returned. Or, if the
{create} argument is present and not zero, a new, unlisted,
buffer is created and its number is returned.
bufnr("$") is the last buffer:

```
:let last_buffer = bufnr("$")
```

The result is a Number, which is the highest buffer number
of existing buffers. Note that not all buffers with a smaller
number necessarily exist, because ":bwipeout" may have removed
them. Use bufexists() to test for the existence of a buffer.

buffer_number()
Obsolete name: buffer_number().

last_buffer_nr()
Obsolete name for bufnr("$"): last_buffer_nr().

bufwinid({expr})

bufwinid()
The result is a Number, which is the window-ID of the first
window associated with buffer {expr}. For the use of {expr},
see bufname() above. If buffer {expr} doesn't exist or
there is no such window, -1 is returned. Example:

```
echo "A window containing buffer 1 is " . (bufwinid(1))
```

Only deals with the current tab page.

bufwinnr({expr}) bufwinnr()
The result is a Number, which is the number of the first window associated with buffer {expr}. For the use of {expr}, see bufname() above. If buffer {expr} doesn't exist or there is no such window, -1 is returned. Example:

```
echo "A window containing buffer 1 is " . (bufwinnr(1))
```

The number can be used with CTRL-W_w and ":wincmd w" :wincmd .
Only deals with the current tab page.

byte2line({byte}) byte2line()
Return the line number that contains the character at byte count {byte} in the current buffer. This includes the end-of-line character, depending on the 'fileformat' option for the current buffer. The first character has byte count one.
Also see line2byte() , go and :goto .
{not available when compiled without the +byte_offset feature}

byteidx({expr}, {nr}) byteidx()
Return byte index of the {nr}'th character in the string {expr}. Use zero for the first character, it returns zero. This function is only useful when there are multibyte characters, otherwise the returned value is equal to {nr}. Composing characters are not counted separately, their byte length is added to the preceding base character. See byteidxcomp() below for counting composing characters separately.
Example :

```
echo matchstr(str, ".", byteidx(str, 3))
```

will display the fourth character. Another way to do the same:

```
let s = strpart(str, byteidx(str, 3))
echo strpart(s, 0, byteidx(s, 1))
```

Also see strgetchar() and strcharpart() .

If there are less than {nr} characters -1 is returned.
If there are exactly {nr} characters the length of the string in bytes is returned.

byteidxcomp({expr}, {nr}) byteidxcomp()
Like byteidx(), except that a composing character is counted as a separate character. Example:

```
let s = 'e' . nr2char(0x301)
echo byteidx(s, 1)
echo byteidxcomp(s, 1)
echo byteidxcomp(s, 2)
```

The first and third echo result in 3 ('e' plus composing character is 3 bytes), the second echo results in 1 ('e' is

one byte).
Only works different from byteidx() when 'encoding' is set to
a Unicode encoding.

call({func}, {arglist} [, {dict}]) call() E699
Call function {func} with the items in List {arglist} as
arguments.
{func} can either be a Funcref or the name of a function.
a:firstline and a:lastline are set to the cursor line.
Returns the return value of the called function.
{dict} is for functions with the "dict" attribute. It will be
used to set the local variable "self". Dictionary-function

ceil({expr}) ceil()
Return the smallest integral value greater than or equal to
{expr} as a Float (round up).
{expr} must evaluate to a Float or a Number .
Examples:
```
echo ceil(1.456)
2.0
echo ceil(-5.456)
-5.0
echo ceil(4.0)
4.0
```
{only available when compiled with the |+float| feature}

ch_canread({handle}) ch_canread()
Return non-zero when there is something to read from {handle}.
{handle} can be a Channel or a Job that has a Channel.

This is useful to read from a channel at a convenient time,
e.g. from a timer.

Note that messages are dropped when the channel does not have
a callback. Add a close callback to avoid that.

{only available when compiled with the |+channel| feature}

ch_close({handle}) ch_close()
Close {handle}. See channel-close .
{handle} can be a Channel or a Job that has a Channel.
A close callback is not invoked.

{only available when compiled with the |+channel| feature}

ch_close_in({handle}) ch_close_in()
Close the "in" part of {handle}. See channel-close-in .
{handle} can be a Channel or a Job that has a Channel.
A close callback is not invoked.

{only available when compiled with the |+channel| feature}

ch_evalexpr({handle}, {expr} [, {options}]) ch_evalexpr()
Send {expr} over {handle}. The {expr} is encoded

according to the type of channel. The function cannot be used with a raw channel. See channel-use .
{handle} can be a Channel or a Job that has a Channel.
E917
{options} must be a Dictionary. It must not have a "callback" entry. It can have a "timeout" entry to specify the timeout for this specific request.

ch_evalexpr() waits for a response and returns the decoded expression. When there is an error or timeout it returns an empty string.

{only available when compiled with the |+channel| feature}

ch_evalraw({handle}, {string} [, {options}]) ch_evalraw()
Send {string} over {handle}.
{handle} can be a Channel or a Job that has a Channel.

Works like ch_evalexpr() , but does not encode the request or decode the response. The caller is responsible for the correct contents. Also does not add a newline for a channel in NL mode, the caller must do that. The NL in the response is removed.
Note that Vim does not know when the text received on a raw channel is complete, it may only return the first part and you need to use ch_readraw() to fetch the rest.
See channel-use .

{only available when compiled with the |+channel| feature}

ch_getbufnr({handle}, {what}) ch_getbufnr()
Get the buffer number that {handle} is using for {what}.
{handle} can be a Channel or a Job that has a Channel.
{what} can be "err" for stderr, "out" for stdout or empty for socket output.
Returns -1 when there is no buffer.
{only available when compiled with the |+channel| feature}

ch_getjob({channel}) ch_getjob()
Get the Job associated with {channel}.
If there is no job calling job_status() on the returned Job will result in "fail".

{only available when compiled with the +channel and +job features}

ch_info({handle}) ch_info()
Returns a Dictionary with information about {handle}. The items are:
"id" number of the channel
"status" "open", "buffered" or "closed", like ch_status()
When opened with ch_open():
"hostname" the hostname of the address

```
                "port"         the port of the address
                "sock_status"  "open" or "closed"
                "sock_mode"    "NL", "RAW", "JSON" or "JS"
                "sock_io"      "socket"
                "sock_timeout" timeout in msec
              When opened with job_start():
                "out_status"   "open", "buffered" or "closed"
                "out_mode"     "NL", "RAW", "JSON" or "JS"
                "out_io"       "null", "pipe", "file" or "buffer"
                "out_timeout"  timeout in msec
                "err_status"   "open", "buffered" or "closed"
                "err_mode"     "NL", "RAW", "JSON" or "JS"
                "err_io"       "out", "null", "pipe", "file" or "buffer"
                "err_timeout"  timeout in msec
                "in_status"    "open" or "closed"
                "in_mode"      "NL", "RAW", "JSON" or "JS"
                "in_io"        "null", "pipe", "file" or "buffer"
                "in_timeout"   timeout in msec

ch_log({msg} [, {handle}])                                        ch_log()
              Write {msg} in the channel log file, if it was opened with
               ch_logfile() .
              When {handle} is passed the channel number is used for the
              message.
              {handle} can be a Channel or a Job that has a Channel.  The
              Channel must be open for the channel number to be used.

ch_logfile({fname} [, {mode}])                                    ch_logfile()
              Start logging channel activity to {fname}.
              When {fname} is an empty string: stop logging.

              When {mode} is omitted or "a" append to the file.
              When {mode} is "w" start with an empty file.

              The file is flushed after every message, on Unix you can use
              "tail -f" to see what is going on in real time.

              This function is not available in the  sandbox .
              NOTE: the channel communication is stored in the file, be
              aware that this may contain confidential and privacy sensitive
              information, e.g. a password you type in a terminal window.


ch_open({address} [, {options}])                                  ch_open()
              Open a channel to {address}.  See  channel .
              Returns a Channel.  Use  ch_status()  to check for failure.

              {address} has the form "hostname:port", e.g.,
              "localhost:8765".

              If {options} is given it must be a  Dictionary .
              See  channel-open-options .

              {only available when compiled with the |+channel| feature}
```

ch_read({handle} [, {options}]) ch_read()
Read from {handle} and return the received message.
{handle} can be a Channel or a Job that has a Channel.
For a NL channel this waits for a NL to arrive, except when
there is nothing more to read (channel was closed).
See channel-more .
{only available when compiled with the |+channel| feature}

ch_readraw({handle} [, {options}]) ch_readraw()
Like ch_read() but for a JS and JSON channel does not decode
the message. For a NL channel it does not block waiting for
the NL to arrive, but otherwise works like ch_read().
See channel-more .
{only available when compiled with the |+channel| feature}

ch_sendexpr({handle}, {expr} [, {options}]) ch_sendexpr()
Send {expr} over {handle}. The {expr} is encoded
according to the type of channel. The function cannot be used
with a raw channel.
See channel-use . E912
{handle} can be a Channel or a Job that has a Channel.

{only available when compiled with the |+channel| feature}

ch_sendraw({handle}, {string} [, {options}]) ch_sendraw()
Send {string} over {handle}.
Works like ch_sendexpr() , but does not encode the request or
decode the response. The caller is responsible for the
correct contents. Also does not add a newline for a channel
in NL mode, the caller must do that. The NL in the response
is removed.
See channel-use .

{only available when compiled with the |+channel| feature}

ch_setoptions({handle}, {options}) ch_setoptions()
Set options on {handle}:
"callback" the channel callback
"timeout" default read timeout in msec
"mode" mode for the whole channel
See ch_open() for more explanation.
{handle} can be a Channel or a Job that has a Channel.

Note that changing the mode may cause queued messages to be
lost.

These options cannot be changed:
"waittime" only applies to ch_open()

ch_status({handle} [, {options}]) ch_status()
Return the status of {handle}:
"fail" failed to open the channel
"open" channel can be used

```
                "buffered"      channel can be read, not written to
                "closed"        channel can not be used
            {handle} can be a Channel or a Job that has a Channel.
            "buffered" is used when the channel was closed but there is
            still data that can be obtained with  ch_read() .

            If {options} is given it can contain a "part" entry to specify
            the part of the channel to return the status for: "out" or
            "err".  For example, to get the error status:
                ch_status(job, {"part": "err"})

changenr()                                                  changenr()
            Return the number of the most recent change.  This is the same
            number as what is displayed with  :undolist  and can be used
            with the  :undo  command.
            When a change was made it is the number of that change.  After
            redo it is the number of the redone change.  After undo it is
            one less than the number of the undone change.

char2nr({expr} [, {utf8}])                                  char2nr()
            Return number value of the first char in {expr}.  Examples:
                char2nr(" ")            returns 32
                char2nr("ABC")          returns 65
            When {utf8} is omitted or zero, the current 'encoding' is used.
            Example for "utf-8":
                char2nr("á")            returns 225
                char2nr("á"[0])         returns 195
            With {utf8} set to 1, always treat as utf-8 characters.
            A combining character is a separate character.
             nr2char()  does the opposite.

cindent({lnum})                                             cindent()
            Get the amount of indent for line {lnum} according the C
            indenting rules, as with 'cindent'.
            The indent is counted in spaces, the value of 'tabstop' is
            relevant.  {lnum} is used just like in  getline() .
            When {lnum} is invalid or Vim was not compiled the  +cindent
            feature, -1 is returned.
            See  C-indenting .

clearmatches()                                              clearmatches()
            Clears all matches previously defined by  matchadd()  and the
             :match  commands.

                                                            col()
col({expr})     The result is a Number, which is the byte index of the column
            position given with {expr}.  The accepted positions are:
                .       the cursor position
                $       the end of the cursor line (the result is the
                        number of bytes in the cursor line plus one)
                'x      position of mark x (if the mark is not set, 0 is
                        returned)
                v       In Visual mode: the start of the Visual area (the
                        cursor is the end).  When not in Visual mode
```

```
                        returns the cursor position.  Differs from  '<  in
                        that it's updated right away.
                Additionally {expr} can be [lnum, col]: a  List  with the line
                and column number. Most useful when the column is "$", to get
                the last column of a specific line.  When "lnum" or "col" is
                out of range then col() returns zero.
                To get the line number use  line() .  To get both use
                 getpos() .
                For the screen column position use  virtcol() .
                Note that only marks in the current file can be used.
                Examples:
                        col(".")                column of cursor
                        col("$")                length of cursor line plus one
                        col("'t")               column of mark t
                        col("'" . markname)     column of mark markname
               The first column is 1.  0 is returned for an error.
                For an uppercase mark the column may actually be in another
                buffer.
                For the cursor position, when 'virtualedit' is active, the
                column is one higher if the cursor is after the end of the
                line.  This can be used to obtain the column in Insert mode:
                        :imap <F2> <C-O>:let save_ve = &ve<CR>
                                \<C-O>:set ve=all<CR>
                                \<C-O>:echo col(".") . "\n" <Bar>
                                \let &ve = save_ve<CR>


complete({startcol}, {matches})                 complete()   E785
                Set the matches for Insert mode completion.
                Can only be used in Insert mode.  You need to use a mapping
                with CTRL-R = (see  i_CTRL-R ).  It does not work after CTRL-O
                or with an expression mapping.
                {startcol} is the byte offset in the line where the completed
                text start.  The text up to the cursor is the original text
                that will be replaced by the matches.  Use col('.') for an
                empty string.  "col('.') - 1" will replace one character by a
                match.
                {matches} must be a  List .  Each  List  item is one match.
                See  complete-items  for the kind of items that are possible.
                Note that the after calling this function you need to avoid
                inserting anything that would cause completion to stop.
                The match can be selected with CTRL-N and CTRL-P as usual with
                Insert mode completion.  The popup menu will appear if
                specified, see  ins-completion-menu .
                Example:
        inoremap <F5> <C-R>=ListMonths()<CR>

        func! ListMonths()
          call complete(col('.'), ['January', 'February', 'March',
                \ 'April', 'May', 'June', 'July', 'August', 'September',
                \ 'October', 'November', 'December'])
          return ''
        endfunc
               This isn't very useful, but it shows how it works.  Note that
```

an empty string is returned to avoid a zero being inserted.

complete_add({expr}) complete_add()
Add {expr} to the list of matches. Only to be used by the function specified with the 'completefunc' option. Returns 0 for failure (empty string or out of memory), 1 when the match was added, 2 when the match was already in the list.
See complete-functions for an explanation of {expr}. It is the same as one item in the list that 'omnifunc' would return.

complete_check() complete_check()
Check for a key typed while looking for completion matches. This is to be used when looking for matches takes some time. Returns TRUE when searching for matches is to be aborted, zero otherwise.
Only to be used by the function specified with the 'completefunc' option.

confirm() confirm({msg} [, {choices} [, {default} [, {type}]]])
Confirm() offers the user a dialog, from which a choice can be made. It returns the number of the choice. For the first choice this is 1.
Note: confirm() is only supported when compiled with dialog support, see +dialog_con and +dialog_gui .

{msg} is displayed in a dialog with {choices} as the alternatives. When {choices} is missing or empty, "&OK" is used (and translated).
{msg} is a String, use '\n' to include a newline. Only on some systems the string is wrapped when it doesn't fit.

{choices} is a String, with the individual choices separated by '\n', e.g.
confirm("Save changes?", "&Yes\n&No\n&Cancel")
The letter after the '&' is the shortcut key for that choice. Thus you can type 'c' to select "Cancel". The shortcut does not need to be the first letter:
confirm("file has been modified", "&Save\nSave &All")
For the console, the first letter of each choice is used as the default shortcut key.

The optional {default} argument is the number of the choice that is made if the user hits <CR>. Use 1 to make the first choice the default one. Use 0 to not set a default. If {default} is omitted, 1 is used.

The optional {type} argument gives the type of dialog. This is only used for the icon of the GTK, Mac, Motif and Win32 GUI. It can be one of these values: "Error", "Question", "Info", "Warning" or "Generic". Only the first character is relevant. When {type} is omitted, "Generic" is used.

If the user aborts the dialog by pressing <Esc>, CTRL-C, or another valid interrupt key, confirm() returns 0.

An example:

```
:let choice = confirm("What do you want?", "&Apples\n&Oranges\n&Bananas", 2)
:if choice == 0
:    echo "make up your mind!"
:elseif choice == 3
:    echo "tasteful"
:else
:    echo "I prefer bananas myself."
:endif
```

In a GUI dialog, buttons are used. The layout of the buttons depends on the 'v' flag in 'guioptions'. If it is included, the buttons are always put vertically. Otherwise, confirm() tries to put the buttons in one horizontal line. If they don't fit, a vertical layout is used anyway. For some systems the horizontal layout is always used.

copy({expr}) copy()

Make a copy of {expr}. For Numbers and Strings this isn't different from using {expr} directly.
When {expr} is a List a shallow copy is created. This means that the original List can be changed without changing the copy, and vice versa. But the items are identical, thus changing an item changes the contents of both Lists.
A Dictionary is copied in a similar way as a List.
Also see deepcopy().

cos({expr}) cos()

Return the cosine of {expr}, measured in radians, as a Float. {expr} must evaluate to a Float or a Number.
Examples:

```
:echo cos(100)
0.862319
:echo cos(-4.01)
-0.646043
```

{only available when compiled with the |+float| feature}

cosh({expr}) cosh()

Return the hyperbolic cosine of {expr} as a Float in the range [1, inf]. {expr} must evaluate to a Float or a Number.
Examples:

```
:echo cosh(0.5)
1.127626
:echo cosh(-0.5)
-1.127626
```

{only available when compiled with the |+float| feature}

count({comp}, {expr} [, {ic} [, {start}]]) count()

Return the number of times an item with value {expr} appears

in String , List or Dictionary {comp}.

If {start} is given then start with the item with this index. {start} can only be used with a List .

When {ic} is given and it's TRUE then case is ignored.

When {comp} is a string then the number of not overlapping occurrences of {expr} is returned. Zero is returned when {expr} is an empty string.

cscope_connection() cscope_connection()

cscope_connection([{num} , {dbpath} [, {prepend}]])
Checks for the existence of a cscope connection. If no parameters are specified, then the function returns:
0, if cscope was not available (not compiled in), or if there are no cscope connections;
1, if there is at least one cscope connection.

If parameters are specified, then the value of {num} determines how existence of a cscope connection is checked:

{num}	Description of existence check
0	Same as no parameters (e.g., "cscope_connection()").
1	Ignore {prepend}, and use partial string matches for {dbpath}.
2	Ignore {prepend}, and use exact string matches for {dbpath}.
3	Use {prepend}, use partial string matches for both {dbpath} and {prepend}.
4	Use {prepend}, use exact string matches for both {dbpath} and {prepend}.

Note: All string comparisons are case sensitive!

Examples. Suppose we had the following (from ":cs show"):

```
  # pid    database name                       prepend path
  0 27664  cscope.out                          /usr/local
```

Invocation	Return Val
cscope_connection()	1
cscope_connection(1, "out")	1
cscope_connection(2, "out")	0
cscope_connection(3, "out")	0
cscope_connection(3, "out", "local")	1
cscope_connection(4, "out")	0
cscope_connection(4, "out", "local")	0
cscope_connection(4, "cscope.out", "/usr/local")	1

cursor({lnum}, {col} [, {off}]) cursor()
cursor({list})

Positions the cursor at the column (byte count) {col} in the
line {lnum}. The first column is one.

When there is one argument {list} this is used as a List
with two, three or four item:
        [{lnum}, {col}]
        [{lnum}, {col}, {off}]
        [{lnum}, {col}, {off}, {curswant}]
This is like the return value of getpos() or getcurpos() ,
but without the first item.

Does not change the jumplist.
If {lnum} is greater than the number of lines in the buffer,
the cursor will be positioned at the last line in the buffer.
If {lnum} is zero, the cursor will stay in the current line.
If {col} is greater than the number of bytes in the line,
the cursor will be positioned at the last character in the
line.
If {col} is zero, the cursor will stay in the current column.
If {curswant} is given it is used to set the preferred column
for vertical movement. Otherwise {col} is used.

When 'virtualedit' is used {off} specifies the offset in
screen columns from the start of the character. E.g., a
position within a <Tab> or after the last character.
Returns 0 when the position could be set, -1 otherwise.

debugbreak({pid})   debugbreak()
Specifically used to interrupt a program being debugged. It
will cause process {pid} to get a SIGTRAP. Behavior for other
processes is undefined. See terminal-debugger .
{only available on MS-Windows}

deepcopy({expr} [, {noref}])   deepcopy() E698
Make a copy of {expr}. For Numbers and Strings this isn't
different from using {expr} directly.
When {expr} is a List a full copy is created. This means
that the original List can be changed without changing the
copy, and vice versa. When an item is a List or
 Dictionary , a copy for it is made, recursively. Thus
changing an item in the copy does not change the contents of
the original List .
A Dictionary is copied in a similar way as a List .
When {noref} is omitted or zero a contained List or
 Dictionary is only copied once. All references point to
this single copy. With {noref} set to 1 every occurrence of a
 List or Dictionary results in a new copy. This also means
that a cyclic reference causes deepcopy() to fail.
                                                      E724
Nesting is possible up to 100 levels. When there is an item
that refers back to a higher level making a deep copy with
{noref} set to 1 will fail.
Also see copy() .

delete({fname} [, {flags}]) delete()
Without {flags} or with {flags} empty: Deletes the file by the name {fname}. This also works when {fname} is a symbolic link.

When {flags} is "d": Deletes the directory by the name {fname}. This fails when directory {fname} is not empty.

When {flags} is "rf": Deletes the directory by the name {fname} and everything in it, recursively. BE CAREFUL! Note: on MS-Windows it is not possible to delete a directory that is being used.

A symbolic link itself is deleted, not what it points to.

The result is a Number, which is 0 if the delete operation was successful and -1 when the deletion failed or partly failed.

Use remove() to delete an item from a List. To delete a line from the buffer use :delete or deletebufline().

deletebufline({expr}, {first}[, {last}]) deletebufline()
Delete lines {first} to {last} (inclusive) from buffer {expr}. If {last} is omitted then delete line {first} only. On success 0 is returned, on failure 1 is returned.

For the use of {expr}, see bufname() above.

{first} and {last} are used like with setline(). Note that when using line() this refers to the current buffer. Use "$" to refer to the last line in buffer {expr}.

did_filetype() did_filetype()
Returns TRUE when autocommands are being executed and the FileType event has been triggered at least once. Can be used to avoid triggering the FileType event again in the scripts that detect the file type. FileType
Returns FALSE when `:setf FALLBACK` was used.
When editing another file, the counter is reset, thus this really checks if the FileType event has been triggered for the current buffer. This allows an autocommand that starts editing another buffer to set 'filetype' and load a syntax file.

diff_filler({lnum}) diff_filler()
Returns the number of filler lines above line {lnum}. These are the lines that were inserted at this point in another diff'ed window. These filler lines are shown in the display but don't exist in the buffer.
{lnum} is used like with getline(). Thus "." is the current line, "'m" mark m, etc.
Returns 0 if the current window is not in diff mode.

diff_hlID({lnum}, {col}) diff_hlID()

Returns the highlight ID for diff mode at line {lnum} column {col} (byte index). When the current line does not have a diff change zero is returned.
{lnum} is used like with getline() . Thus "." is the current line, "'m" mark m, etc.
{col} is 1 for the leftmost column, {lnum} is 1 for the first line.
The highlight ID can be used with synIDattr() to obtain syntax information about the highlighting.

empty({expr}) empty()
Return the Number 1 if {expr} is empty, zero otherwise.
- A List or Dictionary is empty when it does not have any items.
- A String is empty when its length is zero.
- A Number and Float is empty when its value is zero.
- v:false , v:none and v:null are empty, v:true is not.
- A Job is empty when it failed to start.
- A Channel is empty when it is closed.

For a long List this is much faster than comparing the length with zero.

escape({string}, {chars}) escape()
Escape the characters in {chars} that occur in {string} with a backslash. Example:
```
:echo escape('c:\program files\vim', ' \')
```
results in:
```
c:\\program\ files\\vim
```
Also see shellescape() and fnameescape() .

eval({string}) eval()
Evaluate {string} and return the result. Especially useful to turn the result of string() back into the original value. This works for Numbers, Floats, Strings and composites of them. Also works for Funcref s that refer to existing functions.

eventhandler() eventhandler()
Returns 1 when inside an event handler. That is that Vim got interrupted while waiting for the user to type a character, e.g., when dropping a file on Vim. This means interactive commands cannot be used. Otherwise zero is returned.

executable({expr}) executable()
This function checks if an executable with the name {expr} exists. {expr} must be the name of the program without any arguments.
executable() uses the value of $PATH and/or the normal searchpath for programs. PATHEXT
On MS-DOS and MS-Windows the ".exe", ".bat", etc. can optionally be included. Then the extensions in $PATHEXT are tried. Thus if "foo.exe" does not exist, "foo.exe.bat" can be found. If $PATHEXT is not set then ".exe;.com;.bat;.cmd" is

used. A dot by itself can be used in $PATHEXT to try using
the name without an extension. When 'shell' looks like a
Unix shell, then the name is also tried without adding an
extension.
On MS-DOS and MS-Windows it only checks if the file exists and
is not a directory, not if it's really executable.
On MS-Windows an executable in the same directory as Vim is
always found. Since this directory is added to $PATH it
should also work to execute it win32-PATH .
The result is a Number:
        1   exists
        0   does not exist
        -1   not implemented on this system
 exepath() can be used to get the full path of an executable.

execute({command} [, {silent}])   execute()
Execute an Ex command or commands and return the output as a
string.
{command} can be a string or a List. In case of a List the
lines are executed one by one.
This is equivalent to:
        redir => var
        {command}
        redir END

The optional {silent} argument can have these values:
        ""   no `:silent` used
        "silent"   `:silent` used
        "silent!"   `:silent!` used
The default is "silent". Note that with "silent!", unlike
`:redir`, error messages are dropped. When using an external
command the screen may be messed up, use `system()` instead.
                                                 E930
It is not possible to use `:redir` anywhere in {command}.

To get a list of lines use split() on the result:
        split(execute('args'), "\n")

When used recursively the output of the recursive call is not
included in the output of the higher level call.

exepath({expr})   exepath()
If {expr} is an executable and is either an absolute path, a
relative path or found in $PATH, return the full path.
Note that the current directory is used when {expr} starts
with "./", which may be a problem for Vim:
        echo exepath(v:progpath)
If {expr} cannot be found in $PATH or is not executable then
an empty string is returned.

                                                                 exists()
exists({expr}) The result is a Number, which is TRUE if {expr} is defined,
zero otherwise.

```
For checking for a supported feature use  has() .
For checking if a file exists use  filereadable() .

The {expr} argument is a string, which contains one of these:
        &option-name    Vim option (only checks if it exists,
                        not if it really works)
        +option-name    Vim option that works.
        $ENVNAME        environment variable (could also be
                        done by comparing with an empty
                        string)
        *funcname       built-in function (see  functions )
                        or user defined function (see
                         user-functions ). Also works for a
                        variable that is a Funcref.
        varname         internal variable (see
                         internal-variables ).  Also works
                        for  curly-braces-names ,  Dictionary
                        entries,  List  items, etc.  Beware
                        that evaluating an index may cause an
                        error message for an invalid
                        expression.  E.g.:
                           :let l = [1, 2, 3]
                           :echo exists("l[5]")
                          0
                           :echo exists("l[xx]")
                          E121: Undefined variable: xx
                           0
        :cmdname        Ex command: built-in command, user
                        command or command modifier  :command .
                        Returns:
                        1  for match with start of a command
                        2  full match with a command
                        3  matches several user commands
                        To check for a supported command
                        always check the return value to be 2.
        :2match         The  :2match  command.
        :3match         The  :3match  command.
        #event          autocommand defined for this event
        #event#pattern  autocommand defined for this event and
                        pattern (the pattern is taken
                        literally and compared to the
                        autocommand patterns character by
                        character)
        #group          autocommand group exists
        #group#event    autocommand defined for this group and
                        event.
        #group#event#pattern
                        autocommand defined for this group,
                        event and pattern.
        ##event         autocommand for this event is
                        supported.

Examples:
        exists("&shortname")
```

```
		exists("$HOSTNAME")
		exists("*strftime")
		exists("*s:MyFunc")
		exists("bufcount")
		exists(":Make")
		exists("#CursorHold")
		exists("#BufReadPre#*.gz")
		exists("#filetypeindent")
		exists("#filetypeindent#FileType")
		exists("#filetypeindent#FileType#*")
		exists("##ColorScheme")
	There must be no space between the symbol (&/$/*/#) and the
	 name.
	 There must be no extra characters after the name, although in
	 a few cases this is ignored.  That may become more strict in
	 the future, thus don't count on it!
	 Working example:
		exists(":make")
	NOT working example:
		exists(":make install")

	Note that the argument must be a string, not the name of the
	 variable itself.  For example:
		exists(bufcount)
	This doesn't check for existence of the "bufcount" variable,
	 but gets the value of "bufcount", and checks if that exists.

exp({expr})                                                  exp()
	 Return the exponential of {expr} as a  Float  in the range
	 [0, inf].
	 {expr} must evaluate to a  Float  or a  Number .
	 Examples:
		:echo exp(2)
	       7.389056
		:echo exp(-1)
	       0.367879
	 {only available when compiled with the |+float| feature}


expand({expr} [, {nosuf} [, {list}]])                        expand()
	 Expand wildcards and the following special keywords in {expr}.
	 'wildignorecase' applies.

	 If {list} is given and it is  TRUE , a List will be returned.
	 Otherwise the result is a String and when there are several
	 matches, they are separated by <NL> characters.  [Note: in
	 version 5.0 a space was used, which caused problems when a
	 file name contains a space]

	 If the expansion fails, the result is an empty string.  A name
	 for a non-existing file is not included, unless {expr} does
	 not start with '%', '#' or '<', see below.

	 When {expr} starts with '%', '#' or '<', the expansion is done
```

like for the cmdline-special variables with their associated modifiers. Here is a short overview:

```
        %               current file name
        #               alternate file name
        #n              alternate file name n
        <cfile>         file name under the cursor
        <afile>         autocmd file name
        <abuf>          autocmd buffer number (as a String!)
        <amatch>        autocmd matched name
        <sfile>         sourced script file or function name
        <slnum>         sourced script file line number
        <cword>         word under the cursor
        <cWORD>         WORD under the cursor
        <client>        the {clientid} of the last received
                        message server2client()
Modifiers:
        :p              expand to full path
        :h              head (last path component removed)
        :t              tail (last path component only)
        :r              root (one extension removed)
        :e              extension only

Example:
        :let &tags = expand("%:p:h") . "/tags"
```

Note that when expanding a string that starts with '%', '#' or '<', any following text is ignored. This does NOT work:

```
        :let doesntwork = expand("%:h.bak")
```

Use this:

```
        :let doeswork = expand("%:h") . ".bak"
```

Also note that expanding "<cfile>" and others only returns the referenced file name without further expansion. If "<cfile>" is "~/.cshrc", you need to do another expand() to have the "~/" expanded into the path of the home directory:

```
        :echo expand(expand("<cfile>"))
```

There cannot be white space between the variables and the following modifier. The fnamemodify() function can be used to modify normal file names.

When using '%' or '#', and the current or alternate file name is not defined, an empty string is used. Using "%:p" in a buffer with no name, results in the current directory, with a '/' added.

When {expr} does not start with '%', '#' or '<', it is expanded like a file name is expanded on the command line. 'suffixes' and 'wildignore' are used, unless the optional {nosuf} argument is given and it is TRUE .
Names for non-existing files are included. The "**" item can be used to search in a directory tree. For example, to find all "README" files in the current directory and below:

```
        :echo expand("**/README")
```

Expand() can also be used to expand variables and environment variables that are only known in a shell. But this can be slow, because a shell may be used to do the expansion. See expr-env-expand .
The expanded variable is still handled like a list of file names. When an environment variable cannot be expanded, it is left unchanged. Thus ":echo expand('$FOOBAR')" results in "$FOOBAR".

See glob() for finding existing files. See system() for getting the raw output of an external command.

extend({expr1}, {expr2} [, {expr3}]) extend()
{expr1} and {expr2} must be both Lists or both Dictionaries .

If they are Lists : Append {expr2} to {expr1}.
If {expr3} is given insert the items of {expr2} before item {expr3} in {expr1}. When {expr3} is zero insert before the first item. When {expr3} is equal to len({expr1}) then {expr2} is appended.
Examples:
```
:echo sort(extend(mylist, [7, 5]))
:call extend(mylist, [2, 3], 1)
```
When {expr1} is the same List as {expr2} then the number of items copied is equal to the original length of the List. E.g., when {expr3} is 1 you get N new copies of the first item (where N is the original length of the List).
Use add() to concatenate one item to a list. To concatenate two lists into a new list use the + operator:
```
:let newlist = [1, 2, 3] + [4, 5]
```

If they are Dictionaries :
Add all entries from {expr2} to {expr1}.
If a key exists in both {expr1} and {expr2} then {expr3} is used to decide what to do:
{expr3} = "keep": keep the value of {expr1}
{expr3} = "force": use the value of {expr2}
{expr3} = "error": give an error message E737
When {expr3} is omitted then "force" is assumed.

{expr1} is changed when {expr2} is not empty. If necessary make a copy of {expr1} first.
{expr2} remains unchanged.
When {expr1} is locked and {expr2} is not empty the operation fails.
Returns {expr1}.

feedkeys({string} [, {mode}]) feedkeys()
Characters in {string} are queued for processing as if they come from a mapping or were typed by the user.
By default the string is added to the end of the typeahead buffer, thus if a mapping is still being executed the

characters come after them. Use the 'i' flag to insert before other characters, they will be executed next, before any characters from a mapping.
The function does not wait for processing of keys contained in {string}.
To include special keys into {string}, use double-quotes and "\..." notation expr-quote . For example, feedkeys("\<CR>") simulates pressing of the <Enter> key. But feedkeys('\<CR>') pushes 5 characters.
If {mode} is absent, keys are remapped.
{mode} is a String, which can contain these character flags:
'm'	Remap keys. This is default.
'n'	Do not remap keys.
't'	Handle keys as if typed; otherwise they are handled as if coming from a mapping. This matters for undo, opening folds, etc.
'i'	Insert the string instead of appending (see above).
'x'	Execute commands until typeahead is empty. This is similar to using ":normal!". You can call feedkeys() several times without 'x' and then one time with 'x' (possibly with an empty {string}) to execute all the typeahead. Note that when Vim ends in Insert mode it will behave as if <Esc> is typed, to avoid getting stuck, waiting for a character to be typed before the script continues.
'!'	When used with 'x' will not end Insert mode. Can be used in a test when a timer is set to exit Insert mode a little later. Useful for testing CursorHoldI.

Return value is always 0.

filereadable({file}) filereadable()
The result is a Number, which is TRUE when a file with the name {file} exists, and can be read. If {file} doesn't exist, or is a directory, the result is FALSE . {file} is any expression, which is used as a String.
If you don't care about the file being readable you can use glob() .
file_readable()
Obsolete name: file_readable().

filewritable({file}) filewritable()
The result is a Number, which is 1 when a file with the name {file} exists, and can be written. If {file} doesn't exist, or is not writable, the result is 0. If {file} is a directory, and we can write to it, the result is 2.

filter({expr1}, {expr2}) filter()
{expr1} must be a List or a Dictionary .
For each item in {expr1} evaluate {expr2} and when the result is zero remove the item from the List or Dictionary .
{expr2} must be a string or Funcref .

If {expr2} is a string, inside {expr2} v:val has the value of the current item. For a Dictionary v:key has the key of the current item and for a List v:key has the index of the current item.
Examples:

```
call filter(mylist, 'v:val !~ "OLD"')
```

Removes the items where "OLD" appears.

```
call filter(mydict, 'v:key >= 8')
```

Removes the items with a key below 8.

```
call filter(var, 0)
```

Removes all the items, thus clears the List or Dictionary.

Note that {expr2} is the result of expression and is then used as an expression again. Often it is good to use a literal-string to avoid having to double backslashes.

If {expr2} is a Funcref it must take two arguments:
1. the key or the index of the current item.
2. the value of the current item.

The function must return TRUE if the item should be kept.
Example that keeps the odd items of a list:

```
func Odd(idx, val)
  return a:idx % 2 == 1
endfunc
call filter(mylist, function('Odd'))
```

It is shorter when using a lambda:

```
call filter(myList, {idx, val -> idx * val <= 42})
```

If you do not use "val" you can leave it out:

```
call filter(myList, {idx -> idx % 2 == 1})
```

The operation is done in-place. If you want a List or Dictionary to remain unmodified make a copy first:

```
:let l = filter(copy(mylist), 'v:val =~ "KEEP"')
```

Returns {expr1}, the List or Dictionary that was filtered. When an error is encountered while evaluating {expr2} no further items in {expr1} are processed. When {expr2} is a Funcref errors inside a function are ignored, unless it was defined with the "abort" flag.

finddir({name} [, {path} [, {count}]]) finddir()

Find directory {name} in {path}. Supports both downwards and upwards recursive directory searches. See file-searching for the syntax of {path}.
Returns the path of the first found match. When the found directory is below the current directory a relative path is returned. Otherwise a full path is returned.
If {path} is omitted or empty then 'path' is used.
If the optional {count} is given, find {count}'s occurrence of {name} in {path} instead of the first one.
When {count} is negative return all the matches in a List.
This is quite similar to the ex-command :find.

{only available when compiled with the +file_in_path feature}

findfile({name} [, {path} [, {count}]]) findfile()
Just like finddir() , but find a file instead of a directory.
Uses 'suffixesadd'.
Example:
```
:echo findfile("tags.vim", ".;")
```
Searches from the directory of the current file upwards until it finds the file "tags.vim".

float2nr({expr}) float2nr()
Convert {expr} to a Number by omitting the part after the decimal point.
{expr} must evaluate to a Float or a Number.
When the value of {expr} is out of range for a Number the result is truncated to 0x7fffffff or -0x7fffffff (or when 64-bit Number support is enabled, 0x7fffffffffffffff or -0x7fffffffffffffff). NaN results in -0x80000000 (or when 64-bit Number support is enabled, -0x8000000000000000).
Examples:
```
echo float2nr(3.95)
3
echo float2nr(-23.45)
-23
echo float2nr(1.0e100)
2147483647  (or 9223372036854775807)
echo float2nr(-1.0e150)
-2147483647 (or -9223372036854775807)
echo float2nr(1.0e-100)
0
```
{only available when compiled with the |+float| feature}

floor({expr}) floor()
Return the largest integral value less than or equal to {expr} as a Float (round down).
{expr} must evaluate to a Float or a Number .
Examples:
```
echo floor(1.856)
1.0
echo floor(-5.456)
-6.0
echo floor(4.0)
4.0
```
{only available when compiled with the |+float| feature}

fmod({expr1}, {expr2}) fmod()
Return the remainder of {expr1} / {expr2}, even if the division is not representable. Returns {expr1} - i * {expr2} for some integer i such that if {expr2} is non-zero, the result has the same sign as {expr1} and magnitude less than the magnitude of {expr2}. If {expr2} is zero, the value

returned is zero. The value returned is a Float .
{expr1} and {expr2} must evaluate to a Float or a Number .
Examples:

```
:echo fmod(12.33, 1.22)
0.13
:echo fmod(-12.33, 1.22)
-0.13
```

{only available when compiled with |+float| feature}

fnameescape({string}) fnameescape()

Escape {string} for use as file name command argument. All characters that have a special meaning, such as '%' and '|' are escaped with a backslash.
For most systems the characters escaped are " \t\n*?[{`$\\%#'\"|!<". For systems where a backslash appears in a filename, it depends on the value of 'isfname'. A leading '+' and '>' is also escaped (special after :edit and :write). And a "-" by itself (special after :cd).
Example:

```
:let fname = '+some str%nge|name'
:exe "edit " . fnameescape(fname)
```

results in executing:

```
edit \+some\ str\%nge\|name
```

fnamemodify({fname}, {mods}) fnamemodify()

Modify file name {fname} according to {mods}. {mods} is a string of characters like it is used for file names on the command line. See filename-modifiers .
Example:

```
:echo fnamemodify("main.c", ":p:h")
```

results in:

```
/home/mool/vim/vim/src
```

Note: Environment variables don't work in {fname}, use expand() first then.

foldclosed({lnum}) foldclosed()

The result is a Number. If the line {lnum} is in a closed fold, the result is the number of the first line in that fold. If the line {lnum} is not in a closed fold, -1 is returned.

foldclosedend({lnum}) foldclosedend()

The result is a Number. If the line {lnum} is in a closed fold, the result is the number of the last line in that fold. If the line {lnum} is not in a closed fold, -1 is returned.

foldlevel({lnum}) foldlevel()

The result is a Number, which is the foldlevel of line {lnum} in the current buffer. For nested folds the deepest level is returned. If there is no fold at line {lnum}, zero is returned. It doesn't matter if the folds are open or closed. When used while updating folds (from 'foldexpr') -1 is returned for lines where folds are still to be updated and the foldlevel is unknown. As a special case the level of the

previous line is usually available.

foldtext()

foldtext()	Returns a String, to be displayed for a closed fold. This is the default function used for the 'foldtext' option and should only be called from evaluating 'foldtext'. It uses the v:foldstart , v:foldend and v:folddashes variables. The returned string looks like this:

```
+-- 45 lines: abcdef
```

The number of leading dashes depends on the foldlevel. The "45" is the number of lines in the fold. "abcdef" is the text in the first non-blank line of the fold. Leading white space, "//" or "/*" and the text from the 'foldmarker' and 'commentstring' options is removed.
When used to draw the actual foldtext, the rest of the line will be filled with the fold char from the 'fillchars' setting.
{not available when compiled without the |+folding| feature}

foldtextresult({lnum}) foldtextresult()

Returns the text that is displayed for the closed fold at line {lnum}. Evaluates 'foldtext' in the appropriate context. When there is no closed fold at {lnum} an empty string is returned.
{lnum} is used like with getline() . Thus "." is the current line, "'m" mark m, etc.
Useful when exporting folded text, e.g., to HTML.
{not available when compiled without the |+folding| feature}

foreground() foreground()

Move the Vim window to the foreground. Useful when sent from a client to a Vim server. remote_send()
On Win32 systems this might not work, the OS does not always allow a window to bring itself to the foreground. Use remote_foreground() instead.
{only in the Win32, Athena, Motif and GTK GUI versions and the Win32 console version}

funcref({name} [, {arglist}] [, {dict}]) funcref()

Just like function() , but the returned Funcref will lookup the function by reference, not by name. This matters when the function {name} is redefined later.

Unlike function() , {name} must be an existing user function. Also for autoloaded functions. {name} cannot be a builtin function.

function({name} [, {arglist}] [, {dict}]) function() E700 E922 E923

Return a Funcref variable that refers to function {name}. {name} can be the name of a user defined function or an internal function.

{name} can also be a Funcref or a partial. When it is a
partial the dict stored in it will be used and the {dict}
argument is not allowed. E.g.:

```
let FuncWithArg = function(dict.Func, [arg])
let Broken = function(dict.Func, [arg], dict)
```

When using the Funcref the function will be found by {name},
also when it was redefined later. Use funcref() to keep the
same function.

When {arglist} or {dict} is present this creates a partial.
That means the argument list and/or the dictionary is stored in
the Funcref and will be used when the Funcref is called.

The arguments are passed to the function in front of other
arguments. Example:

```
func Callback(arg1, arg2, name)
...
let Func = function('Callback', ['one', 'two'])
...
call Func('name')
```

Invokes the function as with:

```
call Callback('one', 'two', 'name')
```

The function() call can be nested to add more arguments to the
Funcref. The extra arguments are appended to the list of
arguments. Example:

```
func Callback(arg1, arg2, name)
...
let Func = function('Callback', ['one'])
let Func2 = function(Func, ['two'])
...
call Func2('name')
```

Invokes the function as with:

```
call Callback('one', 'two', 'name')
```

The Dictionary is only useful when calling a "dict" function.
In that case the {dict} is passed in as "self". Example:

```
function Callback() dict
   echo "called for " . self.name
endfunction
...
let context = {"name": "example"}
let Func = function('Callback', context)
...
call Func()     " will echo: called for example
```

The use of function() is not needed when there are no extra
arguments, these two are equivalent:

```
let Func = function('Callback', context)
let Func = context.Callback
```

The argument list and the Dictionary can be combined:

```
function Callback(arg1, count) dict
...
```

```
		let context = {"name": "example"}
		let Func = function('Callback', ['one'], context)
		...
		call Func(500)
	Invokes the function as with:
		call context.Callback('one', 500)
```

garbagecollect([{atexit}]) garbagecollect()

Cleanup unused Lists , Dictionaries , Channels and Jobs that have circular references.

There is hardly ever a need to invoke this function, as it is automatically done when Vim runs out of memory or is waiting for the user to press a key after 'updatetime'. Items without circular references are always freed when they become unused. This is useful if you have deleted a very big List and/or Dictionary with circular references in a script that runs for a long time.

When the optional {atexit} argument is one, garbage collection will also be done when exiting Vim, if it wasn't done before. This is useful when checking for memory leaks.

The garbage collection is not done immediately but only when it's safe to perform. This is when waiting for the user to type a character. To force garbage collection immediately use test_garbagecollect_now() .

get({list}, {idx} [, {default}]) get()

Get item {idx} from List {list}. When this item is not available return {default}. Return zero when {default} is omitted.

get({dict}, {key} [, {default}])

Get item with key {key} from Dictionary {dict}. When this item is not available return {default}. Return zero when {default} is omitted.

get({func}, {what})

Get an item with from Funcref {func}. Possible values for {what} are:

```
	"name"	The function name
	"func"	The function
	"dict"	The dictionary
	"args"	The list with arguments
```

getbufinfo()

getbufinfo([{expr}])
getbufinfo([{dict}])

Get information about buffers as a List of Dictionaries.

Without an argument information about all the buffers is returned.

When the argument is a Dictionary only the buffers matching

the specified criteria are returned. The following keys can be specified in {dict}:

buflisted	include only listed buffers.
bufloaded	include only loaded buffers.
bufmodified	include only modified buffers.

Otherwise, {expr} specifies a particular buffer to return information for. For the use of {expr}, see bufname() above. If the buffer is found the returned List has one item. Otherwise the result is an empty list.

Each returned List item is a dictionary with the following entries:

bufnr	buffer number.
changed	TRUE if the buffer is modified.
changedtick	number of changes made to the buffer.
hidden	TRUE if the buffer is hidden.
listed	TRUE if the buffer is listed.
lnum	current line number in buffer.
loaded	TRUE if the buffer is loaded.
name	full path to the file in the buffer.
signs	list of signs placed in the buffer. Each list item is a dictionary with the following fields: id sign identifier lnum line number name sign name
variables	a reference to the dictionary with buffer-local variables.
windows	list of window-ID s that display this buffer

Examples:

```
for buf in getbufinfo()
    echo buf.name
endfor
for buf in getbufinfo({'buflisted':1})
    if buf.changed
        ....
    endif
endfor
```

To get buffer-local options use:

```
getbufvar({bufnr}, '&')
```

getbufline()

getbufline({expr}, {lnum} [, {end}])

Return a List with the lines starting from {lnum} to {end} (inclusive) in the buffer {expr}. If {end} is omitted, a List with only the line {lnum} is returned.

For the use of {expr}, see bufname() above.

For {lnum} and {end} "$" can be used for the last line of the buffer. Otherwise a number must be used.

When {lnum} is smaller than 1 or bigger than the number of lines in the buffer, an empty List is returned.

When {end} is greater than the number of lines in the buffer, it is treated as {end} is set to the number of lines in the buffer. When {end} is before {lnum} an empty List is returned.

This function works only for loaded buffers. For unloaded and non-existing buffers, an empty List is returned.

Example:
```
:let lines = getbufline(bufnr("myfile"), 1, "$")
```

getbufvar({expr}, {varname} [, {def}]) getbufvar()

The result is the value of option or local buffer variable {varname} in buffer {expr}. Note that the name without "b:" must be used.
When {varname} is empty returns a dictionary with all the buffer-local variables.
When {varname} is equal to "&" returns a dictionary with all the buffer-local options.
Otherwise, when {varname} starts with "&" returns the value of a buffer-local option.
This also works for a global or buffer-local option, but it doesn't work for a global variable, window-local variable or window-local option.
For the use of {expr}, see bufname() above.
When the buffer or variable doesn't exist {def} or an empty string is returned, there is no error message.
Examples:
```
:let bufmodified = getbufvar(1, "&mod")
:echo "todo myvar = " . getbufvar("todo", "myvar")
```

getchangelist({expr}) getchangelist()

Returns the changelist for the buffer {expr}. For the use of {expr}, see bufname() above. If buffer {expr} doesn't exist, an empty list is returned.

The returned list contains two entries: a list with the change locations and the current position in the list. Each entry in the change list is a dictionary with the following entries:

col	column number
coladd	column offset for 'virtualedit'
lnum	line number

If buffer {expr} is the current buffer, then the current position refers to the position in the list. For other buffers, it is set to the length of the list.

getchar([expr]) getchar()

Get a single character from the user or input stream.
If [expr] is omitted, wait until a character is available.
If [expr] is 0, only get a character when one is available.
	Return zero otherwise.
If [expr] is 1, only check if a character is available, it is
	not consumed. Return zero if no character available.

Without [expr] and when [expr] is 0 a whole character or
special key is returned. If it is a single character, the
result is a number. Use nr2char() to convert it to a String.
Otherwise a String is returned with the encoded character.
For a special key it's a String with a sequence of bytes
starting with 0x80 (decimal: 128). This is the same value as
the String "\<Key>", e.g., "\<Left>". The returned value is
also a String when a modifier (shift, control, alt) was used
that is not included in the character.

When [expr] is 0 and Esc is typed, there will be a short delay
while Vim waits to see if this is the start of an escape
sequence.

When [expr] is 1 only the first byte is returned. For a
one-byte character it is the character itself as a number.
Use nr2char() to convert it to a String.

Use getcharmod() to obtain any additional modifiers.

When the user clicks a mouse button, the mouse event will be
returned. The position can then be found in v:mouse_col ,
 v:mouse_lnum , v:mouse_winid and v:mouse_win . This
example positions the mouse as it would normally happen:
```
	let c = getchar()
	if c == "\<LeftMouse>" && v:mouse_win > 0
	  exe v:mouse_win . "wincmd w"
	  exe v:mouse_lnum
	  exe "normal " . v:mouse_col . "|"
	endif
```

When using bracketed paste only the first character is
returned, the rest of the pasted text is dropped.
 xterm-bracketed-paste .

There is no prompt, you will somehow have to make clear to the
user that a character has to be typed.
There is no mapping for the character.
Key codes are replaced, thus when the user presses the <Del>
key you get the code for the <Del> key, not the raw character
sequence. Examples:
```
	getchar() == "\<Del>"
	getchar() == "\<S-Left>"
```
This example redefines "f" to ignore case:
```
	:nmap f :call FindChar()<CR>
	:function FindChar()
	:  let c = nr2char(getchar())
```

```
:  while col('.') < col('$') - 1
:    normal l
:    if getline('.')[col('.') - 1] ==? c
:      break
:    endif
:  endwhile
:endfunction
```

You may also receive synthetic characters, such as <CursorHold> . Often you will want to ignore this and get another character:

```
:function GetKey()
:  let c = getchar()
:  while c == "\<CursorHold>"
:    let c = getchar()
:  endwhile
:  return c
:endfunction
```

getcharmod() getcharmod()

The result is a Number which is the state of the modifiers for the last obtained character with getchar() or in another way. These values are added together:

2	shift
4	control
8	alt (meta)
16	meta (when it's different from ALT)
32	mouse double click
64	mouse triple click
96	mouse quadruple click (== 32 + 64)
128	command (Macintosh only)

Only the modifiers that have not been included in the character itself are obtained. Thus Shift-a results in "A" without a modifier.

getcharsearch() getcharsearch()

Return the current character search information as a {dict} with the following entries:

char	character previously used for a character search (t , f , T , or F); empty string if no character search has been performed
forward	direction of character search; 1 for forward, 0 for backward
until	type of character search; 1 for a t or T character search, 0 for an f or F character search

This can be useful to always have ; and , search forward/backward regardless of the direction of the previous character search:

```
:nnoremap <expr> ; getcharsearch().forward ? ';' : ','
:nnoremap <expr> , getcharsearch().forward ? ',' : ';'
```

Also see setcharsearch() .

getcmdline() getcmdline()

Return the current command-line. Only works when the command line is being edited, thus requires use of c_CTRL-_e or c_CTRL-R_= .
Example:

```
:cmap <F7> <C-\>eescape(getcmdline(), ' \')<CR>
```

Also see getcmdtype() , getcmdpos() and setcmdpos() .

getcmdpos() getcmdpos()

Return the position of the cursor in the command line as a byte count. The first column is 1.
Only works when editing the command line, thus requires use of c_CTRL-_e or c_CTRL-R_= or an expression mapping.
Returns 0 otherwise.
Also see getcmdtype() , setcmdpos() and getcmdline() .

getcmdtype() getcmdtype()

Return the current command-line type. Possible return values are:

```
:   normal Ex command
>   debug mode command  debug-mode
/   forward search command
?   backward search command
@    input()  command
-    :insert  or  :append  command
=    i_CTRL-R_=
```

Only works when editing the command line, thus requires use of c_CTRL-_e or c_CTRL-R_= or an expression mapping.
Returns an empty string otherwise.
Also see getcmdpos() , setcmdpos() and getcmdline() .

getcmdwintype() getcmdwintype()

Return the current command-line-window type. Possible return values are the same as getcmdtype() . Returns an empty string when not in the command-line window.

getcompletion({pat}, {type} [, {filtered}]) getcompletion()

Return a list of command-line completion matches. {type} specifies what for. The following completion types are supported:

```
arglist         file names in argument list
augroup         autocmd groups
buffer          buffer names
behave          :behave suboptions
color           color schemes
command         Ex command (and arguments)
compiler        compilers
cscope           :cscope  suboptions
dir             directory names
environment     environment variable names
event           autocommand events
expression      Vim expression
```

```
                file            file and directory names
                file_in_path    file and directory names in  'path'
                filetype        filetype names  'filetype'
                function        function name
                help            help subjects
                highlight       highlight groups
                history         :history suboptions
                locale          locale names (as output of locale -a)
                mapclear        buffer argument
                mapping         mapping name
                menu            menus
                messages         :messages  suboptions
                option          options
                packadd         optional package  pack-add  names
                shellcmd        Shell command
                sign             :sign  suboptions
                syntax          syntax file names  'syntax'
                syntime          :syntime  suboptions
                tag             tags
                tag_listfiles   tags, file names
                user            user names
                var             user variables

                If {pat} is an empty string, then all the matches are returned.
                Otherwise only items matching {pat} are returned. See
                 wildcards  for the use of special characters in {pat}.

                If the optional {filtered} flag is set to 1, then 'wildignore'
                is applied to filter the results.  Otherwise all the matches
                are returned. The 'wildignorecase' option always applies.

                If there are no matches, an empty list is returned.  An
                invalid value for {type} produces an error.

                                                              getcurpos()
getcurpos()     Get the position of the cursor.  This is like getpos('.'), but
                includes an extra item in the list:
                    [bufnum, lnum, col, off, curswant]
                The "curswant" number is the preferred column when moving the
                cursor vertically.  Also see  getpos() .

                This can be used to save and restore the cursor position:
                        let save_cursor = getcurpos()
                        MoveTheCursorAround
                        call setpos('.', save_cursor)
              Note that this only works within the window.  See
                winrestview()  for restoring more state.
                                                              getcwd()
getcwd([{winnr} [, {tabnr}]])
                The result is a String, which is the name of the current
                working directory.
                Without arguments, for the current window.

                With {winnr} return the local current directory of this window
```

in the current tab page. {winnr} can be the window number or the window-ID .
If {winnr} is -1 return the name of the global working directory. See also haslocaldir() .

With {winnr} and {tabnr} return the local current directory of the window in the specified tab page.
Return an empty string if the arguments are invalid.

getfsize({fname}) getfsize()
The result is a Number, which is the size in bytes of the given file {fname}.
If {fname} is a directory, 0 is returned.
If the file {fname} can't be found, -1 is returned.
If the size of {fname} is too big to fit in a Number then -2 is returned.

getfontname([{name}]) getfontname()
Without an argument returns the name of the normal font being used. Like what is used for the Normal highlight group hl-Normal .
With an argument a check is done whether {name} is a valid font name. If not then an empty string is returned.
Otherwise the actual font name is returned, or {name} if the GUI does not support obtaining the real name.
Only works when the GUI is running, thus not in your vimrc or gvimrc file. Use the GUIEnter autocommand to use this function just after the GUI has started.
Note that the GTK GUI accepts any font name, thus checking for a valid name does not work.

getfperm({fname}) getfperm()
The result is a String, which is the read, write, and execute permissions of the given file {fname}.
If {fname} does not exist or its directory cannot be read, an empty string is returned.
The result is of the form "rwxrwxrwx", where each group of "rwx" flags represent, in turn, the permissions of the owner of the file, the group the file belongs to, and other users.
If a user does not have a given permission the flag for this is replaced with the string "-". Examples:
```
:echo getfperm("/etc/passwd")
:echo getfperm(expand("~/.vimrc"))
```
This will hopefully (from a security point of view) display the string "rw-r--r--" or even "rw-------".

For setting permissions use setfperm() .

getftime({fname}) getftime()
The result is a Number, which is the last modification time of the given file {fname}. The value is measured as seconds since 1st Jan 1970, and may be passed to strftime(). See also localtime() and strftime() .
If the file {fname} can't be found -1 is returned.

getftype({fname}) getftype()
The result is a String, which is a description of the kind of file of the given file {fname}.
If {fname} does not exist an empty string is returned.
Here is a table over different kinds of files and their results:

Normal file	"file"
Directory	"dir"
Symbolic link	"link"
Block device	"bdev"
Character device	"cdev"
Socket	"socket"
FIFO	"fifo"
All other	"other"

Example:
```
getftype("/home")
```
Note that a type such as "link" will only be returned on systems that support it. On some systems only "dir" and "file" are returned. On MS-Windows a symbolic link to a directory returns "dir" instead of "link".

getjumplist([{winnr} [, {tabnr}]]) getjumplist()
Returns the jumplist for the specified window.

Without arguments use the current window.
With {winnr} only use this window in the current tab page.
{winnr} can also be a window-ID.
With {winnr} and {tabnr} use the window in the specified tab page.

The returned list contains two entries: a list with the jump locations and the last used jump position number in the list.
Each entry in the jump location list is a dictionary with the following entries:

bufnr	buffer number
col	column number
coladd	column offset for 'virtualedit'
filename	filename if available
lnum	line number

getline({lnum} [, {end}]) getline()
Without {end} the result is a String, which is line {lnum} from the current buffer. Example:
```
getline(1)
```
When {lnum} is a String that doesn't start with a digit, line() is called to translate the String into a Number.
To get the line under the cursor:
```
getline(".")
```
When {lnum} is smaller than 1 or bigger than the number of lines in the buffer, an empty string is returned.

When {end} is given the result is a List where each item is

a line from the current buffer in the range {lnum} to {end},
including line {end}.
{end} is used in the same way as {lnum}.
Non-existing lines are silently omitted.
When {end} is before {lnum} an empty List is returned.
Example:

```
:let start = line('.')
:let end = search("^$") - 1
:let lines = getline(start, end)
```

To get lines from another buffer see getbufline()

getloclist({nr} [, {what}]) getloclist()
Returns a list with all the entries in the location list for
window {nr}. {nr} can be the window number or the window-ID .
When {nr} is zero the current window is used.

For a location list window, the displayed location list is
returned. For an invalid window number {nr}, an empty list is
returned. Otherwise, same as getqflist() .

If the optional {what} dictionary argument is supplied, then
returns the items listed in {what} as a dictionary. Refer to
getqflist() for the supported items in {what}.

getmatches() getmatches()
Returns a List with all matches previously defined by
matchadd() and the :match commands. getmatches() is
useful in combination with setmatches() , as setmatches()
can restore a list of matches saved by getmatches() .
Example:

```
:echo getmatches()
[{'group': 'MyGroup1', 'pattern': 'TODO',
 'priority': 10, 'id': 1}, {'group': 'MyGroup2',
 'pattern': 'FIXME', 'priority': 10, 'id': 2}]
:let m = getmatches()
:call clearmatches()
:echo getmatches()
[]
:call setmatches(m)
:echo getmatches()
[{'group': 'MyGroup1', 'pattern': 'TODO',
 'priority': 10, 'id': 1}, {'group': 'MyGroup2',
 'pattern': 'FIXME', 'priority': 10, 'id': 2}]
:unlet m
```

getpid() getpid()
Return a Number which is the process ID of the Vim process.
On Unix and MS-Windows this is a unique number, until Vim
exits. On MS-DOS it's always zero.

getpos({expr}) getpos()
Get the position for {expr}. For possible values of {expr}
see line() . For getting the cursor position see

getcurpos() .
The result is a List with four numbers:
    [bufnum, lnum, col, off]
"bufnum" is zero, unless a mark like '0 or 'A is used, then it is the buffer number of the mark.
"lnum" and "col" are the position in the buffer. The first column is 1.
The "off" number is zero, unless 'virtualedit' is used. Then it is the offset in screen columns from the start of the character. E.g., a position within a <Tab> or after the last character.
Note that for '< and '> Visual mode matters: when it is "V" (visual line mode) the column of '< is zero and the column of '> is a large number.
This can be used to save and restore the position of a mark:

```
let save_a_mark = getpos("'a")
...
call setpos("'a", save_a_mark)
```

Also see getcurpos() and setpos() .

getqflist([{what}]) getqflist()

Returns a list with all the current quickfix errors. Each list item is a dictionary with these entries:

bufnr	number of buffer that has the file name, use bufname() to get the name
module	module name
lnum	line number in the buffer (first line is 1)
col	column number (first column is 1)
vcol	TRUE : "col" is visual column FALSE : "col" is byte index
nr	error number
pattern	search pattern used to locate the error
text	description of the error
type	type of the error, 'E', '1', etc.
valid	TRUE : recognized error message

When there is no error list or it's empty, an empty list is returned. Quickfix list entries with non-existing buffer number are returned with "bufnr" set to zero.

Useful application: Find pattern matches in multiple files and do something with them:

```
:vimgrep /theword/jg *.c
:for d in getqflist()
:   echo bufname(d.bufnr) ':' d.lnum '=' d.text
:endfor
```

If the optional {what} dictionary argument is supplied, then returns only the items listed in {what} as a dictionary. The following string items are supported in {what}:

changedtick	get the total number of changes made to the list quickfix-changedtick
context	get the quickfix-context

```
        efm     errorformat to use when parsing "lines". If
                not present, then the 'errorformat' option
                value is used.
        id      get information for the quickfix list with
                 quickfix-ID ; zero means the id for the
                current list or the list specified by "nr"
        idx     index of the current entry in the list
        items   quickfix list entries
        lines   parse a list of lines using 'efm' and return
                the resulting entries.  Only a  List  type is
                accepted.  The current quickfix list is not
                modified. See  quickfix-parse .
        nr      get information for this quickfix list; zero
                means the current quickfix list and "$" means
                the last quickfix list
        size    number of entries in the quickfix list
        title   get the list title  quickfix-title
        winid   get the quickfix  window-ID
        all     all of the above quickfix properties
Non-string items in {what} are ignored. To get the value of a
particular item, set it to zero.
If "nr" is not present then the current quickfix list is used.
If both "nr" and a non-zero "id" are specified, then the list
specified by "id" is used.
To get the number of lists in the quickfix stack, set "nr" to
"$" in {what}. The "nr" value in the returned dictionary
contains the quickfix stack size.
When "lines" is specified, all the other items except "efm"
are ignored.  The returned dictionary contains the entry
"items" with the list of entries.

The returned dictionary contains the following entries:
        changedtick     total number of changes made to the
                        list  quickfix-changedtick
        context quickfix list context. See  quickfix-context
                If not present, set to "".
        id      quickfix list ID  quickfix-ID . If not
                present, set to 0.
        idx     index of the current entry in the list. If not
                present, set to 0.
        items   quickfix list entries. If not present, set to
                an empty list.
        nr      quickfix list number. If not present, set to 0
        size    number of entries in the quickfix list. If not
                present, set to 0.
        title   quickfix list title text. If not present, set
                to "".
        winid   quickfix  window-ID . If not present, set to 0

Examples (See also  getqflist-examples ):
        :echo getqflist({'all': 1})
        :echo getqflist({'nr': 2, 'title': 1})
        :echo getqflist({'lines' : ["F1:10:L10"]})
```

getreg([{regname} [, 1 [, {list}]]]) getreg()
The result is a String, which is the contents of register {regname}. Example:

```
:let cliptext = getreg('*')
```

When {regname} was not set the result is an empty string.

getreg('=') returns the last evaluated value of the expression register. (For use in maps.)
getreg('=', 1) returns the expression itself, so that it can be restored with setreg(). For other registers the extra argument is ignored, thus you can always give it.

If {list} is present and TRUE, the result type is changed to List. Each list item is one text line. Use it if you care about zero bytes possibly present inside register: without third argument both NLs and zero bytes are represented as NLs (see NL-used-for-Nul).
When the register was not set an empty list is returned.

If {regname} is not specified, v:register is used.

getregtype([{regname}]) getregtype()
The result is a String, which is type of register {regname}. The value will be one of:

"v"	for characterwise text
"V"	for linewise text
"<CTRL-V>{width}"	for blockwise-visual text
""	for an empty or unknown register

<CTRL-V> is one character with value 0x16.
If {regname} is not specified, v:register is used.

gettabinfo([{arg}]) gettabinfo()
If {arg} is not specified, then information about all the tab pages is returned as a List. Each List item is a Dictionary. Otherwise, {arg} specifies the tab page number and information about that one is returned. If the tab page does not exist an empty List is returned.

Each List item is a Dictionary with the following entries:

tabnr	tab page number.
variables	a reference to the dictionary with tabpage-local variables
windows	List of window-ID s in the tag page.

gettabvar({tabnr}, {varname} [, {def}]) gettabvar()
Get the value of a tab-local variable {varname} in tab page {tabnr}. t:var
Tabs are numbered starting with one.
When {varname} is empty a dictionary with all tab-local variables is returned.
Note that the name without "t:" must be used.
When the tab or variable doesn't exist {def} or an empty string is returned, there is no error message.

gettabwinvar({tabnr}, {winnr}, {varname} [, {def}]) gettabwinvar()
Get the value of window-local variable {varname} in window
{winnr} in tab page {tabnr}.
When {varname} is empty a dictionary with all window-local
variables is returned.
When {varname} is equal to "&" get the values of all
window-local options in a Dictionary.
Otherwise, when {varname} starts with "&" get the value of a
window-local option.
Note that {varname} must be the name without "w:".
Tabs are numbered starting with one. For the current tabpage
use getwinvar() .
{winnr} can be the window number or the window-ID .
When {winnr} is zero the current window is used.
This also works for a global option, buffer-local option and
window-local option, but it doesn't work for a global variable
or buffer-local variable.
When the tab, window or variable doesn't exist {def} or an
empty string is returned, there is no error message.
Examples:
```
:let list_is_on = gettabwinvar(1, 2, '&list')
:echo "myvar = " . gettabwinvar(3, 1, 'myvar')
```

To obtain all window-local variables use:
```
gettabwinvar({tabnr}, {winnr}, '&')
```

getwininfo([{winid}]) getwininfo()
Returns information about windows as a List with Dictionaries.

If {winid} is given Information about the window with that ID
is returned. If the window does not exist the result is an
empty list.

Without {winid} information about all the windows in all the
tab pages is returned.

Each List item is a Dictionary with the following entries:

bufnr	number of buffer in the window
height	window height (excluding winbar)
loclist	1 if showing a location list {only with the +quickfix feature}
quickfix	1 if quickfix or location list window {only with the +quickfix feature}
terminal	1 if a terminal window {only with the +terminal feature}
tabnr	tab page number
variables	a reference to the dictionary with window-local variables
width	window width
winbar	1 if the window has a toolbar, 0 otherwise
wincol	leftmost screen column of the window, col from win_screenpos()

```
                        winid           window-ID
                        winnr           window number
                        winrow          topmost screen column of the window,
                                        row from  win_screenpos()

getwinpos([{timeout}])                                          getwinpos()
                The result is a list with two numbers, the result of
                getwinposx() and getwinposy() combined:
                        [x-pos, y-pos]
                {timeout} can be used to specify how long to wait in msec for
                a response from the terminal.  When omitted 100 msec is used.
                Use a longer time for a remote terminal.
                When using a value less than 10 and no response is received
                within that time, a previously reported position is returned,
                if available.  This can be used to poll for the position and
                do some work in the mean time:
                        while 1
                          let res = getwinpos(1)
                          if res[0] >= 0
                            break
                          endif
                          " Do some work here
                        endwhile

                                                                getwinposx()
getwinposx()    The result is a Number, which is the X coordinate in pixels of
                the left hand side of the GUI Vim window. Also works for an
                xterm (uses a timeout of 100 msec).
                The result will be -1 if the information is not available.
                The value can be used with `:winpos`.

                                                                getwinposy()
getwinposy()    The result is a Number, which is the Y coordinate in pixels of
                the top of the GUI Vim window.  Also works for an xterm (uses
                a timeout of 100 msec).
                The result will be -1 if the information is not available.
                The value can be used with `:winpos`.

getwinvar({winnr}, {varname} [, {def}])                         getwinvar()
                Like  gettabwinvar()  for the current tabpage.
                Examples:
                        :let list_is_on = getwinvar(2, '&list')
                        :echo "myvar = " . getwinvar(1, 'myvar')

glob({expr} [, {nosuf} [, {list} [, {alllinks}]]])                  glob()
                Expand the file wildcards in {expr}.  See  wildcards  for the
                use of special characters.

                Unless the optional {nosuf} argument is given and is  TRUE ,
                the 'suffixes' and 'wildignore' options apply: Names matching
                one of the patterns in 'wildignore' will be skipped and
                'suffixes' affect the ordering of matches.
                'wildignorecase' always applies.
```

When {list} is present and it is TRUE the result is a List with all matching files. The advantage of using a List is, you also get filenames containing newlines correctly. Otherwise the result is a String and when there are several matches, they are separated by <NL> characters.

If the expansion fails, the result is an empty String or List.

A name for a non-existing file is not included. A symbolic link is only included if it points to an existing file. However, when the {alllinks} argument is present and it is TRUE then all symbolic links are included.

For most systems backticks can be used to get files names from any external command. Example:

```
:let tagfiles = glob("`find . -name tags -print`")
:let &tags = substitute(tagfiles, "\n", ",", "g")
```

The result of the program inside the backticks should be one item per line. Spaces inside an item are allowed.

See expand() for expanding special Vim variables. See system() for getting the raw output of an external command.

glob2regpat({expr}) glob2regpat()

Convert a file pattern, as used by glob(), into a search pattern. The result can be used to match with a string that is a file name. E.g.

```
if filename =~ glob2regpat('Make*.mak')
```

This is equivalent to:

```
if filename =~ '^Make.*\.mak$'
```

When {expr} is an empty string the result is "^$", match an empty string.
Note that the result depends on the system. On MS-Windows a backslash usually means a path separator.

globpath() globpath({path}, {expr} [, {nosuf} [, {list} [, {alllinks}]]])

Perform glob() on all directories in {path} and concatenate the results. Example:

```
:echo globpath(&rtp, "syntax/c.vim")
```

{path} is a comma-separated list of directory names. Each directory name is prepended to {expr} and expanded like with glob() . A path separator is inserted when needed.
To add a comma inside a directory name escape it with a backslash. Note that on MS-Windows a directory may have a trailing backslash, remove it if you put a comma after it.
If the expansion fails for one of the directories, there is no error message.

Unless the optional {nosuf} argument is given and is TRUE , the 'suffixes' and 'wildignore' options apply: Names matching one of the patterns in 'wildignore' will be skipped and 'suffixes' affect the ordering of matches.

When {list} is present and it is TRUE the result is a List with all matching files. The advantage of using a List is, you also get filenames containing newlines correctly. Otherwise the result is a String and when there are several matches, they are separated by <NL> characters. Example:

```
:echo globpath(&rtp, "syntax/c.vim", 0, 1)
```

{alllinks} is used as with glob() .

The "**" item can be used to search in a directory tree. For example, to find all "README.txt" files in the directories in 'runtimepath' and below:

```
:echo globpath(&rtp, "**/README.txt")
```

Upwards search and limiting the depth of "**" is not supported, thus using 'path' will not always work properly.

has()

has({feature}) The result is a Number, which is 1 if the feature {feature} is supported, zero otherwise. The {feature} argument is a string. See feature-list below.
Also see exists() .

has_key({dict}, {key}) has_key()

The result is a Number, which is 1 if Dictionary {dict} has an entry with key {key}. Zero otherwise.

haslocaldir([{winnr} [, {tabnr}]]) haslocaldir()

The result is a Number, which is 1 when the window has set a local path via :lcd , and 0 otherwise.

Without arguments use the current window.
With {winnr} use this window in the current tab page.
With {winnr} and {tabnr} use the window in the specified tab page.
{winnr} can be the window number or the window-ID .
Return 0 if the arguments are invalid.

hasmapto({what} [, {mode} [, {abbr}]]) hasmapto()

The result is a Number, which is 1 if there is a mapping that contains {what} in somewhere in the rhs (what it is mapped to) and this mapping exists in one of the modes indicated by {mode}.
When {abbr} is there and it is TRUE use abbreviations instead of mappings. Don't forget to specify Insert and/or Command-line mode.
Both the global mappings and the mappings local to the current buffer are checked for a match.
If no matching mapping is found 0 is returned.
The following characters are recognized in {mode}:

```
n       Normal mode
v       Visual mode
o       Operator-pending mode
```

```
                i       Insert mode
                l       Language-Argument ("r", "f", "t", etc.)
                c       Command-line mode
            When {mode} is omitted, "nvo" is used.

            This function is useful to check if a mapping already exists
            to a function in a Vim script.  Example:
                :if !hasmapto('\ABCdoit')
                :   map <Leader>d \ABCdoit
                :endif
           This installs the mapping to "\ABCdoit" only if there isn't
            already a mapping to "\ABCdoit".

histadd({history}, {item})                                  histadd()
            Add the String {item} to the history {history} which can be
            one of:                                         hist-names
                "cmd"    or ":"   command line history
                "search" or "/"   search pattern history
                "expr"   or "="   typed expression history
                "input"  or "@"   input line history
                "debug"  or ">"   debug command history
                empty             the current or last used history
            The {history} string does not need to be the whole name, one
            character is sufficient.
            If {item} does already exist in the history, it will be
            shifted to become the newest entry.
            The result is a Number: 1 if the operation was successful,
            otherwise 0 is returned.

            Example:
                :call histadd("input", strftime("%Y %b %d"))
                :let date=input("Enter date: ")
           This function is not available in the  sandbox .

histdel({history} [, {item}])                               histdel()
            Clear {history}, i.e. delete all its entries.  See  hist-names
            for the possible values of {history}.

            If the parameter {item} evaluates to a String, it is used as a
            regular expression.  All entries matching that expression will
            be removed from the history (if there are any).
            Upper/lowercase must match, unless "\c" is used  /\c .
            If {item} evaluates to a Number, it will be interpreted as
            an index, see  :history-indexing .  The respective entry will
            be removed if it exists.

            The result is a Number: 1 for a successful operation,
            otherwise 0 is returned.

            Examples:
            Clear expression register history:
                :call histdel("expr")

            Remove all entries starting with "*" from the search history:
```

```
		:call histdel("/", '^\*')

	The following three are equivalent:
		:call histdel("search", histnr("search"))
		:call histdel("search", -1)
		:call histdel("search", '^'.histget("search", -1).'$')

	To delete the last search pattern and use the last-but-one for
	the "n" command and 'hlsearch':
		:call histdel("search", -1)
		:let @/ = histget("search", -1)

histget({history} [, {index}])                              histget()
	The result is a String, the entry with Number {index} from
	{history}.  See  hist-names  for the possible values of
	{history}, and  :history-indexing  for {index}.  If there is
	no such entry, an empty String is returned.  When {index} is
	omitted, the most recent item from the history is used.

	Examples:
	Redo the second last search from history.
		:execute '/' . histget("search", -2)

       Define an Ex command ":H {num}" that supports re-execution of
	the {num}th entry from the output of  :history .
		:command -nargs=1 H execute histget("cmd", 0+<args>)

histnr({history})                                           histnr()
	The result is the Number of the current entry in {history}.
	See  hist-names  for the possible values of {history}.
	If an error occurred, -1 is returned.

	Example:
		:let inp_index = histnr("expr")

hlexists({name})                                            hlexists()
	The result is a Number, which is non-zero if a highlight group
	called {name} exists.  This is when the group has been
	defined in some way.  Not necessarily when highlighting has
	been defined for it, it may also have been used for a syntax
	item.
                                                            highlight_exists()
	Obsolete name: highlight_exists().

                                                            hlID()
hlID({name})    The result is a Number, which is the ID of the highlight group
	with name {name}.  When the highlight group doesn't exist,
	zero is returned.
	This can be used to retrieve information about the highlight
	group.  For example, to get the background color of the
	"Comment" group:
	:echo synIDattr(synIDtrans(hlID("Comment")), "bg")
                                                            highlightID()
	Obsolete name: highlightID().
```

hostname() hostname()
The result is a String, which is the name of the machine on which Vim is currently running. Machine names greater than 256 characters long are truncated.

iconv({expr}, {from}, {to}) iconv()
The result is a String, which is the text {expr} converted from encoding {from} to encoding {to}.
When the conversion completely fails an empty string is returned. When some characters could not be converted they are replaced with "?".
The encoding names are whatever the iconv() library function can accept, see ":!man 3 iconv".
Most conversions require Vim to be compiled with the +iconv feature. Otherwise only UTF-8 to latin1 conversion and back can be done.
This can be used to display messages with special characters, no matter what 'encoding' is set to. Write the message in UTF-8 and use:

```
echo iconv(utf8_str, "utf-8", &enc)
```

Note that Vim uses UTF-8 for all Unicode encodings, conversion from/to UCS-2 is automatically changed to use UTF-8. You cannot use UCS-2 in a string anyway, because of the NUL bytes.
{only available when compiled with the |+multi_byte| feature}

indent()
indent({lnum}) The result is a Number, which is indent of line {lnum} in the current buffer. The indent is counted in spaces, the value of 'tabstop' is relevant. {lnum} is used just like in getline() .
When {lnum} is invalid -1 is returned.

index({list}, {expr} [, {start} [, {ic}]]) index()
Return the lowest index in List {list} where the item has a value equal to {expr}. There is no automatic conversion, so the String "4" is different from the Number 4. And the number 4 is different from the Float 4.0. The value of 'ignorecase' is not used here, case always matters.
If {start} is given then start looking at the item with index {start} (may be negative for an item relative to the end).
When {ic} is given and it is TRUE , ignore case. Otherwise case must match.
-1 is returned when {expr} is not found in {list}.
Example:

```
:let idx = index(words, "the")
:if index(numbers, 123) >= 0
```

input({prompt} [, {text} [, {completion}]]) input()
The result is a String, which is whatever the user typed on the command-line. The {prompt} argument is either a prompt string, or a blank string (for no prompt). A '\n' can be used

in the prompt to start a new line.
The highlighting set with :echohl is used for the prompt.
The input is entered just like a command-line, with the same
editing commands and mappings. There is a separate history
for lines typed for input().
Example:

```
:if input("Coffee or beer? ") == "beer"
:  echo "Cheers!"
:endif
```

If the optional {text} argument is present and not empty, this
is used for the default reply, as if the user typed this.
Example:

```
:let color = input("Color? ", "white")
```

The optional {completion} argument specifies the type of
completion supported for the input. Without it completion is
not performed. The supported completion types are the same as
that can be supplied to a user-defined command using the
"-complete=" argument. Refer to :command-completion for
more information. Example:

```
let fname = input("File: ", "", "file")
```

NOTE: This function must not be used in a startup file, for
the versions that only run in GUI mode (e.g., the Win32 GUI).
Note: When input() is called from within a mapping it will
consume remaining characters from that mapping, because a
mapping is handled like the characters were typed.
Use inputsave() before input() and inputrestore()
after input() to avoid that. Another solution is to avoid
that further characters follow in the mapping, e.g., by using
:execute or :normal .

Example with a mapping:

```
:nmap \x :call GetFoo()<CR>:exe "/" . Foo<CR>
:function GetFoo()
:  call inputsave()
:  let g:Foo = input("enter search pattern: ")
:  call inputrestore()
:endfunction
```

inputdialog({prompt} [, {text} [, {cancelreturn}]]) inputdialog()
Like input() , but when the GUI is running and text dialogs
are supported, a dialog window pops up to input the text.
Example:

```
:let n = inputdialog("value for shiftwidth", shiftwidth())
:if n != ""
:  let &sw = n
:endif
```

When the dialog is cancelled {cancelreturn} is returned. When
omitted an empty string is returned.
Hitting <Enter> works like pressing the OK button. Hitting
<Esc> works like pressing the Cancel button.
NOTE: Command-line completion is not supported.

inputlist({textlist}) inputlist()
{textlist} must be a List of strings. This List is displayed, one string per line. The user will be prompted to enter a number, which is returned.
The user can also select an item by clicking on it with the mouse. For the first string 0 is returned. When clicking above the first item a negative number is returned. When clicking on the prompt one more than the length of {textlist} is returned.
Make sure {textlist} has less than 'lines' entries, otherwise it won't work. It's a good idea to put the entry number at the start of the string. And put a prompt in the first item.
Example:
```
let color = inputlist(['Select color:', '1. red',
\ '2. green', '3. blue'])
```

inputrestore() inputrestore()
Restore typeahead that was saved with a previous inputsave() . Should be called the same number of times inputsave() is called. Calling it more often is harmless though.
Returns 1 when there is nothing to restore, 0 otherwise.

inputsave() inputsave()
Preserve typeahead (also from mappings) and clear it, so that a following prompt gets input from the user. Should be followed by a matching inputrestore() after the prompt. Can be used several times, in which case there must be just as many inputrestore() calls.
Returns 1 when out of memory, 0 otherwise.

inputsecret({prompt} [, {text}]) inputsecret()
This function acts much like the input() function with but two exceptions:
a) the user's response will be displayed as a sequence of asterisks ("*") thereby keeping the entry secret, and
b) the user's response will not be recorded on the input history stack.
The result is a String, which is whatever the user actually typed on the command-line in response to the issued prompt.
NOTE: Command-line completion is not supported.

insert({list}, {item} [, {idx}]) insert()
Insert {item} at the start of List {list}.
If {idx} is specified insert {item} before the item with index {idx}. If {idx} is zero it goes before the first item, just like omitting {idx}. A negative {idx} is also possible, see list-index . -1 inserts just before the last item.
Returns the resulting List . Examples:
```
:let mylist = insert([2, 3, 5], 1)
:call insert(mylist, 4, -1)
:call insert(mylist, 6, len(mylist))
```
The last example can be done simpler with add() .
Note that when {item} is a List it is inserted as a single

item. Use extend() to concatenate Lists .

invert({expr}) invert()
Bitwise invert. The argument is converted to a number. A List, Dict or Float argument causes an error. Example:

```
:let bits = invert(bits)
```

isdirectory({directory}) isdirectory()
The result is a Number, which is TRUE when a directory with the name {directory} exists. If {directory} doesn't exist, or isn't a directory, the result is FALSE . {directory} is any expression, which is used as a String.

islocked({expr}) islocked() E786
The result is a Number, which is TRUE when {expr} is the name of a locked variable.
{expr} must be the name of a variable, List item or Dictionary entry, not the variable itself! Example:

```
:let alist = [0, ['a', 'b'], 2, 3]
:lockvar 1 alist
:echo islocked('alist')         " 1
:echo islocked('alist[1]')      " 0
```

When {expr} is a variable that does not exist you get an error message. Use exists() to check for existence.

isnan({expr}) isnan()
Return TRUE if {expr} is a float with value NaN.

```
echo isnan(0.0 / 0.0)
1
```

{only available when compiled with the |+float| feature}

items({dict}) items()
Return a List with all the key-value pairs of {dict}. Each List item is a list with two items: the key of a {dict} entry and the value of this entry. The List is in arbitrary order.

job_getchannel({job}) job_getchannel()
Get the channel handle that {job} is using.
To check if the job has no channel:

```
if string(job_getchannel()) == 'channel fail'
```

{only available when compiled with the |+job| feature}

job_info([{job}]) job_info()
Returns a Dictionary with information about {job}:

"status"	what job_status() returns
"channel"	what job_getchannel() returns
"cmd"	List of command arguments used to start the job
"process"	process ID
"tty_in"	terminal input name, empty when none
"tty_out"	terminal output name, empty when none

```
                "exitval"    only valid when "status" is "dead"
                "exit_cb"    function to be called on exit
                "stoponexit"  job-stoponexit

            Without any arguments, returns a List with all Job objects.

job_setoptions({job}, {options})                          job_setoptions()
            Change options for {job}.  Supported are:
                "stoponexit"  job-stoponexit
                "exit_cb"     job-exit_cb

job_start({command} [, {options}])                        job_start()
            Start a job and return a Job object.  Unlike  system()  and
             :!cmd  this does not wait for the job to finish.
            To start a job in a terminal window see  term_start() .

            {command} can be a String.  This works best on MS-Windows.  On
            Unix it is split up in white-separated parts to be passed to
            execvp().  Arguments in double quotes can contain white space.

            {command} can be a List, where the first item is the executable
            and further items are the arguments.  All items are converted
            to String.  This works best on Unix.

            On MS-Windows, job_start() makes a GUI application hidden. If
            want to show it, Use  :!start  instead.

            The command is executed directly, not through a shell, the
            'shell' option is not used.  To use the shell:
        let job = job_start(["/bin/sh", "-c", "echo hello"])
              Or:
        let job = job_start('/bin/sh -c "echo hello"')
              Note that this will start two processes, the shell and the
              command it executes.  If you don't want this use the "exec"
              shell command.

              On Unix $PATH is used to search for the executable only when
              the command does not contain a slash.

              The job will use the same terminal as Vim.  If it reads from
              stdin the job and Vim will be fighting over input, that
              doesn't work.  Redirect stdin and stdout to avoid problems:
        let job = job_start(['sh', '-c', "myserver </dev/null >/dev/null"])

              The returned Job object can be used to get the status with
               job_status()  and stop the job with  job_stop() .

              Note that the job object will be deleted if there are no
              references to it.  This closes the stdin and stderr, which may
              cause the job to fail with an error.  To avoid this keep a
              reference to the job.  Thus instead of:
        call job_start('my-command')
              use:
        let myjob = job_start('my-command')
```

```
            and unlet "myjob" once the job is not needed or is past the
            point where it would fail (e.g. when it prints a message on
            startup).  Keep in mind that variables local to a function
            will cease to exist if the function returns.  Use a
            script-local variable if needed:
        let s:myjob = job_start('my-command')

            {options} must be a Dictionary.  It can contain many optional
            items, see  job-options .

            {only available when compiled with the |+job| feature}

job_status({job})                                          job_status()   E916
            Returns a String with the status of {job}:
                    "run"   job is running
                    "fail"  job failed to start
                    "dead"  job died or was stopped after running

            On Unix a non-existing command results in "dead" instead of
            "fail", because a fork happens before the failure can be
            detected.

            If an exit callback was set with the "exit_cb" option and the
            job is now detected to be "dead" the callback will be invoked.

            For more information see  job_info() .

            {only available when compiled with the |+job| feature}

job_stop({job} [, {how}])                                          job_stop()
            Stop the {job}.  This can also be used to signal the job.

            When {how} is omitted or is "term" the job will be terminated.
            For Unix SIGTERM is sent.  On MS-Windows the job will be
            terminated forcedly (there is no "gentle" way).
            This goes to the process group, thus children may also be
            affected.

            Effect for Unix:
                    "term"   SIGTERM (default)
                    "hup"    SIGHUP
                    "quit"   SIGQUIT
                    "int"    SIGINT
                    "kill"   SIGKILL (strongest way to stop)
                    number   signal with that number

            Effect for MS-Windows:
                    "term"   terminate process forcedly (default)
                    "hup"    CTRL_BREAK
                    "quit"   CTRL_BREAK
                    "int"    CTRL_C
                    "kill"   terminate process forcedly
                    Others   CTRL_BREAK
```

On Unix the signal is sent to the process group. This means
that when the job is "sh -c command" it affects both the shell
and the command.

The result is a Number: 1 if the operation could be executed,
0 if "how" is not supported on the system.
Note that even when the operation was executed, whether the
job was actually stopped needs to be checked with
job_status() .

If the status of the job is "dead", the signal will not be
sent. This is to avoid to stop the wrong job (esp. on Unix,
where process numbers are recycled).

When using "kill" Vim will assume the job will die and close
the channel.

{only available when compiled with the |+job| feature}

join({list} [, {sep}]) join()
Join the items in {list} together into one String.
When {sep} is specified it is put in between the items. If
{sep} is omitted a single space is used.
Note that {sep} is not added at the end. You might want to
add it there too:
let lines = join(mylist, "\n") . "\n"
String items are used as-is. Lists and Dictionaries are
converted into a string like with string() .
The opposite function is split() .

js_decode({string}) js_decode()
This is similar to json_decode() with these differences:
- Object key names do not have to be in quotes.
- Strings can be in single quotes.
- Empty items in an array (between two commas) are allowed and
result in v:none items.

js_encode({expr}) js_encode()
This is similar to json_encode() with these differences:
- Object key names are not in quotes.
- v:none items in an array result in an empty item between
commas.
For example, the Vim object:
[1,v:none,{"one":1},v:none]
Will be encoded as:
[1,,{one:1},,]
While json_encode() would produce:
[1,null,{"one":1},null]
This encoding is valid for JavaScript. It is more efficient
than JSON, especially when using an array with optional items.

json_decode({string}) json_decode()
This parses a JSON formatted string and returns the equivalent

in Vim values. See json_encode() for the relation between JSON and Vim values.
The decoding is permissive:
- A trailing comma in an array and object is ignored, e.g. "[1, 2,]" is the same as "[1, 2]".
- More floating point numbers are recognized, e.g. "1." for "1.0", or "001.2" for "1.2". Special floating point values "Infinity" and "NaN" (capitalization ignored) are accepted.
- Leading zeroes in integer numbers are ignored, e.g. "012" for "12" or "-012" for "-12".
- Capitalization is ignored in literal names null, true or false, e.g. "NULL" for "null", "True" for "true".
- Control characters U+0000 through U+001F which are not escaped in strings are accepted, e.g. "	" (tab character in string) for "\t".
- Backslash in an invalid 2-character sequence escape is ignored, e.g. "\a" is decoded as "a".
- A correct surrogate pair in JSON strings should normally be a 12 character sequence such as "\uD834\uDD1E", but json_decode() silently accepts truncated surrogate pairs such as "\uD834" or "\uD834\u"
E938
A duplicate key in an object, valid in rfc7159, is not accepted by json_decode() as the result must be a valid Vim type, e.g. this fails: {"a":"b", "a":"c"}

json_encode({expr}) json_encode()
Encode {expr} as JSON and return this as a string.
The encoding is specified in:
https://tools.ietf.org/html/rfc7159.html
Vim values are converted as follows:

Number	decimal number
Float	floating point number
Float nan	"NaN"
Float inf	"Infinity"
String	in double quotes (possibly null)
Funcref	not possible, error
List	as an array (possibly null); when used recursively: []
Dict	as an object (possibly null); when used recursively: {}
v:false	"false"
v:true	"true"
v:none	"null"
v:null	"null"

Note that NaN and Infinity are passed on as values. This is missing in the JSON standard, but several implementations do allow it. If not then you will get an error.

keys({dict}) keys()
Return a List with all the keys of {dict}. The List is in arbitrary order.

len() E701

len({expr}) The result is a Number, which is the length of the argument.
When {expr} is a String or a Number the length in bytes is used, as with strlen() .
When {expr} is a List the number of items in the List is returned.
When {expr} is a Dictionary the number of entries in the Dictionary is returned.
Otherwise an error is given.

libcall() E364 E368

libcall({libname}, {funcname}, {argument})
Call function {funcname} in the run-time library {libname} with single argument {argument}.
This is useful to call functions in a library that you especially made to be used with Vim. Since only one argument is possible, calling standard library functions is rather limited.
The result is the String returned by the function. If the function returns NULL, this will appear as an empty string "" to Vim.
If the function returns a number, use libcallnr()!
If {argument} is a number, it is passed to the function as an int; if {argument} is a string, it is passed as a null-terminated string.
This function will fail in restricted-mode .

libcall() allows you to write your own 'plug-in' extensions to Vim without having to recompile the program. It is NOT a means to call system functions! If you try to do so Vim will very probably crash.

For Win32, the functions you write must be placed in a DLL and use the normal C calling convention (NOT Pascal which is used in Windows System DLLs). The function must take exactly one parameter, either a character pointer or a long integer, and must return a character pointer or NULL. The character pointer returned must point to memory that will remain valid after the function has returned (e.g. in static data in the DLL). If it points to allocated memory, that memory will leak away. Using a static buffer in the function should work, it's then freed when the DLL is unloaded.

WARNING: If the function returns a non-valid pointer, Vim may crash! This also happens if the function returns a number, because Vim thinks it's a pointer.
For Win32 systems, {libname} should be the filename of the DLL without the ".DLL" suffix. A full path is only required if the DLL is not in the usual places.
For Unix: When compiling your own plugins, remember that the object code must be compiled as position-independent ('PIC').
{only in Win32 and some Unix versions, when the +libcall feature is present}
Examples:

```
                        :echo libcall("libc.so", "getenv", "HOME")

                                                        libcallnr()
libcallnr({libname}, {funcname}, {argument})
                Just like  libcall() , but used for a function that returns an
                int instead of a string.
                {only in Win32 on some Unix versions, when the  +libcall
                feature is present}
                Examples:
                        :echo libcallnr("/usr/lib/libc.so", "getpid", "")
                        :call libcallnr("libc.so", "printf", "Hello World!\n")
                        :call libcallnr("libc.so", "sleep", 10)

                                                        line()
line({expr})    The result is a Number, which is the line number of the file
                position given with {expr}.  The accepted positions are:
                    .       the cursor position
                    $       the last line in the current buffer
                    'x      position of mark x (if the mark is not set, 0 is
                            returned)
                    w0      first line visible in current window (one if the
                            display isn't updated, e.g. in silent Ex mode)
                    w$      last line visible in current window (this is one
                            less than "w0" if no lines are visible)
                    v       In Visual mode: the start of the Visual area (the
                            cursor is the end).  When not in Visual mode
                            returns the cursor position.  Differs from  '<  in
                            that it's updated right away.
                Note that a mark in another file can be used.  The line number
                then applies to another buffer.
                To get the column number use  col() .  To get both use
                 getpos() .
                Examples:
                        line(".")               line number of the cursor
                        line("'t")              line number of mark t
                        line("'" . marker)      line number of mark marker
                                                        last-position-jump
                This autocommand jumps to the last known position in a file
                just after opening it, if the '" mark is set:
    :au BufReadPost *
        \ if line("'\"") > 1 && line("'\"") <= line("$") && &ft !~# 'commit'
        \ |   exe "normal! g`\""
        \ | endif

line2byte({lnum})                                       line2byte()
                Return the byte count from the start of the buffer for line
                {lnum}.  This includes the end-of-line character, depending on
                the 'fileformat' option for the current buffer.  The first
                line returns 1. 'encoding' matters, 'fileencoding' is ignored.
                This can also be used to get the byte count for the line just
                below the last line:
                        line2byte(line("$") + 1)
               This is the buffer size plus one.  If 'fileencoding' is empty
                it is the file size plus one.
```

When {lnum} is invalid, or the +byte_offset feature has been disabled at compile time, -1 is returned.
Also see byte2line(), go and :goto.

lispindent({lnum}) lispindent()
Get the amount of indent for line {lnum} according the lisp indenting rules, as with 'lisp'.
The indent is counted in spaces, the value of 'tabstop' is relevant. {lnum} is used just like in getline().
When {lnum} is invalid or Vim was not compiled the +lispindent feature, -1 is returned.

localtime() localtime()
Return the current time, measured as seconds since 1st Jan 1970. See also strftime() and getftime().

log({expr}) log()
Return the natural logarithm (base e) of {expr} as a Float. {expr} must evaluate to a Float or a Number in the range (0, inf].
Examples:
```
:echo log(10)
2.302585
:echo log(exp(5))
5.0
```
{only available when compiled with the |+float| feature}

log10({expr}) log10()
Return the logarithm of Float {expr} to base 10 as a Float. {expr} must evaluate to a Float or a Number.
Examples:
```
:echo log10(1000)
3.0
:echo log10(0.01)
-2.0
```
{only available when compiled with the |+float| feature}

luaeval({expr} [, {expr}]) luaeval()
Evaluate Lua expression {expr} and return its result converted to Vim data structures. Second {expr} may hold additional argument accessible as _A inside first {expr}.
Strings are returned as they are.
Boolean objects are converted to numbers.
Numbers are converted to Float values if vim was compiled with +float and to numbers otherwise.
Dictionaries and lists obtained by vim.eval() are returned as-is.
Other objects are returned as zero without any errors.
See lua-luaeval for more details.
{only available when compiled with the |+lua| feature}

map({expr1}, {expr2}) map()

{expr1} must be a List or a Dictionary .
Replace each item in {expr1} with the result of evaluating
{expr2}. {expr2} must be a string or Funcref .

If {expr2} is a string , inside {expr2} v:val has the value
of the current item. For a Dictionary v:key has the key
of the current item and for a List v:key has the index of
the current item.
Example:

```
:call map(mylist, '"> " . v:val . " <"')
```

This puts "> " before and " <" after each item in "mylist".

Note that {expr2} is the result of an expression and is then
used as an expression again. Often it is good to use a
literal-string to avoid having to double backslashes. You
still have to double ' quotes

If {expr2} is a Funcref it is called with two arguments:

1. The key or the index of the current item.
2. the value of the current item.

The function must return the new value of the item. Example
that changes each value by "key-value":

```
func KeyValue(key, val)
  return a:key . '-' . a:val
endfunc
call map(myDict, function('KeyValue'))
```

It is shorter when using a lambda :

```
call map(myDict, {key, val -> key . '-' . val})
```

If you do not use "val" you can leave it out:

```
call map(myDict, {key -> 'item: ' . key})
```

The operation is done in-place. If you want a List or
Dictionary to remain unmodified make a copy first:

```
:let tlist = map(copy(mylist), ' v:val . "\t"')
```

Returns {expr1}, the List or Dictionary that was filtered.
When an error is encountered while evaluating {expr2} no
further items in {expr1} are processed. When {expr2} is a
Funcref errors inside a function are ignored, unless it was
defined with the "abort" flag.

maparg({name} [, {mode} [, {abbr} [, {dict}]]]) maparg()

When {dict} is omitted or zero: Return the rhs of mapping
{name} in mode {mode}. The returned String has special
characters translated like in the output of the ":map" command
listing.

When there is no mapping for {name}, an empty String is
returned. When the mapping for {name} is empty, then "<Nop>"
is returned.

The {name} can have special key names, like in the ":map"
command.

{mode} can be one of these strings:
        "n"   Normal
        "v"   Visual (including Select)
        "o"   Operator-pending
        "i"   Insert
        "c"   Cmd-line
        "s"   Select
        "x"   Visual
        "l"   langmap language-mapping
        "t"   Terminal-Job
        ""   Normal, Visual and Operator-pending
When {mode} is omitted, the modes for "" are used.

When {abbr} is there and it is TRUE use abbreviations
instead of mappings.

When {dict} is there and it is TRUE return a dictionary
containing all the information of the mapping with the
following items:
  "lhs"   The {lhs} of the mapping.
  "rhs"   The {rhs} of the mapping as typed.
  "silent"   1 for a :map-silent mapping, else 0.
  "noremap" 1 if the {rhs} of the mapping is not remappable.
  "expr"   1 for an expression mapping (:map-<expr>).
  "buffer"   1 for a buffer local mapping (:map-local).
  "mode"   Modes for which the mapping is defined. In
             addition to the modes mentioned above, these
             characters will be used:
             " "   Normal, Visual and Operator-pending
             "!"   Insert and Commandline mode
                     (mapmode-ic)
  "sid"   The script local ID, used for <sid> mappings
             (<SID>).
  "nowait"   Do not wait for other, longer mappings.
             (:map-<nowait>).

The mappings local to the current buffer are checked first,
then the global mappings.
This function can be used to map a key even when it's already
mapped, and have it do the original mapping too. Sketch:
        exe 'nnoremap <Tab> ==' . maparg('<Tab>', 'n')

mapcheck({name} [, {mode} [, {abbr}]])   mapcheck()
Check if there is a mapping that matches with {name} in mode
{mode}. See maparg() for {mode} and special names in
{name}.
When {abbr} is there and it is TRUE use abbreviations
instead of mappings.
A match happens with a mapping that starts with {name} and
with a mapping which is equal to the start of {name}.

        matches mapping "a"   "ab"   "abc"

```
                mapcheck("a")        yes     yes      yes
                mapcheck("abc")      yes     yes      yes
                mapcheck("ax")       yes     no       no
                mapcheck("b")        no      no       no
```

The difference with maparg() is that mapcheck() finds a mapping that matches with {name}, while maparg() only finds a mapping for {name} exactly.
When there is no mapping that starts with {name}, an empty String is returned. If there is one, the RHS of that mapping is returned. If there are several mappings that start with {name}, the RHS of one of them is returned. This will be "<Nop>" if the RHS is empty.
The mappings local to the current buffer are checked first, then the global mappings.
This function can be used to check if a mapping can be added without being ambiguous. Example:

```
:if mapcheck("_vv") == ""
:   map _vv :set guifont=7x13<CR>
:endif
```

This avoids adding the "_vv" mapping when there already is a mapping for "_v" or for "_vvv".

match({expr}, {pat} [, {start} [, {count}]]) match()
When {expr} is a List then this returns the index of the first item where {pat} matches. Each item is used as a String, Lists and Dictionaries are used as echoed.
Otherwise, {expr} is used as a String. The result is a Number, which gives the index (byte offset) in {expr} where {pat} matches.
A match at the first character or List item returns zero.
If there is no match -1 is returned.
For getting submatches see matchlist() .
Example:

```
:echo match("testing", "ing")   " results in 4
:echo match([1, 'x'], '\a')     " results in 1
```

See string-match for how {pat} is used.
strpbrk()
Vim doesn't have a strpbrk() function. But you can do:

```
:let sepidx = match(line, '[.,;: \t]')
```

strcasestr()
Vim doesn't have a strcasestr() function. But you can add "\c" to the pattern to ignore case:

```
:let idx = match(haystack, '\cneedle')
```

If {start} is given, the search starts from byte index {start} in a String or item {start} in a List .
The result, however, is still the index counted from the first character/item. Example:

```
:echo match("testing", "ing", 2)
```

result is again "4".

```
:echo match("testing", "ing", 4)
```

result is again "4".

```
:echo match("testing", "t", 2)
```

result is "3".
For a String, if {start} > 0 then it is like the string starts {start} bytes later, thus "^" will match at {start}. Except when {count} is given, then it's like matches before the {start} byte are ignored (this is a bit complicated to keep it backwards compatible).
For a String, if {start} < 0, it will be set to 0. For a list the index is counted from the end.
If {start} is out of range ({start} > strlen({expr}) for a String or {start} > len({expr}) for a List) -1 is returned.

When {count} is given use the {count}'th match. When a match is found in a String the search for the next one starts one character further. Thus this example results in 1:
```
echo match("testing", "..", 0, 2)
```
In a List the search continues in the next item.
Note that when {count} is added the way {start} works changes, see above.

See pattern for the patterns that are accepted.
The 'ignorecase' option is used to set the ignore-caseness of the pattern. 'smartcase' is NOT used. The matching is always done like 'magic' is set and 'cpoptions' is empty.

matchadd() E798 E799 E801 E957

matchadd({group}, {pattern} [, {priority} [, {id} [, {dict}]]])
Defines a pattern to be highlighted in the current window (a "match"). It will be highlighted with {group}. Returns an identification number (ID), which can be used to delete the match using matchdelete() .
Matching is case sensitive and magic, unless case sensitivity or magicness are explicitly overridden in {pattern}. The 'magic', 'smartcase' and 'ignorecase' options are not used. The "Conceal" value is special, it causes the match to be concealed.

The optional {priority} argument assigns a priority to the match. A match with a high priority will have its highlighting overrule that of a match with a lower priority. A priority is specified as an integer (negative numbers are no exception). If the {priority} argument is not specified, the default priority is 10. The priority of 'hlsearch' is zero, hence all matches with a priority greater than zero will overrule it. Syntax highlighting (see 'syntax') is a separate mechanism, and regardless of the chosen priority a match will always overrule syntax highlighting.

The optional {id} argument allows the request for a specific match ID. If a specified ID is already taken, an error message will appear and the match will not be added. An ID is specified as a positive integer (zero excluded). IDs 1, 2 and 3 are reserved for :match , :2match and :3match , respectively. If the {id} argument is not specified or -1, matchadd() automatically chooses a free ID.

The optional {dict} argument allows for further custom values. Currently this is used to specify a match specific conceal character that will be shown for hl-Conceal highlighted matches. The dict can have the following members:

conceal	Special character to show instead of the match (only for hl-Conceal highlighted matches, see :syn-cchar)
window	Instead of the current window use the window with this number or window ID.

The number of matches is not limited, as it is the case with the :match commands.

Example:

```
:highlight MyGroup ctermbg=green guibg=green
:let m = matchadd("MyGroup", "TODO")
```

Deletion of the pattern:

```
:call matchdelete(m)
```

A list of matches defined by matchadd() and :match are available from getmatches() . All matches can be deleted in one operation by clearmatches() .

matchaddpos()

matchaddpos({group}, {pos} [, {priority} [, {id} [, {dict}]]])

Same as matchadd() , but requires a list of positions {pos} instead of a pattern. This command is faster than matchadd() because it does not require to handle regular expressions and sets buffer line boundaries to redraw screen. It is supposed to be used when fast match additions and deletions are required, for example to highlight matching parentheses.

The list {pos} can contain one of these items:

- A number. This whole line will be highlighted. The first line has number 1.
- A list with one number, e.g., [23]. The whole line with this number will be highlighted.
- A list with two numbers, e.g., [23, 11]. The first number is the line number, the second one is the column number (first column is 1, the value must correspond to the byte index as col() would return). The character at this position will be highlighted.
- A list with three numbers, e.g., [23, 11, 3]. As above, but the third number gives the length of the highlight in bytes.

The maximum number of positions is 8.

Example:

```
:highlight MyGroup ctermbg=green guibg=green
:let m = matchaddpos("MyGroup", [[23, 24], 34])
```

Deletion of the pattern:

```
:call matchdelete(m)
```

Matches added by matchaddpos() are returned by
getmatches() with an entry "pos1", "pos2", etc., with the
value a list like the {pos} item.

matcharg({nr}) matcharg()
Selects the {nr} match item, as set with a :match ,
:2match or :3match command.
Return a List with two elements:
The name of the highlight group used
The pattern used.
When {nr} is not 1, 2 or 3 returns an empty List .
When there is no match item set returns ['', ''].
This is useful to save and restore a :match .
Highlighting matches using the :match commands are limited
to three matches. matchadd() does not have this limitation.

matchdelete({id}) matchdelete() E802 E803
Deletes a match with ID {id} previously defined by matchadd()
or one of the :match commands. Returns 0 if successful,
otherwise -1. See example for matchadd() . All matches can
be deleted in one operation by clearmatches() .

matchend({expr}, {pat} [, {start} [, {count}]]) matchend()
Same as match() , but return the index of first character
after the match. Example:
:echo matchend("testing", "ing")
results in "7".
strspn() strcspn()
Vim doesn't have a strspn() or strcspn() function, but you can
do it with matchend():
:let span = matchend(line, '[a-zA-Z]')
:let span = matchend(line, '[^a-zA-Z]')
Except that -1 is returned when there are no matches.

The {start}, if given, has the same meaning as for match() .
:echo matchend("testing", "ing", 2)
results in "7".
:echo matchend("testing", "ing", 5)
result is "-1".
When {expr} is a List the result is equal to match() .

matchlist({expr}, {pat} [, {start} [, {count}]]) matchlist()
Same as match() , but return a List . The first item in the
list is the matched string, same as what matchstr() would
return. Following items are submatches, like "\1", "\2", etc.
in :substitute . When an optional submatch didn't match an
empty string is used. Example:
echo matchlist('acd', '\(a\)\?\(b\)\?\(c\)\?\(.*\)')
Results in: ['acd', 'a', '', 'c', 'd', '', '', '', '', '']
When there is no match an empty list is returned.

matchstr({expr}, {pat} [, {start} [, {count}]]) matchstr()
Same as match() , but return the matched string. Example:

```
                :echo matchstr("testing", "ing")
            results in "ing".
             When there is no match "" is returned.
             The {start}, if given, has the same meaning as for  match() .
                :echo matchstr("testing", "ing", 2)
            results in "ing".
                :echo matchstr("testing", "ing", 5)
            result is "".
             When {expr} is a  List  then the matching item is returned.
             The type isn't changed, it's not necessarily a String.

matchstrpos({expr}, {pat} [, {start} [, {count}]])              matchstrpos()
             Same as  matchstr() , but return the matched string, the start
             position and the end position of the match.  Example:
                :echo matchstrpos("testing", "ing")
            results in ["ing", 4, 7].
             When there is no match ["", -1, -1] is returned.
             The {start}, if given, has the same meaning as for  match() .
                :echo matchstrpos("testing", "ing", 2)
            results in ["ing", 4, 7].
                :echo matchstrpos("testing", "ing", 5)
            result is ["", -1, -1].
             When {expr} is a  List  then the matching item, the index
             of first item where {pat} matches, the start position and the
             end position of the match are returned.
                :echo matchstrpos([1, '__x'], '\a')
            result is ["x", 1, 2, 3].
             The type isn't changed, it's not necessarily a String.

                                                             max()
max({expr})     Return the maximum value of all items in {expr}.
             {expr} can be a list or a dictionary.  For a dictionary,
             it returns the maximum of all values in the dictionary.
             If {expr} is neither a list nor a dictionary, or one of the
             items in {expr} cannot be used as a Number this results in
             an error.  An empty  List  or  Dictionary  results in zero.

                                                             min()
min({expr})     Return the minimum value of all items in {expr}.
             {expr} can be a list or a dictionary.  For a dictionary,
             it returns the minimum of all values in the dictionary.
             If {expr} is neither a list nor a dictionary, or one of the
             items in {expr} cannot be used as a Number this results in
             an error.  An empty  List  or  Dictionary  results in zero.

                                                             mkdir()   E739
mkdir({name} [, {path} [, {prot}]])
             Create directory {name}.
             If {path} is "p" then intermediate directories are created as
             necessary.  Otherwise it must be "".
             If {prot} is given it is used to set the protection bits of
             the new directory.  The default is 0755 (rwxr-xr-x: r/w for
             the user readable for others).  Use 0700 to make it unreadable
             for others.  This is only used for the last part of {name}.
```

Thus if you create /tmp/foo/bar then /tmp/foo will be created
with 0755.
Example:
```
:call mkdir($HOME . "/tmp/foo/bar", "p", 0700)
```
This function is not available in the sandbox .
There is no error if the directory already exists and the "p"
flag is passed (since patch 8.0.1708).
Not available on all systems. To check use:
```
:if exists("*mkdir")
```

mode()

mode([expr]) Return a string that indicates the current mode.
If [expr] is supplied and it evaluates to a non-zero Number or
a non-empty String (non-zero-arg), then the full mode is
returned, otherwise only the first letter is returned.

n	Normal, Terminal-Normal
no	Operator-pending
niI	Normal using i_CTRL-O in Insert-mode
niR	Normal using i_CTRL-O in Replace-mode
niV	Normal using i_CTRL-O in Virtual-Replace-mode
v	Visual by character
V	Visual by line
CTRL-V	Visual blockwise
s	Select by character
S	Select by line
CTRL-S	Select blockwise
i	Insert
ic	Insert mode completion compl-generic
ix	Insert mode i_CTRL-X completion
R	Replace R
Rc	Replace mode completion compl-generic
Rv	Virtual Replace gR
Rx	Replace mode i_CTRL-X completion
c	Command-line editing
cv	Vim Ex mode gQ
ce	Normal Ex mode Q
r	Hit-enter prompt
rm	The -- more -- prompt
r?	A :confirm query of some sort
!	Shell or external command is executing
t	Terminal-Job mode: keys go to the job

This is useful in the 'statusline' option or when used
with remote_expr() In most other places it always returns
"c" or "n".
Note that in the future more modes and more specific modes may
be added. It's better not to compare the whole string but only
the leading character(s).
Also see visualmode() .

mzeval({expr}) mzeval()
Evaluate MzScheme expression {expr} and return its result
converted to Vim data structures.
Numbers and strings are returned as they are.

Pairs (including lists and improper lists) and vectors are
returned as Vim Lists .
Hash tables are represented as Vim Dictionary type with keys
converted to strings.
All other types are converted to string with display function.
Examples:

```
:mz (define l (list 1 2 3))
:mz (define h (make-hash)) (hash-set! h "list" l)
:echo mzeval("l")
:echo mzeval("h")
```

{only available when compiled with the |+mzscheme| feature}

nextnonblank({lnum}) nextnonblank()
Return the line number of the first line at or below {lnum}
that is not blank. Example:

```
if getline(nextnonblank(1)) =~ "Java"
```

When {lnum} is invalid or there is no non-blank line at or
below it, zero is returned.
See also prevnonblank() .

nr2char({expr} [, {utf8}]) nr2char()
Return a string with a single character, which has the number
value {expr}. Examples:

```
nr2char(64)             returns "@"
nr2char(32)             returns " "
```

When {utf8} is omitted or zero, the current 'encoding' is used.
Example for "utf-8":

```
nr2char(300)            returns I with bow character
```

With {utf8} set to 1, always return utf-8 characters.
Note that a NUL character in the file is specified with
nr2char(10), because NULs are represented with newline
characters. nr2char(0) is a real NUL and terminates the
string, thus results in an empty string.

or({expr}, {expr}) or()
Bitwise OR on the two arguments. The arguments are converted
to a number. A List, Dict or Float argument causes an error.
Example:

```
:let bits = or(bits, 0x80)
```

pathshorten({expr}) pathshorten()
Shorten directory names in the path {expr} and return the
result. The tail, the file name, is kept as-is. The other
components in the path are reduced to single letters. Leading
'~' and '.' characters are kept. Example:

```
:echo pathshorten('~/.vim/autoload/myfile.vim')
~/.v/a/myfile.vim
```

It doesn't matter if the path exists or not.

perleval({expr}) perleval()
Evaluate Perl expression {expr} in scalar context and return
its result converted to Vim data structures. If value can't be

converted, it is returned as a string Perl representation.
Note: If you want an array or hash, {expr} must return a
reference to it.
Example:
```
:echo perleval('[1 .. 4]')
[1, 2, 3, 4]
```
{only available when compiled with the |+perl| feature}

pow({x}, {y}) pow()
Return the power of {x} to the exponent {y} as a Float .
{x} and {y} must evaluate to a Float or a Number .
Examples:
```
:echo pow(3, 3)
27.0
:echo pow(2, 16)
65536.0
:echo pow(32, 0.20)
2.0
```
{only available when compiled with the |+float| feature}

prevnonblank({lnum}) prevnonblank()
Return the line number of the first line at or above {lnum}
that is not blank. Example:
```
let ind = indent(prevnonblank(v:lnum - 1))
```
When {lnum} is invalid or there is no non-blank line at or
above it, zero is returned.
Also see nextnonblank() .

printf({fmt}, {expr1} ...) printf()
Return a String with {fmt}, where "%" items are replaced by
the formatted form of their respective arguments. Example:
```
printf("%4d: E%d %.30s", lnum, errno, msg)
```
May result in:
```
"  99: E42 asdfasdfasdfasdfasdfasdfasdfas"
```

Often used items are:

%s	string
%6S	string right-aligned in 6 display cells
%6s	string right-aligned in 6 bytes
%.9s	string truncated to 9 bytes
%c	single byte
%d	decimal number
%5d	decimal number padded with spaces to 5 characters
%x	hex number
%04x	hex number padded with zeros to at least 4 characters
%X	hex number using upper case letters
%o	octal number
%08b	binary number padded with zeros to at least 8 chars
%f	floating point number as 12.23, inf, -inf or nan
%F	floating point number as 12.23, INF, -INF or NAN
%e	floating point number as 1.23e3, inf, -inf or nan
%E	floating point number as 1.23E3, INF, -INF or NAN
%g	floating point number, as %f or %e depending on value

```
  %G    floating point number, as %F or %E depending on value
  %%    the % character itself

Conversion specifications start with '%' and end with the
conversion type.  All other characters are copied unchanged to
the result.

The "%" starts a conversion specification.  The following
arguments appear in sequence:

        %  [flags]  [field-width]  [.precision]  type

flags
        Zero or more of the following flags:

    #         The value should be converted to an "alternate
              form".  For c, d, and s conversions, this option
              has no effect.  For o conversions, the precision
              of the number is increased to force the first
              character of the output string to a zero (except
              if a zero value is printed with an explicit
              precision of zero).
              For b and B conversions, a non-zero result has
              the string "0b" (or "0B" for B conversions)
              prepended to it.
              For x and X conversions, a non-zero result has
              the string "0x" (or "0X" for X conversions)
              prepended to it.

    0 (zero)  Zero padding.  For all conversions the converted
              value is padded on the left with zeros rather
              than blanks.  If a precision is given with a
              numeric conversion (d, b, B, o, x, and X), the 0
              flag is ignored.

    -         A negative field width flag; the converted value
              is to be left adjusted on the field boundary.
              The converted value is padded on the right with
              blanks, rather than on the left with blanks or
              zeros.  A - overrides a 0 if both are given.

    ' ' (space)  A blank should be left before a positive
              number produced by a signed conversion (d).

    +         A sign must always be placed before a number
              produced by a signed conversion.  A + overrides
              a space if both are used.

field-width
        An optional decimal digit string specifying a minimum
        field width.  If the converted value has fewer bytes
        than the field width, it will be padded with spaces on
        the left (or right, if the left-adjustment flag has
        been given) to fill out the field width.
```

.precision
	An optional precision, in the form of a period '.'
	followed by an optional digit string. If the digit
	string is omitted, the precision is taken as zero.
	This gives the minimum number of digits to appear for
	d, o, x, and X conversions, or the maximum number of
	bytes to be printed from a string for s conversions.
	For floating point it is the number of digits after
	the decimal point.

type
	A character that specifies the type of conversion to
	be applied, see below.

A field width or precision, or both, may be indicated by an
asterisk '*' instead of a digit string. In this case, a
Number argument supplies the field width or precision. A
negative field width is treated as a left adjustment flag
followed by a positive field width; a negative precision is
treated as though it were missing. Example:
	:echo printf("%d: %.*s", nr, width, line)
This limits the length of the text used from "line" to
"width" bytes.

The conversion specifiers and their meanings are:

printf-d printf-b printf-B printf-o
printf-x printf-X

dbBoxX	The Number argument is converted to signed decimal
	(d), unsigned binary (b and B), unsigned octal (o), or
	unsigned hexadecimal (x and X) notation. The letters
	"abcdef" are used for x conversions; the letters
	"ABCDEF" are used for X conversions.
	The precision, if any, gives the minimum number of
	digits that must appear; if the converted value
	requires fewer digits, it is padded on the left with
	zeros.
	In no case does a non-existent or small field width
	cause truncation of a numeric field; if the result of
	a conversion is wider than the field width, the field
	is expanded to contain the conversion result.
	The 'h' modifier indicates the argument is 16 bits.
	The 'l' modifier indicates the argument is 32 bits.
	The 'L' modifier indicates the argument is 64 bits.
	Generally, these modifiers are not useful. They are
	ignored when type is known from the argument.

i	alias for d
D	alias for ld
U	alias for lu
O	alias for lo

printf-c

c	The Number argument is converted to a byte, and the
	resulting character is written.

printf-s
s	The text of the String argument is used. If a
	precision is specified, no more bytes than the number
	specified are used.
	If the argument is not a String type, it is
	automatically converted to text with the same format
	as ":echo".
printf-S
S	The text of the String argument is used. If a
	precision is specified, no more display cells than the
	number specified are used. Without the +multi_byte
	feature works just like 's'.

printf-f E807
f F	The Float argument is converted into a string of the
	form 123.456. The precision specifies the number of
	digits after the decimal point. When the precision is
	zero the decimal point is omitted. When the precision
	is not specified 6 is used. A really big number
	(out of range or dividing by zero) results in "inf"
	or "-inf" with %f (INF or -INF with %F).
	"0.0 / 0.0" results in "nan" with %f (NAN with %F).
	Example:
		echo printf("%.2f", 12.115)
		12.12
	Note that roundoff depends on the system libraries.
	Use round() when in doubt.

printf-e printf-E
e E	The Float argument is converted into a string of the
	form 1.234e+03 or 1.234E+03 when using 'E'. The
	precision specifies the number of digits after the
	decimal point, like with 'f'.

printf-g printf-G
g G	The Float argument is converted like with 'f' if the
	value is between 0.001 (inclusive) and 10000000.0
	(exclusive). Otherwise 'e' is used for 'g' and 'E'
	for 'G'. When no precision is specified superfluous
	zeroes and '+' signs are removed, except for the zero
	immediately after the decimal point. Thus 10000000.0
	results in 1.0e7.

printf-%
%	A '%' is written. No argument is converted. The
	complete conversion specification is "%%".

When a Number argument is expected a String argument is also
accepted and automatically converted.
When a Float or String argument is expected a Number argument
is also accepted and automatically converted.

Any other argument type results in an error message.

E766 E767
The number of {exprN} arguments must exactly match the number of "%" items. If there are not sufficient or too many arguments an error is given. Up to 18 arguments can be used.

prompt_setcallback({buf}, {expr}) prompt_setcallback()
Set prompt callback for buffer {buf} to {expr}. When {expr} is an empty string the callback is removed. This has only effect if {buf} has 'buftype' set to "prompt".

The callback is invoked when pressing Enter. The current buffer will always be the prompt buffer. A new line for a prompt is added before invoking the callback, thus the prompt for which the callback was invoked will be in the last but one line.
If the callback wants to add text to the buffer, it must insert it above the last line, since that is where the current prompt is. This can also be done asynchronously.
The callback is invoked with one argument, which is the text that was entered at the prompt. This can be an empty string if the user only typed Enter.
Example:

```
call prompt_setcallback(bufnr(''), function('s:TextEntered'))
func s:TextEntered(text)
  if a:text == 'exit' || a:text == 'quit'
    stopinsert
    close
  else
    call append(line('$') - 1, 'Entered: "' . a:text . '"')
    " Reset 'modified' to allow the buffer to be closed.
    set nomodified
  endif
endfunc
```

prompt_setinterrupt({buf}, {expr}) prompt_setinterrupt()
Set a callback for buffer {buf} to {expr}. When {expr} is an empty string the callback is removed. This has only effect if {buf} has 'buftype' set to "prompt".

This callback will be invoked when pressing CTRL-C in Insert mode. Without setting a callback Vim will exit Insert mode, as in any buffer.

prompt_setprompt({buf}, {text}) prompt_setprompt()
Set prompt for buffer {buf} to {text}. You most likely want {text} to end in a space.
The result is only visible if {buf} has 'buftype' set to "prompt". Example:

```
call prompt_setprompt(bufnr(''), 'command: ')
```

pumvisible() pumvisible()

Returns non-zero when the popup menu is visible, zero otherwise. See ins-completion-menu . This can be used to avoid some things that would remove the popup menu.

py3eval({expr}) py3eval()

Evaluate Python expression {expr} and return its result converted to Vim data structures. Numbers and strings are returned as they are (strings are copied though, Unicode strings are additionally converted to 'encoding'). Lists are represented as Vim List type. Dictionaries are represented as Vim Dictionary type with keys converted to strings. {only available when compiled with the |+python3| feature}

E858 E859

pyeval({expr}) pyeval()

Evaluate Python expression {expr} and return its result converted to Vim data structures. Numbers and strings are returned as they are (strings are copied though). Lists are represented as Vim List type. Dictionaries are represented as Vim Dictionary type, non-string keys result in error. {only available when compiled with the |+python| feature}

pyxeval({expr}) pyxeval()

Evaluate Python expression {expr} and return its result converted to Vim data structures. Uses Python 2 or 3, see python_x and 'pyxversion'. See also: pyeval() , py3eval() {only available when compiled with the +python or the +python3 feature}

E726 E727

range({expr} [, {max} [, {stride}]]) range()

Returns a List with Numbers:
- If only {expr} is specified: [0, 1, ..., {expr} - 1]
- If {max} is specified: [{expr}, {expr} + 1, ..., {max}]
- If {stride} is specified: [{expr}, {expr} + {stride}, ..., {max}] (increasing {expr} with {stride} each time, not producing a value past {max}).

When the maximum is one before the start the result is an empty list. When the maximum is more than one before the start this is an error.

Examples:

```
range(4)                " [0, 1, 2, 3]
range(2, 4)             " [2, 3, 4]
range(2, 9, 3)          " [2, 5, 8]
range(2, -2, -1)        " [2, 1, 0, -1, -2]
range(0)                " []
range(2, 0)             " error!
```

readfile()

readfile({fname} [, {binary} [, {max}]])
Read file {fname} and return a List , each line of the file as an item. Lines are broken at NL characters. Macintosh files separated with CR will result in a single long line (unless a NL appears somewhere).
All NUL characters are replaced with a NL character.
When {binary} contains "b" binary mode is used:
- When the last line ends in a NL an extra empty list item is added.
- No CR characters are removed.
Otherwise:
- CR characters that appear before a NL are removed.
- Whether the last line ends in a NL or not does not matter.
- When 'encoding' is Unicode any UTF-8 byte order mark is removed from the text.
When {max} is given this specifies the maximum number of lines to be read. Useful if you only want to check the first ten lines of a file:

```
:for line in readfile(fname, '', 10)
:  if line =~ 'Date' | echo line | endif
:endfor
```

When {max} is negative -{max} lines from the end of the file are returned, or as many as there are.
When {max} is zero the result is an empty list.
Note that without {max} the whole file is read into memory.
Also note that there is no recognition of encoding. Read a file into a buffer if you need to.
When the file can't be opened an error message is given and the result is an empty list.
Also see writefile() .

reg_executing() reg_executing()
Returns the single letter name of the register being executed.
Returns an empty string when no register is being executed.
See @ .

reg_recording() reg_recording()
Returns the single letter name of the register being recorded.
Returns an empty string string when not recording. See q .

reltime([{start} [, {end}]]) reltime()
Return an item that represents a time value. The format of the item depends on the system. It can be passed to reltimestr() to convert it to a string or reltimefloat() to convert to a Float.
Without an argument it returns the current time.
With one argument is returns the time passed since the time specified in the argument.
With two arguments it returns the time passed between {start} and {end}.
The {start} and {end} arguments must be values returned by reltime().

{only available when compiled with the |+reltime| feature}

reltimefloat({time}) reltimefloat()
Return a Float that represents the time value of {time}.
Example:
```
let start = reltime()
call MyFunction()
let seconds = reltimefloat(reltime(start))
```
See the note of reltimestr() about overhead.
Also see profiling .
{only available when compiled with the |+reltime| feature}

reltimestr({time}) reltimestr()
Return a String that represents the time value of {time}.
This is the number of seconds, a dot and the number of
microseconds. Example:
```
let start = reltime()
call MyFunction()
echo reltimestr(reltime(start))
```
Note that overhead for the commands will be added to the time.
The accuracy depends on the system.
Leading spaces are used to make the string align nicely. You
can use split() to remove it.
```
echo split(reltimestr(reltime(start)))[0]
```
Also see profiling .
{only available when compiled with the |+reltime| feature}

remote_expr() E449
remote_expr({server}, {string} [, {idvar} [, {timeout}]])
Send the {string} to {server}. The string is sent as an
expression and the result is returned after evaluation.
The result must be a String or a List . A List is turned
into a String by joining the items with a line break in
between (not at the end), like with join(expr, "\n").
If {idvar} is present and not empty, it is taken as the name
of a variable and a {serverid} for later use with
remote_read() is stored there.
If {timeout} is given the read times out after this many
seconds. Otherwise a timeout of 600 seconds is used.
See also clientserver RemoteReply .
This function is not available in the sandbox .
{only available when compiled with the |+clientserver| feature}
Note: Any errors will cause a local error message to be issued
and the result will be the empty string.

Variables will be evaluated in the global namespace,
independent of a function currently being active. Except
when in debug mode, then local function variables and
arguments can be evaluated.

Examples:
```
:echo remote_expr("gvim", "2+2")
:echo remote_expr("gvim1", "b:current_syntax")
```

remote_foreground({server})   remote_foreground()
Move the Vim server with the name {server} to the foreground.
This works like:
	remote_expr({server}, "foreground()")
Except that on Win32 systems the client does the work, to work
around the problem that the OS doesn't always allow the server
to bring itself to the foreground.
Note: This does not restore the window if it was minimized,
like foreground() does.
This function is not available in the sandbox .
{only in the Win32, Athena, Motif and GTK GUI versions and the
Win32 console version}

remote_peek({serverid} [, {retvar}])   remote_peek()
Returns a positive number if there are available strings
from {serverid}. Copies any reply string into the variable
{retvar} if specified. {retvar} must be a string with the
name of a variable.
Returns zero if none are available.
Returns -1 if something is wrong.
See also clientserver .
This function is not available in the sandbox .
{only available when compiled with the |+clientserver| feature}
Examples:
	:let repl = ""
	:echo "PEEK: ".remote_peek(id, "repl").": ".repl

remote_read({serverid}, [{timeout}])   remote_read()
Return the oldest available reply from {serverid} and consume
it. Unless a {timeout} in seconds is given, it blocks until a
reply is available.
See also clientserver .
This function is not available in the sandbox .
{only available when compiled with the |+clientserver| feature}
Example:
	:echo remote_read(id)

                                                  remote_send() E241
remote_send({server}, {string} [, {idvar}])
Send the {string} to {server}. The string is sent as input
keys and the function returns immediately. At the Vim server
the keys are not mapped :map .
If {idvar} is present, it is taken as the name of a variable
and a {serverid} for later use with remote_read() is stored
there.
See also clientserver   RemoteReply .
This function is not available in the sandbox .
{only available when compiled with the |+clientserver| feature}

Note: Any errors will be reported in the server and may mess
up the display.
Examples:

```
:echo remote_send("gvim", ":DropAndReply ".file, "serverid").
 \ remote_read(serverid)

:autocmd NONE RemoteReply *
 \ echo remote_read(expand("<amatch>"))
:echo remote_send("gvim", ":sleep 10 | echo ".
 \ 'server2client(expand("<client>"), "HELLO")<CR>')
```

remote_startserver() E941 E942

remote_startserver({name})
Become the server {name}. This fails if already running as a server, when v:servername is not empty.
{only available when compiled with the |+clientserver| feature}

remove({list}, {idx} [, {end}]) remove()
Without {end}: Remove the item at {idx} from List {list} and return the item.
With {end}: Remove items from {idx} to {end} (inclusive) and return a List with these items. When {idx} points to the same item as {end} a list with one item is returned. When {end} points to an item before {idx} this is an error.
See list-index for possible values of {idx} and {end}.
Example:
```
:echo "last item: " . remove(mylist, -1)
:call remove(mylist, 0, 9)
```
remove({dict}, {key})
Remove the entry from {dict} with key {key}. Example:
```
:echo "removed " . remove(dict, "one")
```
If there is no {key} in {dict} this is an error.

Use delete() to remove a file.

rename({from}, {to}) rename()
Rename the file by the name {from} to the name {to}. This should also work to move files across file systems. The result is a Number, which is 0 if the file was renamed successfully, and non-zero when the renaming failed.
NOTE: If {to} exists it is overwritten without warning.
This function is not available in the sandbox .

repeat({expr}, {count}) repeat()
Repeat {expr} {count} times and return the concatenated result. Example:
```
:let separator = repeat('-', 80)
```
When {count} is zero or negative the result is empty.
When {expr} is a List the result is {expr} concatenated {count} times. Example:
```
:let longlist = repeat(['a', 'b'], 3)
```
Results in ['a', 'b', 'a', 'b', 'a', 'b'].

resolve({filename}) resolve() E655
On MS-Windows, when {filename} is a shortcut (a .lnk file), returns the path the shortcut points to in a simplified form.

On Unix, repeat resolving symbolic links in all path components of {filename} and return the simplified result. To cope with link cycles, resolving of symbolic links is stopped after 100 iterations.
On other systems, return the simplified {filename}. The simplification step is done as by simplify() . resolve() keeps a leading path component specifying the current directory (provided the result is still a relative path name) and also keeps a trailing path separator.

reverse({list}) reverse() Reverse the order of items in {list} in-place. Returns {list}.
If you want a list to remain unmodified make a copy first:

```
:let revlist = reverse(copy(mylist))
```

round({expr}) round()
Round off {expr} to the nearest integral value and return it as a Float . If {expr} lies halfway between two integral values, then use the larger one (away from zero).
{expr} must evaluate to a Float or a Number .
Examples:

```
echo round(0.456)
0.0
echo round(4.5)
5.0
echo round(-4.5)
-5.0
```

{only available when compiled with the |+float| feature}

screenattr({row}, {col}) screenattr()
Like screenchar() , but return the attribute. This is a rather arbitrary number that can only be used to compare to the attribute at other positions.

screenchar({row}, {col}) screenchar()
The result is a Number, which is the character at position [row, col] on the screen. This works for every possible screen position, also status lines, window separators and the command line. The top left position is row one, column one
The character excludes composing characters. For double-byte encodings it may only be the first byte.
This is mainly to be used for testing.
Returns -1 when row or col is out of range.

screencol() screencol()
The result is a Number, which is the current screen column of the cursor. The leftmost column has number 1.
This function is mainly used for testing.

Note: Always returns the current screen column, thus if used in a command (e.g. ":echo screencol()") it will return the column inside the command line, which is 1 when the command is executed. To get the cursor position in the file use one of

the following mappings:
```
nnoremap <expr> GG ":echom ".screencol()."\n"
nnoremap <silent> GG :echom screencol()<CR>
```

screenrow() screenrow()

The result is a Number, which is the current screen row of the cursor. The top line has number one.
This function is mainly used for testing.
Alternatively you can use `winline()`.

Note: Same restrictions as with `screencol()`.

search({pattern} [, {flags} [, {stopline} [, {timeout}]]]) search()

Search for regexp pattern {pattern}. The search starts at the cursor position (you can use `cursor()` to set it).

When a match has been found its line number is returned.
If there is no match a 0 is returned and the cursor doesn't move. No error message is given.

{flags} is a String, which can contain these character flags:
'b' search Backward instead of forward
'c' accept a match at the Cursor position
'e' move to the End of the match
'n' do Not move the cursor
'p' return number of matching sub-Pattern (see below)
's' Set the ' mark at the previous location of the cursor
'w' Wrap around the end of the file
'W' don't Wrap around the end of the file
'z' start searching at the cursor column instead of zero
If neither 'w' or 'W' is given, the 'wrapscan' option applies.

If the 's' flag is supplied, the ' mark is set, only if the cursor is moved. The 's' flag cannot be combined with the 'n' flag.

'ignorecase', 'smartcase' and 'magic' are used.

When the 'z' flag is not given, searching always starts in column zero and then matches before the cursor are skipped.
When the 'c' flag is present in 'cpo' the next search starts after the match. Without the 'c' flag the next search starts one column further.

When the {stopline} argument is given then the search stops after searching this line. This is useful to restrict the search to a range of lines. Examples:
```
let match = search('(', 'b', line("w0"))
let end = search('END', '', line("w$"))
```
When {stopline} is used and it is not zero this also implies that the search does not wrap around the end of the file.
A zero value is equal to not giving the argument.

When the {timeout} argument is given the search stops when

more than this many milliseconds have passed. Thus when
{timeout} is 500 the search stops after half a second.
The value must not be negative. A zero value is like not
giving the argument.
{only available when compiled with the |+reltime| feature}

search()-sub-match
With the 'p' flag the returned value is one more than the
first sub-match in \(\). One if none of them matched but the
whole pattern did match.
To get the column number too use searchpos() .

The cursor will be positioned at the match, unless the 'n'
flag is used.

Example (goes over all files in the argument list):
```
    :let n = 1
    :while n <= argc()      " loop over all files in arglist
    :  exe "argument " . n
    :  " start at the last char in the file and wrap for the
    :  " first search to find match at start of file
    :  normal G$
    :  let flags = "w"
    :  while search("foo", flags) > 0
    :    s/foo/bar/g
    :    let flags = "W"
    :  endwhile
    :  update               " write the file if modified
    :  let n = n + 1
    :endwhile
```

Example for using some flags:
```
    :echo search('\<if\|\(else\)\|\(endif\)', 'ncpe')
```
This will search for the keywords "if", "else", and "endif"
under or after the cursor. Because of the 'p' flag, it
returns 1, 2, or 3 depending on which keyword is found, or 0
if the search fails. With the cursor on the first word of the
line:
```
    if (foo == 0) | let foo = foo + 1 | endif
```
the function returns 1. Without the 'c' flag, the function
finds the "endif" and returns 3. The same thing happens
without the 'e' flag if the cursor is on the "f" of "if".
The 'n' flag tells the function not to move the cursor.

searchdecl({name} [, {global} [, {thisblock}]]) searchdecl()
Search for the declaration of {name}.

With a non-zero {global} argument it works like gD , find
first match in the file. Otherwise it works like gd , find
first match in the function.

With a non-zero {thisblock} argument matches in a {} block
that ends before the cursor position are ignored. Avoids

finding variable declarations only valid in another scope.

Moves the cursor to the found match.
Returns zero for success, non-zero for failure.
Example:
```
if searchdecl('myvar') == 0
   echo getline('.')
endif
```

searchpair()
searchpair({start}, {middle}, {end} [, {flags} [, {skip}
[, {stopline} [, {timeout}]]]])
Search for the match of a nested start-end pair. This can be used to find the "endif" that matches an "if", while other if/endif pairs in between are ignored.
The search starts at the cursor. The default is to search forward, include 'b' in {flags} to search backward.
If a match is found, the cursor is positioned at it and the line number is returned. If no match is found 0 or -1 is returned and the cursor doesn't move. No error message is given.

{start}, {middle} and {end} are patterns, see pattern . They must not contain \(\) pairs. Use of \%(\) is allowed. When {middle} is not empty, it is found when searching from either direction, but only when not in a nested start-end pair. A typical use is:
```
searchpair('\<if\>', '\<else\>', '\<endif\>')
```
By leaving {middle} empty the "else" is skipped.

{flags} 'b', 'c', 'n', 's', 'w' and 'W' are used like with search() . Additionally:
'r' Repeat until no more matches found; will find the outer pair. Implies the 'W' flag.
'm' Return number of matches instead of line number with the match; will be > 1 when 'r' is used.
Note: it's nearly always a good idea to use the 'W' flag, to avoid wrapping around the end of the file.

When a match for {start}, {middle} or {end} is found, the {skip} expression is evaluated with the cursor positioned on the start of the match. It should return non-zero if this match is to be skipped. E.g., because it is inside a comment or a string.
When {skip} is omitted or empty, every match is accepted.
When evaluating {skip} causes an error the search is aborted and -1 returned.
{skip} can be a string, a lambda, a funcref or a partial.
Anything else makes the function fail.

For {stopline} and {timeout} see search() .

The value of 'ignorecase' is used. 'magic' is ignored, the patterns are used like it's on.

The search starts exactly at the cursor. A match with {start}, {middle} or {end} at the next character, in the direction of searching, is the first one found. Example:

```
if 1
  if 2
  endif 2
endif 1
```

When starting at the "if 2", with the cursor on the "i", and searching forwards, the "endif 2" is found. When starting on the character just before the "if 2", the "endif 1" will be found. That's because the "if 2" will be found first, and then this is considered to be a nested if/endif from "if 2" to "endif 2".
When searching backwards and {end} is more than one character, it may be useful to put "\zs" at the end of the pattern, so that when the cursor is inside a match with the end it finds the matching start.

Example, to find the "endif" command in a Vim script:

```
:echo searchpair('\<if\>', '\<el\%[seif]\>', '\<en\%[dif]\>', 'W',
                \ 'getline(".") =~ "^\\s*\""')
```

The cursor must be at or after the "if" for which a match is to be found. Note that single-quote strings are used to avoid having to double the backslashes. The skip expression only catches comments at the start of a line, not after a command. Also, a word "en" or "if" halfway a line is considered a match.
Another example, to search for the matching "{" of a "}":

```
:echo searchpair('{', '', '}', 'bW')
```

This works when the cursor is at or before the "}" for which a match is to be found. To reject matches that syntax highlighting recognized as strings:

```
:echo searchpair('{', '', '}', 'bW',
    \ 'synIDattr(synID(line("."), col("."), 0), "name") =~? "string"')
```

searchpairpos()

```
searchpairpos({start}, {middle}, {end} [, {flags} [, {skip}
                              [, {stopline} [, {timeout}]]]])
```

Same as searchpair() , but returns a List with the line and column position of the match. The first element of the List is the line number and the second element is the byte index of the column position of the match. If no match is found, returns [0, 0].

```
:let [lnum,col] = searchpairpos('{', '', '}', 'n')
```

See match-parens for a bigger and more useful example.

searchpos({pattern} [, {flags} [, {stopline} [, {timeout}]]]) searchpos()
Same as search() , but returns a List with the line and column position of the match. The first element of the List is the line number and the second element is the byte index of the column position of the match. If no match is found, returns [0, 0].
Example:
```
:let [lnum, col] = searchpos('mypattern', 'n')
```

When the 'p' flag is given then there is an extra item with the sub-pattern match number search()-sub-match . Example:
```
:let [lnum, col, submatch] = searchpos('\(\l\)\|\(\u\)', 'np')
```
In this example "submatch" is 2 when a lowercase letter is found /\l , 3 when an uppercase letter is found /\u .

server2client({clientid}, {string}) server2client()
Send a reply string to {clientid}. The most recent {clientid} that sent a string can be retrieved with expand("<client>").
{only available when compiled with the |+clientserver| feature}
Note:
This id has to be stored before the next command can be received. I.e. before returning from the received command and before calling any commands that waits for input.
See also clientserver .
Example:
```
:echo server2client(expand("<client>"), "HELLO")
```

serverlist() serverlist()
Return a list of available server names, one per line.
When there are no servers or the information is not available an empty string is returned. See also clientserver .
{only available when compiled with the |+clientserver| feature}
Example:
```
:echo serverlist()
```

setbufline({expr}, {lnum}, {text}) setbufline()
Set line {lnum} to {text} in buffer {expr}. To insert lines use append() .

For the use of {expr}, see bufname() above.

{lnum} is used like with setline() .
This works like setline() for the specified buffer.
On success 0 is returned, on failure 1 is returned.

If {expr} is not a valid buffer or {lnum} is not valid, an error message is given.

setbufvar({expr}, {varname}, {val}) setbufvar()
Set option or local variable {varname} in buffer {expr} to {val}.
This also works for a global or local window option, but it doesn't work for a global or local window variable.
For a local window option the global value is unchanged.

For the use of {expr}, see bufname() above.
Note that the variable name without "b:" must be used.
Examples:
```
:call setbufvar(1, "&mod", 1)
:call setbufvar("todo", "myvar", "foobar")
```
This function is not available in the sandbox .

setcharsearch({dict}) setcharsearch()
Set the current character search information to {dict}, which contains one or more of the following entries:

char	character which will be used for a subsequent , or ; command; an empty string clears the character search
forward	direction of character search; 1 for forward, 0 for backward
until	type of character search; 1 for a t or T character search, 0 for an f or F character search

This can be useful to save/restore a user's character search from a script:
```
:let prevsearch = getcharsearch()
:" Perform a command which clobbers user's search
:call setcharsearch(prevsearch)
```
Also see getcharsearch() .

setcmdpos({pos}) setcmdpos()
Set the cursor position in the command line to byte position {pos}. The first position is 1.
Use getcmdpos() to obtain the current position.
Only works while editing the command line, thus you must use c_CTRL-_e , c_CTRL-R_= or c_CTRL-R_CTRL-R with '='. For c_CTRL-_e and c_CTRL-R_CTRL-R with '=' the position is set after the command line is set to the expression. For c_CTRL-R_= it is set after evaluating the expression but before inserting the resulting text.
When the number is too big the cursor is put at the end of the line. A number smaller than one has undefined results.
Returns 0 when successful, 1 when not editing the command line.

setfperm({fname}, {mode}) setfperm() chmod
Set the file permissions for {fname} to {mode}.
{mode} must be a string with 9 characters. It is of the form "rwxrwxrwx", where each group of "rwx" flags represent, in turn, the permissions of the owner of the file, the group the file belongs to, and other users. A '-' character means the permission is off, any other character means on. Multi-byte characters are not supported.

For example "rw-r-----" means read-write for the user, readable by the group, not accessible by others. "xx-x-----" would do the same thing.

Returns non-zero for success, zero for failure.

To read permissions see getfperm() .

setline({lnum}, {text}) setline()
Set line {lnum} of the current buffer to {text}. To insert lines use append() . To set lines in another buffer use setbufline() .

{lnum} is used like with getline() .
When {lnum} is just below the last line the {text} will be added as a new line.

If this succeeds, 0 is returned. If this fails (most likely because {lnum} is invalid) 1 is returned.

Example:
```
:call setline(5, strftime("%c"))
```

When {text} is a List then line {lnum} and following lines will be set to the items in the list. Example:
```
:call setline(5, ['aaa', 'bbb', 'ccc'])
```
This is equivalent to:
```
:for [n, l] in [[5, 'aaa'], [6, 'bbb'], [7, 'ccc']]
:  call setline(n, l)
:endfor
```

Note: The '[and '] marks are not set.

setloclist({nr}, {list} [, {action} [, {what}]]) setloclist()
Create or replace or add to the location list for window {nr}. {nr} can be the window number or the window-ID .
When {nr} is zero the current window is used.

For a location list window, the displayed location list is modified. For an invalid window number {nr}, -1 is returned. Otherwise, same as setqflist() .
Also see location-list .

If the optional {what} dictionary argument is supplied, then only the items listed in {what} are set. Refer to setqflist() for the list of supported keys in {what}.

setmatches({list}) setmatches()
Restores a list of matches saved by getmatches() . Returns 0 if successful, otherwise -1. All current matches are cleared before the list is restored. See example for getmatches() .

setpos({expr}, {list}) setpos()
Set the position for {expr}. Possible values:
. the cursor

'x	mark x

{list} must be a List with four or five numbers:
    [bufnum, lnum, col, off]
    [bufnum, lnum, col, off, curswant]

"bufnum" is the buffer number. Zero can be used for the current buffer. When setting an uppercase mark "bufnum" is used for the mark position. For other marks it specifies the buffer to set the mark in. You can use the bufnr() function to turn a file name into a buffer number.
For setting the cursor and the ' mark "bufnum" is ignored, since these are associated with a window, not a buffer.
Does not change the jumplist.

"lnum" and "col" are the position in the buffer. The first column is 1. Use a zero "lnum" to delete a mark. If "col" is smaller than 1 then 1 is used.

The "off" number is only used when 'virtualedit' is set. Then it is the offset in screen columns from the start of the character. E.g., a position within a <Tab> or after the last character.

The "curswant" number is only used when setting the cursor position. It sets the preferred column for when moving the cursor vertically. When the "curswant" number is missing the preferred column is not set. When it is present and setting a mark position it is not used.

Note that for '< and '> changing the line number may result in the marks to be effectively be swapped, so that '< is always before '>.

Returns 0 when the position could be set, -1 otherwise.
An error message is given if {expr} is invalid.

Also see getpos() and getcurpos() .

This does not restore the preferred column for moving vertically; if you set the cursor position with this, j and k motions will jump to previous columns! Use cursor() to also set the preferred column. Also see the "curswant" key in winrestview() .

setqflist({list} [, {action} [, {what}]])	setqflist()
Create or replace or add to the quickfix list.

When {what} is not present, use the items in {list}. Each item must be a dictionary. Non-dictionary items in {list} are ignored. Each dictionary item can contain the following entries:

    bufnr	buffer number; must be the number of a valid

```
                buffer
    filename    name of a file; only used when "bufnr" is not
                present or it is invalid.
    module      name of a module; if given it will be used in
                quickfix error window instead of the filename.
    lnum        line number in the file
    pattern     search pattern used to locate the error
    col         column number
    vcol        when non-zero: "col" is visual column
                when zero: "col" is byte index
    nr          error number
    text        description of the error
    type        single-character error type, 'E', 'W', etc.
    valid       recognized error message

The "col", "vcol", "nr", "type" and "text" entries are
optional.  Either "lnum" or "pattern" entry can be used to
locate a matching error line.
If the "filename" and "bufnr" entries are not present or
neither the "lnum" or "pattern" entries are present, then the
item will not be handled as an error line.
If both "pattern" and "lnum" are present then "pattern" will
be used.
If the "valid" entry is not supplied, then the valid flag is
set when "bufnr" is a valid buffer or "filename" exists.
If you supply an empty {list}, the quickfix list will be
cleared.
Note that the list is not exactly the same as what
 getqflist()  returns.

{action} values:                                        E927
'a'     The items from {list} are added to the existing
        quickfix list. If there is no existing list, then a
        new list is created.

'r'     The items from the current quickfix list are replaced
        with the items from {list}.  This can also be used to
        clear the list:
                :call setqflist([], 'r')

'f'     All the quickfix lists in the quickfix stack are
        freed.

If {action} is not present or is set to ' ', then a new list
is created. The new quickfix list is added after the current
quickfix list in the stack and all the following lists are
freed. To add a new quickfix list at the end of the stack,
set "nr" in {what} to "$".

If the optional {what} dictionary argument is supplied, then
only the items listed in {what} are set. The first {list}
argument is ignored.  The following items can be specified in
{what}:
    context     quickfix list context. See  quickfix-context
```

```
                efm         errorformat to use when parsing text from
                            "lines". If this is not present, then the
                            'errorformat' option value is used.
                id          quickfix list identifier  quickfix-ID
                items       list of quickfix entries. Same as the {list}
                            argument.
                lines       use 'errorformat' to parse a list of lines and
                            add the resulting entries to the quickfix list
                            {nr} or {id}.  Only a  List  value is supported.
                nr          list number in the quickfix stack; zero
                            means the current quickfix list and "$" means
                            the last quickfix list
                title       quickfix list title text
            Unsupported keys in {what} are ignored.
            If the "nr" item is not present, then the current quickfix list
            is modified. When creating a new quickfix list, "nr" can be
            set to a value one greater than the quickfix stack size.
            When modifying a quickfix list, to guarantee that the correct
            list is modified, "id" should be used instead of "nr" to
            specify the list.

            Examples (See also  setqflist-examples ):
               :call setqflist([], 'r', {'title': 'My search'})
               :call setqflist([], 'r', {'nr': 2, 'title': 'Errors'})
               :call setqflist([], 'a', {'id':qfid, 'lines':["F1:10:L10"]})

            Returns zero for success, -1 for failure.

            This function can be used to create a quickfix list
            independent of the 'errorformat' setting.  Use a command like
            `:cc 1` to jump to the first position.


                                                              setreg()
setreg({regname}, {value} [, {options}])
            Set the register {regname} to {value}.
            {value} may be any value returned by  getreg() , including
            a  List .
            If {options} contains "a" or {regname} is upper case,
            then the value is appended.
            {options} can also contain a register type specification:
                "c" or "v"          characterwise  mode
                "l" or "V"          linewise  mode
                "b" or "<CTRL-V>"  blockwise-visual  mode
            If a number immediately follows "b" or "<CTRL-V>" then this is
            used as the width of the selection - if it is not specified
            then the width of the block is set to the number of characters
            in the longest line (counting a <Tab> as 1 character).

            If {options} contains no register settings, then the default
            is to use character mode unless {value} ends in a <NL> for
            string {value} and linewise mode for list {value}. Blockwise
            mode is never selected automatically.
            Returns zero for success, non-zero for failure.
```

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Note: you may not use List containing more than one item to set search and expression registers. Lists containing no items act like empty strings.

Examples:
```
:call setreg(v:register, @*)
:call setreg('*', @%, 'ac')
:call setreg('a', "1\n2\n3", 'b5')
```

This example shows using the functions to save and restore a register:
```
:let var_a = getreg('a', 1, 1)
:let var_amode = getregtype('a')
    ....
:call setreg('a', var_a, var_amode)
```
Note: you may not reliably restore register value without using the third argument to getreg() as without it newlines are represented as newlines AND Nul bytes are represented as newlines as well, see NL-used-for-Nul .

You can also change the type of a register by appending nothing:
```
:call setreg('a', '', 'al')
```

settabvar({tabnr}, {varname}, {val}) settabvar()
Set tab-local variable {varname} to {val} in tab page {tabnr}. t:var
Note that the variable name without "t:" must be used.
Tabs are numbered starting with one.
This function is not available in the sandbox .

settabwinvar({tabnr}, {winnr}, {varname}, {val}) settabwinvar()
Set option or local variable {varname} in window {winnr} to {val}.
Tabs are numbered starting with one. For the current tabpage use setwinvar() .
{winnr} can be the window number or the window-ID .
When {winnr} is zero the current window is used.
This also works for a global or local buffer option, but it doesn't work for a global or local buffer variable.
For a local buffer option the global value is unchanged.
Note that the variable name without "w:" must be used.
Examples:
```
:call settabwinvar(1, 1, "&list", 0)
:call settabwinvar(3, 2, "myvar", "foobar")
```
This function is not available in the sandbox .

setwinvar({nr}, {varname}, {val}) setwinvar()
Like settabwinvar() for the current tab page.
Examples:
```
:call setwinvar(1, "&list", 0)
:call setwinvar(2, "myvar", "foobar")
```

sha256({string}) sha256()
Returns a String with 64 hex characters, which is the SHA256 checksum of {string}.
{only available when compiled with the |+cryptv| feature}

shellescape({string} [, {special}]) shellescape()
Escape {string} for use as a shell command argument.
On MS-Windows and MS-DOS, when 'shellslash' is not set, it will enclose {string} in double quotes and double all double quotes within {string}.
Otherwise it will enclose {string} in single quotes and replace all "'" with "'\''".

When the {special} argument is present and it's a non-zero Number or a non-empty String (non-zero-arg), then special items such as "!", "%", "#" and "<cword>" will be preceded by a backslash. This backslash will be removed again by the :! command.

The "!" character will be escaped (again with a non-zero-arg {special}) when 'shell' contains "csh" in the tail. That is because for csh and tcsh "!" is used for history replacement even when inside single quotes.

With a non-zero-arg {special} the <NL> character is also escaped. When 'shell' containing "csh" in the tail it's escaped a second time.

Example of use with a :! command:
    :exe '!dir ' . shellescape(expand('<cfile>'), 1)
This results in a directory listing for the file under the cursor. Example of use with system() :
    :call system("chmod +w -- " . shellescape(expand("%")))
See also ::S .

shiftwidth() shiftwidth()
Returns the effective value of 'shiftwidth'. This is the 'shiftwidth' value unless it is zero, in which case it is the 'tabstop' value. This function was introduced with patch 7.3.694 in 2012, everybody should have it by now.

simplify({filename}) simplify()
Simplify the file name as much as possible without changing the meaning. Shortcuts (on MS-Windows) or symbolic links (on Unix) are not resolved. If the first path component in {filename} designates the current directory, this will be valid for the result as well. A trailing path separator is not removed either.
Example:
        simplify("./dir/.././/file/") == "./file/"
Note: The combination "dir/.." is only removed if "dir" is

a searchable directory or does not exist. On Unix, it is also removed when "dir" is a symbolic link within the same directory. In order to resolve all the involved symbolic links before simplifying the path name, use resolve() .

sin({expr}) sin()
Return the sine of {expr}, measured in radians, as a Float . {expr} must evaluate to a Float or a Number .
Examples:
```
:echo sin(100)
-0.506366
:echo sin(-4.01)
0.763301
```
{only available when compiled with the |+float| feature}

sinh({expr}) sinh()
Return the hyperbolic sine of {expr} as a Float in the range [-inf, inf].
{expr} must evaluate to a Float or a Number .
Examples:
```
:echo sinh(0.5)
0.521095
:echo sinh(-0.9)
-1.026517
```
{only available when compiled with the |+float| feature}

sort({list} [, {func} [, {dict}]]) sort() E702
Sort the items in {list} in-place. Returns {list}.

If you want a list to remain unmodified make a copy first:
```
:let sortedlist = sort(copy(mylist))
```

When {func} is omitted, is empty or zero, then sort() uses the string representation of each item to sort on. Numbers sort after Strings, Lists after Numbers. For sorting text in the current buffer use :sort .

When {func} is given and it is '1' or 'i' then case is ignored.

When {func} is given and it is 'n' then all items will be sorted numerical (Implementation detail: This uses the strtod() function to parse numbers, Strings, Lists, Dicts and Funcrefs will be considered as being 0).

When {func} is given and it is 'N' then all items will be sorted numerical. This is like 'n' but a string containing digits will be used as the number they represent.

When {func} is given and it is 'f' then all items will be sorted numerical. All values must be a Number or a Float.

When {func} is a Funcref or a function name, this function is called to compare items. The function is invoked with two items as argument and must return zero if they are equal, 1 or bigger if the first one sorts after the second one, -1 or smaller if the first one sorts before the second one.

{dict} is for functions with the "dict" attribute. It will be used to set the local variable "self". Dictionary-function

The sort is stable, items which compare equal (as number or as string) will keep their relative position. E.g., when sorting on numbers, text strings will sort next to each other, in the same order as they were originally.

Also see uniq() .

Example:
```
func MyCompare(i1, i2)
   return a:i1 == a:i2 ? 0 : a:i1 > a:i2 ? 1 : -1
endfunc
let sortedlist = sort(mylist, "MyCompare")
```
A shorter compare version for this specific simple case, which ignores overflow:
```
func MyCompare(i1, i2)
   return a:i1 - a:i2
endfunc
```

soundfold()

soundfold({word})
Return the sound-folded equivalent of {word}. Uses the first language in 'spelllang' for the current window that supports soundfolding. 'spell' must be set. When no sound folding is possible the {word} is returned unmodified.
This can be used for making spelling suggestions. Note that the method can be quite slow.

spellbadword()

spellbadword([{sentence}])
Without argument: The result is the badly spelled word under or after the cursor. The cursor is moved to the start of the bad word. When no bad word is found in the cursor line the result is an empty string and the cursor doesn't move.

With argument: The result is the first word in {sentence} that is badly spelled. If there are no spelling mistakes the result is an empty string.

The return value is a list with two items:
- The badly spelled word or an empty string.
- The type of the spelling error:
```
"bad"           spelling mistake
"rare"          rare word
"local"         word only valid in another region
```

```
                "caps"          word should start with Capital
        Example:
                echo spellbadword("the quik brown fox")
               ['quik', 'bad']

        The spelling information for the current window is used.  The
        'spell' option must be set and the value of 'spelllang' is
        used.

                                                        spellsuggest()
spellsuggest({word} [, {max} [, {capital}]])
        Return a  List  with spelling suggestions to replace {word}.
        When {max} is given up to this number of suggestions are
        returned.  Otherwise up to 25 suggestions are returned.

        When the {capital} argument is given and it's non-zero only
        suggestions with a leading capital will be given.  Use this
        after a match with 'spellcapcheck'.

        {word} can be a badly spelled word followed by other text.
        This allows for joining two words that were split.  The
        suggestions also include the following text, thus you can
        replace a line.

        {word} may also be a good word.  Similar words will then be
        returned.  {word} itself is not included in the suggestions,
        although it may appear capitalized.

        The spelling information for the current window is used.  The
        'spell' option must be set and the values of 'spelllang' and
        'spellsuggest' are used.


split({expr} [, {pattern} [, {keepempty}]])                     split()
        Make a  List  out of {expr}.  When {pattern} is omitted or
        empty each white-separated sequence of characters becomes an
        item.
        Otherwise the string is split where {pattern} matches,
        removing the matched characters. 'ignorecase' is not used
        here, add \c to ignore case.  /\c
        When the first or last item is empty it is omitted, unless the
        {keepempty} argument is given and it's non-zero.
        Other empty items are kept when {pattern} matches at least one
        character or when {keepempty} is non-zero.
        Example:
                :let words = split(getline('.'), '\W\+')
       To split a string in individual characters:
                :for c in split(mystring, '\zs')
       If you want to keep the separator you can also use '\zs' at
        the end of the pattern:
                :echo split('abc:def:ghi', ':\zs')
               ['abc:', 'def:', 'ghi']
        Splitting a table where the first element can be empty:
                :let items = split(line, ':', 1)
```

The opposite function is join() .

sqrt({expr}) sqrt()
Return the non-negative square root of Float {expr} as a Float .
{expr} must evaluate to a Float or a Number . When {expr} is negative the result is NaN (Not a Number).
Examples:
```
:echo sqrt(100)
10.0
:echo sqrt(-4.01)
nan
```
"nan" may be different, it depends on system libraries.
{only available when compiled with the |+float| feature}

str2float({expr}) str2float()
Convert String {expr} to a Float. This mostly works the same as when using a floating point number in an expression, see floating-point-format . But it's a bit more permissive.
E.g., "1e40" is accepted, while in an expression you need to write "1.0e40".
Text after the number is silently ignored.
The decimal point is always '.', no matter what the locale is set to. A comma ends the number: "12,345.67" is converted to 12.0. You can strip out thousands separators with substitute() :
```
let f = str2float(substitute(text, ',', '', 'g'))
```
{only available when compiled with the |+float| feature}

str2nr({expr} [, {base}]) str2nr()
Convert string {expr} to a number.
{base} is the conversion base, it can be 2, 8, 10 or 16.
When {base} is omitted base 10 is used. This also means that a leading zero doesn't cause octal conversion to be used, as with the default String to Number conversion.
When {base} is 16 a leading "0x" or "0X" is ignored. With a different base the result will be zero. Similarly, when {base} is 8 a leading "0" is ignored, and when {base} is 2 a leading "0b" or "0B" is ignored.
Text after the number is silently ignored.

strchars({expr} [, {skipcc}]) strchars()
The result is a Number, which is the number of characters in String {expr}.
When {skipcc} is omitted or zero, composing characters are counted separately.
When {skipcc} set to 1, Composing characters are ignored.
Also see strlen() , strdisplaywidth() and strwidth() .

{skipcc} is only available after 7.4.755. For backward

compatibility, you can define a wrapper function:

```
if has("patch-7.4.755")
  function s:strchars(str, skipcc)
    return strchars(a:str, a:skipcc)
  endfunction
else
  function s:strchars(str, skipcc)
    if a:skipcc
      return strlen(substitute(a:str, ".", "x", "g"))
    else
      return strchars(a:str)
    endif
  endfunction
endif
```

strcharpart({src}, {start} [, {len}]) strcharpart()

Like strpart() but using character index and length instead of byte index and length.
When a character index is used where a character does not exist it is assumed to be one character. For example:

```
strcharpart('abc', -1, 2)
```

results in 'a'.

strdisplaywidth({expr} [, {col}]) strdisplaywidth()

The result is a Number, which is the number of display cells String {expr} occupies on the screen when it starts at {col}. When {col} is omitted zero is used. Otherwise it is the screen column where to start. This matters for Tab characters.
The option settings of the current window are used. This matters for anything that's displayed differently, such as 'tabstop' and 'display'.
When {expr} contains characters with East Asian Width Class Ambiguous, this function's return value depends on 'ambiwidth'.
Also see strlen(), strwidth() and strchars().

strftime({format} [, {time}]) strftime()

The result is a String, which is a formatted date and time, as specified by the {format} string. The given {time} is used, or the current time if no time is given. The accepted {format} depends on your system, thus this is not portable!
See the manual page of the C function strftime() for the format. The maximum length of the result is 80 characters.
See also localtime() and getftime().
The language can be changed with the :language command.
Examples:

```
:echo strftime("%c")            Sun Apr 27 11:49:23 1997
:echo strftime("%Y %b %d %X")   1997 Apr 27 11:53:25
:echo strftime("%y%m%d %T")     970427 11:53:55
:echo strftime("%H:%M")         11:55
:echo strftime("%c", getftime("file.c"))
                                Show mod time of file.c.
```

Not available on all systems. To check use:

```
:if exists("*strftime")
```

strgetchar({str}, {index})   strgetchar()
Get character {index} from {str}. This uses a character index, not a byte index. Composing characters are considered separate characters here.
Also see strcharpart() and strchars().

stridx({haystack}, {needle} [, {start}])   stridx()
The result is a Number, which gives the byte index in {haystack} of the first occurrence of the String {needle}.
If {start} is specified, the search starts at index {start}.
This can be used to find a second match:
```
:let colon1 = stridx(line, ":")
:let colon2 = stridx(line, ":", colon1 + 1)
```
The search is done case-sensitive.
For pattern searches use match().
-1 is returned if the {needle} does not occur in {haystack}.
See also strridx().
Examples:
```
:echo stridx("An Example", "Example")      3
:echo stridx("Starting point", "Start")    0
:echo stridx("Starting point", "start")   -1
```
strstr() strchr()
stridx() works similar to the C function strstr(). When used with a single character it works similar to strchr().

string()
string({expr}) Return {expr} converted to a String. If {expr} is a Number, Float, String or a composition of them, then the result can be parsed back with eval().

{expr} type	result
String	'string' (single quotes are doubled)
Number	123
Float	123.123456 or 1.123456e8
Funcref	function('name')
List	[item, item]
Dictionary	{key: value, key: value}

When a List or Dictionary has a recursive reference it is replaced by "[...]" or "{...}". Using eval() on the result will then fail.

Also see strtrans().

strlen()
strlen({expr}) The result is a Number, which is the length of the String {expr} in bytes.
If the argument is a Number it is first converted to a String.
For other types an error is given.
If you want to count the number of multi-byte characters use strchars().
Also see len(), strdisplaywidth() and strwidth().

strpart({src}, {start} [, {len}])   strpart()

The result is a String, which is part of {src}, starting from byte {start}, with the byte length {len}.
To count characters instead of bytes use strcharpart() .

When bytes are selected which do not exist, this doesn't result in an error, the bytes are simply omitted.
If {len} is missing, the copy continues from {start} till the end of the {src}.

```
strpart("abcdefg", 3, 2)    == "de"
strpart("abcdefg", -2, 4)   == "ab"
strpart("abcdefg", 5, 4)    == "fg"
strpart("abcdefg", 3)       == "defg"
```

Note: To get the first character, {start} must be 0. For example, to get three bytes under and after the cursor:

```
strpart(getline("."), col(".") - 1, 3)
```

strridx({haystack}, {needle} [, {start}]) strridx()

The result is a Number, which gives the byte index in {haystack} of the last occurrence of the String {needle}.
When {start} is specified, matches beyond this index are ignored. This can be used to find a match before a previous match:

```
:let lastcomma = strridx(line, ",")
:let comma2 = strridx(line, ",", lastcomma - 1)
```

The search is done case-sensitive.
For pattern searches use match() .
-1 is returned if the {needle} does not occur in {haystack}.
If the {needle} is empty the length of {haystack} is returned.
See also stridx() . Examples:

```
:echo strridx("an angry armadillo", "an")          3
```

strrchr()

When used with a single character it works similar to the C function strrchr().

strtrans({expr}) strtrans()

The result is a String, which is {expr} with all unprintable characters translated into printable characters 'isprint' .
Like they are shown in a window. Example:

```
echo strtrans(@a)
```

This displays a newline in register a as "^@" instead of starting a new line.

strwidth({expr}) strwidth()

The result is a Number, which is the number of display cells String {expr} occupies. A Tab character is counted as one cell, alternatively use strdisplaywidth() .
When {expr} contains characters with East Asian Width Class Ambiguous, this function's return value depends on 'ambiwidth'.
Also see strlen() , strdisplaywidth() and strchars() .

submatch({nr} [, {list}]) submatch() E935

Only for an expression in a :substitute command or substitute() function.

Returns the {nr}'th submatch of the matched text. When {nr}
is 0 the whole matched text is returned.
Note that a NL in the string can stand for a line break of a
multi-line match or a NUL character in the text.
Also see sub-replace-expression .

If {list} is present and non-zero then submatch() returns
a list of strings, similar to getline() with two arguments.
NL characters in the text represent NUL characters in the
text.
Only returns more than one item for :substitute , inside
substitute() this list will always contain one or zero
items, since there are no real line breaks.

When substitute() is used recursively only the submatches in
the current (deepest) call can be obtained.

Examples:
```
:s/\d\+/\=submatch(0) + 1/
:echo substitute(text, '\d\+', '\=submatch(0) + 1', '')
```
This finds the first number in the line and adds one to it.
A line break is included as a newline character.

substitute({expr}, {pat}, {sub}, {flags}) substitute()
The result is a String, which is a copy of {expr}, in which
the first match of {pat} is replaced with {sub}.
When {flags} is "g", all matches of {pat} in {expr} are
replaced. Otherwise {flags} should be "".

This works like the ":substitute" command (without any flags).
But the matching with {pat} is always done like the 'magic'
option is set and 'cpoptions' is empty (to make scripts
portable). 'ignorecase' is still relevant, use /\c or /\C
if you want to ignore or match case and ignore 'ignorecase'.
'smartcase' is not used. See string-match for how {pat} is
used.

A "~" in {sub} is not replaced with the previous {sub}.
Note that some codes in {sub} have a special meaning
sub-replace-special . For example, to replace something with
"\n" (two characters), use "\\\\n" or '\\n'.

When {pat} does not match in {expr}, {expr} is returned
unmodified.

Example:
```
:let &path = substitute(&path, ",\\=[^,]*$", "", "")
```
This removes the last component of the 'path' option.
```
:echo substitute("testing", ".*", "\\U\\0", "")
```
results in "TESTING".

When {sub} starts with "\=", the remainder is interpreted as
an expression. See sub-replace-expression . Example:
```
:echo substitute(s, '%\(\x\x\)',
```

```
                        \ '\=nr2char("0x" . submatch(1))', 'g')

              When {sub} is a Funcref that function is called, with one
               optional argument.  Example:
                  :echo substitute(s, '%\(\x\x\)', SubNr, 'g')
              The optional argument is a list which contains the whole
               matched string and up to nine submatches, like what
                submatch()  returns.  Example:
                  :echo substitute(s, '%\(\x\x\)', {m -> '0x' . m[1]}, 'g')

synID({lnum}, {col}, {trans})                                  synID()
              The result is a Number, which is the syntax ID at the position
              {lnum} and {col} in the current window.
              The syntax ID can be used with  synIDattr()  and
               synIDtrans()  to obtain syntax information about text.

              {col} is 1 for the leftmost column, {lnum} is 1 for the first
              line.  'synmaxcol' applies, in a longer line zero is returned.
              Note that when the position is after the last character,
              that's where the cursor can be in Insert mode, synID() returns
              zero.

              When {trans} is  TRUE , transparent items are reduced to the
              item that they reveal.  This is useful when wanting to know
              the effective color.  When {trans} is  FALSE , the transparent
              item is returned.  This is useful when wanting to know which
              syntax item is effective (e.g. inside parens).
              Warning: This function can be very slow.  Best speed is
              obtained by going through the file in forward direction.

              Example (echoes the name of the syntax item under the cursor):
                      :echo synIDattr(synID(line("."), col("."), 1), "name")


synIDattr({synID}, {what} [, {mode}])                          synIDattr()
              The result is a String, which is the {what} attribute of
              syntax ID {synID}.  This can be used to obtain information
              about a syntax item.
              {mode} can be "gui", "cterm" or "term", to get the attributes
              for that mode.  When {mode} is omitted, or an invalid value is
              used, the attributes for the currently active highlighting are
              used (GUI, cterm or term).
              Use synIDtrans() to follow linked highlight groups.
              {what}          result
              "name"          the name of the syntax item
              "fg"            foreground color (GUI: color name used to set
                              the color, cterm: color number as a string,
                              term: empty string)
              "bg"            background color (as with "fg")
              "font"          font name (only available in the GUI)
                               highlight-font
              "sp"            special color (as with "fg")  highlight-guisp
              "fg#"           like "fg", but for the GUI and the GUI is
                              running the name in "#RRGGBB" form
```

```
                "bg#"           like "fg#" for "bg"
                "sp#"           like "fg#" for "sp"
                "bold"          "1" if bold
                "italic"        "1" if italic
                "reverse"       "1" if reverse
                "inverse"       "1" if inverse (= reverse)
                "standout"      "1" if standout
                "underline"     "1" if underlined
                "undercurl"     "1" if undercurled
                "strike"        "1" if strikethrough

                Example (echoes the color of the syntax item under the
                cursor):
        :echo synIDattr(synIDtrans(synID(line("."), col("."), 1)), "fg")

synIDtrans({synID})                                     synIDtrans()
                The result is a Number, which is the translated syntax ID of
                {synID}.  This is the syntax group ID of what is being used to
                highlight the character.  Highlight links given with
                ":highlight link" are followed.

synconcealed({lnum}, {col})                             synconcealed()
                The result is a List with currently three items:
                1. The first item in the list is 0 if the character at the
                   position {lnum} and {col} is not part of a concealable
                   region, 1 if it is.
                2. The second item in the list is a string. If the first item
                   is 1, the second item contains the text which will be
                   displayed in place of the concealed text, depending on the
                   current setting of 'conceallevel' and 'listchars'.
                3. The third and final item in the list is a number
                   representing the specific syntax region matched in the
                   line. When the character is not concealed the value is
                   zero. This allows detection of the beginning of a new
                   concealable region if there are two consecutive regions
                   with the same replacement character.  For an example, if
                   the text is "123456" and both "23" and "45" are concealed
                   and replace by the character "X", then:
                        call                    returns
                        synconcealed(lnum, 1)   [0, '', 0]
                        synconcealed(lnum, 2)   [1, 'X', 1]
                        synconcealed(lnum, 3)   [1, 'X', 1]
                        synconcealed(lnum, 4)   [1, 'X', 2]
                        synconcealed(lnum, 5)   [1, 'X', 2]
                        synconcealed(lnum, 6)   [0, '', 0]


synstack({lnum}, {col})                                 synstack()
                Return a  List , which is the stack of syntax items at the
                position {lnum} and {col} in the current window.  Each item in
                the List is an ID like what  synID()  returns.
                The first item in the List is the outer region, following are
                items contained in that one.  The last one is what  synID()
                returns, unless not the whole item is highlighted or it is a
```

transparent item.
This function is useful for debugging a syntax file.
Example that shows the syntax stack under the cursor:

```
for id in synstack(line("."), col("."))
   echo synIDattr(id, "name")
endfor
```

When the position specified with {lnum} and {col} is invalid nothing is returned. The position just after the last character in a line and the first column in an empty line are valid positions.

system({expr} [, {input}]) system() E677

Get the output of the shell command {expr} as a string. See systemlist() to get the output as a List.

When {input} is given and is a string this string is written to a file and passed as stdin to the command. The string is written as-is, you need to take care of using the correct line separators yourself.
If {input} is given and is a List it is written to the file in a way writefile() does with {binary} set to "b" (i.e. with a newline between each list item with newlines inside list items converted to NULs).
When {input} is given and is a number that is a valid id for an existing buffer then the content of the buffer is written to the file line by line, each line terminated by a NL and NULs characters where the text has a NL.

Pipes are not used, the 'shelltemp' option is not used.

When prepended by :silent the terminal will not be set to cooked mode. This is meant to be used for commands that do not need the user to type. It avoids stray characters showing up on the screen which require CTRL-L to remove.

```
:silent let f = system('ls *.vim')
```

Note: Use shellescape() or ::S with expand() or fnamemodify() to escape special characters in a command argument. Newlines in {expr} may cause the command to fail.
The characters in 'shellquote' and 'shellxquote' may also cause trouble.
This is not to be used for interactive commands.

The result is a String. Example:

```
:let files = system("ls " .  shellescape(expand('%:h')))
:let files = system('ls ' . expand('%:h:S'))
```

To make the result more system-independent, the shell output is filtered to replace <CR> with <NL> for Macintosh, and <CR><NL> with <NL> for DOS-like systems.
To avoid the string being truncated at a NUL, all NUL characters are replaced with SOH (0x01).

The command executed is constructed using several options:

'shell' 'shellcmdflag' 'shellxquote' {expr} 'shellredir' {tmp} 'shellxquote'
({tmp} is an automatically generated file name).
For Unix and OS/2 braces are put around {expr} to allow for
concatenated commands.

The command will be executed in "cooked" mode, so that a
CTRL-C will interrupt the command (on Unix at least).

The resulting error code can be found in v:shell_error .
This function will fail in restricted-mode .

Note that any wrong value in the options mentioned above may
make the function fail. It has also been reported to fail
when using a security agent application.
Unlike ":!cmd" there is no automatic check for changed files.
Use :checktime to force a check.

systemlist({expr} [, {input}]) systemlist()
Same as system() , but returns a List with lines (parts of
output separated by NL) with NULs transformed into NLs. Output
is the same as readfile() will output with {binary} argument
set to "b". Note that on MS-Windows you may get trailing CR
characters.

Returns an empty string on error.

tabpagebuflist([{arg}]) tabpagebuflist()
The result is a List , where each item is the number of the
buffer associated with each window in the current tab page.
{arg} specifies the number of the tab page to be used. When
omitted the current tab page is used.
When {arg} is invalid the number zero is returned.
To get a list of all buffers in all tabs use this:

```
let buflist = []
for i in range(tabpagenr('$'))
   call extend(buflist, tabpagebuflist(i + 1))
endfor
```

Note that a buffer may appear in more than one window.

tabpagenr([{arg}]) tabpagenr()
The result is a Number, which is the number of the current
tab page. The first tab page has number 1.
When the optional argument is "$", the number of the last tab
page is returned (the tab page count).
The number can be used with the :tab command.

tabpagewinnr({tabarg} [, {arg}]) tabpagewinnr()
Like winnr() but for tab page {tabarg}.
{tabarg} specifies the number of tab page to be used.
{arg} is used like with winnr() :

- When omitted the current window number is returned. This is
  the window which will be used when going to this tab page.
- When "$" the number of windows is returned.
- When "#" the previous window nr is returned.
Useful examples:
```
    tabpagewinnr(1)         " current window of tab page 1
    tabpagewinnr(4, '$')    " number of windows in tab page 4
```
When {tabarg} is invalid zero is returned.

tagfiles()

tagfiles() Returns a List with the file names used to search for tags for the current buffer. This is the 'tags' option expanded.

taglist({expr} [, {filename}]) taglist()

Returns a list of tags matching the regular expression {expr}.

If {filename} is passed it is used to prioritize the results in the same way that :tselect does. See tag-priority . {filename} should be the full path of the file.

Each list item is a dictionary with at least the following entries:

name	Name of the tag.
filename	Name of the file where the tag is defined. It is either relative to the current directory or a full path.
cmd	Ex command used to locate the tag in the file.
kind	Type of the tag. The value for this entry depends on the language specific kind values. Only available when using a tags file generated by Exuberant ctags or hdrtag.
static	A file specific tag. Refer to static-tag for more information.

More entries may be present, depending on the content of the tags file: access, implementation, inherits and signature. Refer to the ctags documentation for information about these fields. For C code the fields "struct", "class" and "enum" may appear, they give the name of the entity the tag is contained in.

The ex-command "cmd" can be either an ex search pattern, a line number or a line number followed by a byte number.

If there are no matching tags, then an empty list is returned.

To get an exact tag match, the anchors '^' and '$' should be used in {expr}. This also make the function work faster. Refer to tag-regexp for more information about the tag search regular expression pattern.

Refer to 'tags' for information about how the tags file is

located by Vim. Refer to tags-file-format for the format of the tags file generated by the different ctags tools.

tan({expr}) tan()
Return the tangent of {expr}, measured in radians, as a Float in the range [-inf, inf].
{expr} must evaluate to a Float or a Number .
Examples:
```
:echo tan(10)
0.648361
:echo tan(-4.01)
-1.181502
```
{only available when compiled with the |+float| feature}

tanh({expr}) tanh()
Return the hyperbolic tangent of {expr} as a Float in the range [-1, 1].
{expr} must evaluate to a Float or a Number .
Examples:
```
:echo tanh(0.5)
0.462117
:echo tanh(-1)
-0.761594
```
{only available when compiled with the |+float| feature}

tempname() tempname() temp-file-name
The result is a String, which is the name of a file that doesn't exist. It can be used for a temporary file. The name is different for at least 26 consecutive calls. Example:
```
:let tmpfile = tempname()
:exe "redir > " . tmpfile
```
For Unix, the file will be in a private directory tempfile . For MS-Windows forward slashes are used when the 'shellslash' option is set or when 'shellcmdflag' starts with '-'.

term_dumpdiff() term_dumpdiff({filename}, {filename} [, {options}])
Open a new window displaying the difference between the two files. The files must have been created with term_dumpwrite() .
Returns the buffer number or zero when the diff fails.
Also see terminal-diff .
NOTE: this does not work with double-width characters yet.

The top part of the buffer contains the contents of the first file, the bottom part of the buffer contains the contents of the second file. The middle part shows the differences. The parts are separated by a line of dashes.

If the {options} argument is present, it must be a Dict with these possible members:
"term_name" name to use for the buffer name, instead

```
                                of the first file name.
                "term_rows"     vertical size to use for the terminal,
                                instead of using 'termwinsize'
                "term_cols"     horizontal size to use for the terminal,
                                instead of using 'termwinsize'
                "vertical"      split the window vertically
                "curwin"        use the current window, do not split the
                                window; fails if the current buffer
                                cannot be  abandon ed
                "norestore"     do not add the terminal window to a
                                session file

            Each character in the middle part indicates a difference. If
            there are multiple differences only the first in this list is
            used:
                    X       different character
                    w       different width
                    f       different foreground color
                    b       different background color
                    a       different attribute
                    +       missing position in first file
                    -       missing position in second file

            Using the "s" key the top and bottom parts are swapped.  This
            makes it easy to spot a difference.

                                                        term_dumpload()
term_dumpload({filename} [, {options}])
            Open a new window displaying the contents of {filename}
            The file must have been created with  term_dumpwrite() .
            Returns the buffer number or zero when it fails.
            Also see  terminal-diff .

            For {options} see  term_dumpdiff() .

                                                        term_dumpwrite()
term_dumpwrite({buf}, {filename} [, {options}])
            Dump the contents of the terminal screen of {buf} in the file
            {filename}.  This uses a format that can be used with
             term_dumpload()  and  term_dumpdiff() .
            If {filename} already exists an error is given.  E953
            Also see  terminal-diff .

            {options} is a dictionary with these optional entries:
                    "rows"          maximum number of rows to dump
                    "columns"       maximum number of columns to dump

term_getaltscreen({buf})                                term_getaltscreen()
            Returns 1 if the terminal of {buf} is using the alternate
            screen.
            {buf} is used as with  term_getsize() .
            {only available when compiled with the |+terminal| feature}

term_getansicolors({buf})                               term_getansicolors()
```

Get the ANSI color palette in use by terminal {buf}.
Returns a List of length 16 where each element is a String
representing a color in hexadecimal "#rrggbb" format.
Also see term_setansicolors() and g:terminal_ansi_colors .
If neither was used returns the default colors.

{buf} is used as with term_getsize() . If the buffer does not
exist or is not a terminal window, an empty list is returned.
{only available when compiled with the +terminal feature and
with GUI enabled and/or the +termguicolors feature}

term_getattr({attr}, {what}) term_getattr()
Given {attr}, a value returned by term_scrape() in the "attr"
item, return whether {what} is on. {what} can be one of:
bold
italic
underline
strike
reverse
{only available when compiled with the |+terminal| feature}

term_getcursor({buf}) term_getcursor()
Get the cursor position of terminal {buf}. Returns a list with
two numbers and a dictionary: [row, col, dict].

"row" and "col" are one based, the first screen cell is row
1, column 1. This is the cursor position of the terminal
itself, not of the Vim window.

"dict" can have these members:
"visible" one when the cursor is visible, zero when it
is hidden.
"blink" one when the cursor is visible, zero when it
is hidden.
"shape" 1 for a block cursor, 2 for underline and 3
for a vertical bar.

{buf} must be the buffer number of a terminal window. If the
buffer does not exist or is not a terminal window, an empty
list is returned.
{only available when compiled with the |+terminal| feature}

term_getjob({buf}) term_getjob()
Get the Job associated with terminal window {buf}.
{buf} is used as with term_getsize() .
Returns v:null when there is no job.
{only available when compiled with the |+terminal| feature}

term_getline({buf}, {row}) term_getline()
Get a line of text from the terminal window of {buf}.
{buf} is used as with term_getsize() .

The first line has {row} one. When {row} is "." the cursor
line is used. When {row} is invalid an empty string is

returned.

To get attributes of each character use term_scrape() .
{only available when compiled with the |+terminal| feature}

term_getscrolled({buf}) term_getscrolled()
Return the number of lines that scrolled to above the top of terminal {buf}. This is the offset between the row number used for term_getline() and getline() , so that:
```
term_getline(buf, N)
```
is equal to:
```
`getline(N + term_getscrolled(buf))
```
(if that line exists).

{buf} is used as with term_getsize() .
{only available when compiled with the |+terminal| feature}

term_getsize({buf}) term_getsize()
Get the size of terminal {buf}. Returns a list with two numbers: [rows, cols]. This is the size of the terminal, not the window containing the terminal.

{buf} must be the buffer number of a terminal window. Use an empty string for the current buffer. If the buffer does not exist or is not a terminal window, an empty list is returned.
{only available when compiled with the |+terminal| feature}

term_getstatus({buf}) term_getstatus()
Get the status of terminal {buf}. This returns a comma separated list of these items:
```
running         job is running
finished        job has finished
normal          in Terminal-Normal mode
```
One of "running" or "finished" is always present.

{buf} must be the buffer number of a terminal window. If the buffer does not exist or is not a terminal window, an empty string is returned.
{only available when compiled with the |+terminal| feature}

term_gettitle({buf}) term_gettitle()
Get the title of terminal {buf}. This is the title that the job in the terminal has set.

{buf} must be the buffer number of a terminal window. If the buffer does not exist or is not a terminal window, an empty string is returned.
{only available when compiled with the |+terminal| feature}

term_gettty({buf} [, {input}]) term_gettty()
Get the name of the controlling terminal associated with terminal window {buf}. {buf} is used as with term_getsize() .

When {input} is omitted or 0, return the name for writing

(stdout). When {input} is 1 return the name for reading
(stdin). On UNIX, both return same name.
{only available when compiled with the |+terminal| feature}

term_list() term_list()
Return a list with the buffer numbers of all buffers for
terminal windows.
{only available when compiled with the |+terminal| feature}

term_scrape({buf}, {row}) term_scrape()
Get the contents of {row} of terminal screen of {buf}.
For {buf} see term_getsize() .

The first line has {row} one. When {row} is "." the cursor
line is used. When {row} is invalid an empty string is
returned.

Return a List containing a Dict for each screen cell:
    "chars"   character(s) at the cell
    "fg"   foreground color as #rrggbb
    "bg"   background color as #rrggbb
    "attr"   attributes of the cell, use term_getattr()
                to get the individual flags
    "width"   cell width: 1 or 2
{only available when compiled with the |+terminal| feature}

term_sendkeys({buf}, {keys}) term_sendkeys()
Send keystrokes {keys} to terminal {buf}.
{buf} is used as with term_getsize() .

{keys} are translated as key sequences. For example, "\<c-x>"
means the character CTRL-X.
{only available when compiled with the |+terminal| feature}

term_setansicolors({buf}, {colors}) term_setansicolors()
Set the ANSI color palette used by terminal {buf}.
{colors} must be a List of 16 valid color names or hexadecimal
color codes, like those accepted by highlight-guifg .
Also see term_getansicolors() and g:terminal_ansi_colors .

The colors normally are:
        0   black
        1   dark red
        2   dark green
        3   brown
        4   dark blue
        5   dark magenta
        6   dark cyan
        7   light grey
        8   dark grey
        9   red
        10   green
        11   yellow
        12   blue

```
                13   magenta
                14   cyan
                15   white

            These colors are used in the GUI and in the terminal when
            'termguicolors' is set.  When not using GUI colors (GUI mode
            or 'termguicolors'), the terminal window always uses the 16
            ANSI colors of the underlying terminal.
            {only available when compiled with the  +terminal  feature and
            with GUI enabled and/or the  +termguicolors  feature}

term_setkill({buf}, {how})                                  term_setkill()
            When exiting Vim or trying to close the terminal window in
            another way, {how} defines whether the job in the terminal can
            be stopped.
            When {how} is empty (the default), the job will not be
            stopped, trying to exit will result in  E947 .
            Otherwise, {how} specifies what signal to send to the job.
            See  job_stop()  for the values.

            After sending the signal Vim will wait for up to a second to
            check that the job actually stopped.

term_setrestore({buf}, {command})                           term_setrestore()
            Set the command to write in a session file to restore the job
            in this terminal.  The line written in the session file is:
                    terminal ++curwin ++cols=%d ++rows=%d {command}
           Make sure to escape the command properly.

            Use an empty {command} to run 'shell'.
            Use "NONE" to not restore this window.
            {only available when compiled with the |+terminal| feature}

term_setsize({buf}, {rows}, {cols})              term_setsize()   E955
            Set the size of terminal {buf}. The size of the window
            containing the terminal will also be adjusted, if possible.
            If {rows} or {cols} is zero or negative, that dimension is not
            changed.

            {buf} must be the buffer number of a terminal window.  Use an
            empty string for the current buffer.  If the buffer does not
            exist or is not a terminal window, an error is given.
            {only available when compiled with the |+terminal| feature}

term_start({cmd}, {options})                                term_start()
            Open a terminal window and run {cmd} in it.

            {cmd} can be a string or a List, like with  job_start() . The
            string "NONE" can be used to open a terminal window without
            starting a job, the pty of the terminal can be used by a
            command like gdb.

            Returns the buffer number of the terminal window.  If {cmd}
            cannot be executed the window does open and shows an error
```

message.
If opening the window fails zero is returned.

{options} are similar to what is used for job_start() , see job-options . However, not all options can be used. These are supported:
   all timeout options
   "stoponexit"
   "callback", "out_cb", "err_cb"
   "exit_cb", "close_cb"
   "in_io", "in_top", "in_bot", "in_name", "in_buf"
   "out_io", "out_name", "out_buf", "out_modifiable", "out_msg"
   "err_io", "err_name", "err_buf", "err_modifiable", "err_msg"
However, at least one of stdin, stdout or stderr must be connected to the terminal. When I/O is connected to the terminal then the callback function for that part is not used.

There are extra options:

"term_name"	name to use for the buffer name, instead of the command name.
"term_rows"	vertical size to use for the terminal, instead of using 'termwinsize'
"term_cols"	horizontal size to use for the terminal, instead of using 'termwinsize'
"vertical"	split the window vertically; note that other window position can be defined with command modifiers, such as :belowright .
"curwin"	use the current window, do not split the window; fails if the current buffer cannot be abandon ed
"hidden"	do not open a window
"norestore"	do not add the terminal window to a session file
"term_kill"	what to do when trying to close the terminal window, see term_setkill()
"term_finish"	What to do when the job is finished: "close": close any windows "open": open window if needed Note that "open" can be interruptive. See term++close and term++open .
"term_opencmd"	command to use for opening the window when "open" is used for "term_finish"; must have "%d" where the buffer number goes, e.g. "10split|buffer %d"; when not specified "botright sbuf %d" is used
"eof_chars"	Text to send after all buffer lines were written to the terminal. When not set CTRL-D is used on MS-Windows. For Python use CTRL-Z or "exit()". For a shell use "exit". A CR is always added.
"ansi_colors"	A list of 16 color names or hex codes defining the ANSI palette used in GUI color modes. See g:terminal_ansi_colors .

{only available when compiled with the |+terminal| feature}

term_wait({buf} [, {time}]) term_wait()
Wait for pending updates of {buf} to be handled.
{buf} is used as with term_getsize() .
{time} is how long to wait for updates to arrive in msec. If not set then 10 msec will be used.
{only available when compiled with the |+terminal| feature}

test_alloc_fail({id}, {countdown}, {repeat}) test_alloc_fail()
This is for testing: If the memory allocation with {id} is called, then decrement {countdown}, and when it reaches zero let memory allocation fail {repeat} times. When {repeat} is smaller than one it fails one time.

test_autochdir() test_autochdir()
Set a flag to enable the effect of 'autochdir' before Vim startup has finished.

test_feedinput({string}) test_feedinput()
Characters in {string} are queued for processing as if they were typed by the user. This uses a low level input buffer. This function works only when with +unix or GUI is running.

test_garbagecollect_now() test_garbagecollect_now()
Like garbagecollect(), but executed right away. This must only be called directly to avoid any structure to exist internally, and v:testing must have been set before calling any function.

test_ignore_error({expr}) test_ignore_error()
Ignore any error containing {expr}. A normal message is given instead.
This is only meant to be used in tests, where catching the error with try/catch cannot be used (because it skips over following code).
{expr} is used literally, not as a pattern.
There is currently no way to revert this.

test_null_channel() test_null_channel()
Return a Channel that is null. Only useful for testing.
{only available when compiled with the +channel feature}

test_null_dict() test_null_dict()
Return a Dict that is null. Only useful for testing.

test_null_job() test_null_job()
Return a Job that is null. Only useful for testing.
{only available when compiled with the +job feature}

test_null_list() test_null_list()
Return a List that is null. Only useful for testing.

test_null_partial() test_null_partial()

Return a Partial that is null. Only useful for testing.

test_null_string() test_null_string()
Return a String that is null. Only useful for testing.

test_override({name}, {val}) test_override()
Overrides certain parts of Vims internal processing to be able
to run tests. Only to be used for testing Vim!
The override is enabled when {val} is non-zero and removed
when {val} is zero.
Current supported values for name are:

name	effect when {val} is non-zero
redraw	disable the redrawing() function
char_avail	disable the char_avail() function
starting	reset the "starting" variable, see below
nfa_fail	makes the NFA regexp engine fail to force a fallback to the old engine
ALL	clear all overrides ({val} is not used)

"starting" is to be used when a test should behave like
startup was done. Since the tests are run by sourcing a
script the "starting" variable is non-zero. This is usually a
good thing (tests run faster), but sometimes changes behavior
in a way that the test doesn't work properly.
When using:
```
call test_override('starting', 1)
```
The value of "starting" is saved. It is restored by:
```
call test_override('starting', 0)
```

test_settime({expr}) test_settime()
Set the time Vim uses internally. Currently only used for
timestamps in the history, as they are used in viminfo, and
for undo.
Using a value of 1 makes Vim not sleep after a warning or
error message.
{expr} must evaluate to a number. When the value is zero the
normal behavior is restored.

timer_info([{id}]) timer_info()
Return a list with information about timers.
When {id} is given only information about this timer is
returned. When timer {id} does not exist an empty list is
returned.
When {id} is omitted information about all timers is returned.

For each timer the information is stored in a Dictionary with
these items:

"id"	the timer ID
"time"	time the timer was started with
"remaining"	time until the timer fires
"repeat"	number of times the timer will still fire; -1 means forever

```
                "callback"      the callback
                "paused"        1 if the timer is paused, 0 otherwise

            {only available when compiled with the |+timers| feature}

timer_pause({timer}, {paused})                              timer_pause()
            Pause or unpause a timer.  A paused timer does not invoke its
            callback when its time expires.  Unpausing a timer may cause
            the callback to be invoked almost immediately if enough time
            has passed.

            Pausing a timer is useful to avoid the callback to be called
            for a short time.

            If {paused} evaluates to a non-zero Number or a non-empty
            String, then the timer is paused, otherwise it is unpaused.
            See  non-zero-arg .

            {only available when compiled with the |+timers| feature}

                                                 timer_start()   timer   timers
timer_start({time}, {callback} [, {options}])
            Create a timer and return the timer ID.

            {time} is the waiting time in milliseconds. This is the
            minimum time before invoking the callback.  When the system is
            busy or Vim is not waiting for input the time will be longer.

            {callback} is the function to call.  It can be the name of a
            function or a  Funcref .  It is called with one argument, which
            is the timer ID.  The callback is only invoked when Vim is
            waiting for input.

            {options} is a dictionary.  Supported entries:
               "repeat"     Number of times to repeat calling the
                            callback.  -1 means forever.  When not present
                            the callback will be called once.
                            If the timer causes an error three times in a
                            row the repeat is cancelled.  This avoids that
                            Vim becomes unusable because of all the error
                            messages.

            Example:
                    func MyHandler(timer)
                      echo 'Handler called'
                    endfunc
                    let timer = timer_start(500, 'MyHandler',
                            \ {'repeat': 3})
            This will invoke MyHandler() three times at 500 msec
            intervals.

            {only available when compiled with the |+timers| feature}

timer_stop({timer})                                         timer_stop()
```

Stop a timer. The timer callback will no longer be invoked.
{timer} is an ID returned by timer_start(), thus it must be a
Number. If {timer} does not exist there is no error.

{only available when compiled with the |+timers| feature}

timer_stopall() timer_stopall()
Stop all timers. The timer callbacks will no longer be
invoked. Useful if some timers is misbehaving. If there are
no timers there is no error.

{only available when compiled with the |+timers| feature}

tolower({expr}) tolower()
The result is a copy of the String given, with all uppercase
characters turned into lowercase (just like applying gu to
the string).

toupper({expr}) toupper()
The result is a copy of the String given, with all lowercase
characters turned into uppercase (just like applying gU to
the string).

tr({src}, {fromstr}, {tostr}) tr()
The result is a copy of the {src} string with all characters
which appear in {fromstr} replaced by the character in that
position in the {tostr} string. Thus the first character in
{fromstr} is translated into the first character in {tostr}
and so on. Exactly like the unix "tr" command.
This code also deals with multibyte characters properly.

Examples:
        echo tr("hello there", "ht", "HT")
returns "Hello THere"
        echo tr("<blob>", "<>", "{}")
returns "{blob}"

trim({text}[, {mask}]) trim()
Return {text} as a String where any character in {mask} is
removed from the beginning and end of {text}.
If {mask} is not given, {mask} is all characters up to 0x20,
which includes Tab, space, NL and CR, plus the non-breaking
space character 0xa0.
This code deals with multibyte characters properly.

Examples:
        echo trim("   some text ")
returns "some text"
        echo trim(" \r\t\t\r RESERVE \t\n\x0B\xA0") . "_TAIL"
returns "RESERVE_TAIL"
        echo trim("rm<Xrm<>X>rrm", "rm<>")
returns "Xrm<>X" (characters in the middle are not removed)

trunc({expr}) trunc()

Return the largest integral value with magnitude less than or
equal to {expr} as a Float (truncate towards zero).
{expr} must evaluate to a Float or a Number .
Examples:
```
 echo trunc(1.456)
1.0
 echo trunc(-5.456)
-5.0
 echo trunc(4.0)
4.0
```
{only available when compiled with the |+float| feature}

type({expr}) type()
The result is a Number representing the type of {expr}.
Instead of using the number directly, it is better to use the
v:t_ variable that has the value:

Number:	0	v:t_number
String:	1	v:t_string
Funcref:	2	v:t_func
List:	3	v:t_list
Dictionary:	4	v:t_dict
Float:	5	v:t_float
Boolean:	6	v:t_bool (v:false and v:true)
None	7	v:t_none (v:null and v:none)
Job	8	v:t_job
Channel	9	v:t_channel

For backward compatibility, this method can be used:
```
:if type(myvar) == type(0)
:if type(myvar) == type("")
:if type(myvar) == type(function("tr"))
:if type(myvar) == type([])
:if type(myvar) == type({})
:if type(myvar) == type(0.0)
:if type(myvar) == type(v:false)
:if type(myvar) == type(v:none)
```
To check if the v:t_ variables exist use this:
```
:if exists('v:t_number')
```

undofile({name}) undofile()
Return the name of the undo file that would be used for a file
with name {name} when writing. This uses the 'undodir'
option, finding directories that exist. It does not check if
the undo file exists.
{name} is always expanded to the full path, since that is what
is used internally.
If {name} is empty undofile() returns an empty string, since a
buffer without a file name will not write an undo file.
Useful in combination with :wundo and :rundo .
When compiled without the +persistent_undo option this always
returns an empty string.

undotree() undotree()
Return the current state of the undo tree in a dictionary with
the following items:

"seq_last" The highest undo sequence number used.
"seq_cur" The sequence number of the current position in the undo tree. This differs from "seq_last" when some changes were undone.
"time_cur" Time last used for :earlier and related commands. Use strftime() to convert to something readable.
"save_last" Number of the last file write. Zero when no write yet.
"save_cur" Number of the current position in the undo tree.
"synced" Non-zero when the last undo block was synced. This happens when waiting from input from the user. See undo-blocks .
"entries" A list of dictionaries with information about undo blocks.

The first item in the "entries" list is the oldest undo item. Each List item is a Dictionary with these items:
"seq" Undo sequence number. Same as what appears in :undolist .
"time" Timestamp when the change happened. Use strftime() to convert to something readable.
"newhead" Only appears in the item that is the last one that was added. This marks the last change and where further changes will be added.
"curhead" Only appears in the item that is the last one that was undone. This marks the current position in the undo tree, the block that will be used by a redo command. When nothing was undone after the last change this item will not appear anywhere.
"save" Only appears on the last block before a file write. The number is the write count. The first write has number 1, the last one the "save_last" mentioned above.
"alt" Alternate entry. This is again a List of undo blocks. Each item may again have an "alt" item.

uniq({list} [, {func} [, {dict}]]) uniq() E882
Remove second and succeeding copies of repeated adjacent {list} items in-place. Returns {list}. If you want a list to remain unmodified make a copy first:
:let newlist = uniq(copy(mylist))
The default compare function uses the string representation of each item. For the use of {func} and {dict} see sort() .

values({dict}) values()
Return a List with all the values of {dict}. The List is in arbitrary order.

virtcol({expr}) virtcol()

The result is a Number, which is the screen column of the file position given with {expr}. That is, the last screen position occupied by the character at that position, when the screen would be of unlimited width. When there is a <Tab> at the position, the returned Number will be the column at the end of the <Tab>. For example, for a <Tab> in column 1, with 'ts' set to 8, it returns 8. conceal is ignored.
For the byte position use col() .
For the use of {expr} see col() .
When 'virtualedit' is used {expr} can be [lnum, col, off], where "off" is the offset in screen columns from the start of the character. E.g., a position within a <Tab> or after the last character. When "off" is omitted zero is used.
When Virtual editing is active in the current mode, a position beyond the end of the line can be returned. 'virtualedit'
The accepted positions are:

.	the cursor position
$	the end of the cursor line (the result is the number of displayed characters in the cursor line plus one)
'x	position of mark x (if the mark is not set, 0 is returned)
v	In Visual mode: the start of the Visual area (the cursor is the end). When not in Visual mode returns the cursor position. Differs from '< in that it's updated right away.

Note that only marks in the current file can be used.
Examples:

```
virtcol(".")     with text "foo^Lbar", with cursor on the "^L", returns 5
virtcol("$")     with text "foo^Lbar", returns 9
virtcol("'t")    with text "    there", with 't at 'h', returns 6
```

The first column is 1. 0 is returned for an error.
A more advanced example that echoes the maximum length of all lines:

```
echo max(map(range(1, line('$')), "virtcol([v:val, '$'])"))
```

visualmode([expr]) visualmode()
The result is a String, which describes the last Visual mode used in the current buffer. Initially it returns an empty string, but once Visual mode has been used, it returns "v", "V", or "<CTRL-V>" (a single CTRL-V character) for character-wise, line-wise, or block-wise Visual mode respectively.
Example:

```
:exe "normal " . visualmode()
```

This enters the same Visual mode as before. It is also useful in scripts if you wish to act differently depending on the Visual mode that was used.
If Visual mode is active, use mode() to get the Visual mode (e.g., in a :vmap).
If [expr] is supplied and it evaluates to a non-zero Number or a non-empty String, then the Visual mode will be cleared and the old value is returned. See non-zero-arg .

wildmenumode()   wildmenumode()
		Returns TRUE when the wildmenu is active and FALSE
		otherwise. See 'wildmenu' and 'wildmode'.
		This can be used in mappings to handle the 'wildcharm' option
		gracefully. (Makes only sense with mapmode-c mappings).

		For example to make <c-j> work like <down> in wildmode, use:
	:cnoremap <expr> <C-j> wildmenumode() ? "\<Down>\<Tab>" : "\<c-j>"

		(Note, this needs the 'wildcharm' option set appropriately).

win_findbuf({bufnr})   win_findbuf()
		Returns a list with window-ID s for windows that contain
		buffer {bufnr}. When there is none the list is empty.

win_getid([{win} [, {tab}]])   win_getid()
		Get the window-ID for the specified window.
		When {win} is missing use the current window.
		With {win} this is the window number. The top window has
		number 1. Use `win_getid(winnr())` for the current window.
		Without {tab} use the current tab, otherwise the tab with
		number {tab}. The first tab has number one.
		Return zero if the window cannot be found.

win_gotoid({expr})   win_gotoid()
		Go to window with ID {expr}. This may also change the current
		tabpage.
		Return 1 if successful, 0 if the window cannot be found.

win_id2tabwin({expr})   win_id2tabwin()
		Return a list with the tab number and window number of window
		with ID {expr}: [tabnr, winnr].
		Return [0, 0] if the window cannot be found.

win_id2win({expr})   win_id2win()
		Return the window number of window with ID {expr}.
		Return 0 if the window cannot be found in the current tabpage.

win_screenpos({nr})   win_screenpos()
		Return the screen position of window {nr} as a list with two
		numbers: [row, col]. The first window always has position
		[1, 1], unless there is a tabline, then it is [2, 1].
		{nr} can be the window number or the window-ID .
		Return [0, 0] if the window cannot be found in the current
		tabpage.

                                                        winbufnr()
winbufnr({nr}) The result is a Number, which is the number of the buffer
		associated with window {nr}. {nr} can be the window number or
		the window-ID .
		When {nr} is zero, the number of the buffer in the current
		window is returned.

When window {nr} doesn't exist, -1 is returned.
Example:
```
:echo "The file in the current window is " . bufname(winbufnr(0))
```

wincol()

wincol()	The result is a Number, which is the virtual column of the cursor in the window. This is counting screen cells from the left side of the window. The leftmost column is one.

winheight({nr})

winheight()

The result is a Number, which is the height of window {nr}. {nr} can be the window number or the window-ID. When {nr} is zero, the height of the current window is returned. When window {nr} doesn't exist, -1 is returned. An existing window always has a height of zero or more. This excludes any window toolbar line.
Examples:
```
:echo "The current window has " . winheight(0) . " lines."
```

winline()

winline()	The result is a Number, which is the screen line of the cursor in the window. This is counting screen lines from the top of the window. The first line is one.
If the cursor was moved the view on the file will be updated first, this may cause a scroll.

winnr()

winnr([{arg}])	The result is a Number, which is the number of the current window. The top window has number 1.
When the optional argument is "$", the number of the last window is returned (the window count).
```
let window_count = winnr('$')
```
When the optional argument is "#", the number of the last accessed window is returned (where CTRL-W_p goes to).
If there is no previous window or it is in another tab page 0 is returned.
The number can be used with CTRL-W_w and ":wincmd w" :wincmd.
Also see tabpagewinnr() and win_getid().

winrestcmd()

winrestcmd()	Returns a sequence of :resize commands that should restore the current window sizes. Only works properly when no windows are opened or closed and the current window and tab page is unchanged.
Example:
```
:let cmd = winrestcmd()
:call MessWithWindowSizes()
:exe cmd
```

winrestview()

winrestview({dict})
Uses the Dictionary returned by winsaveview() to restore the view of the current window.

Note: The {dict} does not have to contain all values, that are returned by winsaveview() . If values are missing, those settings won't be restored. So you can use:

```
:call winrestview({'curswant': 4})
```

This will only set the curswant value (the column the cursor wants to move on vertical movements) of the cursor to column 5 (yes, that is 5), while all other settings will remain the same. This is useful, if you set the cursor position manually.

If you have changed the values the result is unpredictable. If the window size changed the result won't be the same.

winsaveview() winsaveview()

Returns a Dictionary that contains information to restore the view of the current window. Use winrestview() to restore the view.
This is useful if you have a mapping that jumps around in the buffer and you want to go back to the original view.
This does not save fold information. Use the 'foldenable' option to temporarily switch off folding, so that folds are not opened when moving around. This may have side effects.
The return value includes:

lnum	cursor line number
col	cursor column (Note: the first column zero, as opposed to what getpos() returns)
coladd	cursor column offset for 'virtualedit'
curswant	column for vertical movement
topline	first line in the window
topfill	filler lines, only in diff mode
leftcol	first column displayed
skipcol	columns skipped

Note that no option values are saved.

winwidth({nr}) winwidth()

The result is a Number, which is the width of window {nr}. {nr} can be the window number or the window-ID .
When {nr} is zero, the width of the current window is returned. When window {nr} doesn't exist, -1 is returned.
An existing window always has a width of zero or more.
Examples:

```
:echo "The current window has " . winwidth(0) . " columns."
:if winwidth(0) <= 50
:  50 wincmd |
:endif
```

For getting the terminal or screen size, see the 'columns' option.

wordcount() wordcount()

The result is a dictionary of byte/chars/word statistics for the current buffer. This is the same info as provided by

g_CTRL-G
The return value includes:

bytes	Number of bytes in the buffer
chars	Number of chars in the buffer
words	Number of words in the buffer
cursor_bytes	Number of bytes before cursor position (not in Visual mode)
cursor_chars	Number of chars before cursor position (not in Visual mode)
cursor_words	Number of words before cursor position (not in Visual mode)
visual_bytes	Number of bytes visually selected (only in Visual mode)
visual_chars	Number of chars visually selected (only in Visual mode)
visual_words	Number of words visually selected (only in Visual mode)

writefile()

writefile({list}, {fname} [, {flags}])
Write List {list} to file {fname}. Each list item is separated with a NL. Each list item must be a String or Number.
When {flags} contains "b" then binary mode is used: There will not be a NL after the last list item. An empty item at the end does cause the last line in the file to end in a NL.

When {flags} contains "a" then append mode is used, lines are appended to the file:
```
:call writefile(["foo"], "event.log", "a")
:call writefile(["bar"], "event.log", "a")
```

When {flags} contains "s" then fsync() is called after writing the file. This flushes the file to disk, if possible. This takes more time but avoids losing the file if the system crashes.
When {flags} does not contain "S" or "s" then fsync() is called if the 'fsync' option is set.
When {flags} contains "S" then fsync() is not called, even when 'fsync' is set.

All NL characters are replaced with a NUL character.
Inserting CR characters needs to be done before passing {list} to writefile().
An existing file is overwritten, if possible.
When the write fails -1 is returned, otherwise 0. There is an error message if the file can't be created or when writing fails.
Also see readfile() .
To copy a file byte for byte:
```
:let fl = readfile("foo", "b")
:call writefile(fl, "foocopy", "b")
```

xor({expr}, {expr})   xor()
                Bitwise XOR on the two arguments. The arguments are converted
                to a number. A List, Dict or Float argument causes an error.
                Example:
                        :let bits = xor(bits, 0x80)

                                                                 feature-list
There are four types of features:
1. Features that are only supported when they have been enabled when Vim
    was compiled +feature-list . Example:
        :if has("cindent")
2. Features that are only supported when certain conditions have been met.
    Example:
        :if has("gui_running")
                                                                 has-patch
3. Beyond a certain version or at a certain version and including a specific
    patch. The "patch-7.4.248" feature means that the Vim version is 7.5 or
    later, or it is version 7.4 and patch 248 was included. Example:
        :if has("patch-7.4.248")
    Note that it's possible for patch 248 to be omitted even though 249 is
    included. Only happens when cherry-picking patches.
    Note that this form only works for patch 7.4.237 and later, before that
    you need to check for the patch and the v:version. Example (checking
    version 6.2.148 or later):
        :if v:version > 602 || (v:version == 602 && has("patch148"))

Hint: To find out if Vim supports backslashes in a file name (MS-Windows),
use: `if exists('+shellslash')`

acl   Compiled with ACL support.
all_builtin_terms   Compiled with all builtin terminals enabled.
amiga   Amiga version of Vim.
arabic   Compiled with Arabic support Arabic .
arp   Compiled with ARP support (Amiga).
autocmd   Compiled with autocommand support. autocommand
autochdir   Compiled with support for 'autochdir'
autoservername   Automatically enable clientserver
balloon_eval   Compiled with balloon-eval support.
balloon_multiline   GUI supports multiline balloons.
beos   BeOS version of Vim.
browse   Compiled with :browse support, and browse() will
                        work.
browsefilter   Compiled with support for browsefilter .
builtin_terms   Compiled with some builtin terminals.
byte_offset   Compiled with support for 'o' in 'statusline'
cindent   Compiled with 'cindent' support.
clientserver   Compiled with remote invocation support clientserver .
clipboard   Compiled with 'clipboard' support.
cmdline_compl   Compiled with cmdline-completion support.
cmdline_hist   Compiled with cmdline-history support.

```
cmdline_info            Compiled with 'showcmd' and 'ruler' support.
comments                Compiled with  'comments'  support.
compatible              Compiled to be very Vi compatible.
cryptv                  Compiled with encryption support  encryption .
cscope                  Compiled with  cscope  support.
debug                   Compiled with "DEBUG" defined.
dialog_con              Compiled with console dialog support.
dialog_gui              Compiled with GUI dialog support.
diff                    Compiled with  vimdiff  and 'diff' support.
digraphs                Compiled with support for digraphs.
directx                 Compiled with support for DirectX and 'renderoptions'.
dnd                     Compiled with support for the "~ register  quote_~ .
ebcdic                  Compiled on a machine with ebcdic character set.
emacs_tags              Compiled with support for Emacs tags.
eval                    Compiled with expression evaluation support.  Always
                        true, of course!
ex_extra                +ex_extra , always true now
extra_search            Compiled with support for  'incsearch'  and
                        'hlsearch'
farsi                   Compiled with Farsi support  farsi .
file_in_path            Compiled with support for  gf  and  <cfile>
filterpipe              When 'shelltemp' is off pipes are used for shell
                        read/write/filter commands
find_in_path            Compiled with support for include file searches
                        +find_in_path .
float                   Compiled with support for  Float .
fname_case              Case in file names matters (for Amiga, MS-DOS, and
                        Windows this is not present).
folding                 Compiled with  folding  support.
footer                  Compiled with GUI footer support.  gui-footer
fork                    Compiled to use fork()/exec() instead of system().
gettext                 Compiled with message translation  multi-lang
gui                     Compiled with GUI enabled.
gui_athena              Compiled with Athena GUI.
gui_gnome               Compiled with Gnome support (gui_gtk is also defined).
gui_gtk                 Compiled with GTK+ GUI (any version).
gui_gtk2                Compiled with GTK+ 2 GUI (gui_gtk is also defined).
gui_gtk3                Compiled with GTK+ 3 GUI (gui_gtk is also defined).
gui_mac                 Compiled with Macintosh GUI.
gui_motif               Compiled with Motif GUI.
gui_photon              Compiled with Photon GUI.
gui_running             Vim is running in the GUI, or it will start soon.
gui_win32               Compiled with MS Windows Win32 GUI.
gui_win32s              idem, and Win32s system being used (Windows 3.1)
hangul_input            Compiled with Hangul input support.  hangul
iconv                   Can use iconv() for conversion.
insert_expand           Compiled with support for CTRL-X expansion commands in
                        Insert mode.
jumplist                Compiled with  jumplist  support.
keymap                  Compiled with 'keymap' support.
lambda                  Compiled with  lambda  support.
langmap                 Compiled with 'langmap' support.
libcall                 Compiled with  libcall()  support.
linebreak               Compiled with 'linebreak', 'breakat', 'showbreak' and
```

```
                        'breakindent' support.
lispindent              Compiled with support for lisp indenting.
listcmds                Compiled with commands for the buffer list  :files
                        and the argument list  arglist .
localmap                Compiled with local mappings and abbr.  :map-local
lua                     Compiled with Lua interface  Lua .
mac                     Any Macintosh version of Vim  cf. osx
macunix                 Synonym for osxdarwin
menu                    Compiled with support for  :menu .
mksession               Compiled with support for  :mksession .
modify_fname            Compiled with file name modifiers.  filename-modifiers
mouse                   Compiled with support mouse.
mouse_dec               Compiled with support for Dec terminal mouse.
mouse_gpm               Compiled with support for gpm (Linux console mouse)
mouse_netterm           Compiled with support for netterm mouse.
mouse_pterm             Compiled with support for qnx pterm mouse.
mouse_sysmouse          Compiled with support for sysmouse (*BSD console mouse)
mouse_sgr               Compiled with support for sgr mouse.
mouse_urxvt             Compiled with support for urxvt mouse.
mouse_xterm             Compiled with support for xterm mouse.
mouseshape              Compiled with support for 'mouseshape'.
multi_byte              Compiled with support for 'encoding'
multi_byte_encoding     'encoding' is set to a multi-byte encoding.
multi_byte_ime          Compiled with support for IME input method.
multi_lang              Compiled with support for multiple languages.
mzscheme                Compiled with MzScheme interface  mzscheme .
netbeans_enabled        Compiled with support for  netbeans  and connected.
netbeans_intg           Compiled with support for  netbeans .
num64                   Compiled with 64-bit  Number  support.
ole                     Compiled with OLE automation support for Win32.
osx                     Compiled for macOS  cf. mac
osxdarwin               Compiled for macOS, with  mac-darwin-feature
packages                Compiled with  packages  support.
path_extra              Compiled with up/downwards search in 'path' and 'tags'
perl                    Compiled with Perl interface.
persistent_undo         Compiled with support for persistent undo history.
postscript              Compiled with PostScript file printing.
printer                 Compiled with  :hardcopy  support.
profile                 Compiled with  :profile  support.
python                  Python 2.x interface available.  has-python
python_compiled         Compiled with Python 2.x interface.  has-python
python_dynamic          Python 2.x interface is dynamically loaded.  has-python
python3                 Python 3.x interface available.  has-python
python3_compiled        Compiled with Python 3.x interface.  has-python
python3_dynamic         Python 3.x interface is dynamically loaded.  has-python
pythonx                 Compiled with  python_x  interface.  has-pythonx
qnx                     QNX version of Vim.
quickfix                Compiled with  quickfix  support.
reltime                 Compiled with  reltime()  support.
rightleft               Compiled with 'rightleft' support.
ruby                    Compiled with Ruby interface  ruby .
scrollbind              Compiled with 'scrollbind' support.
showcmd                 Compiled with 'showcmd' support.
signs                   Compiled with  :sign  support.
```

```
smartindent             Compiled with 'smartindent' support.
spell                   Compiled with spell checking support  spell .
startuptime             Compiled with  --startuptime  support.
statusline              Compiled with support for 'statusline', 'rulerformat'
                        and special formats of 'titlestring' and 'iconstring'.
sun_workshop            Compiled with support for Sun  workshop .
syntax                  Compiled with syntax highlighting support  syntax .
syntax_items            There are active syntax highlighting items for the
                        current buffer.
system                  Compiled to use system() instead of fork()/exec().
tag_binary              Compiled with binary searching in tags files
                         tag-binary-search .
tag_old_static          Compiled with support for old static tags
                         tag-old-static .
tag_any_white           Compiled with support for any white characters in tags
                        files  tag-any-white .
tcl                     Compiled with Tcl interface.
termguicolors           Compiled with true color in terminal support.
terminal                Compiled with  terminal  support.
terminfo                Compiled with terminfo instead of termcap.
termresponse            Compiled with support for  t_RV  and  v:termresponse .
textobjects             Compiled with support for  text-objects .
tgetent                 Compiled with tgetent support, able to use a termcap
                        or terminfo file.
timers                  Compiled with  timer_start()  support.
title                   Compiled with window title support  'title' .
toolbar                 Compiled with support for  gui-toolbar .
ttyin                   input is a terminal (tty)
ttyout                  output is a terminal (tty)
unix                    Unix version of Vim.  +unix
unnamedplus             Compiled with support for "unnamedplus" in 'clipboard'
user_commands           User-defined commands.
vcon                    Win32: Virtual console support is working, can use
                        'termguicolors'. Also see  +vtp .
vertsplit               Compiled with vertically split windows  :vsplit .
vim_starting            True while initial source'ing takes place.  startup
                         vim_starting
viminfo                 Compiled with viminfo support.
virtualedit             Compiled with 'virtualedit' option.
visual                  Compiled with Visual mode.
visualextra             Compiled with extra Visual mode commands.
                         blockwise-operators .
vms                     VMS version of Vim.
vreplace                Compiled with  gR  and  gr  commands.
vtp                     Compiled for vcon support  +vtp  (check vcon to find
                        out if it works in the current console).
wildignore              Compiled with 'wildignore' option.
wildmenu                Compiled with 'wildmenu' option.
win16                   old version for MS-Windows 3.1 (always False)
win32                   Win32 version of Vim (MS-Windows 95 and later, 32 or
                        64 bits)
win32unix               Win32 version of Vim, using Unix files (Cygwin)
win64                   Win64 version of Vim (MS-Windows 64 bit).
win95                   Win32 version for MS-Windows 95/98/ME (always False)
```

```
winaltkeys              Compiled with 'winaltkeys' option.
windows                 Compiled with support for more than one window.
writebackup             Compiled with 'writebackup' default on.
xfontset                Compiled with X fontset support  xfontset .
xim                     Compiled with X input method support  xim .
xpm                     Compiled with pixmap support.
xpm_w32                 Compiled with pixmap support for Win32. (Only for
                        backward compatibility. Use "xpm" instead.)
xsmp                    Compiled with X session management support.
xsmp_interact           Compiled with interactive X session management support.
xterm_clipboard         Compiled with support for xterm clipboard.
xterm_save              Compiled with support for saving and restoring the
                        xterm screen.
x11                     Compiled with X11 support.
```

string-match

Matching a pattern in a String

A regexp pattern as explained at pattern is normally used to find a match in the buffer lines. When a pattern is used to find a match in a String, almost everything works in the same way. The difference is that a String is handled like it is one line. When it contains a "\n" character, this is not seen as a line break for the pattern. It can be matched with a "\n" in the pattern, or with ".". Example:

```
:let a = "aaaa\nxxxx"
:echo matchstr(a, "..\n..")
aa
xx
:echo matchstr(a, "a.x")
a
x
```

Don't forget that "^" will only match at the first character of the String and "$" at the last character of the string. They don't match after or before a "\n".

==

5. Defining functions   user-functions

New functions can be defined. These can be called just like builtin functions. The function executes a sequence of Ex commands. Normal mode commands can be executed with the :normal command.

The function name must start with an uppercase letter, to avoid confusion with builtin functions. To prevent from using the same name in different scripts avoid obvious, short names. A good habit is to start the function name with the name of the script, e.g., "HTMLcolor()".

It's also possible to use curly braces, see curly-braces-names . And the autoload facility is useful to define a function only when it's called.

local-function

A function local to a script must start with "s:". A local script function can only be called from within the script and from functions, user commands

and autocommands defined in the script. It is also possible to call the function from a mapping defined in the script, but then <SID> must be used instead of "s:" when the mapping is expanded outside of the script.
There are only script-local functions, no buffer-local or window-local functions.

:fu :function E128 E129 E123
:fu[nction] List all functions and their arguments.

:fu[nction] {name} List function {name}.
{name} can also be a Dictionary entry that is a Funcref :
:function dict.init

:fu[nction] /{pattern} List functions with a name matching {pattern}.
Example that lists all functions ending with "File":
:function /File$

:function-verbose
When 'verbose' is non-zero, listing a function will also display where it was last defined. Example:

```
:verbose function SetFileTypeSH
    function SetFileTypeSH(name)
        Last set from /usr/share/vim/vim-7.0/filetype.vim
```

See :verbose-cmd for more information.

E124 E125 E853 E884
:fu[nction][!] {name}([arguments]) [range] [abort] [dict] [closure]
Define a new function by the name {name}. The body of the function follows in the next lines, until the matching :endfunction .

The name must be made of alphanumeric characters and '_', and must start with a capital or "s:" (see above). Note that using "b:" or "g:" is not allowed. (since patch 7.4.260 E884 is given if the function name has a colon in the name, e.g. for "foo:bar()". Before that patch no error was given).

{name} can also be a Dictionary entry that is a Funcref :
:function dict.init(arg)
"dict" must be an existing dictionary. The entry "init" is added if it didn't exist yet. Otherwise [!] is required to overwrite an existing function. The result is a Funcref to a numbered function. The function can only be used with a Funcref and will be deleted if there are no more references to it.
E127 E122
When a function by this name already exists and [!] is not used an error message is given. When [!] is used, an existing function is silently replaced. Unless it

is currently being executed, that is an error.
NOTE: Use ! wisely. If used without care it can cause an existing function to be replaced unexpectedly, which is hard to debug.

For the {arguments} see function-argument .

:func-range a:firstline a:lastline
When the [range] argument is added, the function is expected to take care of a range itself. The range is passed as "a:firstline" and "a:lastline". If [range] is excluded, ":{range}call" will call the function for each line in the range, with the cursor on the start of each line. See function-range-example .
The cursor is still moved to the first line of the range, as is the case with all Ex commands.

:func-abort
When the [abort] argument is added, the function will abort as soon as an error is detected.

:func-dict
When the [dict] argument is added, the function must be invoked through an entry in a Dictionary . The local variable "self" will then be set to the dictionary. See Dictionary-function .

:func-closure E932
When the [closure] argument is added, the function can access variables and arguments from the outer scope. This is usually called a closure. In this example Bar() uses "x" from the scope of Foo(). It remains referenced even after Foo() returns:

```
:function! Foo()
:  let x = 0
:  function! Bar() closure
:    let x += 1
:    return x
:  endfunction
:  return funcref('Bar')
:endfunction

:let F = Foo()
:echo F()
1
:echo F()
2
:echo F()
3
```

function-search-undo
The last used search pattern and the redo command "." will not be changed by the function. This also implies that the effect of :nohlsearch is undone when the function returns.

:endf :endfunction E126 E193 W22

:endf[unction] [argument]
The end of a function definition. Best is to put it on a line by its own, without [argument].

[argument] can be:

| command	command to execute next
\n command	command to execute next
" comment	always ignored
anything else	ignored, warning given when 'verbose' is non-zero

The support for a following command was added in Vim 8.0.0654, before that any argument was silently ignored.

To be able to define a function inside an `:execute` command, use line breaks instead of :bar :

```
:exe "func Foo()\necho 'foo'\nendfunc"
```

:delf :delfunction E130 E131 E933

:delf[unction][!] {name}
Delete function {name}.
{name} can also be a Dictionary entry that is a Funcref :

```
:delfunc dict.init
```

This will remove the "init" entry from "dict". The function is deleted if there are no more references to it.
With the ! there is no error if the function does not exist.

:retu :return E133

:retu[rn] [expr] Return from a function. When "[expr]" is given, it is evaluated and returned as the result of the function. If "[expr]" is not given, the number 0 is returned. When a function ends without an explicit ":return", the number 0 is returned.
Note that there is no check for unreachable lines, thus there is no warning if commands follow ":return".

If the ":return" is used after a :try but before the matching :finally (if present), the commands following the ":finally" up to the matching :endtry are executed first. This process applies to all nested ":try"s inside the function. The function returns at the outermost ":endtry".

function-argument a:var

An argument can be defined by giving its name. In the function this can then be used as "a:name" ("a:" for argument).

a:0 a:1 a:000 E740 ...

Up to 20 arguments can be given, separated by commas. After the named arguments an argument "..." can be specified, which means that more arguments may optionally be following. In the function the extra arguments can be used as "a:1", "a:2", etc. "a:0" is set to the number of extra arguments (which can be 0). "a:000" is set to a List that contains these arguments. Note

that "a:1" is the same as "a:000[0]".
E742

The a: scope and the variables in it cannot be changed, they are fixed. However, if a composite type is used, such as List or Dictionary , you can change their contents. Thus you can pass a List to a function and have the function add an item to it. If you want to make sure the function cannot change a List or Dictionary use :lockvar .

When not using "...", the number of arguments in a function call must be equal to the number of named arguments. When using "...", the number of arguments may be larger.

It is also possible to define a function without any arguments. You must still supply the () then.

It is allowed to define another function inside a function body.

local-variables

Inside a function local variables can be used. These will disappear when the function returns. Global variables need to be accessed with "g:".

Example:
```
:function Table(title, ...)
:  echohl Title
:  echo a:title
:  echohl None
:  echo a:0 . " items:"
:  for s in a:000
:    echon ' ' . s
:  endfor
:endfunction
```

This function can then be called with:
```
call Table("Table", "line1", "line2")
call Table("Empty Table")
```

To return more than one value, return a List :
```
:function Compute(n1, n2)
:  if a:n2 == 0
:    return ["fail", 0]
:  endif
:  return ["ok", a:n1 / a:n2]
:endfunction
```

This function can then be called with:
```
:let [success, div] = Compute(102, 6)
:if success == "ok"
:  echo div
:endif
```

:cal :call E107 E117

:[range]cal[l] {name}([arguments])
Call a function. The name of the function and its arguments are as specified with :function . Up to 20 arguments can be

used. The returned value is discarded.
Without a range and for functions that accept a range, the function is called once. When a range is given the cursor is positioned at the start of the first line before executing the function.
When a range is given and the function doesn't handle it itself, the function is executed for each line in the range, with the cursor in the first column of that line. The cursor is left at the last line (possibly moved by the last function call). The arguments are re-evaluated for each line. Thus this works:
function-range-example

```
:function Mynumber(arg)
:  echo line(".") . " " . a:arg
:endfunction
:1,5call Mynumber(getline("."))
```

The "a:firstline" and "a:lastline" are defined anyway, they can be used to do something different at the start or end of the range.

Example of a function that handles the range itself:

```
:function Cont() range
:  execute (a:firstline + 1) . "," . a:lastline . 's/^/\t\\ '
:endfunction
:4,8call Cont()
```

This function inserts the continuation character "\" in front of all the lines in the range, except the first one.

When the function returns a composite value it can be further dereferenced, but the range will not be used then. Example:

```
:4,8call GetDict().method()
```

Here GetDict() gets the range but method() does not.

E132

The recursiveness of user functions is restricted with the 'maxfuncdepth' option.

AUTOMATICALLY LOADING FUNCTIONS

autoload-functions

When using many or large functions, it's possible to automatically define them only when they are used. There are two methods: with an autocommand and with the "autoload" directory in 'runtimepath'.

Using an autocommand

This is introduced in the user manual, section 41.14 .

The autocommand is useful if you have a plugin that is a long Vim script file. You can define the autocommand and quickly quit the script with :finish .

That makes Vim startup faster. The autocommand should then load the same file again, setting a variable to skip the :finish command.

Use the FuncUndefined autocommand event with a pattern that matches the function(s) to be defined. Example:

```
:au FuncUndefined BufNet* source ~/vim/bufnetfuncs.vim
```

The file "~/vim/bufnetfuncs.vim" should then define functions that start with "BufNet". Also see FuncUndefined .

Using an autoload script

autoload E746

This is introduced in the user manual, section 41.15 .

Using a script in the "autoload" directory is simpler, but requires using exactly the right file name. A function that can be autoloaded has a name like this:

```
:call filename#funcname()
```

When such a function is called, and it is not defined yet, Vim will search the "autoload" directories in 'runtimepath' for a script file called "filename.vim". For example "~/.vim/autoload/filename.vim". That file should then define the function like this:

```
function filename#funcname()
   echo "Done!"
endfunction
```

The file name and the name used before the # in the function must match exactly, and the defined function must have the name exactly as it will be called.

It is possible to use subdirectories. Every # in the function name works like a path separator. Thus when calling a function:

```
:call foo#bar#func()
```

Vim will look for the file "autoload/foo/bar.vim" in 'runtimepath'.

This also works when reading a variable that has not been set yet:

```
:let l = foo#bar#lvar
```

However, when the autoload script was already loaded it won't be loaded again for an unknown variable.

When assigning a value to such a variable nothing special happens. This can be used to pass settings to the autoload script before it's loaded:

```
:let foo#bar#toggle = 1
:call foo#bar#func()
```

Note that when you make a mistake and call a function that is supposed to be defined in an autoload script, but the script doesn't actually define the function, the script will be sourced every time you try to call the function. And you will get an error message every time.

Also note that if you have two script files, and one calls a function in the other and vice versa, before the used function is defined, it won't work. Avoid using the autoload functionality at the toplevel.

Hint: If you distribute a bunch of scripts you can pack them together with the vimball utility. Also read the user manual distribute-script .

==
6. Curly braces names curly-braces-names

In most places where you can use a variable, you can use a "curly braces name" variable. This is a regular variable name with one or more expressions wrapped in braces {} like this:

```
my_{adjective}_variable
```

When Vim encounters this, it evaluates the expression inside the braces, puts that in place of the expression, and re-interprets the whole as a variable name. So in the above example, if the variable "adjective" was set to "noisy", then the reference would be to "my_noisy_variable", whereas if "adjective" was set to "quiet", then it would be to "my_quiet_variable".

One application for this is to create a set of variables governed by an option value. For example, the statement

```
echo my_{&background}_message
```

would output the contents of "my_dark_message" or "my_light_message" depending on the current value of 'background'.

You can use multiple brace pairs:

```
echo my_{adverb}_{adjective}_message
```

..or even nest them:

```
echo my_{ad{end_of_word}}_message
```

where "end_of_word" is either "verb" or "jective".

However, the expression inside the braces must evaluate to a valid single variable name, e.g. this is invalid:

```
:let foo='a + b'
:echo c{foo}d
```

.. since the result of expansion is "ca + bd", which is not a variable name.

curly-braces-function-names

You can call and define functions by an evaluated name in a similar way. Example:

```
:let func_end='whizz'
:call my_func_{func_end}(parameter)
```

This would call the function "my_func_whizz(parameter)".

This does NOT work:
```
  :let i = 3
  :let @{i} = ''  " error
  :echo @{i}      " error
```

==========

7. Commands expression-commands

:let {var-name} = {expr1} :let E18
Set internal variable {var-name} to the result of the expression {expr1}. The variable will get the type from the {expr}. If {var-name} didn't exist yet, it is created.

:let {var-name}[{idx}] = {expr1} E689
Set a list item to the result of the expression {expr1}. {var-name} must refer to a list and {idx} must be a valid index in that list. For nested list the index can be repeated.
This cannot be used to add an item to a List .
This cannot be used to set a byte in a String. You can do that like this:
```
:let var = var[0:2] . 'X' . var[4:]
```

E711 E719
:let {var-name}[{idx1}:{idx2}] = {expr1} E708 E709 E710
Set a sequence of items in a List to the result of the expression {expr1}, which must be a list with the correct number of items.
{idx1} can be omitted, zero is used instead.
{idx2} can be omitted, meaning the end of the list.
When the selected range of items is partly past the end of the list, items will be added.

:let+= :let-= :let.= E734
:let {var} += {expr1} Like ":let {var} = {var} + {expr1}".
:let {var} -= {expr1} Like ":let {var} = {var} - {expr1}".
:let {var} .= {expr1} Like ":let {var} = {var} . {expr1}".
These fail if {var} was not set yet and when the type of {var} and {expr1} don't fit the operator.

:let ${env-name} = {expr1} :let-environment :let-$
Set environment variable {env-name} to the result of the expression {expr1}. The type is always String.
:let ${env-name} .= {expr1}
Append {expr1} to the environment variable {env-name}. If the environment variable didn't exist yet this works like "=".

:let @{reg-name} = {expr1} :let-register :let-@
Write the result of the expression {expr1} in register {reg-name}. {reg-name} must be a single letter, and must be the name of a writable register (see

registers). "@@" can be used for the unnamed register, "@/" for the search pattern. If the result of {expr1} ends in a <CR> or <NL>, the register will be linewise, otherwise it will be set to characterwise. This can be used to clear the last search pattern:

```
:let @/ = ""
```

This is different from searching for an empty string, that would match everywhere.

:let @{reg-name} .= {expr1}
Append {expr1} to register {reg-name}. If the register was empty it's like setting it to {expr1}.

:let &{option-name} = {expr1} :let-option :let-&
Set option {option-name} to the result of the expression {expr1}. A String or Number value is always converted to the type of the option. For an option local to a window or buffer the effect is just like using the :set command: both the local value and the global value are changed. Example:

```
:let &path = &path . ',/usr/local/include'
```

This also works for terminal codes in the form t_xx. But only for alphanumerical names. Example:

```
:let &t_k1 = "\<Esc>[234;"
```

When the code does not exist yet it will be created as a terminal key code, there is no error.

:let &{option-name} .= {expr1}
For a string option: Append {expr1} to the value. Does not insert a comma like :set+= .

:let &{option-name} += {expr1}
:let &{option-name} -= {expr1}
For a number or boolean option: Add or subtract {expr1}.

:let &l:{option-name} = {expr1}
:let &l:{option-name} .= {expr1}
:let &l:{option-name} += {expr1}
:let &l:{option-name} -= {expr1}
Like above, but only set the local value of an option (if there is one). Works like :setlocal .

:let &g:{option-name} = {expr1}
:let &g:{option-name} .= {expr1}
:let &g:{option-name} += {expr1}
:let &g:{option-name} -= {expr1}
Like above, but only set the global value of an option (if there is one). Works like :setglobal .

:let [{name1}, {name2}, ...] = {expr1} :let-unpack E687 E688
{expr1} must evaluate to a List . The first item in

the list is assigned to {name1}, the second item to
{name2}, etc.
The number of names must match the number of items in
the List .
Each name can be one of the items of the ":let"
command as mentioned above.
Example:
:let [s, item] = GetItem(s)
Detail: {expr1} is evaluated first, then the
assignments are done in sequence. This matters if
{name2} depends on {name1}. Example:
:let x = [0, 1]
:let i = 0
:let [i, x[i]] = [1, 2]
:echo x
The result is [0, 2].

:let [{name1}, {name2}, ...] .= {expr1}
:let [{name1}, {name2}, ...] += {expr1}
:let [{name1}, {name2}, ...] -= {expr1}
Like above, but append/add/subtract the value for each
List item.

:let [{name}, ..., ; {lastname}] = {expr1}
Like :let-unpack above, but the List may have more
items than there are names. A list of the remaining
items is assigned to {lastname}. If there are no
remaining items {lastname} is set to an empty list.
Example:
:let [a, b; rest] = ["aval", "bval", 3, 4]

:let [{name}, ..., ; {lastname}] .= {expr1}
:let [{name}, ..., ; {lastname}] += {expr1}
:let [{name}, ..., ; {lastname}] -= {expr1}
Like above, but append/add/subtract the value for each
List item.

E121
:let {var-name} .. List the value of variable {var-name}. Multiple
variable names may be given. Special names recognized
here: E738
g: global variables
b: local buffer variables
w: local window variables
t: local tab page variables
s: script-local variables
l: local function variables
v: Vim variables.

:let List the values of all variables. The type of the
variable is indicated before the value:
<nothing> String
Number
* Funcref

```
:unl[et][!] {name} ...                                  :unlet   :unl   E108   E795
                        Remove the internal variable {name}.  Several variable
                        names can be given, they are all removed.  The name
                        may also be a  List  or  Dictionary  item.
                        With [!] no error message is given for non-existing
                        variables.
                        One or more items from a  List  can be removed:
                                :unlet list[3]    " remove fourth item
                                :unlet list[3:]   " remove fourth item to last
                       One item from a  Dictionary  can be removed at a time:
                                :unlet dict['two']
                                :unlet dict.two
                       This is especially useful to clean up used global
                        variables and script-local variables (these are not
                        deleted when the script ends).  Function-local
                        variables are automatically deleted when the function
                        ends.

:unl[et] ${env-name} ...                                :unlet-environment   :unlet-$
                        Remove environment variable {env-name}.
                        Can mix {name} and ${env-name} in one :unlet command.
                        No error message is given for a non-existing
                        variable, also without !.
                        If the system does not support deleting an environment
                        variable, it is made emtpy.

:lockv[ar][!] [depth] {name} ...                         :lockvar   :lockv
                        Lock the internal variable {name}.  Locking means that
                        it can no longer be changed (until it is unlocked).
                        A locked variable can be deleted:
                                :lockvar v
                                :let v = 'asdf'         " fails!
                                :unlet v
                                                        E741   E940
                        If you try to change a locked variable you get an
                        error message: "E741: Value is locked: {name}".
                        If you try to lock or unlock a built-in variable you
                        get an error message: "E940: Cannot lock or unlock
                        variable {name}".

                        [depth] is relevant when locking a  List  or
                         Dictionary .  It specifies how deep the locking goes:
                                1       Lock the  List  or  Dictionary  itself,
                                        cannot add or remove items, but can
                                        still change their values.
                                2       Also lock the values, cannot change
                                        the items.  If an item is a  List  or
                                         Dictionary , cannot add or remove
                                        items, but can still change the
                                        values.
                                3       Like 2 but for the  List  /
                                         Dictionary  in the  List  /
```

Dictionary , one level deeper.
The default [depth] is 2, thus when {name} is a List or Dictionary the values cannot be changed.
E743
For unlimited depth use [!] and omit [depth].
However, there is a maximum depth of 100 to catch loops.

Note that when two variables refer to the same List and you lock one of them, the List will also be locked when used through the other variable.
Example:
```
:let l = [0, 1, 2, 3]
:let cl = l
:lockvar l
:let cl[1] = 99         " won't work!
```
You may want to make a copy of a list to avoid this.
See deepcopy() .

:unlo[ckvar][!] [depth] {name} ... :unlockvar :unlo
Unlock the internal variable {name}. Does the opposite of :lockvar .

:if {expr1} :if :endif :en E171 E579 E580
:en[dif]
Execute the commands until the next matching ":else" or ":endif" if {expr1} evaluates to non-zero.

From Vim version 4.5 until 5.0, every Ex command in between the ":if" and ":endif" is ignored. These two commands were just to allow for future expansions in a backward compatible way. Nesting was allowed. Note that any ":else" or ":elseif" was ignored, the "else" part was not executed either.

You can use this to remain compatible with older versions:
```
:if version >= 500
:  version-5-specific-commands
:endif
```
The commands still need to be parsed to find the "endif". Sometimes an older Vim has a problem with a new command. For example, ":silent" is recognized as a ":substitute" command. In that case ":execute" can avoid problems:
```
:if version >= 600
:  execute "silent 1,$delete"
:endif
```

NOTE: The ":append" and ":insert" commands don't work properly in between ":if" and ":endif".

:else :el E581 E583

:el[se] Execute the commands until the next matching ":else" or ":endif" if they previously were not being executed.

:elseif :elsei E582 E584

:elsei[f] {expr1} Short for ":else" ":if", with the addition that there is no extra ":endif".

:wh[ile] {expr1} :while :endwhile :wh :endw E170 E585 E588 E733

:endw[hile] Repeat the commands between ":while" and ":endwhile", as long as {expr1} evaluates to non-zero.
When an error is detected from a command inside the loop, execution continues after the "endwhile".
Example:

```
:let lnum = 1
:while lnum <= line("$")
   :call FixLine(lnum)
   :let lnum = lnum + 1
:endwhile
```

NOTE: The ":append" and ":insert" commands don't work properly inside a ":while" and ":for" loop.

:for {var} in {list} :for E690 E732

:endfo[r] :endfo :endfor

Repeat the commands between ":for" and ":endfor" for each item in {list}. Variable {var} is set to the value of each item.
When an error is detected for a command inside the loop, execution continues after the "endfor".
Changing {list} inside the loop affects what items are used. Make a copy if this is unwanted:

```
:for item in copy(mylist)
```

When not making a copy, Vim stores a reference to the next item in the list, before executing the commands with the current item. Thus the current item can be removed without effect. Removing any later item means it will not be found. Thus the following example works (an inefficient way to make a list empty):

```
for item in mylist
   call remove(mylist, 0)
endfor
```

Note that reordering the list (e.g., with sort() or reverse()) may have unexpected effects.

:for [{var1}, {var2}, ...] in {listlist}

:endfo[r]

Like ":for" above, but each item in {listlist} must be a list, of which each item is assigned to {var1}, {var2}, etc. Example:

```
:for [lnum, col] in [[1, 3], [2, 5], [3, 8]]
   :echo getline(lnum)[col]
:endfor
```

:continue :con E586

:con[tinue] When used inside a ":while" or ":for" loop, jumps back to the start of the loop.
If it is used after a :try inside the loop but before the matching :finally (if present), the commands following the ":finally" up to the matching :endtry are executed first. This process applies to all nested ":try"s inside the loop. The outermost ":endtry" then jumps back to the start of the loop.

:break :brea E587

:brea[k] When used inside a ":while" or ":for" loop, skips to the command after the matching ":endwhile" or ":endfor".
If it is used after a :try inside the loop but before the matching :finally (if present), the commands following the ":finally" up to the matching :endtry are executed first. This process applies to all nested ":try"s inside the loop. The outermost ":endtry" then jumps to the command after the loop.

:try :try :endt :endtry E600 E601 E602

:endt[ry] Change the error handling for the commands between ":try" and ":endtry" including everything being executed across ":source" commands, function calls, or autocommand invocations.

When an error or interrupt is detected and there is a :finally command following, execution continues after the ":finally". Otherwise, or when the ":endtry" is reached thereafter, the next (dynamically) surrounding ":try" is checked for a corresponding ":finally" etc. Then the script processing is terminated. (Whether a function definition has an "abort" argument does not matter.) Example:

```
:try | edit too much | finally | echo "cleanup" | endtry
:echo "impossible"      " not reached, script terminated above
```

Moreover, an error or interrupt (dynamically) inside ":try" and ":endtry" is converted to an exception. It can be caught as if it were thrown by a :throw command (see :catch). In this case, the script processing is not terminated.

The value "Vim:Interrupt" is used for an interrupt exception. An error in a Vim command is converted to a value of the form "Vim({command}):{errmsg}", other errors are converted to a value of the form "Vim:{errmsg}". {command} is the full command name, and {errmsg} is the message that is displayed if the error exception is not caught, always beginning with the error number.

Examples:

```
:try | sleep 100 | catch /^Vim:Interrupt$/ | endtry
:try | edit | catch /^Vim(edit):E\d\+/ | echo "error" | endtry
```

:cat :catch E603 E604 E605

:cat[ch] /{pattern}/ The following commands until the next :catch , :finally , or :endtry that belongs to the same :try as the ":catch" are executed when an exception matching {pattern} is being thrown and has not yet been caught by a previous ":catch". Otherwise, these commands are skipped.
When {pattern} is omitted all errors are caught.
Examples:

```
:catch /^Vim:Interrupt$/        " catch interrupts (CTRL-C)
:catch /^Vim\%((\a\+)\)\=:E/    " catch all Vim errors
:catch /^Vim\%((\a\+)\)\=:/     " catch errors and interrupts
:catch /^Vim(write):/           " catch all errors in :write
:catch /^Vim\%((\a\+)\)\=:E123/ " catch error E123
:catch /my-exception/           " catch user exception
:catch /.*/                     " catch everything
:catch                          " same as /.*/
```

Another character can be used instead of / around the {pattern}, so long as it does not have a special meaning (e.g., '|' or '"') and doesn't occur inside {pattern}.
Information about the exception is available in v:exception . Also see throw-variables .
NOTE: It is not reliable to ":catch" the TEXT of an error message because it may vary in different locales.

:fina :finally E606 E607

:fina[lly] The following commands until the matching :endtry are executed whenever the part between the matching :try and the ":finally" is left: either by falling through to the ":finally" or by a :continue , :break , :finish , or :return , or by an error or interrupt or exception (see :throw).

:th :throw E608

:th[row] {expr1} The {expr1} is evaluated and thrown as an exception. If the ":throw" is used after a :try but before the first corresponding :catch , commands are skipped until the first ":catch" matching {expr1} is reached. If there is no such ":catch" or if the ":throw" is used after a ":catch" but before the :finally , the commands following the ":finally" (if present) up to the matching :endtry are executed. If the ":throw" is after the ":finally", commands up to the ":endtry" are skipped. At the ":endtry", this process applies again for the next dynamically surrounding ":try" (which may be found in a calling function or sourcing script), until a matching ":catch" has been found.

If the exception is not caught, the command processing is terminated.
Example:

```
:try | throw "oops" | catch /^oo/ | echo "caught" | endtry
```

Note that "catch" may need to be on a separate line for when an error causes the parsing to skip the whole line and not see the "|" that separates the commands.

:ec :echo

:ec[ho] {expr1} .. Echoes each {expr1}, with a space in between. The first {expr1} starts on a new line.
Also see :comment .
Use "\n" to start a new line. Use "\r" to move the cursor to the first column.
Uses the highlighting set by the :echohl command.
Cannot be followed by a comment.
Example:

```
:echo "the value of 'shell' is" &shell
```

:echo-redraw

A later redraw may make the message disappear again. And since Vim mostly postpones redrawing until it's finished with a sequence of commands this happens quite often. To avoid that a command from before the ":echo" causes a redraw afterwards (redraws are often postponed until you type something), force a redraw with the :redraw command. Example:

```
:new | redraw | echo "there is a new window"
```

:echon

:echon {expr1} .. Echoes each {expr1}, without anything added. Also see :comment .
Uses the highlighting set by the :echohl command.
Cannot be followed by a comment.
Example:

```
:echon "the value of 'shell' is " &shell
```

Note the difference between using ":echo", which is a Vim command, and ":!echo", which is an external shell command:

```
:!echo %                --> filename
```

The arguments of ":!" are expanded, see :_% .

```
:!echo "%"              --> filename or "filename"
```

Like the previous example. Whether you see the double quotes or not depends on your 'shell'.

```
:echo %                 --> nothing
```

The '%' is an illegal character in an expression.

```
:echo "%"               --> %
```

This just echoes the '%' character.

```
:echo expand("%")       --> filename
```

This calls the expand() function to expand the '%'.

:echoh :echohl

:echoh[l] {name} Use the highlight group {name} for the following :echo , :echon and :echomsg commands. Also used

for the input() prompt. Example:
:echohl WarningMsg | echo "Don't panic!" | echohl None
Don't forget to set the group back to "None",
otherwise all following echo's will be highlighted.

:echom :echomsg
:echom[sg] {expr1} .. Echo the expression(s) as a true message, saving the
message in the message-history .
Spaces are placed between the arguments as with the
:echo command. But unprintable characters are
displayed, not interpreted.
The parsing works slightly different from :echo ,
more like :execute . All the expressions are first
evaluated and concatenated before echoing anything.
The expressions must evaluate to a Number or String, a
Dictionary or List causes an error.
Uses the highlighting set by the :echohl command.
Example:
:echomsg "It's a Zizzer Zazzer Zuzz, as you can plainly see."
See :echo-redraw to avoid the message disappearing
when the screen is redrawn.

:echoe :echoerr
:echoe[rr] {expr1} .. Echo the expression(s) as an error message, saving the
message in the message-history . When used in a
script or function the line number will be added.
Spaces are placed between the arguments as with the
:echo command. When used inside a try conditional,
the message is raised as an error exception instead
(see try-echoerr).
Example:
:echoerr "This script just failed!"
If you just want a highlighted message use :echohl .
And to get a beep:
:exe "normal \<Esc>"

:exe :execute
:exe[cute] {expr1} .. Executes the string that results from the evaluation
of {expr1} as an Ex command.
Multiple arguments are concatenated, with a space in
between. To avoid the extra space use the "."
operator to concatenate strings into one argument.
{expr1} is used as the processed command, command line
editing keys are not recognized.
Cannot be followed by a comment.
Examples:
:execute "buffer" nextbuf
:execute "normal" count . "w"

":execute" can be used to append a command to commands
that don't accept a '|'. Example:
:execute '!ls' | echo "theend"

":execute" is also a nice way to avoid having to type
control characters in a Vim script for a ":normal"

command:
```
:execute "normal ixxx\<Esc>"
```
This has an <Esc> character, see expr-string .

Be careful to correctly escape special characters in file names. The fnameescape() function can be used for Vim commands, shellescape() for :! commands. Examples:
```
:execute "e " . fnameescape(filename)
:execute "!ls " . shellescape(filename, 1)
```

Note: The executed string may be any command-line, but starting or ending "if", "while" and "for" does not always work, because when commands are skipped the ":execute" is not evaluated and Vim loses track of where blocks start and end. Also "break" and "continue" should not be inside ":execute". This example does not work, because the ":execute" is not evaluated and Vim does not see the "while", and gives an error for finding an ":endwhile":
```
:if 0
: execute 'while i > 5'
:  echo "test"
: endwhile
:endif
```

It is allowed to have a "while" or "if" command completely in the executed string:
```
:execute 'while i < 5 | echo i | let i = i + 1 | endwhile'
```

:exe-comment

":execute", ":echo" and ":echon" cannot be followed by a comment directly, because they see the '"' as the start of a string. But, you can use '|' followed by a comment. Example:
```
:echo "foo" | "this is a comment
```

==========

8. Exception handling exception-handling

The Vim script language comprises an exception handling feature. This section explains how it can be used in a Vim script.

Exceptions may be raised by Vim on an error or on interrupt, see catch-errors and catch-interrupt . You can also explicitly throw an exception by using the ":throw" command, see throw-catch .

TRY CONDITIONALS try-conditionals

Exceptions can be caught or can cause cleanup code to be executed. You can use a try conditional to specify catch clauses (that catch exceptions) and/or a finally clause (to be executed for cleanup).

A try conditional begins with a :try command and ends at the matching :endtry command. In between, you can use a :catch command to start a catch clause, or a :finally command to start a finally clause. There may be none or multiple catch clauses, but there is at most one finally clause, which must not be followed by any catch clauses. The lines before the catch clauses and the finally clause is called a try block.

```
:try
:  ...
:  ...                              TRY BLOCK
:  ...
:catch /{pattern}/
:  ...
:  ...                              CATCH CLAUSE
:  ...
:catch /{pattern}/
:  ...
:  ...                              CATCH CLAUSE
:  ...
:finally
:  ...
:  ...                              FINALLY CLAUSE
:  ...
:endtry
```

The try conditional allows to watch code for exceptions and to take the appropriate actions. Exceptions from the try block may be caught. Exceptions from the try block and also the catch clauses may cause cleanup actions.

When no exception is thrown during execution of the try block, the control is transferred to the finally clause, if present. After its execution, the script continues with the line following the ":endtry".

When an exception occurs during execution of the try block, the remaining lines in the try block are skipped. The exception is matched against the patterns specified as arguments to the ":catch" commands. The catch clause after the first matching ":catch" is taken, other catch clauses are not executed. The catch clause ends when the next ":catch", ":finally", or ":endtry" command is reached - whatever is first. Then, the finally clause (if present) is executed. When the ":endtry" is reached, the script execution continues in the following line as usual.

When an exception that does not match any of the patterns specified by the ":catch" commands is thrown in the try block, the exception is not caught by that try conditional and none of the catch clauses is executed. Only the finally clause, if present, is taken. The exception pends during execution of the finally clause. It is resumed at the ":endtry", so that commands after the ":endtry" are not executed and the exception might be caught elsewhere, see try-nesting .

When during execution of a catch clause another exception is thrown, the remaining lines in that catch clause are not executed. The new exception is not matched against the patterns in any of the ":catch" commands of the same try conditional and none of its catch clauses is taken. If there is, however, a finally clause, it is executed, and the exception pends during its execution. The commands following the ":endtry" are not executed. The new exception might, however, be caught elsewhere, see try-nesting .

When during execution of the finally clause (if present) an exception is

thrown, the remaining lines in the finally clause are skipped. If the finally clause has been taken because of an exception from the try block or one of the catch clauses, the original (pending) exception is discarded. The commands following the ":endtry" are not executed, and the exception from the finally clause is propagated and can be caught elsewhere, see try-nesting .

The finally clause is also executed, when a ":break" or ":continue" for a ":while" loop enclosing the complete try conditional is executed from the try block or a catch clause. Or when a ":return" or ":finish" is executed from the try block or a catch clause of a try conditional in a function or sourced script, respectively. The ":break", ":continue", ":return", or ":finish" pends during execution of the finally clause and is resumed when the ":endtry" is reached. It is, however, discarded when an exception is thrown from the finally clause.

When a ":break" or ":continue" for a ":while" loop enclosing the complete try conditional or when a ":return" or ":finish" is encountered in the finally clause, the rest of the finally clause is skipped, and the ":break", ":continue", ":return" or ":finish" is executed as usual. If the finally clause has been taken because of an exception or an earlier ":break", ":continue", ":return", or ":finish" from the try block or a catch clause, this pending exception or command is discarded.

For examples see throw-catch and try-finally .

NESTING OF TRY CONDITIONALS try-nesting

Try conditionals can be nested arbitrarily. That is, a complete try conditional can be put into the try block, a catch clause, or the finally clause of another try conditional. If the inner try conditional does not catch an exception thrown in its try block or throws a new exception from one of its catch clauses or its finally clause, the outer try conditional is checked according to the rules above. If the inner try conditional is in the try block of the outer try conditional, its catch clauses are checked, but otherwise only the finally clause is executed. It does not matter for nesting, whether the inner try conditional is directly contained in the outer one, or whether the outer one sources a script or calls a function containing the inner try conditional.

When none of the active try conditionals catches an exception, just their finally clauses are executed. Thereafter, the script processing terminates. An error message is displayed in case of an uncaught exception explicitly thrown by a ":throw" command. For uncaught error and interrupt exceptions implicitly raised by Vim, the error message(s) or interrupt message are shown as usual.

For examples see throw-catch .

EXAMINING EXCEPTION HANDLING CODE except-examine

Exception handling code can get tricky. If you are in doubt what happens, set 'verbose' to 13 or use the ":13verbose" command modifier when sourcing your script file. Then you see when an exception is thrown, discarded, caught, or

finished. When using a verbosity level of at least 14, things pending in a finally clause are also shown. This information is also given in debug mode (see debug-scripts).

THROWING AND CATCHING EXCEPTIONS throw-catch

You can throw any number or string as an exception. Use the :throw command and pass the value to be thrown as argument:

```
:throw 4711
:throw "string"
```

throw-expression

You can also specify an expression argument. The expression is then evaluated first, and the result is thrown:

```
:throw 4705 + strlen("string")
:throw strpart("strings", 0, 6)
```

An exception might be thrown during evaluation of the argument of the ":throw" command. Unless it is caught there, the expression evaluation is abandoned. The ":throw" command then does not throw a new exception.
Example:

```
:function! Foo(arg)
:  try
:    throw a:arg
:  catch /foo/
:  endtry
:  return 1
:endfunction
:
:function! Bar()
:  echo "in Bar"
:  return 4710
:endfunction
:
:throw Foo("arrgh") + Bar()
```

This throws "arrgh", and "in Bar" is not displayed since Bar() is not executed.

```
:throw Foo("foo") + Bar()
```

however displays "in Bar" and throws 4711.

Any other command that takes an expression as argument might also be abandoned by an (uncaught) exception during the expression evaluation. The exception is then propagated to the caller of the command.
Example:

```
:if Foo("arrgh")
:  echo "then"
:else
:  echo "else"
:endif
```

Here neither of "then" or "else" is displayed.

catch-order

Exceptions can be caught by a try conditional with one or more :catch commands, see try-conditionals . The values to be caught by each ":catch" command can be specified as a pattern argument. The subsequent catch clause gets executed when a matching exception is caught.
Example:

```
:function! Foo(value)
:  try
:    throw a:value
:  catch /^\d\+$/
:    echo "Number thrown"
:  catch /.*/
:    echo "String thrown"
:  endtry
:endfunction
:
:call Foo(0x1267)
:call Foo('string')
```

The first call to Foo() displays "Number thrown", the second "String thrown". An exception is matched against the ":catch" commands in the order they are specified. Only the first match counts. So you should place the more specific ":catch" first. The following order does not make sense:

```
:  catch /.*/
:    echo "String thrown"
:  catch /^\d\+$/
:    echo "Number thrown"
```

The first ":catch" here matches always, so that the second catch clause is never taken.

throw-variables

If you catch an exception by a general pattern, you may access the exact value in the variable v:exception :

```
:  catch /^\d\+$/
:    echo "Number thrown.  Value is" v:exception
```

You may also be interested where an exception was thrown. This is stored in v:throwpoint . Note that "v:exception" and "v:throwpoint" are valid for the exception most recently caught as long it is not finished.
Example:

```
:function! Caught()
:  if v:exception != ""
:    echo 'Caught "' . v:exception . '" in ' . v:throwpoint
:  else
:    echo 'Nothing caught'
:  endif
:endfunction
:
```

```
:function! Foo()
:  try
:    try
:      try
:        throw 4711
:      finally
:        call Caught()
:      endtry
:    catch /.*/
:      call Caught()
:      throw "oops"
:    endtry
:  catch /.*/
:    call Caught()
:  finally
:    call Caught()
:  endtry
:endfunction
:
:call Foo()
```

This displays

```
Nothing caught
Caught "4711" in function Foo, line 4
Caught "oops" in function Foo, line 10
Nothing caught
```

A practical example: The following command ":LineNumber" displays the line number in the script or function where it has been used:

```
:function! LineNumber()
:    return substitute(v:throwpoint, '.*\D\(\d\+\).*', '\1', "")
:endfunction
:command! LineNumber try | throw "" | catch | echo LineNumber() | endtry
```

try-nested

An exception that is not caught by a try conditional can be caught by a surrounding try conditional:

```
:try
:  try
:    throw "foo"
:  catch /foobar/
:    echo "foobar"
:  finally
:    echo "inner finally"
:  endtry
:catch /foo/
:  echo "foo"
:endtry
```

The inner try conditional does not catch the exception, just its finally clause is executed. The exception is then caught by the outer try

conditional. The example displays "inner finally" and then "foo".

throw-from-catch

You can catch an exception and throw a new one to be caught elsewhere from the catch clause:

```
:function! Foo()
:  throw "foo"
:endfunction
:
:function! Bar()
:  try
:    call Foo()
:  catch /foo/
:    echo "Caught foo, throw bar"
:    throw "bar"
:  endtry
:endfunction
:
:try
:  call Bar()
:catch /.*/
:  echo "Caught" v:exception
:endtry
```

This displays "Caught foo, throw bar" and then "Caught bar".

rethrow

There is no real rethrow in the Vim script language, but you may throw "v:exception" instead:

```
:function! Bar()
:  try
:    call Foo()
:  catch /.*/
:    echo "Rethrow" v:exception
:    throw v:exception
:  endtry
:endfunction
```

try-echoerr

Note that this method cannot be used to "rethrow" Vim error or interrupt exceptions, because it is not possible to fake Vim internal exceptions. Trying so causes an error exception. You should throw your own exception denoting the situation. If you want to cause a Vim error exception containing the original error exception value, you can use the :echoerr command:

```
:try
:  try
:    asdf
:  catch /.*/
:    echoerr v:exception
:  endtry
:catch /.*/
:  echo v:exception
```

```
:endtry
```

This code displays

```
Vim(echoerr):Vim:E492: Not an editor command:   asdf
```

CLEANUP CODE try-finally

Scripts often change global settings and restore them at their end. If the user however interrupts the script by pressing CTRL-C, the settings remain in an inconsistent state. The same may happen to you in the development phase of a script when an error occurs or you explicitly throw an exception without catching it. You can solve these problems by using a try conditional with a finally clause for restoring the settings. Its execution is guaranteed on normal control flow, on error, on an explicit ":throw", and on interrupt. (Note that errors and interrupts from inside the try conditional are converted to exceptions. When not caught, they terminate the script after the finally clause has been executed.)
Example:

```
:try
:  let s:saved_ts = &ts
:  set ts=17
:
:  " Do the hard work here.
:
:finally
:  let &ts = s:saved_ts
:  unlet s:saved_ts
:endtry
```

This method should be used locally whenever a function or part of a script changes global settings which need to be restored on failure or normal exit of that function or script part.

break-finally

Cleanup code works also when the try block or a catch clause is left by a ":continue", ":break", ":return", or ":finish".
Example:

```
:let first = 1
:while 1
:  try
:    if first
:      echo "first"
:      let first = 0
:      continue
:    else
:      throw "second"
:    endif
:  catch /.*/
:    echo v:exception
:    break
```

```
:  finally
:    echo "cleanup"
:  endtry
:  echo "still in while"
:endwhile
:echo "end"
```

This displays "first", "cleanup", "second", "cleanup", and "end".

```
:function! Foo()
:  try
:    return 4711
:  finally
:    echo "cleanup\n"
:  endtry
:  echo "Foo still active"
:endfunction
:
:echo Foo() "returned by Foo"
```

This displays "cleanup" and "4711 returned by Foo". You don't need to add an extra ":return" in the finally clause. (Above all, this would override the return value.)

except-from-finally

Using either of ":continue", ":break", ":return", ":finish", or ":throw" in a finally clause is possible, but not recommended since it abandons the cleanup actions for the try conditional. But, of course, interrupt and error exceptions might get raised from a finally clause.

Example where an error in the finally clause stops an interrupt from working correctly:

```
:try
:  try
:    echo "Press CTRL-C for interrupt"
:    while 1
:    endwhile
:  finally
:    unlet novar
:  endtry
:catch /novar/
:endtry
:echo "Script still running"
:sleep 1
```

If you need to put commands that could fail into a finally clause, you should think about catching or ignoring the errors in these commands, see catch-errors and ignore-errors .

CATCHING ERRORS

catch-errors

If you want to catch specific errors, you just have to put the code to be watched in a try block and add a catch clause for the error message. The

presence of the try conditional causes all errors to be converted to an exception. No message is displayed and v:errmsg is not set then. To find the right pattern for the ":catch" command, you have to know how the format of the error exception is.
   Error exceptions have the following format:

        Vim({cmdname}):{errmsg}
or
        Vim:{errmsg}

{cmdname} is the name of the command that failed; the second form is used when the command name is not known. {errmsg} is the error message usually produced when the error occurs outside try conditionals. It always begins with a capital "E", followed by a two or three-digit error number, a colon, and a space.

Examples:

The command
        :unlet novar
normally produces the error message
        E108: No such variable: "novar"
which is converted inside try conditionals to an exception
        Vim(unlet):E108: No such variable: "novar"

The command
        :dwim
normally produces the error message
        E492: Not an editor command: dwim
which is converted inside try conditionals to an exception
        Vim:E492: Not an editor command: dwim

You can catch all ":unlet" errors by a
        :catch /^Vim(unlet):/
or all errors for misspelled command names by a
        :catch /^Vim:E492:/

Some error messages may be produced by different commands:
        :function nofunc
and
        :delfunction nofunc
both produce the error message
        E128: Function name must start with a capital: nofunc
which is converted inside try conditionals to an exception
        Vim(function):E128: Function name must start with a capital: nofunc
or
        Vim(delfunction):E128: Function name must start with a capital: nofunc
respectively. You can catch the error by its number independently on the command that caused it if you use the following pattern:
        :catch /^Vim(\a\+):E128:/

Some commands like
        :let x = novar
produce multiple error messages, here:

```
        E121: Undefined variable: novar
        E15: Invalid expression:  novar
```
Only the first is used for the exception value, since it is the most specific one (see except-several-errors). So you can catch it by
```
        :catch /^Vim(\a\+):E121:/
```

You can catch all errors related to the name "nofunc" by
```
        :catch /\<nofunc\>/
```

You can catch all Vim errors in the ":write" and ":read" commands by
```
        :catch /^Vim(\(write\|read\)):E\d\+:/
```

You can catch all Vim errors by the pattern
```
        :catch /^Vim\((\a\+)\)\=:E\d\+:/
```

catch-text

NOTE: You should never catch the error message text itself:
```
        :catch /No such variable/
```
only works in the English locale, but not when the user has selected a different language by the :language command. It is however helpful to cite the message text in a comment:
```
        :catch /^Vim(\a\+):E108:/   " No such variable
```

IGNORING ERRORS

ignore-errors

You can ignore errors in a specific Vim command by catching them locally:

```
        :try
        :  write
        :catch
        :endtry
```

But you are strongly recommended NOT to use this simple form, since it could catch more than you want. With the ":write" command, some autocommands could be executed and cause errors not related to writing, for instance:

```
        :au BufWritePre * unlet novar
```

There could even be such errors you are not responsible for as a script writer: a user of your script might have defined such autocommands. You would then hide the error from the user.
   It is much better to use

```
        :try
        :  write
        :catch /^Vim(write):/
        :endtry
```

which only catches real write errors. So catch only what you'd like to ignore intentionally.

For a single command that does not cause execution of autocommands, you could even suppress the conversion of errors to exceptions by the ":silent!"

command:

```
:silent! nunmap k
```

This works also when a try conditional is active.

CATCHING INTERRUPTS catch-interrupt

When there are active try conditionals, an interrupt (CTRL-C) is converted to the exception "Vim:Interrupt". You can catch it like every exception. The script is not terminated, then.

Example:

```
:function! TASK1()
:  sleep 10
:endfunction

:function! TASK2()
:  sleep 20
:endfunction

:while 1
:  let command = input("Type a command: ")
:  try
:    if command == ""
:      continue
:    elseif command == "END"
:      break
:    elseif command == "TASK1"
:      call TASK1()
:    elseif command == "TASK2"
:      call TASK2()
:    else
:      echo "\nIllegal command:" command
:      continue
:    endif
:  catch /^Vim:Interrupt$/
:    echo "\nCommand interrupted"
:    " Caught the interrupt.  Continue with next prompt.
:  endtry
:endwhile
```

You can interrupt a task here by pressing CTRL-C; the script then asks for a new command. If you press CTRL-C at the prompt, the script is terminated.

For testing what happens when CTRL-C would be pressed on a specific line in your script, use the debug mode and execute the >quit or >interrupt command on that line. See debug-scripts .

CATCHING ALL catch-all

The commands

```
:catch /.*/
```

```
:catch //
:catch
```

catch everything, error exceptions, interrupt exceptions and exceptions explicitly thrown by the :throw command. This is useful at the top level of a script in order to catch unexpected things.
Example:

```
:try
:
:  " do the hard work here
:
:catch /MyException/
:
:  " handle known problem
:
:catch /^Vim:Interrupt$/
:    echo "Script interrupted"
:catch /.*/
:  echo "Internal error (" . v:exception . ")"
:  echo " - occurred at " . v:throwpoint
:endtry
:" end of script
```

Note: Catching all might catch more things than you want. Thus, you are strongly encouraged to catch only for problems that you can really handle by specifying a pattern argument to the ":catch".
Example: Catching all could make it nearly impossible to interrupt a script by pressing CTRL-C:

```
:while 1
:  try
:    sleep 1
:  catch
:  endtry
:endwhile
```

EXCEPTIONS AND AUTOCOMMANDS except-autocmd

Exceptions may be used during execution of autocommands. Example:

```
:autocmd User x try
:autocmd User x   throw "Oops!"
:autocmd User x catch
:autocmd User x   echo v:exception
:autocmd User x endtry
:autocmd User x throw "Arrgh!"
:autocmd User x echo "Should not be displayed"
:
:try
:  doautocmd User x
:catch
:  echo v:exception
```

```
        :endtry
```

This displays "Oops!" and "Arrgh!".

except-autocmd-Pre

For some commands, autocommands get executed before the main action of the command takes place. If an exception is thrown and not caught in the sequence of autocommands, the sequence and the command that caused its execution are abandoned and the exception is propagated to the caller of the command.
Example:

```
        :autocmd BufWritePre * throw "FAIL"
        :autocmd BufWritePre * echo "Should not be displayed"
        :
        :try
        :  write
        :catch
        :  echo "Caught:" v:exception "from" v:throwpoint
        :endtry
```

Here, the ":write" command does not write the file currently being edited (as you can see by checking 'modified'), since the exception from the BufWritePre autocommand abandons the ":write". The exception is then caught and the script displays:

```
        Caught: FAIL from BufWrite Auto commands for "*"
```

except-autocmd-Post

For some commands, autocommands get executed after the main action of the command has taken place. If this main action fails and the command is inside an active try conditional, the autocommands are skipped and an error exception is thrown that can be caught by the caller of the command.
Example:

```
        :autocmd BufWritePost * echo "File successfully written!"
        :
        :try
        :  write /i/m/p/o/s/s/i/b/l/e
        :catch
        :  echo v:exception
        :endtry
```

This just displays:

```
        Vim(write):E212: Can't open file for writing (/i/m/p/o/s/s/i/b/l/e)
```

If you really need to execute the autocommands even when the main action fails, trigger the event from the catch clause.
Example:

```
        :autocmd BufWritePre  * set noreadonly
        :autocmd BufWritePost * set readonly
        :
        :try
```

```
:  write /i/m/p/o/s/s/i/b/l/e
:catch
:  doautocmd BufWritePost /i/m/p/o/s/s/i/b/l/e
:endtry
```

You can also use ":silent!":

```
:let x = "ok"
:let v:errmsg = ""
:autocmd BufWritePost * if v:errmsg != ""
:autocmd BufWritePost *   let x = "after fail"
:autocmd BufWritePost * endif
:try
:  silent! write /i/m/p/o/s/s/i/b/l/e
:catch
:endtry
:echo x
```

This displays "after fail".

If the main action of the command does not fail, exceptions from the autocommands will be catchable by the caller of the command:

```
:autocmd BufWritePost * throw ":-("
:autocmd BufWritePost * echo "Should not be displayed"
:
:try
:  write
:catch
:  echo v:exception
:endtry
```

except-autocmd-Cmd

For some commands, the normal action can be replaced by a sequence of autocommands. Exceptions from that sequence will be catchable by the caller of the command.

Example: For the ":write" command, the caller cannot know whether the file had actually been written when the exception occurred. You need to tell it in some way.

```
:if !exists("cnt")
:  let cnt = 0
:
:  autocmd BufWriteCmd * if &modified
:  autocmd BufWriteCmd *   let cnt = cnt + 1
:  autocmd BufWriteCmd *   if cnt % 3 == 2
:  autocmd BufWriteCmd *     throw "BufWriteCmdError"
:  autocmd BufWriteCmd *   endif
:  autocmd BufWriteCmd *   write | set nomodified
:  autocmd BufWriteCmd *   if cnt % 3 == 0
:  autocmd BufWriteCmd *     throw "BufWriteCmdError"
:  autocmd BufWriteCmd *   endif
:  autocmd BufWriteCmd *   echo "File successfully written!"
:  autocmd BufWriteCmd * endif
```

```
:endif
:
:try
:       write
:catch /^BufWriteCmdError$/
:  if &modified
:    echo "Error on writing (file contents not changed)"
:  else
:    echo "Error after writing"
:  endif
:catch /^Vim(write):/
:    echo "Error on writing"
:endtry
```

When this script is sourced several times after making changes, it displays first

```
File successfully written!
```

then

```
Error on writing (file contents not changed)
```

then

```
Error after writing
```

etc.

except-autocmd-ill

You cannot spread a try conditional over autocommands for different events. The following code is ill-formed:

```
:autocmd BufWritePre  * try
:
:autocmd BufWritePost * catch
:autocmd BufWritePost *   echo v:exception
:autocmd BufWritePost * endtry
:
:write
```

EXCEPTION HIERARCHIES AND PARAMETERIZED EXCEPTIONS except-hier-param

Some programming languages allow to use hierarchies of exception classes or to pass additional information with the object of an exception class. You can do similar things in Vim.

In order to throw an exception from a hierarchy, just throw the complete class name with the components separated by a colon, for instance throw the string "EXCEPT:MATHERR:OVERFLOW" for an overflow in a mathematical library.

When you want to pass additional information with your exception class, add it in parentheses, for instance throw the string "EXCEPT:IO:WRITEERR(myfile)" for an error when writing "myfile".

With the appropriate patterns in the ":catch" command, you can catch for base classes or derived classes of your hierarchy. Additional information in parentheses can be cut out from v:exception with the ":substitute" command.

Example:

```
:function! CheckRange(a, func)
:  if a:a < 0
```

```
:    throw "EXCEPT:MATHERR:RANGE(" . a:func . ")"
:  endif
:endfunction
:
:function! Add(a, b)
:  call CheckRange(a:a, "Add")
:  call CheckRange(a:b, "Add")
:  let c = a:a + a:b
:  if c < 0
:    throw "EXCEPT:MATHERR:OVERFLOW"
:  endif
:  return c
:endfunction
:
:function! Div(a, b)
:  call CheckRange(a:a, "Div")
:  call CheckRange(a:b, "Div")
:  if (a:b == 0)
:    throw "EXCEPT:MATHERR:ZERODIV"
:  endif
:  return a:a / a:b
:endfunction
:
:function! Write(file)
:  try
:    execute "write" fnameescape(a:file)
:  catch /^Vim(write):/
:    throw "EXCEPT:IO(" . getcwd() . ", " . a:file . "):WRITEERR"
:  endtry
:endfunction
:
:try
:
:  " something with arithmetics and I/O
:
:catch /^EXCEPT:MATHERR:RANGE/
:  let function = substitute(v:exception, '.*(\(\a\+\)).*', '\1', "")
:  echo "Range error in" function
:
:catch /^EXCEPT:MATHERR/        " catches OVERFLOW and ZERODIV
:  echo "Math error"
:
:catch /^EXCEPT:IO/
:  let dir = substitute(v:exception, '.*(\(.\+\),\s*.\+).*', '\1', "")
:  let file = substitute(v:exception, '.*(.\+,\s*\(.\+\)).*', '\1', "")
:  if file !~ '^/'
:    let file = dir . "/" . file
:  endif
:  echo 'I/O error for "' . file . '"'
:
:catch /^EXCEPT/
:  echo "Unspecified error"
:
:endtry
```

The exceptions raised by Vim itself (on error or when pressing CTRL-C) use a flat hierarchy: they are all in the "Vim" class. You cannot throw yourself exceptions with the "Vim" prefix; they are reserved for Vim.

Vim error exceptions are parameterized with the name of the command that failed, if known. See catch-errors .

PECULIARITIES

except-compat

The exception handling concept requires that the command sequence causing the exception is aborted immediately and control is transferred to finally clauses and/or a catch clause.

In the Vim script language there are cases where scripts and functions continue after an error: in functions without the "abort" flag or in a command after ":silent!", control flow goes to the following line, and outside functions, control flow goes to the line following the outermost ":endwhile" or ":endif". On the other hand, errors should be catchable as exceptions (thus, requiring the immediate abortion).

This problem has been solved by converting errors to exceptions and using immediate abortion (if not suppressed by ":silent!") only when a try conditional is active. This is no restriction since an (error) exception can be caught only from an active try conditional. If you want an immediate termination without catching the error, just use a try conditional without catch clause. (You can cause cleanup code being executed before termination by specifying a finally clause.)

When no try conditional is active, the usual abortion and continuation behavior is used instead of immediate abortion. This ensures compatibility of scripts written for Vim 6.1 and earlier.

However, when sourcing an existing script that does not use exception handling commands (or when calling one of its functions) from inside an active try conditional of a new script, you might change the control flow of the existing script on error. You get the immediate abortion on error and can catch the error in the new script. If however the sourced script suppresses error messages by using the ":silent!" command (checking for errors by testing v:errmsg if appropriate), its execution path is not changed. The error is not converted to an exception. (See :silent .) So the only remaining cause where this happens is for scripts that don't care about errors and produce error messages. You probably won't want to use such code from your new scripts.

except-syntax-err

Syntax errors in the exception handling commands are never caught by any of the ":catch" commands of the try conditional they belong to. Its finally clauses, however, is executed.

Example:

```
:try
:  try
:    throw 4711
```

```
        :  catch /\(/
        :    echo "in catch with syntax error"
        :  catch
        :    echo "inner catch-all"
        :  finally
        :    echo "inner finally"
        :  endtry
        :catch
        :  echo 'outer catch-all caught "' . v:exception . '"'
        :  finally
        :    echo "outer finally"
        :endtry
```

This displays:

```
    inner finally
    outer catch-all caught "Vim(catch):E54: Unmatched \("
    outer finally
```

The original exception is discarded and an error exception is raised, instead.

except-single-line

The ":try", ":catch", ":finally", and ":endtry" commands can be put on a single line, but then syntax errors may make it difficult to recognize the "catch" line, thus you better avoid this.

Example:

```
        :try | unlet! foo # | catch | endtry
```

raises an error exception for the trailing characters after the ":unlet!" argument, but does not see the ":catch" and ":endtry" commands, so that the error exception is discarded and the "E488: Trailing characters" message gets displayed.

except-several-errors

When several errors appear in a single command, the first error message is usually the most specific one and therefor converted to the error exception.

Example:

```
        echo novar
```

causes

```
        E121: Undefined variable: novar
        E15: Invalid expression: novar
```

The value of the error exception inside try conditionals is:

```
        Vim(echo):E121: Undefined variable: novar
```

except-syntax-error

But when a syntax error is detected after a normal error in the same command, the syntax error is used for the exception being thrown.

Example:

```
        unlet novar #
```

causes

```
        E108: No such variable: "novar"
        E488: Trailing characters
```

The value of the error exception inside try conditionals is:

```
        Vim(unlet):E488: Trailing characters
```

This is done because the syntax error might change the execution path in a way not intended by the user. Example:

```
        try
            try | unlet novar # | catch | echo v:exception | endtry
```

```
        catch /.*/
            echo "outer catch:" v:exception
        endtry
```
This displays "outer catch: Vim(unlet):E488: Trailing characters", and then
a "E600: Missing :endtry" error message is given, see except-single-line .

==
9. Examples eval-examples

Printing in Binary

```
  :" The function Nr2Bin() returns the binary string representation of a number.
  :func Nr2Bin(nr)
  :  let n = a:nr
  :  let r = ""
  :  while n
  :    let r = '01'[n % 2] . r
  :    let n = n / 2
  :  endwhile
  :  return r
  :endfunc

  :" The function String2Bin() converts each character in a string to a
  :" binary string, separated with dashes.
  :func String2Bin(str)
  :  let out = ''
  :  for ix in range(strlen(a:str))
  :    let out = out . '-' . Nr2Bin(char2nr(a:str[ix]))
  :  endfor
  :  return out[1:]
  :endfunc
```

Example of its use:
```
  :echo Nr2Bin(32)
result: "100000"
  :echo String2Bin("32")
result: "110011-110010"
```

Sorting lines

This example sorts lines with a specific compare function.

```
  :func SortBuffer()
  :  let lines = getline(1, '$')
  :  call sort(lines, function("Strcmp"))
  :  call setline(1, lines)
  :endfunction
```

As a one-liner:
```
  :call setline(1, sort(getline(1, '$'), function("Strcmp")))
```

scanf() replacement

sscanf

There is no sscanf() function in Vim. If you need to extract parts from a line, you can use matchstr() and substitute() to do it. This example shows how to get the file name, line number and column number out of a line like "foobar.txt, 123, 45".

```
:" Set up the match bit
:let mx='\(\f\+\),\s*\(\d\+\),\s*\(\d\+\)'
:"get the part matching the whole expression
:let l = matchstr(line, mx)
:"get each item out of the match
:let file = substitute(l, mx, '\1', '')
:let lnum = substitute(l, mx, '\2', '')
:let col = substitute(l, mx, '\3', '')
```

The input is in the variable "line", the results in the variables "file", "lnum" and "col". (idea from Michael Geddes)

getting the scriptnames in a Dictionary

scriptnames-dictionary

The :scriptnames command can be used to get a list of all script files that have been sourced. There is no equivalent function or variable for this (because it's rarely needed). In case you need to manipulate the list this code can be used:

```
" Get the output of ":scriptnames" in the scriptnames_output variable.
let scriptnames_output = ''
redir => scriptnames_output
silent scriptnames
redir END

" Split the output into lines and parse each line.  Add an entry to the
" "scripts" dictionary.
let scripts = {}
for line in split(scriptnames_output, "\n")
  " Only do non-blank lines.
  if line =~ '\S'
    " Get the first number in the line.
    let nr = matchstr(line, '\d\+')
    " Get the file name, remove the script number " 123: ".
    let name = substitute(line, '.\+:\s*', '', '')
    " Add an item to the Dictionary
    let scripts[nr] = name
  endif
endfor
unlet scriptnames_output
```

==

10. No +eval feature

no-eval-feature

When the +eval feature was disabled at compile time, none of the expression evaluation commands are available. To prevent this from causing Vim scripts to generate all kinds of errors, the ":if" and ":endif" commands are still recognized, though the argument of the ":if" and everything between the ":if" and the matching ":endif" is ignored. Nesting of ":if" blocks is allowed, but

only if the commands are at the start of the line. The ":else" command is not recognized.

Example of how to avoid executing commands when the +eval feature is missing:

```
:if 1
:  echo "Expression evaluation is compiled in"
:else
:  echo "You will _never_ see this message"
:endif
```

To execute a command only when the +eval feature is disabled requires a trick, as this example shows:

```
silent! while 0
  set history=111
silent! endwhile
```

When the +eval feature is available the command is skipped because of the "while 0". Without the +eval feature the "while 0" is an error, which is silently ignored, and the command is executed.

==
11. The sandbox   eval-sandbox sandbox E48

The 'foldexpr', 'formatexpr', 'includeexpr', 'indentexpr', 'statusline' and 'foldtext' options may be evaluated in a sandbox. This means that you are protected from these expressions having nasty side effects. This gives some safety for when these options are set from a modeline. It is also used when the command from a tags file is executed and for CTRL-R = in the command line. The sandbox is also used for the :sandbox command.

These items are not allowed in the sandbox:
- changing the buffer text
- defining or changing mapping, autocommands, user commands
- setting certain options (see option-summary)
- setting certain v: variables (see v:var) E794
- executing a shell command
- reading or writing a file
- jumping to another buffer or editing a file
- executing Python, Perl, etc. commands

This is not guaranteed 100% secure, but it should block most attacks.

                                                    :san :sandbox
:san[dbox] {cmd}   Execute {cmd} in the sandbox. Useful to evaluate an
                        option that may have been set from a modeline, e.g.
                        'foldexpr'.

                                                    sandbox-option
A few options contain an expression. When this expression is evaluated it may have to be done in the sandbox to avoid a security risk. But the sandbox is restrictive, thus this only happens when the option was set from an insecure location. Insecure in this context are:

- sourcing a .vimrc or .exrc in the current directory
- while executing in the sandbox
- value coming from a modeline
- executing a function that was defined in the sandbox

Note that when in the sandbox and saving an option value and restoring it, the option will still be marked as it was set in the sandbox.

==
12. Textlock   textlock

In a few situations it is not allowed to change the text in the buffer, jump to another window and some other things that might confuse or break what Vim is currently doing. This mostly applies to things that happen when Vim is actually doing something else. For example, evaluating the 'balloonexpr' may happen any moment the mouse cursor is resting at some position.

This is not allowed when the textlock is active:
        - changing the buffer text
        - jumping to another buffer or window
        - editing another file
        - closing a window or quitting Vim
        - etc.

==
13. Testing   testing

Vim can be tested after building it, usually with "make test".
The tests are located in the directory "src/testdir".

There are several types of tests added over time:
        test33.in   oldest, don't add any more
        test_something.in   old style tests
        test_something.vim   new style tests

                                                        new-style-testing
New tests should be added as new style tests. These use functions such as assert_equal() to keep the test commands and the expected result in one place.
                                                        old-style-testing
In some cases an old style test needs to be used. E.g. when testing Vim without the +eval feature.

Find more information in the file src/testdir/README.txt.

 vim:tw=78:ts=8:noet:ft=help:norl:

fold.txt For Vim version 8.1. Last change: 2017 Mar 18

VIM REFERENCE MANUAL by Bram Moolenaar

Folding Folding folding folds

You can find an introduction on folding in chapter 28 of the user manual.
usr_28.txt

{Vi has no Folding}
{not available when compiled without the |+folding| feature}

==========
1. Fold methods fold-methods

The folding method can be set with the 'foldmethod' option.

When setting 'foldmethod' to a value other than "manual", all folds are deleted and new ones created. Switching to the "manual" method doesn't remove the existing folds. This can be used to first define the folds automatically and then change them manually.

There are six methods to select folds:

manual	manually define folds
indent	more indent means a higher fold level
expr	specify an expression to define folds
syntax	folds defined by syntax highlighting
diff	folds for unchanged text
marker	folds defined by markers in the text

MANUAL fold-manual

Use commands to manually define the fold regions. This can also be used by a script that parses text to find folds.

The level of a fold is only defined by its nesting. To increase the fold level of a fold for a range of lines, define a fold inside it that has the same lines.

The manual folds are lost when you abandon the file. To save the folds use the :mkview command. The view can be restored later with :loadview .

INDENT fold-indent

The folds are automatically defined by the indent of the lines.

The foldlevel is computed from the indent of the line, divided by the 'shiftwidth' (rounded down). A sequence of lines with the same or higher fold level form a fold, with the lines with a higher level forming a nested fold.

The nesting of folds is limited with 'foldnestmax'.

Some lines are ignored and get the fold level of the line above or below it, whichever is lower. These are empty or white lines and lines starting with a character in 'foldignore'. White space is skipped before checking for characters in 'foldignore'. For C use "#" to ignore preprocessor lines.

When you want to ignore lines in another way, use the "expr" method. The indent() function can be used in 'foldexpr' to get the indent of a line.

EXPR fold-expr

The folds are automatically defined by their foldlevel, like with the "indent" method. The value of the 'foldexpr' option is evaluated to get the foldlevel of a line. Examples:
This will create a fold for all consecutive lines that start with a tab:

```
:set foldexpr=getline(v:lnum)[0]==\"\\t\"
```

This will call a function to compute the fold level:

```
:set foldexpr=MyFoldLevel(v:lnum)
```

This will make a fold out of paragraphs separated by blank lines:

```
:set foldexpr=getline(v:lnum)=~'^\\s*$'&&getline(v:lnum+1)=~'\\S'?'<1':1
```

This does the same:

```
:set foldexpr=getline(v:lnum-1)=~'^\\s*$'&&getline(v:lnum)=~'\\S'?'>1':1
```

Note that backslashes must be used to escape characters that ":set" handles differently (space, backslash, double quote, etc., see option-backslash).

These are the conditions with which the expression is evaluated:
- The current buffer and window are set for the line.
- The variable "v:lnum" is set to the line number.
- The result is used for the fold level in this way:

value	meaning
0	the line is not in a fold
1, 2, ..	the line is in a fold with this level
-1	the fold level is undefined, use the fold level of a line before or after this line, whichever is the lowest.
"="	use fold level from the previous line
"a1", "a2", ..	add one, two, .. to the fold level of the previous line, use the result for the current line
"s1", "s2", ..	subtract one, two, .. from the fold level of the previous line, use the result for the next line
"<1", "<2", ..	a fold with this level ends at this line
">1", ">2", ..	a fold with this level starts at this line

It is not required to mark the start (end) of a fold with ">1" ("<1"), a fold will also start (end) when the fold level is higher (lower) than the fold level of the previous line.

There must be no side effects from the expression. The text in the buffer,
cursor position, the search patterns, options etc. must not be changed.
You can change and restore them if you are careful.

If there is some error in the expression, or the resulting value isn't
recognized, there is no error message and the fold level will be zero.
For debugging the 'debug' option can be set to "msg", the error messages will
be visible then.

Note: Since the expression has to be evaluated for every line, this fold
method can be very slow!

Try to avoid the "=", "a" and "s" return values, since Vim often has to search
backwards for a line for which the fold level is defined. This can be slow.

An example of using "a1" and "s1": For a multi-line C comment, a line
containing "/*" would return "a1" to start a fold, and a line containing "*/"
would return "s1" to end the fold after that line:
```
  if match(thisline, '/\*') >= 0
    return 'a1'
  elseif match(thisline, '\*/') >= 0
    return 's1'
  else
    return '='
  endif
```
However, this won't work for single line comments, strings, etc.

 foldlevel() can be useful to compute a fold level relative to a previous
fold level. But note that foldlevel() may return -1 if the level is not known
yet. And it returns the level at the start of the line, while a fold might
end in that line.

It may happen that folds are not updated properly. You can use zx or zX
to force updating folds.

SYNTAX fold-syntax

A fold is defined by syntax items that have the "fold" argument. :syn-fold

The fold level is defined by nesting folds. The nesting of folds is limited
with 'foldnestmax'.

Be careful to specify proper syntax syncing. If this is not done right, folds
may differ from the displayed highlighting. This is especially relevant when
using patterns that match more than one line. In case of doubt, try using
brute-force syncing:
```
        :syn sync fromstart
```

DIFF fold-diff

The folds are automatically defined for text that is not part of a change or

close to a change.

This method only works properly when the 'diff' option is set for the current window and changes are being displayed. Otherwise the whole buffer will be one big fold.

The 'diffopt' option can be used to specify the context. That is, the number of lines between the fold and a change that are not included in the fold. For example, to use a context of 8 lines:

```
:set diffopt=filler,context:8
```

The default context is six lines.

When 'scrollbind' is also set, Vim will attempt to keep the same folds open in other diff windows, so that the same text is visible.

MARKER fold-marker

Markers in the text tell where folds start and end. This allows you to precisely specify the folds. This will allow deleting and putting a fold, without the risk of including the wrong lines. The 'foldtext' option is normally set such that the text before the marker shows up in the folded line. This makes it possible to give a name to the fold.

Markers can have a level included, or can use matching pairs. Including a level is easier, you don't have to add end markers and avoid problems with non-matching marker pairs. Example:

```
/* global variables {{{1 */
int varA, varB;

/* functions {{{1 */
/* funcA() {{{2 */
void funcA() {}

/* funcB() {{{2 */
void funcB() {}
```

A fold starts at a "{{{" marker. The following number specifies the fold level. What happens depends on the difference between the current fold level and the level given by the marker:

1. If a marker with the same fold level is encountered, the previous fold ends and another fold with the same level starts.
2. If a marker with a higher fold level is found, a nested fold is started.
3. If a marker with a lower fold level is found, all folds up to and including this level end and a fold with the specified level starts.

The number indicates the fold level. A zero cannot be used (a marker with level zero is ignored). You can use "}}}" with a digit to indicate the level of the fold that ends. The fold level of the following line will be one less than the indicated level. Note that Vim doesn't look back to the level of the matching marker (that would take too much time). Example:

```
{{{1
fold level here is 1
```

```
{{{3
fold level here is 3
}}}3
fold level here is 2
```

You can also use matching pairs of "{{{" and "}}}" markers to define folds.
Each "{{{" increases the fold level by one, each "}}}" decreases the fold
level by one. Be careful to keep the markers matching! Example:

```
{{{
fold level here is 1
{{{
fold level here is 2
}}}
fold level here is 1
```

You can mix using markers with a number and without a number. A useful way of
doing this is to use numbered markers for large folds, and unnumbered markers
locally in a function. For example use level one folds for the sections of
your file like "structure definitions", "local variables" and "functions".
Use level 2 markers for each definition and function, Use unnumbered markers
inside functions. When you make changes in a function to split up folds, you
don't have to renumber the markers.

The markers can be set with the 'foldmarker' option. It is recommended to
keep this at the default value of "{{{,}}}", so that files can be exchanged
between Vim users. Only change it when it is required for the file (e.g., it
contains markers from another folding editor, or the default markers cause
trouble for the language of the file).

fold-create-marker

"zf" can be used to create a fold defined by markers. Vim will insert the
markers for you. Vim will append the start and end marker, as specified with
'foldmarker'. The markers are appended to the end of the line.
'commentstring' is used if it isn't empty.
This does not work properly when:
- The line already contains a marker with a level number. Vim then doesn't
  know what to do.
- Folds nearby use a level number in their marker which gets in the way.
- The line is inside a comment, 'commentstring' isn't empty and nested
  comments don't work. For example with C: adding /* {{{ */ inside a comment
  will truncate the existing comment. Either put the marker before or after
  the comment, or add the marker manually.
Generally it's not a good idea to let Vim create markers when you already have
markers with a level number.

fold-delete-marker

"zd" can be used to delete a fold defined by markers. Vim will delete the
markers for you. Vim will search for the start and end markers, as specified
with 'foldmarker', at the start and end of the fold. When the text around the
marker matches with 'commentstring', that text is deleted as well.
This does not work properly when:
- A line contains more than one marker and one of them specifies a level.
  Only the first one is removed, without checking if this will have the

  desired effect of deleting the fold.
- The marker contains a level number and is used to start or end several folds
  at the same time.

==
2. Fold commands   fold-commands   E490

All folding commands start with "z". Hint: the "z" looks like a folded piece
of paper, if you look at it from the side.

CREATING AND DELETING FOLDS

                                                                    zf   E350
zf{motion} or
{Visual}zf   Operator to create a fold.
                This only works when 'foldmethod' is "manual" or "marker".
                The new fold will be closed for the "manual" method.
                'foldenable' will be set.
                Also see fold-create-marker .

                                                                    zF
zF   Create a fold for [count] lines. Works like "zf".

:{range}fo[ld]   :fold   :fo
                Create a fold for the lines in {range}. Works like "zf".

                                                                    zd   E351
zd   Delete one fold at the cursor. When the cursor is on a folded
                line, that fold is deleted. Nested folds are moved one level
                up. In Visual mode one level of all folds (partially) in the
                selected area are deleted.
                Careful: This easily deletes more folds than you expect and
                there is no undo for manual folding.
                This only works when 'foldmethod' is "manual" or "marker".
                Also see fold-delete-marker .

                                                                    zD
zD   Delete folds recursively at the cursor. In Visual mode all
                folds (partially) in the selected area and all nested folds in
                them are deleted.
                This only works when 'foldmethod' is "manual" or "marker".
                Also see fold-delete-marker .

                                                                    zE   E352
zE   Eliminate all folds in the window.
                This only works when 'foldmethod' is "manual" or "marker".
                Also see fold-delete-marker .

OPENING AND CLOSING FOLDS

A fold smaller than 'foldminlines' will always be displayed like it was open.
Therefore the commands below may work differently on small folds.

zo

zo Open one fold under the cursor. When a count is given, that many folds deep will be opened. In Visual mode one level of folds is opened for all lines in the selected area.

zO

zO Open all folds under the cursor recursively. Folds that don't contain the cursor line are unchanged.
In Visual mode it opens all folds that are in the selected area, also those that are only partly selected.

zc

zc Close one fold under the cursor. When a count is given, that many folds deep are closed. In Visual mode one level of folds is closed for all lines in the selected area.
'foldenable' will be set.

zC

zC Close all folds under the cursor recursively. Folds that don't contain the cursor line are unchanged.
In Visual mode it closes all folds that are in the selected area, also those that are only partly selected.
'foldenable' will be set.

za

za When on a closed fold: open it. When folds are nested, you may have to use "za" several times. When a count is given, that many closed folds are opened.
When on an open fold: close it and set 'foldenable'. This will only close one level, since using "za" again will open the fold. When a count is given that many folds will be closed (that's not the same as repeating "za" that many times).

zA

zA When on a closed fold: open it recursively.
When on an open fold: close it recursively and set 'foldenable'.

zv

zv View cursor line: Open just enough folds to make the line in which the cursor is located not folded.

zx

zx Update folds: Undo manually opened and closed folds: re-apply 'foldlevel', then do "zv": View cursor line.
Also forces recomputing folds. This is useful when using 'foldexpr' and the buffer is changed in a way that results in folds not to be updated properly.

zX

zX Undo manually opened and closed folds: re-apply 'foldlevel'.
Also forces recomputing folds, like zx .

zm

zm Fold more: Subtract v:count1 from 'foldlevel'. If 'foldlevel' was already zero nothing happens.
'foldenable' will be set.

zM

zM Close all folds: set 'foldlevel' to 0.
'foldenable' will be set.

zr

zr Reduce folding: Add v:count1 to 'foldlevel'.

zR

zR Open all folds. This sets 'foldlevel' to highest fold level.

:foldo :foldopen

:{range}foldo[pen][!]
Open folds in {range}. When [!] is added all folds are opened. Useful to see all the text in {range}. Without [!] one level of folds is opened.

:foldc :foldclose

:{range}foldc[lose][!]
Close folds in {range}. When [!] is added all folds are closed. Useful to hide all the text in {range}. Without [!] one level of folds is closed.

zn

zn Fold none: reset 'foldenable'. All folds will be open.

zN

zN Fold normal: set 'foldenable'. All folds will be as they were before.

zi

zi Invert 'foldenable'.

MOVING OVER FOLDS

[z

[z Move to the start of the current open fold. If already at the start, move to the start of the fold that contains it. If there is no containing fold, the command fails.
When a count is used, repeats the command [count] times.

]z

]z Move to the end of the current open fold. If already at the end, move to the end of the fold that contains it. If there is no containing fold, the command fails.
When a count is used, repeats the command [count] times.

zj

zj Move downwards to the start of the next fold. A closed fold is counted as one fold.

When a count is used, repeats the command [count] times.
This command can be used after an operator .

zk
zk Move upwards to the end of the previous fold. A closed fold is counted as one fold.
When a count is used, repeats the command [count] times.
This command can be used after an operator .

EXECUTING COMMANDS ON FOLDS

:[range]foldd[oopen] {cmd} :foldd :folddoopen
Execute {cmd} on all lines that are not in a closed fold.
When [range] is given, only these lines are used.
Each time {cmd} is executed the cursor is positioned on the line it is executed for.
This works like the ":global" command: First all lines that are not in a closed fold are marked. Then the {cmd} is executed for all marked lines. Thus when {cmd} changes the folds, this has no influence on where it is executed (except when lines are deleted, of course).
Example:

```
:folddoopen s/end/loop_end/ge
```

Note the use of the "e" flag to avoid getting an error message where "end" doesn't match.

:[range]folddoc[losed] {cmd} :folddoc :folddoclosed
Execute {cmd} on all lines that are in a closed fold.
Otherwise like ":folddoopen".

---

3. Fold options fold-options

COLORS fold-colors

The colors of a closed fold are set with the Folded group hl-Folded . The colors of the fold column are set with the FoldColumn group hl-FoldColumn .
Example to set the colors:

```
:highlight Folded guibg=grey guifg=blue
:highlight FoldColumn guibg=darkgrey guifg=white
```

FOLDLEVEL fold-foldlevel

'foldlevel' is a number option: The higher the more folded regions are open.
When 'foldlevel' is 0, all folds are closed.
When 'foldlevel' is positive, some folds are closed.
When 'foldlevel' is very high, all folds are open.
'foldlevel' is applied when it is changed. After that manually folds can be opened and closed.
When increased, folds above the new level are opened. No manually opened folds will be closed.

When decreased, folds above the new level are closed. No manually closed
folds will be opened.

FOLDTEXT fold-foldtext

'foldtext' is a string option that specifies an expression. This expression
is evaluated to obtain the text displayed for a closed fold. Example:

```
    :set foldtext=v:folddashes.substitute(getline(v:foldstart),'/\\*\\|\\*/\\|{{{\\d\\='
```

This shows the first line of the fold, with "/*", "*/" and "{{{" removed.
Note the use of backslashes to avoid some characters to be interpreted by the
":set" command. It's simpler to define a function and call that:

```
    :set foldtext=MyFoldText()
    :function MyFoldText()
    :  let line = getline(v:foldstart)
    :  let sub = substitute(line, '/\*\|\*/\|{{{\d\=', '', 'g')
    :  return v:folddashes . sub
    :endfunction
```

Evaluating 'foldtext' is done in the sandbox . The current window is set to
the window that displays the line. Errors are ignored.

The default value is foldtext() . This returns a reasonable text for most
types of folding. If you don't like it, you can specify your own 'foldtext'
expression. It can use these special Vim variables:

v:foldstart	line number of first line in the fold
v:foldend	line number of last line in the fold
v:folddashes	a string that contains dashes to represent the foldlevel.
v:foldlevel	the foldlevel of the fold

In the result a TAB is replaced with a space and unprintable characters are
made into printable characters.

The resulting line is truncated to fit in the window, it never wraps.
When there is room after the text, it is filled with the character specified
by 'fillchars'.

Note that backslashes need to be used for characters that the ":set" command
handles differently: Space, backslash and double-quote. option-backslash

FOLDCOLUMN fold-foldcolumn

'foldcolumn' is a number, which sets the width for a column on the side of the
window to indicate folds. When it is zero, there is no foldcolumn. A normal
value is 4 or 5. The minimal useful value is 2, although 1 still provides
some information. The maximum is 12.

An open fold is indicated with a column that has a '-' at the top and '|'
characters below it. This column stops where the open fold stops. When folds

nest, the nested fold is one character right of the fold it's contained in.

A closed fold is indicated with a '+'.

Where the fold column is too narrow to display all nested folds, digits are shown to indicate the nesting level.

The mouse can also be used to open and close folds by clicking in the fold column:
- Click on a '+' to open the closed fold at this row.
- Click on any other non-blank character to close the open fold at this row.

OTHER OPTIONS

'foldenable'	'fen':	Open all folds while not set.
'foldexpr'	'fde':	Expression used for "expr" folding.
'foldignore'	'fdi':	Characters used for "indent" folding.
'foldmarker'	'fmr':	Defined markers used for "marker" folding.
'foldmethod'	'fdm':	Name of the current folding method.
'foldminlines'	'fml':	Minimum number of screen lines for a fold to be displayed closed.
'foldnestmax'	'fdn':	Maximum nesting for "indent" and "syntax" folding.
'foldopen'	'fdo':	Which kinds of commands open closed folds.
'foldclose'	'fcl':	When the folds not under the cursor are closed.

==========
4. Behavior of folds fold-behavior

When moving the cursor upwards or downwards and when scrolling, the cursor will move to the first line of a sequence of folded lines. When the cursor is already on a folded line, it moves to the next unfolded line or the next closed fold.

While the cursor is on folded lines, the cursor is always displayed in the first column. The ruler does show the actual cursor position, but since the line is folded, it cannot be displayed there.

Many movement commands handle a sequence of folded lines like an empty line. For example, the "w" command stops once in the first column.

When in Insert mode, the cursor line is never folded. That allows you to see what you type!

When using an operator, a closed fold is included as a whole. Thus "dl" deletes the whole closed fold under the cursor.

For Ex commands that work on buffer lines the range is adjusted to always start at the first line of a closed fold and end at the last line of a closed fold. Thus this command:

```
:s/foo/bar/g
```

when used with the cursor on a closed fold, will replace "foo" with "bar" in all lines of the fold.
This does not happen for :folddoopen and :folddoclosed .

When editing a buffer that has been edited before, the last used folding
settings are used again. For manual folding the defined folds are restored.
For all folding methods the manually opened and closed folds are restored.
If this buffer has been edited in this window, the values from back then are
used. Otherwise the values from the window where the buffer was edited last
are used.

==
 vim:tw=78:ts=8:noet:ft=help:norl:

print.txt For Vim version 8.1. Last change: 2010 Jul 20

VIM REFERENCE MANUAL by Bram Moolenaar

Printing printing

{Vi has None of this}
{only available when compiled with the |+printer| feature}

==========

1. Introduction print-intro

On MS-Windows Vim can print your text on any installed printer. On other systems a PostScript file is produced. This can be directly sent to a PostScript printer. For other printers a program like ghostscript needs to be used.

Note: If you have problems printing with :hardcopy , an alternative is to use :TOhtml and print the resulting html file from a browser.

:ha :hardcopy E237 E238 E324

:[range]ha[rdcopy][!] [arguments]
Send [range] lines (default whole file) to the printer.

On MS-Windows a dialog is displayed to allow selection of printer, paper size etc. To skip the dialog, use the [!]. In this case the printer defined by 'printdevice' is used, or, if 'printdevice' is empty, the system default printer.

For systems other than MS-Windows, PostScript is written in a temp file and 'printexpr' is used to actually print it. Then [arguments] can be used by 'printexpr' through v:cmdarg . Otherwise [arguments] is ignored. 'printoptions' can be used to specify paper size, duplex, etc.

:[range]ha[rdcopy][!] >{filename}
As above, but write the resulting PostScript in file {filename}.
Things like "%" are expanded cmdline-special
Careful: An existing file is silently overwritten.

{only available when compiled with the +postscript feature}
On MS-Windows use the "print to file" feature of the printer driver.

Progress is displayed during printing as a page number and a percentage. To abort printing use the interrupt key (CTRL-C or, on MS-systems, CTRL-Break).

Printer output is controlled by the 'printfont' and 'printoptions' options. 'printheader' specifies the format of a page header.

The printed file is always limited to the selected margins, irrespective of the current window's 'wrap' or 'linebreak' settings. The "wrap" item in 'printoptions' can be used to switch wrapping off.
The current highlighting colors are used in the printout, with the following considerations:
1) The normal background is always rendered as white (i.e. blank paper).
2) White text or the default foreground is rendered as black, so that it shows up!
3) If 'background' is "dark", then the colours are darkened to compensate for the fact that otherwise they would be too bright to show up clearly on white paper.

==
2. Print options print-options

Here are the details for the options that change the way printing is done.
For generic info about setting options see options.txt .

pdev-option
'printdevice' 'pdev' string (default empty)
global
This defines the name of the printer to be used when the :hardcopy command is issued with a bang (!) to skip the printer selection dialog. On Win32, it should be the printer name exactly as it appears in the standard printer dialog.
If the option is empty, then vim will use the system default printer for ":hardcopy!"

penc-option E620
'printencoding' 'penc' String (default empty, except for:
Windows, OS/2: cp1252,
Macintosh: mac-roman,
VMS: dec-mcs,
HPUX: hp-roman8,
EBCDIC: ebcdic-uk)
global
Sets the character encoding used when printing. This option tells Vim which print character encoding file from the "print" directory in 'runtimepath' to use.

This option will accept any value from encoding-names . Any recognized names are converted to Vim standard names - see 'encoding' for more details. Names not recognized by Vim will just be converted to lower case and underscores

replaced with '-' signs.

If 'printencoding' is empty or Vim cannot find the file then it will use 'encoding' (if Vim is compiled with +multi_byte and it is set an 8-bit encoding) to find the print character encoding file. If Vim is unable to find a character encoding file then it will use the "latin1" print character encoding file.

When 'encoding' is set to a multi-byte encoding, Vim will try to convert characters to the printing encoding for printing (if 'printencoding' is empty then the conversion will be to latin1). Conversion to a printing encoding other than latin1 will require Vim to be compiled with the +iconv feature. If no conversion is possible then printing will fail. Any characters that cannot be converted will be replaced with upside down question marks.

Four print character encoding files are provided to support default Mac, VMS, HPUX, and EBCDIC character encodings and are used by default on these platforms. Code page 1252 print character encoding is used by default on Windows and OS/2 platforms.

pexpr-option

'printexpr' 'pexpr' String (default: see below)
global
Expression that is evaluated to print the PostScript produced with :hardcopy .
The file name to be printed is in v:fname_in .
The arguments to the ":hardcopy" command are in v:cmdarg .
The expression must take care of deleting the file after printing it.
When there is an error, the expression must return a non-zero number.
If there is no error, return zero or an empty string.
The default for non MS-Windows or VMS systems is to simply use "lpr" to print the file:

```
system('lpr' . (&printdevice == '' ? '' : ' -P' . &printdevice)
    . ' ' . v:fname_in) . delete(v:fname_in) + v:shell_error
```

On MS-Dos, MS-Windows and OS/2 machines the default is to copy the file to the currently specified printdevice:

```
system('copy' . ' ' . v:fname_in . (&printdevice == ''
            ? ' LPT1:' : (' \"' . &printdevice . '\"')))
            . delete(v:fname_in)
```

On VMS machines the default is to send the file to either the default or currently specified printdevice:

```
system('print' . (&printdevice == '' ? '' : ' /queue=' .
            &printdevice) . ' ' . v:fname_in) . delete(v:fname_in)
```

If you change this option, using a function is an easy way to avoid having to escape all the spaces. Example:

```
:set printexpr=PrintFile(v:fname_in)
:function PrintFile(fname)
```

```
        :  call system("ghostview " . a:fname)
        :  call delete(a:fname)
        :  return v:shell_error
        :endfunc
```

Be aware that some print programs return control before they have read the file. If you delete the file too soon it will not be printed. These programs usually offer an option to have them remove the file when printing is done.
E365
If evaluating the expression fails or it results in a non-zero number, you get an error message. In that case Vim will delete the file. In the default value for non-MS-Windows a trick is used: Adding "v:shell_error" will result in a non-zero number when the system() call fails.

This option cannot be set from a modeline or in the sandbox, for security reasons.

pfn-option E613
'printfont' 'pfn' string (default "courier")
global
This is the name of the font that will be used for the :hardcopy command's output. It has the same format as the 'guifont' option, except that only one font may be named, and the special "guifont=*" syntax is not available.

In the Win32 GUI version this specifies a font name with its extra attributes, as with the 'guifont' option.

For other systems, only ":h11" is recognized, where "11" is the point size of the font. When omitted, the point size is 10.

pheader-option
'printheader' 'pheader' string (default "%<%f%h%m%=Page %N")
global
This defines the format of the header produced in :hardcopy output. The option is defined in the same way as the 'statusline' option. If Vim has not been compiled with the +statusline feature, this option has no effect and a simple default header is used, which shows the page number. The same simple header is used when this option is empty.

pmbcs-option
'printmbcharset' 'pmbcs' string (default "")
global
Sets the CJK character set to be used when generating CJK output from :hardcopy. The following predefined values are currently recognised by Vim:

	Value	Description
Chinese (Simplified)	GB_2312-80	
	GBT_12345-90	
	MAC	Apple Mac Simplified Chinese
	GBT-90_MAC	GB/T 12345-90 Apple Mac Simplified Chinese
	GBK	GBK (GB 13000.1-93)
	ISO10646	ISO 10646-1:1993

```
  Chinese       CNS_1993        CNS 11643-1993, Planes 1 & 2
  (Traditional) BIG5
                ETEN            Big5 with ETen extensions
                ISO10646        ISO 10646-1:1993

  Japanese      JIS_C_1978
                JIS_X_1983
                JIS_X_1990
                MSWINDOWS       Win3.1/95J (JIS X 1997 + NEC +
                                  IBM extensions)
                KANJITALK6      Apple Mac KanjiTalk V6.x
                KANJITALK7      Apple Mac KanjiTalk V7.x

  Korean        KS_X_1992
                MAC             Apple Macintosh Korean
                MSWINDOWS       KS X 1992 with MS extensions
                ISO10646        ISO 10646-1:1993
```

Only certain combinations of the above values and 'printencoding' are possible. The following tables show the valid combinations:

```
                              euc-cn   gbk    ucs-2   utf-8
  Chinese       GB_2312-80        x
  (Simplified)  GBT_12345-90      x
                MAC               x
                GBT-90_MAC        x
                GBK                       x
                ISO10646                        x       x

                              euc-tw   big5   ucs-2   utf-8
  Chinese       CNS_1993          x
  (Traditional) BIG5                      x
                ETEN                      x
                ISO10646                        x       x

                              euc-jp   sjis   ucs-2   utf-8
  Japanese      JIS_C_1978        x       x
                JIS_X_1983        x       x
                JIS_X_1990        x               x       x
                MSWINDOWS         x
                KANJITALK6        x
                KANJITALK7        x

                              euc-kr   cp949  ucs-2   utf-8
  Korean        KS_X_1992         x
                MAC               x
                MSWINDOWS                 x
                ISO10646                        x       x
```

To set up the correct encoding and character set for printing some Japanese text you would do the following;

```
        :set printencoding=euc-jp
        :set printmbcharset=JIS_X_1983
```

If 'printmbcharset' is not one of the above values then it is assumed to specify a custom multi-byte character set and no check will be made that it is compatible with the value for 'printencoding'. Vim will look for a file defining the character set in the "print" directory in 'runtimepath'.

pmbfn-option

'printmbfont' 'pmbfn' string (default "")
global

This is a comma-separated list of fields for font names to be used when generating CJK output from :hardcopy . Each font name has to be preceded with a letter indicating the style the font is to be used for as follows:

```
r:{font-name}          font to use for normal characters
b:{font-name}          font to use for bold characters
i:{font-name}          font to use for italic characters
o:{font-name}          font to use for bold-italic characters
```

A field with the r: prefix must be specified when doing CJK printing. The other fontname specifiers are optional. If a specifier is missing then another font will be used as follows:

```
if b: is missing, then use r:
if i: is missing, then use r:
if o: is missing, then use b:
```

Some CJK fonts do not contain characters for codes in the ASCII code range. Also, some characters in the CJK ASCII code ranges differ in a few code points from traditional ASCII characters. There are two additional fields to control printing of characters in the ASCII code range.

```
c:yes                  Use Courier font for characters in the ASCII
c:no (default)         code range.

a:yes                  Use ASCII character set for codes in the ASCII
a:no (default)         code range.
```

The following is an example of specifying two multi-byte fonts, one for normal and italic printing and one for bold and bold-italic printing, and using Courier to print codes in the ASCII code range but using the national character set:

```
:set printmbfont=r:WadaMin-Regular,b:WadaMin-Bold,c:yes
```

popt-option

'printoptions' 'popt' string (default "")
global

This is a comma-separated list of items that control the format of the output of :hardcopy :

```
left:{spec}            left margin (default: 10pc)
right:{spec}           right margin (default: 5pc)
top:{spec}             top margin (default: 5pc)
bottom:{spec}          bottom margin (default: 5pc)
                       {spec} is a number followed by "in" for inches, "pt"
                       for points (1 point is 1/72 of an inch), "mm" for
```

millimeters or "pc" for a percentage of the media size.
Weird example:
    left:2in,top:30pt,right:16mm,bottom:3pc
If the unit is not recognized there is no error and the default value is used.

header:{nr} Number of lines to reserve for the header. Only the first line is actually filled, thus when {nr} is 2 there is one empty line. The header is formatted according to 'printheader'.
header:0 Do not print a header.
header:2 (default) Use two lines for the header

syntax:n Do not use syntax highlighting. This is faster and thus useful when printing large files.
syntax:y Do syntax highlighting.
syntax:a (default) Use syntax highlighting if the printer appears to be able to print color or grey.

number:y Include line numbers in the printed output.
number:n (default) No line numbers.

wrap:y (default) Wrap long lines.
wrap:n Truncate long lines.

duplex:off Print on one side.
duplex:long (default) Print on both sides (when possible), bind on long side.
duplex:short Print on both sides (when possible), bind on short side.

collate:y (default) Collating: 1 2 3, 1 2 3, 1 2 3
collate:n No collating: 1 1 1, 2 2 2, 3 3 3

jobsplit:n (default) Do all copies in one print job
jobsplit:y Do each copy as a separate print job. Useful when doing N-up postprocessing.

portrait:y (default) Orientation is portrait.
portrait:n Orientation is landscape.

a4 letter

paper:A4 (default) Paper size: A4
paper:{name} Paper size from this table:

{name}	size in cm	size in inch
10x14	25.4 x 35.57	10 x 14
A3	29.7 x 42	11.69 x 16.54
A4	21 x 29.7	8.27 x 11.69
A5	14.8 x 21	5.83 x 8.27
B4	25 x 35.3	10.12 x 14.33
B5	17.6 x 25	7.17 x 10.12
executive	18.42 x 26.67	7.25 x 10.5
folio	21 x 33	8.27 x 13
ledger	43.13 x 27.96	17 x 11

```
                        legal       21.59 x 35.57     8.5  x 14
                        letter      21.59 x 27.96     8.5  x 11
                        quarto      21.59 x 27.5      8.5  x 10.83
                        statement   13.97 x 21.59     5.5  x  8.5
                        tabloid     27.96 x 43.13    11    x 17

  formfeed:n (default)  Treat form feed characters (0x0c) as a normal print
                        character.
  formfeed:y            When a form feed character is encountered, continue
                        printing of the current line at the beginning of the
                        first line on a new page.

The item indicated with (default) is used when the item is not present.  The
values are not always used, especially when using a dialog to select the
printer and options.
Example:
        :set printoptions=paper:letter,duplex:off

==============================================================================
3. PostScript Printing                                  postscript-printing
                                                  E455   E456   E457   E624

Provided you have enough disk space there should be no problems generating a
PostScript file.  You need to have the runtime files correctly installed (if
you can find the help files, they probably are).

There are currently a number of limitations with PostScript printing:

- 'printfont' - The font name is ignored (the Courier family is always used -
  it should be available on all PostScript printers) but the font size is
  used.

- 'printoptions' - The duplex setting is used when generating PostScript
  output, but it is up to the printer to take notice of the setting.  If the
  printer does not support duplex printing then it should be silently ignored.
  Some printers, however, don't print at all.

- 8-bit support - While a number of 8-bit print character encodings are
  supported it is possible that some characters will not print.  Whether a
  character will print depends on the font in the printer knowing the
  character.  Missing characters will be replaced with an upside down question
  mark, or a space if that character is also not known by the font.  It may be
  possible to get all the characters in an encoding to print by installing a
  new version of the Courier font family.

- Multi-byte support - Currently Vim will try to convert multi-byte characters
  to the 8-bit encoding specified by 'printencoding' (or latin1 if it is
  empty).  Any characters that are not successfully converted are shown as
  unknown characters.  Printing will fail if Vim cannot convert the multi-byte
  to the 8-bit encoding.

==============================================================================
4. Custom 8-bit Print Character Encodings       postscript-print-encoding
                                                          E618   E619

To use your own print character encoding when printing 8-bit character data
```

you need to define your own PostScript font encoding vector. Details on how to define a font encoding vector is beyond the scope of this help file, but you can find details in the PostScript Language Reference Manual, 3rd Edition, published by Addison-Wesley and available in PDF form at http://www.adobe.com/. The following describes what you need to do for Vim to locate and use your print character encoding.

i. Decide on a unique name for your encoding vector, one that does not clash with any of the recognized or standard encoding names that Vim uses (see encoding-names for a list), and that no one else is likely to use.
ii. Copy $VIMRUNTIME/print/latin1.ps to the print subdirectory in your 'runtimepath' and rename it with your unique name.
iii. Edit your renamed copy of latin1.ps, replacing all occurrences of latin1 with your unique name (don't forget the line starting %%Title:), and modify the array of glyph names to define your new encoding vector. The array must have exactly 256 entries or you will not be able to print!
iv. Within Vim, set 'printencoding' to your unique encoding name and then print your file. Vim will now use your custom print character encoding.

Vim will report an error with the resource file if you change the order or content of the first 3 lines, other than the name of the encoding on the line starting %%Title: or the version number on the line starting %%Version:.

[Technical explanation for those that know PostScript - Vim looks for a file with the same name as the encoding it will use when printing. The file defines a new PostScript Encoding resource called /VIM-name, where name is the print character encoding Vim will use.]

==
5. PostScript CJK Printing postscript-cjk-printing

E673 E674 E675

Vim supports printing of Chinese, Japanese, and Korean files. Setting up Vim to correctly print CJK files requires setting up a few more options.

Each of these countries has many standard character sets and encodings which require that both be specified when printing. In addition, CJK fonts normally do not have the concept of italic glyphs and use different weight or stroke style to achieve emphasis when printing. This in turn requires a different approach to specifying fonts to use when printing.

The encoding and character set are specified with the 'printencoding' and 'printmbcharset' options. If 'printencoding' is not specified then 'encoding' is used as normal. If 'printencoding' is specified then characters will be translated to this encoding for printing. You should ensure that the encoding is compatible with the character set needed for the file contents or some characters may not appear when printed.

The fonts to use for CJK printing are specified with 'printmbfont'. This option allows you to specify different fonts to use when printing characters which are syntax highlighted with the font styles normal, italic, bold and bold-italic.

No CJK fonts are supplied with Vim. There are some free Korean, Japanese, and

Traditional Chinese fonts available at:

  http://examples.oreilly.com/cjkvinfo/adobe/samples/

You can find descriptions of the various fonts in the read me file at

  http://examples.oreilly.de/english_examples/cjkvinfo/adobe/00README

Please read your printer documentation on how to install new fonts.

CJK fonts can be large containing several thousand glyphs, and it is not
uncommon to find that they only contain a subset of a national standard. It
is not unusual to find the fonts to not include characters for codes in the
ASCII code range. If you find half-width Roman characters are not appearing
in your printout then you should configure Vim to use the Courier font the
half-width ASCII characters with 'printmbfont'. If your font does not include
other characters then you will need to find another font that does.

Another issue with ASCII characters, is that the various national character
sets specify a couple of different glyphs in the ASCII code range. If you
print ASCII text using the national character set you may see some unexpected
characters. If you want true ASCII code printing then you need to configure
Vim to output ASCII characters for the ASCII code range with 'printmbfont'.

It is possible to define your own multi-byte character set although this
should not be attempted lightly. A discussion on the process if beyond the
scope of these help files. You can find details on CMap (character map) files
in the document 'Adobe CMap and CIDFont Files Specification, Version 1.0',
available from http://www.adobe.com as a PDF file.

==
6. PostScript Printing Troubleshooting   postscript-print-trouble
                                                                        E621
Usually the only sign of a problem when printing with PostScript is that your
printout does not appear. If you are lucky you may get a printed page that
tells you the PostScript operator that generated the error that prevented the
print job completing.

There are a number of possible causes as to why the printing may have failed:

- Wrong version of the prolog resource file. The prolog resource file
  contains some PostScript that Vim needs to be able to print. Each version
  of Vim needs one particular version. Make sure you have correctly installed
  the runtime files, and don't have any old versions of a file called prolog
  in the print directory in your 'runtimepath' directory.

- Paper size. Some PostScript printers will abort printing a file if they do
  not support the requested paper size. By default Vim uses A4 paper. Find
  out what size paper your printer normally uses and set the appropriate paper
  size with 'printoptions'. If you cannot find the name of the paper used,
  measure a sheet and compare it with the table of supported paper sizes listed
  for 'printoptions', using the paper that is closest in both width AND height.
  Note: The dimensions of actual paper may vary slightly from the ones listed.
  If there is no paper listed close enough, then you may want to try psresize

from PSUtils, discussed below.

- Two-sided printing (duplex). Normally a PostScript printer that does not support two-sided printing will ignore any request to do it. However, some printers may abort the job altogether. Try printing with duplex turned off. Note: Duplex prints can be achieved manually using PS utils - see below.

- Collated printing. As with Duplex printing, most PostScript printers that do not support collating printouts will ignore a request to do so. Some may not. Try printing with collation turned off.

- Syntax highlighting. Some print management code may prevent the generated PostScript file from being printed on a black and white printer when syntax highlighting is turned on, even if solid black is the only color used. Try printing with syntax highlighting turned off.

A safe printoptions setting to try is:

```
:set printoptions=paper:A4,duplex:off,collate:n,syntax:n
```

Replace "A4" with the paper size that best matches your printer paper.

==
7. PostScript Utilities postscript-print-util

7.1 Ghostscript

Ghostscript is a PostScript and PDF interpreter that can be used to display and print on non-PostScript printers PostScript and PDF files. It can also generate PDF files from PostScript.

Ghostscript will run on a wide variety of platforms.

There are three available versions:

- AFPL Ghostscript (formerly Aladdin Ghostscript) which is free for non-commercial use. It can be obtained from:

  http://www.cs.wisc.edu/~ghost/

- GNU Ghostscript which is available under the GNU General Public License. It can be obtained from:

  ftp://mirror.cs.wisc.edu/pub/mirrors/ghost/gnu/

- A commercial version for inclusion in commercial products.

Additional information on Ghostscript can also be found at:

http://www.ghostscript.com/

Support for a number of non PostScript printers is provided in the distribution as standard, but if you cannot find support for your printer check the Ghostscript site for other printers not included by default.

7.2 Ghostscript Previewers.

The interface to Ghostscript is very primitive so a number of graphical front ends have been created. These allow easier PostScript file selection, previewing at different zoom levels, and printing. Check supplied documentation for full details.

X11

- Ghostview. Obtainable from:

    http://www.cs.wisc.edu/~ghost/gv/

- gv. Derived from Ghostview. Obtainable from:

    http://wwwthep.physik.uni-mainz.de/~plass/gv/

  Copies (possibly not the most recent) can be found at:

    http://www.cs.wisc.edu/~ghost/gv/

OpenVMS

- Is apparently supported in the main code now (untested). See:

    http://wwwthep.physik.uni-mainz.de/~plass/gv/

Windows and OS/2

- GSview. Obtainable from:

    http://www.cs.wisc.edu/~ghost/gsview/

DOS

- ps_view. Obtainable from:

    ftp://ftp.pg.gda.pl/pub/TeX/support/ps_view/
    ftp://ftp.dante.de/tex-archive/support/ps_view/

Linux

- GSview. Linux version of the popular Windows and OS/2 previewer.
  Obtainable from:

    http://www.cs.wisc.edu/~ghost/gsview/

- BMV. Different from Ghostview and gv in that it doesn't use X but svgalib.
  Obtainable from:

    ftp://sunsite.unc.edu/pub/Linux/apps/graphics/viewers/svga/bmv-1.2.tgz

7.3 PSUtils

PSUtils is a collection of utility programs for manipulating PostScript documents. Binary distributions are available for many platforms, as well as the full source. PSUtils can be found at:

  http://knackered.org/angus/psutils

The utilities of interest include:

- psnup. Convert PS files for N-up printing.
- psselect. Select page range and order of printing.
- psresize. Change the page size.
- psbook. Reorder and lay out pages ready for making a book.

The output of one program can be used as the input to the next, allowing for complex print document creation.

N-UP PRINTING

The psnup utility takes an existing PostScript file generated from Vim and convert it to an n-up version. The simplest way to create a 2-up printout is to first create a PostScript file with:

```
:hardcopy > test.ps
```

Then on your command line execute:

```
psnup -n 2 test.ps final.ps
```

Note: You may get warnings from some Ghostscript previewers for files produced by psnup - these may safely be ignored.

Finally print the file final.ps to your PostScript printer with your platform's print command. (You will need to delete the two PostScript files afterwards yourself.) 'printexpr' could be modified to perform this extra step before printing.

ALTERNATE DUPLEX PRINTING

It is possible to achieve a poor man's version of duplex printing using the PS utility psselect. This utility has options -e and -o for printing just the even or odd pages of a PS file respectively.

First generate a PS file with the 'hardcopy' command, then generate new files with all the odd and even numbered pages with:

```
psselect -o test.ps odd.ps
psselect -e test.ps even.ps
```

Next print odd.ps with your platform's normal print command. Then take the

print output, turn it over and place it back in the paper feeder. Now print even.ps with your platform's print command. All the even pages should now appear on the back of the odd pages.

There are a couple of points to bear in mind:

1. Position of the first page. If the first page is on top of the printout when printing the odd pages then you need to reverse the order that the odd pages are printed. This can be done with the -r option to psselect. This will ensure page 2 is printed on the back of page 1.
   Note: it is better to reverse the odd numbered pages rather than the even numbered in case there are an odd number of pages in the original PS file.

2. Paper flipping. When turning over the paper with the odd pages printed on them you may have to either flip them horizontally (along the long edge) or vertically (along the short edge), as well as possibly rotating them 180 degrees. All this depends on the printer - it will be more obvious for desktop ink jets than for small office laser printers where the paper path is hidden from view.

==
8. Formfeed Characters   printing-formfeed

By default Vim does not do any special processing of formfeed control characters. Setting the 'printoptions' formfeed item will make Vim recognize formfeed characters and continue printing the current line at the beginning of the first line on a new page. The use of formfeed characters provides rudimentary print control but there are certain things to be aware of.

Vim will always start printing a line (including a line number if enabled) containing a formfeed character, even if it is the first character on the line. This means if a line starting with a formfeed character is the first line of a page then Vim will print a blank page.

Since the line number is printed at the start of printing the line containing the formfeed character, the remainder of the line printed on the new page will not have a line number printed for it (in the same way as the wrapped lines of a long line when wrap in 'printoptions' is enabled).

If the formfeed character is the last character on a line, then printing will continue on the second line of the new page, not the first. This is due to Vim processing the end of the line after the formfeed character and moving down a line to continue printing.

Due to the points made above it is recommended that when formfeed character processing is enabled, printing of line numbers is disabled, and that form feed characters are not the last character on a line. Even then you may need to adjust the number of lines before a formfeed character to prevent accidental blank pages.

==
 vim:tw=78:ts=8:noet:ft=help:norl:

remote.txt For Vim version 8.1. Last change: 2017 Nov 12

VIM REFERENCE MANUAL by Bram Moolenaar

Vim client-server communication client-server

{Vi does not have any of these commands}

==========

1. Common functionality clientserver

When compiled with the +clientserver option, Vim can act as a command server. It accepts messages from a client and executes them. At the same time, Vim can function as a client and send commands to a Vim server.

The following command line arguments are available:

argument	meaning
--remote [+{cmd}] {file} ...	--remote Open the file list in a remote Vim. When there is no Vim server, execute locally. There is one optional init command: +{cmd}. This must be an Ex command that can be followed by "|". The rest of the command line is taken as the file list. Thus any non-file arguments must come before this. You cannot edit stdin this way -- . The remote Vim is raised. If you don't want this use vim --remote-send "<C-\><C-N>:n filename<CR>"
--remote-silent [+{cmd}] {file} ...	--remote-silent As above, but don't complain if there is no server and the file is edited locally.
--remote-wait [+{cmd}] {file} ...	--remote-wait As --remote, but wait for files to complete (unload) in remote Vim.
--remote-wait-silent [+{cmd}] {file} ...	--remote-wait-silent As --remote-wait, but don't complain if there is no server.
--remote-tab	--remote-tab Like --remote but open each file in a new tabpage.
--remote-tab-silent	--remote-tab-silent Like --remote-silent but open each file in a new tabpage.

--remote-tab-wait

--remote-tab-wait — Like --remote-wait but open each file in a new tabpage.

--remote-tab-wait-silent

--remote-tab-wait-silent — Like --remote-wait-silent but open each file in a new tabpage.

--servername

--servername {name} — Become the server {name}. When used together with one of the --remote commands: connect to server {name} instead of the default (see below). The name used will be uppercase.

--remote-send

--remote-send {keys} — Send {keys} to server and exit. The {keys} are not mapped. Special key names are recognized, e.g., "<CR>" results in a CR character.

--remote-expr

--remote-expr {expr} — Evaluate {expr} in server and print the result on stdout.

--serverlist

--serverlist — Output a list of server names.

Examples

Edit "file.txt" in an already running GVIM server:

```
gvim --remote file.txt
```

Edit "file.txt" in an already running server called FOOBAR:

```
gvim --servername FOOBAR --remote file.txt
```

Edit "file.txt" in server "FILES" if it exists, become server "FILES" otherwise:

```
gvim --servername FILES --remote-silent file.txt
```

This doesn't work, all arguments after --remote will be used as file names:

```
gvim --remote --servername FOOBAR file.txt
```

Edit file "+foo" in a remote server (note the use of "./" to avoid the special meaning of the leading plus):

```
vim --remote ./+foo
```

Tell the remote server "BLA" to write all files and exit:

```
vim --servername BLA --remote-send '<C-\><C-N>:wqa<CR>'
```

SERVER NAME

client-server-name

By default Vim will try to register the name under which it was invoked (gvim, egvim ...). This can be overridden with the --servername argument. If the specified name is not available, a postfix is applied until a free name is encountered, i.e. "gvim1" for the second invocation of gvim on a particular X-server. The resulting name is available in the servername builtin variable

v:servername . The case of the server name is ignored, thus "gvim" and "GVIM" are considered equal.

When Vim is invoked with --remote, --remote-wait or --remote-send it will try to locate the server name determined by the invocation name and --servername argument as described above. If an exact match is not available, the first server with the number postfix will be used. If a name with the number postfix is specified with the --servername argument, it must match exactly.

If no server can be located and --remote or --remote-wait was used, Vim will start up according to the rest of the command line and do the editing by itself. This way it is not necessary to know whether gvim is already started when sending command to it.

The --serverlist argument will cause Vim to print a list of registered command servers on the standard output (stdout) and exit.

Win32 Note: Making the Vim server go to the foreground doesn't always work, because MS-Windows doesn't allow it. The client will move the server to the foreground when using the --remote or --remote-wait argument and the server name starts with "g".

REMOTE EDITING

The --remote argument will cause a :drop command to be constructed from the rest of the command line and sent as described above.
The --remote-wait argument does the same thing and additionally sets up to wait for each of the files to have been edited. This uses the BufUnload event, thus as soon as a file has been unloaded, Vim assumes you are done editing it.
Note that the --remote and --remote-wait arguments will consume the rest of the command line. I.e. all remaining arguments will be regarded as filenames. You can not put options there!

FUNCTIONS

E240 E573

There are a number of Vim functions for scripting the command server. See the description in eval.txt or use CTRL-] on the function name to jump to the full explanation.

synopsis	explanation
remote_startserver(name)	run a server
remote_expr(server, string, idvar)	send expression
remote_send(server, string, idvar)	send key sequence
serverlist()	get a list of available servers
remote_peek(serverid, retvar)	check for reply string
remote_read(serverid)	read reply string
server2client(serverid, string)	send reply string
remote_foreground(server)	bring server to the front

See also the explanation of CTRL-_CTRL-N . Very useful as a leading key sequence.

The {serverid} for server2client() can be obtained with expand("<client>")

==
2. X11 specific items   x11-clientserver
                                        E247 E248 E251 E258 E277

The communication between client and server goes through the X server. The
display of the Vim server must be specified. The usual protection of the X
server is used, you must be able to open a window on the X server for the
communication to work. It is possible to communicate between different
systems.

By default, a GUI Vim will register a name on the X-server by which it can be
addressed for subsequent execution of injected strings. Vim can also act as
a client and send strings to other instances of Vim on the same X11 display.

When an X11 GUI Vim (gvim) is started, it will try to register a send-server
name on the 'VimRegistry' property on the root window.

A non GUI Vim with access to the X11 display (xterm-clipboard enabled), can
also act as a command server if a server name is explicitly given with the
--servername argument, or when Vim was build with the +autoservername
feature.

An empty --servername argument will cause the command server to be disabled.

To send commands to a Vim server from another application, read the source
file src/if_xcmdsrv.c, it contains some hints about the protocol used.

==
3. Win32 specific items   w32-clientserver

Every Win32 Vim can work as a server, also in the console. You do not need a
version compiled with OLE. Windows messages are used, this works on any
version of MS-Windows. But only communication within one system is possible.

Since MS-Windows messages are used, any other application should be able to
communicate with a Vim server. An alternative is using the OLE functionality
ole-interface .

When using gvim, the --remote-wait only works properly this way:

```
start /w gvim --remote-wait file.txt
```

vim:tw=78:sw=4:ts=8:noet:ft=help:norl:

term.txt For Vim version 8.1. Last change: 2017 Oct 14

VIM REFERENCE MANUAL by Bram Moolenaar

Terminal information terminal-info

Vim uses information about the terminal you are using to fill the screen and recognize what keys you hit. If this information is not correct, the screen may be messed up or keys may not be recognized. The actions which have to be performed on the screen are accomplished by outputting a string of characters. Special keys produce a string of characters. These strings are stored in the terminal options, see terminal-options .

NOTE: Most of this is not used when running the GUI .

==========

1. Startup startup-terminal

When Vim is started a default terminal type is assumed. For the Amiga this is a standard CLI window, for MS-DOS the pc terminal, for Unix an ansi terminal. A few other terminal types are always available, see below builtin-terms .

You can give the terminal name with the '-T' Vim argument. If it is not given Vim will try to get the name from the TERM environment variable.

termcap terminfo E557 E558 E559

On Unix the terminfo database or termcap file is used. This is referred to as "termcap" in all the documentation. At compile time, when running configure, the choice whether to use terminfo or termcap is done automatically. When running Vim the output of ":version" will show +terminfo if terminfo is used. Also see xterm-screens .

On non-Unix systems a termcap is only available if Vim was compiled with TERMCAP defined.

builtin-terms builtin_terms

Which builtin terminals are available depends on a few defines in feature.h, which need to be set at compile time:

define	output of ":version"	terminals builtin
NO_BUILTIN_TCAPS	-builtin_terms	none
SOME_BUILTIN_TCAPS	+builtin_terms	most common ones (default)
ALL_BUILTIN_TCAPS	++builtin_terms	all available

You can see a list of available builtin terminals with ":set term=xxx" (when not running the GUI). Also see +builtin_terms .

If the termcap code is included Vim will try to get the strings for the terminal you are using from the termcap file and the builtin termcaps. Both are always used, if an entry for the terminal you are using is present. Which one is used first depends on the 'ttybuiltin' option:

'ttybuiltin' on 1: builtin termcap 2: external termcap
'ttybuiltin' off 1: external termcap 2: builtin termcap

If an option is missing in one of them, it will be obtained from the other one. If an option is present in both, the one first encountered is used.

Which external termcap file is used varies from system to system and may depend on the environment variables "TERMCAP" and "TERMPATH". See "man tgetent".

Settings depending on terminal term-dependent-settings

If you want to set options or mappings, depending on the terminal name, you can do this best in your .vimrc. Example:

```
if &term == "xterm"
  ... xterm maps and settings ...
elseif &term =~ "vt10."
  ... vt100, vt102 maps and settings ...
endif
```

raw-terminal-mode

For normal editing the terminal will be put into "raw" mode. The strings defined with 't_ti' and 't_ks' will be sent to the terminal. Normally this puts the terminal in a state where the termcap codes are valid and activates the cursor and function keys. When Vim exits the terminal will be put back into the mode it was before Vim started. The strings defined with 't_te' and 't_ke' will be sent to the terminal. On the Amiga, with commands that execute an external command (e.g., "!!"), the terminal will be put into Normal mode for a moment. This means that you can stop the output to the screen by hitting a printing key. Output resumes when you hit <BS>.

xterm-bracketed-paste

When the 't_BE' option is set then 't_BE' will be sent to the terminal when entering "raw" mode and 't_BD' when leaving "raw" mode. The terminal is then expected to put 't_PS' before pasted text and 't_PE' after pasted text. This way Vim can separate text that is pasted from characters that are typed. The pasted text is handled like when the middle mouse button is used, it is inserted literally and not interpreted as commands.

When the cursor is in the first column, the pasted text will be inserted before it. Otherwise the pasted text is appended after the cursor position. This means one cannot paste after the first column. Unfortunately Vim does not have a way to tell where the mouse pointer was.

Note that in some situations Vim will not recognize the bracketed paste and you will get the raw text. In other situations Vim will only get the first pasted character and drop the rest, e.g. when using the "r" command. If you have a problem with this, disable bracketed paste by putting this in your

.vimrc:
```
	set t_BE=
```
If this is done while Vim is running the 't_BD' will be sent to the terminal
to disable bracketed paste.

If your terminal supports bracketed paste, but the options are not set
automatically, you can try using something like this:

```
	if &term =~ "screen"
	  let &t_BE = "\e[?2004h"
	  let &t_BD = "\e[?2004l"
	  exec "set t_PS=\e[200~"
	  exec "set t_PE=\e[201~"
	endif
```

cs7-problem

Note: If the terminal settings are changed after running Vim, you might have
an illegal combination of settings. This has been reported on Solaris 2.5
with "stty cs8 parenb", which is restored as "stty cs7 parenb". Use
"stty cs8 -parenb -istrip" instead, this is restored correctly.

Some termcap entries are wrong in the sense that after sending 't_ks' the
cursor keys send codes different from the codes defined in the termcap. To
avoid this you can set 't_ks' (and 't_ke') to empty strings. This must be
done during initialization (see initialization), otherwise it's too late.

Some termcap entries assume that the highest bit is always reset. For
example: The cursor-up entry for the Amiga could be ":ku=\E[A:". But the
Amiga really sends "\233A". This works fine if the highest bit is reset,
e.g., when using an Amiga over a serial line. If the cursor keys don't work,
try the entry ":ku=\233A:".

Some termcap entries have the entry ":ku=\E[A:". But the Amiga really sends
"\233A". On output "\E[" and "\233" are often equivalent, on input they
aren't. You will have to change the termcap entry, or change the key code with
the :set command to fix this.

Many cursor key codes start with an <Esc>. Vim must find out if this is a
single hit of the <Esc> key or the start of a cursor key sequence. It waits
for a next character to arrive. If it does not arrive within one second a
single <Esc> is assumed. On very slow systems this may fail, causing cursor
keys not to work sometimes. If you discover this problem reset the 'timeout'
option. Vim will wait for the next character to arrive after an <Esc>. If
you want to enter a single <Esc> you must type it twice. Resetting the
'esckeys' option avoids this problem in Insert mode, but you lose the
possibility to use cursor and function keys in Insert mode.

On the Amiga the recognition of window resizing is activated only when the
terminal name is "amiga" or "builtin_amiga".

Some terminals have confusing codes for the cursor keys. The televideo 925 is
such a terminal. It sends a CTRL-H for cursor-left. This would make it
impossible to distinguish a backspace and cursor-left. To avoid this problem
CTRL-H is never recognized as cursor-left.

vt100-cursor-keys xterm-cursor-keys
Other terminals (e.g., vt100 and xterm) have cursor keys that send <Esc>OA, <Esc>OB, etc. Unfortunately these are valid commands in insert mode: Stop insert, Open a new line above the new one, start inserting 'A', 'B', etc. Instead of performing these commands Vim will erroneously recognize this typed key sequence as a cursor key movement. To avoid this and make Vim do what you want in either case you could use these settings:

```
:set notimeout          " don't timeout on mappings
:set ttimeout           " do timeout on terminal key codes
:set timeoutlen=100     " timeout after 100 msec
```

This requires the key-codes to be sent within 100 msec in order to recognize them as a cursor key. When you type you normally are not that fast, so they are recognized as individual typed commands, even though Vim receives the same sequence of bytes.

vt100-function-keys xterm-function-keys
An xterm can send function keys F1 to F4 in two modes: vt100 compatible or not. Because Vim may not know what the xterm is sending, both types of keys are recognized. The same happens for the <Home> and <End> keys.

		normal		vt100	
<F1>	t_k1	<Esc>[11~	<xF1>	<Esc>OP	<xF1>-xterm
<F2>	t_k2	<Esc>[12~	<xF2>	<Esc>OQ	<xF2>-xterm
<F3>	t_k3	<Esc>[13~	<xF3>	<Esc>OR	<xF3>-xterm
<F4>	t_k4	<Esc>[14~	<xF4>	<Esc>OS	<xF4>-xterm
<Home>	t_kh	<Esc>[7~	<xHome>	<Esc>OH	<xHome>-xterm
<End>	t_@7	<Esc>[4~	<xEnd>	<Esc>OF	<xEnd>-xterm

When Vim starts, <xF1> is mapped to <F1>, <xF2> to <F2> etc. This means that by default both codes do the same thing. If you make a mapping for <xF2>, because your terminal does have two keys, the default mapping is overwritten, thus you can use the <F2> and <xF2> keys for something different.

xterm-shifted-keys
Newer versions of xterm support shifted function keys and special keys. Vim recognizes most of them. Use ":set termcap" to check which are supported and what the codes are. Mostly these are not in a termcap, they are only supported by the builtin_xterm termcap.

xterm-modifier-keys
Newer versions of xterm support Alt and Ctrl for most function keys. To avoid having to add all combinations of Alt, Ctrl and Shift for every key a special sequence is recognized at the end of a termcap entry: ";*X". The "X" can be any character, often '~' is used. The ";*" stands for an optional modifier argument. ";2" is Shift, ";3" is Alt, ";5" is Ctrl and ";9" is Meta (when it's different from Alt). They can be combined. Examples:

```
:set <F8>=^[[19;*~
:set <Home>=^[[1;*H
```

Another speciality about these codes is that they are not overwritten by another code. That is to avoid that the codes obtained from xterm directly t_RV overwrite them.

xterm-scroll-region
The default termcap entry for xterm on Sun and other platforms does not contain the entry for scroll regions. Add ":cs=\E[%i%d;%dr:" to the xterm

entry in /etc/termcap and everything should work.

xterm-end-home-keys
On some systems (at least on FreeBSD with XFree86 3.1.2) the codes that the <End> and <Home> keys send contain a <Nul> character. To make these keys send the proper key code, add these lines to your ~/.Xdefaults file:

```
*VT100.Translations:            #override \n\
                <Key>Home: string("0x1b") string("[7~") \n\
                <Key>End: string("0x1b") string("[8~")
```

xterm-8bit xterm-8-bit
Xterm can be run in a mode where it uses 8-bit escape sequences. The CSI code is used instead of <Esc>[. The advantage is that an <Esc> can quickly be recognized in Insert mode, because it can't be confused with the start of a special key.
For the builtin termcap entries, Vim checks if the 'term' option contains "8bit" anywhere. It then uses 8-bit characters for the termcap entries, the mouse and a few other things. You would normally set $TERM in your shell to "xterm-8bit" and Vim picks this up and adjusts to the 8-bit setting automatically.
When Vim receives a response to the t_RV (request version) sequence and it starts with CSI, it assumes that the terminal is in 8-bit mode and will convert all key sequences to their 8-bit variants.

==
2. Terminal options terminal-options termcap-options E436

The terminal options can be set just like normal options. But they are not shown with the ":set all" command. Instead use ":set termcap".

It is always possible to change individual strings by setting the appropriate option. For example:

```
:set t_ce=^V^[[K        (CTRL-V, <Esc>, [, K)
```

{Vi: no terminal options. You have to exit Vi, edit the termcap entry and try again}

The options are listed below. The associated termcap code is always equal to the last two characters of the option name. Only one termcap code is required: Cursor motion, 't_cm'.

The options 't_da', 't_db', 't_ms', 't_xs', 't_xn' represent flags in the termcap. When the termcap flag is present, the option will be set to "y". But any non-empty string means that the flag is set. An empty string means that the flag is not set. 't_CS' works like this too, but it isn't a termcap flag.

OUTPUT CODES terminal-output-codes

option	meaning	
t_AB	set background color (ANSI)	t_AB 't_AB'
t_AF	set foreground color (ANSI)	t_AF 't_AF'
t_AL	add number of blank lines	t_AL 't_AL'

```
        t_al    add new blank line                                  t_al   't_al'
        t_bc    backspace character                                 t_bc   't_bc'
        t_cd    clear to end of screen                              t_cd   't_cd'
        t_ce    clear to end of line                                t_ce   't_ce'
        t_cl    clear screen                                        t_cl   't_cl'
        t_cm    cursor motion (required!)                 E437      t_cm   't_cm'
        t_Co    number of colors                                    t_Co   't_Co'
        t_CS    if non-empty, cursor relative to scroll region      t_CS   't_CS'
        t_cs    define scrolling region                             t_cs   't_cs'
        t_CV    define vertical scrolling region                    t_CV   't_CV'
        t_da    if non-empty, lines from above scroll down          t_da   't_da'
        t_db    if non-empty, lines from below scroll up            t_db   't_db'
        t_DL    delete number of lines                              t_DL   't_DL'
        t_dl    delete line                                         t_dl   't_dl'
        t_fs    set window title end (from status line)             t_fs   't_fs'
        t_ke    exit "keypad transmit" mode                         t_ke   't_ke'
        t_ks    start "keypad transmit" mode                        t_ks   't_ks'
        t_le    move cursor one char left                           t_le   't_le'
        t_mb    blinking mode                                       t_mb   't_mb'
        t_md    bold mode                                           t_md   't_md'
        t_me    Normal mode (undoes t_mr, t_mb, t_md and color)     t_me   't_me'
        t_mr    reverse (invert) mode                               t_mr   't_mr'
                                                                    t_ms   't_ms'
        t_ms    if non-empty, cursor can be moved in standout/inverse mode
        t_nd    non destructive space character                     t_nd   't_nd'
        t_op    reset to original color pair                        t_op   't_op'
        t_RI    cursor number of chars right                        t_RI   't_RI'
        t_Sb    set background color                                t_Sb   't_Sb'
        t_Sf    set foreground color                                t_Sf   't_Sf'
        t_se    standout end                                        t_se   't_se'
        t_so    standout mode                                       t_so   't_so'
        t_sr    scroll reverse (backward)                           t_sr   't_sr'
        t_te    out of "termcap" mode                               t_te   't_te'
        t_ti    put terminal in "termcap" mode                      t_ti   't_ti'
        t_ts    set window title start (to status line)             t_ts   't_ts'
        t_ue    underline end                                       t_ue   't_ue'
        t_us    underline mode                                      t_us   't_us'
        t_ut    clearing uses the current background color          t_ut   't_ut'
        t_vb    visual bell                                         t_vb   't_vb'
        t_ve    cursor visible                                      t_ve   't_ve'
        t_vi    cursor invisible                                    t_vi   't_vi'
        t_vs    cursor very visible (blink)                         t_vs   't_vs'
                                                                    t_xs   't_xs'
        t_xs    if non-empty, standout not erased by overwriting (hpterm)
                                                                    t_xn   't_xn'
        t_xn    if non-empty, writing a character at the last screen cell
                does not cause scrolling
        t_ZH    italics mode                                        t_ZH   't_ZH'
        t_ZR    italics end                                         t_ZR   't_ZR'

Added by Vim (there are no standard codes for these):
        t_Ce    undercurl end                                       t_Ce   't_Ce'
        t_Cs    undercurl mode                                      t_Cs   't_Cs'
        t_Te    strikethrough end                                   t_Te   't_Te'
```

```
        t_Ts    strikethrough mode                                  t_Ts   't_Ts'
        t_IS    set icon text start                                 t_IS   't_IS'
        t_IE    set icon text end                                   t_IE   't_IE'
        t_WP    set window position (Y, X) in pixels                t_WP   't_WP'
        t_GP    get window position (Y, X) in pixels                t_GP   't_GP'
        t_WS    set window size (height, width in cells)            t_WS   't_WS'
        t_VS    cursor normally visible (no blink)                  t_VS   't_VS'
        t_SI    start insert mode (bar cursor shape)                t_SI   't_SI'
        t_SR    start replace mode (underline cursor shape)         t_SR   't_SR'
        t_EI    end insert or replace mode (block cursor shape)     t_EI   't_EI'
                 termcap-cursor-shape
        t_RV    request terminal version string (for xterm)         t_RV   't_RV'
                 xterm-8bit   v:termresponse   'ttymouse'   xterm-codes
        t_u7    request cursor position (for xterm)                 t_u7   't_u7'
                see  'ambiwidth'
        t_RF    request terminal foreground color                   t_RF   't_RF'
        t_RB    request terminal background color                   t_RB   't_RB'
        t_8f    set foreground color (R, G, B)                      t_8f   't_8f'
                 xterm-true-color
        t_8b    set background color (R, G, B)                      t_8b   't_8b'
                 xterm-true-color
        t_BE    enable bracketed paste mode                         t_BE   't_BE'
                 xterm-bracketed-paste
        t_BD    disable bracketed paste mode                        t_BD   't_BD'
                 xterm-bracketed-paste
        t_SC    set cursor color start                              t_SC   't_SC'
        t_EC    set cursor color end                                t_EC   't_EC'
        t_SH    set cursor shape                                    t_SH   't_SH'
        t_RC    request terminal cursor blinking                    t_RC   't_RC'
        t_RS    request terminal cursor style                       t_RS   't_RS'
        t_ST    save window title to stack                          t_ST   't_ST'
        t_RT    restore window title from stack                     t_RT   't_RT'
        t_Si    save icon text to stack                             t_Si   't_Si'
        t_Ri    restore icon text from stack                        t_Ri   't_Ri'

Some codes have a start, middle and end part.  The start and end are defined
by the termcap option, the middle part is text.
        set title text:     t_ts {title text} t_fs
        set icon text:      t_IS {icon text} t_IE
        set cursor color:   t_SC  {color name}  t_EC

t_SH must take one argument:
        0, 1 or none    blinking block cursor
        2               block cursor
        3               blinking underline cursor
        4               underline cursor
        5               blinking vertical bar cursor
        6               vertical bar cursor

t_RS is sent only if the response to t_RV has been received.  It is not used
on Mac OS when Terminal.app could be recognized from the termresponse.
```

KEY CODES terminal-key-codes

Note: Use the <> form if possible

option	name	meaning			
t_ku	<Up>	arrow up		t_ku	't_ku'
t_kd	<Down>	arrow down		t_kd	't_kd'
t_kr	<Right>	arrow right		t_kr	't_kr'
t_kl	<Left>	arrow left		t_kl	't_kl'
	<xUp>	alternate arrow up		<xUp>	
	<xDown>	alternate arrow down		<xDown>	
	<xRight>	alternate arrow right		<xRight>	
	<xLeft>	alternate arrow left		<xLeft>	
	<S-Up>	shift arrow up			
	<S-Down>	shift arrow down			
t_%i	<S-Right>	shift arrow right		t_%i	't_%i'
t_#4	<S-Left>	shift arrow left		t_#4	't_#4'
t_k1	<F1>	function key 1		t_k1	't_k1'
	<xF1>	alternate F1		<xF1>	
t_k2	<F2>	function key 2	<F2>	t_k2	't_k2'
	<xF2>	alternate F2		<xF2>	
t_k3	<F3>	function key 3	<F3>	t_k3	't_k3'
	<xF3>	alternate F3		<xF3>	
t_k4	<F4>	function key 4	<F4>	t_k4	't_k4'
	<xF4>	alternate F4		<xF4>	
t_k5	<F5>	function key 5	<F5>	t_k5	't_k5'
t_k6	<F6>	function key 6	<F6>	t_k6	't_k6'
t_k7	<F7>	function key 7	<F7>	t_k7	't_k7'
t_k8	<F8>	function key 8	<F8>	t_k8	't_k8'
t_k9	<F9>	function key 9	<F9>	t_k9	't_k9'
t_k;	<F10>	function key 10	<F10>	t_k;	't_k;'
t_F1	<F11>	function key 11	<F11>	t_F1	't_F1'
t_F2	<F12>	function key 12	<F12>	t_F2	't_F2'
t_F3	<F13>	function key 13	<F13>	t_F3	't_F3'
t_F4	<F14>	function key 14	<F14>	t_F4	't_F4'
t_F5	<F15>	function key 15	<F15>	t_F5	't_F5'
t_F6	<F16>	function key 16	<F16>	t_F6	't_F6'
t_F7	<F17>	function key 17	<F17>	t_F7	't_F7'
t_F8	<F18>	function key 18	<F18>	t_F8	't_F8'
t_F9	<F19>	function key 19	<F19>	t_F9	't_F9'
	<S-F1>	shifted function key 1			
	<S-xF1>	alternate <S-F1>		<S-xF1>	
	<S-F2>	shifted function key 2		<S-F2>	
	<S-xF2>	alternate <S-F2>		<S-xF2>	
	<S-F3>	shifted function key 3		<S-F3>	
	<S-xF3>	alternate <S-F3>		<S-xF3>	
	<S-F4>	shifted function key 4		<S-F4>	
	<S-xF4>	alternate <S-F4>		<S-xF4>	
	<S-F5>	shifted function key 5		<S-F5>	
	<S-F6>	shifted function key 6		<S-F6>	
	<S-F7>	shifted function key 7		<S-F7>	
	<S-F8>	shifted function key 8		<S-F8>	
	<S-F9>	shifted function key 9		<S-F9>	
	<S-F10>	shifted function key 10		<S-F10>	
	<S-F11>	shifted function key 11		<S-F11>	

```
        <S-F12>         shifted function key 12          <S-F12>
t_%1    <Help>          help key                         t_%1    't_%1'
t_&8    <Undo>          undo key                         t_&8    't_&8'
t_kI    <Insert>        insert key                       t_kI    't_kI'
t_kD    <Del>           delete key                       t_kD    't_kD'
t_kb    <BS>            backspace key                    t_kb    't_kb'
t_kB    <S-Tab>         back-tab (shift-tab)   <S-Tab>   t_kB    't_kB'
t_kh    <Home>          home key                         t_kh    't_kh'
t_#2    <S-Home>        shifted home key      <S-Home>   t_#2    't_#2'
        <xHome>         alternate home key               <xHome>
t_@7    <End>           end key                          t_@7    't_@7'
t_*7    <S-End>         shifted end key  <S-End>   t_star7   't_star7'
        <xEnd>          alternate end key                <xEnd>
t_kP    <PageUp>        page-up key                      t_kP    't_kP'
t_kN    <PageDown>      page-down key                    t_kN    't_kN'
t_K1    <kHome>         keypad home key                  t_K1    't_K1'
t_K4    <kEnd>          keypad end key                   t_K4    't_K4'
t_K3    <kPageUp>       keypad page-up key               t_K3    't_K3'
t_K5    <kPageDown>     keypad page-down key             t_K5    't_K5'
t_K6    <kPlus>         keypad plus key        <kPlus>   t_K6    't_K6'
t_K7    <kMinus>        keypad minus key      <kMinus>   t_K7    't_K7'
t_K8    <kDivide>       keypad divide        <kDivide>   t_K8    't_K8'
t_K9    <kMultiply>     keypad multiply    <kMultiply>   t_K9    't_K9'
t_KA    <kEnter>        keypad enter key      <kEnter>   t_KA    't_KA'
t_KB    <kPoint>        keypad decimal point  <kPoint>   t_KB    't_KB'
t_KC    <k0>            keypad 0                 <k0>    t_KC    't_KC'
t_KD    <k1>            keypad 1                 <k1>    t_KD    't_KD'
t_KE    <k2>            keypad 2                 <k2>    t_KE    't_KE'
t_KF    <k3>            keypad 3                 <k3>    t_KF    't_KF'
t_KG    <k4>            keypad 4                 <k4>    t_KG    't_KG'
t_KH    <k5>            keypad 5                 <k5>    t_KH    't_KH'
t_KI    <k6>            keypad 6                 <k6>    t_KI    't_KI'
t_KJ    <k7>            keypad 7                 <k7>    t_KJ    't_KJ'
t_KK    <k8>            keypad 8                 <k8>    t_KK    't_KK'
t_KL    <k9>            keypad 9                 <k9>    t_KL    't_KL'
        <Mouse>         leader of mouse code             <Mouse>
                                                         t_PS    't_PS'
t_PS    start of bracketed paste  xterm-bracketed-paste
t_PE    end of bracketed paste  xterm-bracketed-paste    t_PE    't_PE'
```

Note about t_so and t_mr: When the termcap entry "so" is not present the entry for "mr" is used. And vice versa. The same is done for "se" and "me". If your terminal supports both inversion and standout mode, you can see two different modes. If your terminal supports only one of the modes, both will look the same.

keypad-comma

The keypad keys, when they are not mapped, behave like the equivalent normal key. There is one exception: if you have a comma on the keypad instead of a decimal point, Vim will use a dot anyway. Use these mappings to fix that:

```
:noremap <kPoint> ,
:noremap! <kPoint> ,
```

xterm-codes

There is a special trick to obtain the key codes which currently only works

for xterm. When t_RV is defined and a response is received which indicates an xterm with patchlevel 141 or higher, Vim uses special escape sequences to request the key codes directly from the xterm. The responses are used to adjust the various t_ codes. This avoids the problem that the xterm can produce different codes, depending on the mode it is in (8-bit, VT102, VT220, etc.). The result is that codes like <xF1> are no longer needed.
Note: This is only done on startup. If the xterm options are changed after Vim has started, the escape sequences may not be recognized anymore.

xterm-true-color
Vim supports using true colors in the terminal (taken from highlight-guifg and highlight-guibg), given that the terminal supports this. To make this work the 'termguicolors' option needs to be set.
See https://gist.github.com/XVilka/8346728 for a list of terminals that support true colors.

Sometimes setting 'termguicolors' is not enough and one has to set the t_8f and t_8b options explicitly. Default values of these options are "^[[38;2;%lu;%lu;%lum" and "^[[48;2;%lu;%lu;%lum" respectively, but it is only set when `$TERM` is `xterm`. Some terminals accept the same sequences, but with all semicolons replaced by colons (this is actually more compatible, but less widely supported):

```
let &t_8f = "\<Esc>[38:2:%lu:%lu:%lum"
let &t_8b = "\<Esc>[48:2:%lu:%lu:%lum"
```

These options contain printf strings, with printf() (actually, its C equivalent hence `l` modifier) invoked with the t_ option value and three unsigned long integers that may have any value between 0 and 255 (inclusive) representing red, green and blue colors respectively.

xterm-resize
Window resizing with xterm only works if the allowWindowOps resource is enabled. On some systems and versions of xterm it's disabled by default because someone thought it would be a security issue. It's not clear if this is actually the case.

To overrule the default, put this line in your ~/.Xdefaults or ~/.Xresources:

```
XTerm*allowWindowOps:           true
```

And run "xrdb -merge .Xresources" to make it effective. You can check the value with the context menu (right mouse button while CTRL key is pressed), there should be a tick at allow-window-ops.

termcap-colors
Note about colors: The 't_Co' option tells Vim the number of colors available. When it is non-zero, the 't_AB' and 't_AF' options are used to set the color. If one of these is not available, 't_Sb' and 't_Sf' are used. 't_me' is used to reset to the default colors.

termcap-cursor-shape termcap-cursor-color
When Vim enters Insert mode the 't_SI' escape sequence is sent. When Vim enters Replace mode the 't_SR' escape sequence is sent if it is set, otherwise

't_SI' is sent. When leaving Insert mode or Replace mode 't_EI' is used. This can be used to change the shape or color of the cursor in Insert or Replace mode. These are not standard termcap/terminfo entries, you need to set them yourself.
Example for an xterm, this changes the color of the cursor:

```
    if &term =~ "xterm"
        let &t_SI = "\<Esc>]12;purple\x7"
        let &t_SR = "\<Esc>]12;red\x7"
        let &t_EI = "\<Esc>]12;blue\x7"
    endif
```

NOTE: When Vim exits the shape for Normal mode will remain. The shape from before Vim started will not be restored.
{not available when compiled without the |+cursorshape| feature}

termcap-title

The 't_ts' and 't_fs' options are used to set the window title if the terminal allows title setting via sending strings. They are sent before and after the title string, respectively. Similar 't_IS' and 't_IE' are used to set the icon text. These are Vim-internal extensions of the Unix termcap, so they cannot be obtained from an external termcap. However, the builtin termcap contains suitable entries for xterm and iris-ansi, so you don't need to set them here.

hpterm

If inversion or other highlighting does not work correctly, try setting the 't_xs' option to a non-empty string. This makes the 't_ce' code be used to remove highlighting from a line. This is required for "hpterm". Setting the 'weirdinvert' option has the same effect as making 't_xs' non-empty, and vice versa.

scroll-region

Some termcaps do not include an entry for 'cs' (scroll region), although the terminal does support it. For example: xterm on a Sun. You can use the builtin_xterm or define t_cs yourself. For example:

```
        :set t_cs=^V^[[%i%d;%dr
```

Where ^V is CTRL-V and ^[is <Esc>.

The vertical scroll region t_CV is not a standard termcap code. Vim uses it internally in the GUI. But it can also be defined for a terminal, if you can find one that supports it. The two arguments are the left and right column of the region which to restrict the scrolling to. Just like t_cs defines the top and bottom lines. Defining t_CV will make scrolling in vertically split windows a lot faster. Don't set t_CV when t_da or t_db is set (text isn't cleared when scrolling).

Unfortunately it is not possible to deduce from the termcap how cursor positioning should be done when using a scrolling region: Relative to the beginning of the screen or relative to the beginning of the scrolling region. Most terminals use the first method. A known exception is the MS-DOS console (pcterm). The 't_CS' option should be set to any string when cursor positioning is relative to the start of the scrolling region. It should be set to an empty string otherwise. It defaults to "yes" when 'term' is "pcterm".

Note for xterm users: The shifted cursor keys normally don't work. You can

make them work with the xmodmap command and some mappings in Vim.

Give these commands in the xterm:
```
xmodmap -e "keysym Up = Up F13"
xmodmap -e "keysym Down = Down F16"
xmodmap -e "keysym Left = Left F18"
xmodmap -e "keysym Right = Right F19"
```

And use these mappings in Vim:
```
:map <t_F3> <S-Up>
:map! <t_F3> <S-Up>
:map <t_F6> <S-Down>
:map! <t_F6> <S-Down>
:map <t_F8> <S-Left>
:map! <t_F8> <S-Left>
:map <t_F9> <S-Right>
:map! <t_F9> <S-Right>
```

Instead of, say, <S-Up> you can use any other command that you want to use the shift-cursor-up key for. (Note: To help people that have a Sun keyboard with left side keys F14 is not used because it is confused with the undo key; F15 is not used, because it does a window-to-front; F17 is not used, because it closes the window. On other systems you can probably use them.)

==
3. Window size window-size

[This is about the size of the whole window Vim is using, not a window that is created with the ":split" command.]

If you are running Vim on an Amiga and the terminal name is "amiga" or "builtin_amiga", the amiga-specific window resizing will be enabled. On Unix systems three methods are tried to get the window size:

- an ioctl call (TIOCGSIZE or TIOCGWINSZ, depends on your system)
- the environment variables "LINES" and "COLUMNS"
- from the termcap entries "li" and "co"

If everything fails a default size of 24 lines and 80 columns is assumed. If a window-resize signal is received the size will be set again. If the window size is wrong you can use the 'lines' and 'columns' options to set the correct values.

One command can be used to set the screen size:

:mod :mode E359

:mod[e] [mode]

Without argument this only detects the screen size and redraws the screen. With MS-DOS it is possible to switch screen mode. [mode] can be one of these values:

"bw40"	40 columns black&white
"c40"	40 columns color
"bw80"	80 columns black&white

```
        "c80"           80 columns color (most people use this)
        "mono"          80 columns monochrome
        "c4350"         43 or 50 lines EGA/VGA mode
        number          mode number to use, depends on your video card
```

==
4. Slow and fast terminals   slow-fast-terminal
                                                        slow-terminal

If you have a fast terminal you may like to set the 'ruler' option. The
cursor position is shown in the status line. If you are using horizontal
scrolling ('wrap' option off) consider setting 'sidescroll' to a small
number.

If you have a slow terminal you may want to reset the 'showcmd' option.
The command characters will not be shown in the status line. If the terminal
scrolls very slowly, set the 'scrolljump' to 5 or so. If the cursor is moved
off the screen (e.g., with "j") Vim will scroll 5 lines at a time. Another
possibility is to reduce the number of lines that Vim uses with the command
"z{height}<CR>".

If the characters from the terminal are arriving with more than 1 second
between them you might want to set the 'timeout' and/or 'ttimeout' option.
See the "Options" chapter options .

If your terminal does not support a scrolling region, but it does support
insert/delete line commands, scrolling with multiple windows may make the
lines jump up and down. If you don't want this set the 'ttyfast' option.
This will redraw the window instead of scroll it.

If your terminal scrolls very slowly, but redrawing is not slow, set the
'ttyscroll' option to a small number, e.g., 3. This will make Vim redraw the
screen instead of scrolling, when there are more than 3 lines to be scrolled.

If you are using a color terminal that is slow, use this command:
```
        hi NonText cterm=NONE ctermfg=NONE
```
This avoids that spaces are sent when they have different attributes. On most
terminals you can't see this anyway.

If you are using Vim over a slow serial line, you might want to try running
Vim inside the "screen" program. Screen will optimize the terminal I/O quite
a bit.

If you are testing termcap options, but you cannot see what is happening,
you might want to set the 'writedelay' option. When non-zero, one character
is sent to the terminal at a time (does not work for MS-DOS). This makes the
screen updating a lot slower, making it possible to see what is happening.

==
5. Using the mouse   mouse-using

This section is about using the mouse on a terminal or a terminal window. How
to use the mouse in a GUI window is explained in gui-mouse . For scrolling
with a mouse wheel see scroll-mouse-wheel .

Don't forget to enable the mouse with this command:
	:set mouse=a
Otherwise Vim won't recognize the mouse in all modes (See 'mouse').

Currently the mouse is supported for Unix in an xterm window, in a *BSD
console with sysmouse , in a Linux console (with GPM gpm-mouse), for
MS-DOS and in a Windows console.
Mouse clicks can be used to position the cursor, select an area and paste.

These characters in the 'mouse' option tell in which situations the mouse will
be used by Vim:

n	Normal mode
v	Visual mode
i	Insert mode
c	Command-line mode
h	all previous modes when in a help file
a	all previous modes
r	for hit-enter prompt

The default for 'mouse' is empty, the mouse is not used. Normally you would
do:
	:set mouse=a
to start using the mouse (this is equivalent to setting 'mouse' to "nvich").
If you only want to use the mouse in a few modes or also want to use it for
the two questions you will have to concatenate the letters for those modes.
For example:
	:set mouse=nv
Will make the mouse work in Normal mode and Visual mode.
	:set mouse=h
Will make the mouse work in help files only (so you can use "g<LeftMouse>" to
jump to tags).

Whether the selection that is started with the mouse is in Visual mode or
Select mode depends on whether "mouse" is included in the 'selectmode'
option.

In an xterm, with the currently active mode included in the 'mouse' option,
normal mouse clicks are used by Vim, mouse clicks with the shift or ctrl key
pressed go to the xterm. With the currently active mode not included in
'mouse' all mouse clicks go to the xterm.

xterm-clipboard
In the Athena and Motif GUI versions, when running in a terminal and there is
access to the X-server (DISPLAY is set), the copy and paste will behave like
in the GUI. If not, the middle mouse button will insert the unnamed register.
In that case, here is how you copy and paste a piece of text:

Copy/paste with the mouse and Visual mode ('mouse' option must be set, see
above):
1. Press left mouse button on first letter of text, move mouse pointer to last
   letter of the text and release the button. This will start Visual mode and
   highlight the selected area.
2. Press "y" to yank the Visual text in the unnamed register.

3. Click the left mouse button at the insert position.
4. Click the middle mouse button.

Shortcut: If the insert position is on the screen at the same time as the Visual text, you can do 2, 3 and 4 all in one: Click the middle mouse button at the insert position.

Note: When the -X command line argument is used, Vim will not connect to the X server and copy/paste to the X clipboard (selection) will not work. Use the shift key with the mouse buttons to let the xterm do the selection.

xterm-command-server
When the X-server clipboard is available, the command server described in x11-clientserver can be enabled with the --servername command line argument.

xterm-copy-paste
NOTE: In some (older) xterms, it's not possible to move the cursor past column 95 or 223. This is an xterm problem, not Vim's. Get a newer xterm color-xterm . Also see 'ttymouse' .

Copy/paste in xterm with (current mode NOT included in 'mouse'):
1. Press left mouse button on first letter of text, move mouse pointer to last letter of the text and release the button.
2. Use normal Vim commands to put the cursor at the insert position.
3. Press "a" to start Insert mode.
4. Click the middle mouse button.
5. Press ESC to end Insert mode.
(The same can be done with anything in 'mouse' if you keep the shift key pressed while using the mouse.)

Note: if you lose the 8th bit when pasting (special characters are translated into other characters), you may have to do "stty cs8 -istrip -parenb" in your shell before starting Vim.

Thus in an xterm the shift and ctrl keys cannot be used with the mouse. Mouse commands requiring the CTRL modifier can be simulated by typing the "g" key before using the mouse:

```
        "g<LeftMouse>"  is "<C-LeftMouse>       (jump to tag under mouse click)
        "g<RightMouse>" is "<C-RightMouse>      ("CTRL-T")
```

mouse-mode-table mouse-overview
A short overview of what the mouse buttons do, when 'mousemodel' is "extend":

Normal Mode:

event	position cursor	selection	change window	action	
<LeftMouse>	yes	end	yes		
<C-LeftMouse>	yes	end	yes	"CTRL-]" (2)	
<S-LeftMouse>	yes	no change	yes	"*" (2)	<S-LeftMouse>
<LeftDrag>	yes	start or extend (1)	no		<LeftDrag>
<LeftRelease>	yes	start or extend (1)	no		
<MiddleMouse>	yes	if not active	no	put	
<MiddleMouse>	yes	if active	no	yank and put	
<RightMouse>	yes	start or extend	yes		

```
<A-RightMouse>  yes start or extend blockw. yes                <A-RightMouse>
<S-RightMouse>  yes        no change        yes    "#" (2)     <S-RightMouse>
<C-RightMouse>  no         no change        no     "CTRL-T"
<RightDrag>     yes         extend          no                 <RightDrag>
<RightRelease>  yes         extend          no                 <RightRelease>

Insert or Replace Mode:
event         position     selection      change  action
               cursor                     window
<LeftMouse>     yes     (cannot be active)  yes
<C-LeftMouse>   yes     (cannot be active)  yes    "CTRL-O^]" (2)
<S-LeftMouse>   yes     (cannot be active)  yes    "CTRL-O*" (2)
<LeftDrag>      yes     start or extend (1) no     like CTRL-O (1)
<LeftRelease>   yes     start or extend (1) no     like CTRL-O (1)
<MiddleMouse>   no      (cannot be active)  no     put register
<RightMouse>    yes     start or extend     yes    like CTRL-O
<A-RightMouse>  yes start or extend blockw. yes
<S-RightMouse>  yes     (cannot be active)  yes    "CTRL-O#" (2)
<C-RightMouse>  no      (cannot be active)  no     "CTRL-O CTRL-T"

In a help window:
event         position     selection      change  action
               cursor                     window
<2-LeftMouse>   yes     (cannot be active)  no     "^]" (jump to help tag)

When 'mousemodel' is "popup", these are different:

Normal Mode:
event         position     selection      change  action
               cursor                     window
<S-LeftMouse>   yes     start or extend (1) no
<A-LeftMouse>   yes start or extend blockw. no                 <A-LeftMouse>
<RightMouse>    no      popup menu          no

Insert or Replace Mode:
event         position     selection      change  action
               cursor                     window
<S-LeftMouse>   yes     start or extend (1) no     like CTRL-O (1)
<A-LeftMouse>   yes start or extend blockw. no
<RightMouse>    no      popup menu          no

(1) only if mouse pointer moved since press
(2) only if click is in same buffer

Clicking the left mouse button causes the cursor to be positioned.  If the
click is in another window that window is made the active window.  When
editing the command-line the cursor can only be positioned on the
command-line.  When in Insert mode Vim remains in Insert mode.  If 'scrolloff'
is set, and the cursor is positioned within 'scrolloff' lines from the window
border, the text is scrolled.

A selection can be started by pressing the left mouse button on the first
character, moving the mouse to the last character, then releasing the mouse
button.  You will not always see the selection until you release the button,
```

only in some versions (GUI, MS-DOS, WIN32) will the dragging be shown immediately. Note that you can make the text scroll by moving the mouse at least one character in the first/last line in the window when 'scrolloff' is non-zero.

In Normal, Visual and Select mode clicking the right mouse button causes the Visual area to be extended. When 'mousemodel' is "popup", the left button has to be used while keeping the shift key pressed. When clicking in a window which is editing another buffer, the Visual or Select mode is stopped.

In Normal, Visual and Select mode clicking the right mouse button with the alt key pressed causes the Visual area to become blockwise. When 'mousemodel' is "popup" the left button has to be used with the alt key. Note that this won't work on systems where the window manager consumes the mouse events when the alt key is pressed (it may move the window).

double-click

Double, triple and quadruple clicks are supported when the GUI is active, for MS-DOS and Win32, and for an xterm (if the gettimeofday() function is available). For selecting text, extra clicks extend the selection:

click	select	
double	word or % match	<2-LeftMouse>
triple	line	<3-LeftMouse>
quadruple	rectangular block	<4-LeftMouse>

Exception: In a Help window a double click jumps to help for the word that is clicked on.
A double click on a word selects that word. 'iskeyword' is used to specify which characters are included in a word. A double click on a character that has a match selects until that match (like using "v%"). If the match is an #if/#else/#endif block, the selection becomes linewise.
For MS-DOS and xterm the time for double clicking can be set with the 'mousetime' option. For the other systems this time is defined outside of Vim.
An example, for using a double click to jump to the tag under the cursor:

```
:map <2-LeftMouse> :exe "tag ". expand("<cword>")<CR>
```

Dragging the mouse with a double click (button-down, button-up, button-down and then drag) will result in whole words to be selected. This continues until the button is released, at which point the selection is per character again.

gpm-mouse

The GPM mouse is only supported when the +mouse_gpm feature was enabled at compile time. The GPM mouse driver (Linux console) does not support quadruple clicks.

In Insert mode, when a selection is started, Vim goes into Normal mode temporarily. When Visual or Select mode ends, it returns to Insert mode. This is like using CTRL-O in Insert mode. Select mode is used when the 'selectmode' option contains "mouse".

sysmouse

The sysmouse is only supported when the +mouse_sysmouse feature was enabled at compile time. The sysmouse driver (*BSD console) does not support keyboard modifiers.

drag-status-line
When working with several windows, the size of the windows can be changed by dragging the status line with the mouse. Point the mouse at a status line, press the left button, move the mouse to the new position of the status line, release the button. Just clicking the mouse in a status line makes that window the current window, without moving the cursor. If by selecting a window it will change position or size, the dragging of the status line will look confusing, but it will work (just try it).

<MiddleRelease> <MiddleDrag>
Mouse clicks can be mapped. The codes for mouse clicks are:

code	mouse button	normal action	
<LeftMouse>	left pressed	set cursor position	
<LeftDrag>	left moved while pressed	extend selection	
<LeftRelease>	left released	set selection end	
<MiddleMouse>	middle pressed	paste text at cursor position	
<MiddleDrag>	middle moved while pressed	-	
<MiddleRelease>	middle released	-	
<RightMouse>	right pressed	extend selection	
<RightDrag>	right moved while pressed	extend selection	
<RightRelease>	right released	set selection end	
<X1Mouse>	X1 button pressed	-	X1Mouse
<X1Drag>	X1 moved while pressed	-	X1Drag
<X1Release>	X1 button release	-	X1Release
<X2Mouse>	X2 button pressed	-	X2Mouse
<X2Drag>	X2 moved while pressed	-	X2Drag
<X2Release>	X2 button release	-	X2Release

The X1 and X2 buttons refer to the extra buttons found on some mice. The 'Microsoft Explorer' mouse has these buttons available to the right thumb. Currently X1 and X2 only work on Win32 and X11 environments.

Examples:

```
:noremap <MiddleMouse> <LeftMouse><MiddleMouse>
```

Paste at the position of the middle mouse button click (otherwise the paste would be done at the cursor position).

```
:noremap <LeftRelease> <LeftRelease>y
```

Immediately yank the selection, when using Visual mode.

Note the use of ":noremap" instead of "map" to avoid a recursive mapping.

```
:map <X1Mouse> <C-O>
:map <X2Mouse> <C-I>
```

Map the X1 and X2 buttons to go forwards and backwards in the jump list, see CTRL-O and CTRL-I .

mouse-swap-buttons
To swap the meaning of the left and right mouse buttons:

```
:noremap  <LeftMouse>   <RightMouse>
:noremap  <LeftDrag>    <RightDrag>
:noremap  <LeftRelease> <RightRelease>
:noremap  <RightMouse>  <LeftMouse>
```

```
:noremap        <RightDrag>     <LeftDrag>
:noremap        <RightRelease>  <LeftRelease>
:noremap        g<LeftMouse>    <C-RightMouse>
:noremap        g<RightMouse>   <C-LeftMouse>
:noremap!       <LeftMouse>     <RightMouse>
:noremap!       <LeftDrag>      <RightDrag>
:noremap!       <LeftRelease>   <RightRelease>
:noremap!       <RightMouse>    <LeftMouse>
:noremap!       <RightDrag>     <LeftDrag>
:noremap!       <RightRelease>  <LeftRelease>
```

vim:tw=78:ts=8:noet:ft=help:norl:

digraph.txt For Vim version 8.1. Last change: 2016 Nov 04

VIM REFERENCE MANUAL by Bram Moolenaar

Digraphs digraph digraphs Digraphs

Digraphs are used to enter characters that normally cannot be entered by an ordinary keyboard. These are mostly printable non-ASCII characters. The digraphs are easier to remember than the decimal number that can be entered with CTRL-V (see i_CTRL-V).

There is a brief introduction on digraphs in the user manual: 24.9
An alternative is using the 'keymap' option.

{Vi does not have any of these commands}

==========
1. Defining digraphs digraphs-define

:dig :digraphs
:dig[raphs] show currently defined digraphs.
E104 E39
:dig[raphs] {char1}{char2} {number} ...
Add digraph {char1}{char2} to the list. {number} is the decimal representation of the character. Normally it is the Unicode character, see digraph-encoding . Example:
:digr e: 235 a: 228
Avoid defining a digraph with '_' (underscore) as the first character, it has a special meaning in the future.

Vim is normally compiled with the +digraphs feature. If the feature is disabled, the ":digraph" command will display an error message.

Example of the output of ":digraphs":
TH Þ 222 ss ß 223 a! à 224 a' á 225 a> â 226 a? ã 227 a: ä 228

The first two characters in each column are the characters you have to type to enter the digraph.

In the middle of each column is the resulting character. This may be mangled if you look at it on a system that does not support digraphs or if you print this file.

digraph-encoding
The decimal number normally is the Unicode number of the character. Note that the meaning doesn't change when 'encoding' changes. The character will be

converted from Unicode to 'encoding' when needed. This does require the conversion to be available, it might fail. For the NUL character you will see "10". That's because NUL characters are internally represented with a NL character. When you write the file it will become a NUL character.

When Vim was compiled without the +multi_byte feature, you need to specify the character in the encoding given with 'encoding'. You might want to use something like this:

```
if has("multi_byte")
        digraph oe 339
elseif &encoding == "iso-8859-15"
        digraph oe 189
endif
```

This defines the "oe" digraph for a character that is number 339 in Unicode and 189 in latin9 (iso-8859-15).

==
2. Using digraphs digraphs-use

There are two methods to enter digraphs: i_digraph
        CTRL-K {char1} {char2} or
        {char1} <BS> {char2}
The first is always available; the second only when the 'digraph' option is set.

If a digraph with {char1}{char2} does not exist, Vim searches for a digraph {char2}{char1}. This helps when you don't remember which character comes first.

Note that when you enter CTRL-K {char1}, where {char1} is a special key, Vim enters the code for that special key. This is not a digraph.

Once you have entered the digraph, Vim treats the character like a normal character that occupies only one character in the file and on the screen. Example:

```
'B' <BS> 'B'    will enter the broken '|' character (166)
'a' <BS> '>'    will enter an 'a' with a circumflex (226)
CTRL-K '-' '-'  will enter a soft hyphen (173)
```

The current digraphs are listed with the ":digraphs" command. Some of the default ones are listed below digraph-table .

For CTRL-K, there is one general digraph: CTRL-K <Space> {char} will enter {char} with the highest bit set. You can use this to enter meta-characters.

The <Esc> character cannot be part of a digraph. When hitting <Esc>, Vim stops digraph entry and ends Insert mode or Command-line mode, just like hitting an <Esc> out of digraph context. Use CTRL-V 155 to enter meta-ESC (CSI).

If you accidentally typed an 'a' that should be an 'e', you will type 'a' <BS> 'e'. But that is a digraph, so you will not get what you want. To correct

this, you will have to type <BS> e again. To avoid this don't set the 'digraph' option and use CTRL-K to enter digraphs.

You may have problems using Vim with characters which have a value above 128. For example: You insert ue (u-umlaut) and the editor echoes \334 in Insert mode. After leaving the Insert mode everything is fine. Note that fmt removes all characters with a value above 128 from the text being formatted. On some Unix systems this means you have to define the environment-variable LC_CTYPE. If you are using csh, then put the following line in your .cshrc:

```
setenv LC_CTYPE iso_8859_1
```

==

3. Default digraphs digraphs-default

Vim comes with a set of default digraphs. Check the output of ":digraphs" to see them.

On most systems Vim uses the same digraphs. They work for the Unicode and ISO-8859-1 character sets. These default digraphs are taken from the RFC1345 mnemonics. To make it easy to remember the mnemonic, the second character has a standard meaning:

char name	char	meaning
Exclamation mark	!	Grave
Apostrophe	'	Acute accent
Greater-Than sign	>	Circumflex accent
Question mark	?	Tilde
Hyphen-Minus	-	Macron
Left parenthesis	(	Breve
Full stop	.	Dot above
Colon	:	Diaeresis
Comma	,	Cedilla
Underline	_	Underline
Solidus	/	Stroke
Quotation mark	"	Double acute accent
Semicolon	;	Ogonek
Less-Than sign	<	Caron
Zero	0	Ring above
Two	2	Hook
Nine	9	Horn
Equals	=	Cyrillic (= used as second char)
Asterisk	*	Greek
Percent sign	%	Greek/Cyrillic special
Plus	+	smalls: Arabic, capitals: Hebrew
Three	3	some Latin/Greek/Cyrillic letters
Four	4	Bopomofo
Five	5	Hiragana
Six	6	Katakana

Example: a: is ä and o: is ö

These are the RFC1345 digraphs for the one-byte characters. See the output of ":digraphs" for the others. The characters above 255 are only available when

Vim was compiled with the +multi_byte feature.

EURO

Exception: RFC1345 doesn't specify the euro sign. In Vim the digraph =e was added for this. Note the difference between latin1, where the digraph Cu is used for the currency sign, and latin9 (iso-8859-15), where the digraph =e is used for the euro sign, while both of them are the character 164, 0xa4. For compatibility with zsh Eu can also be used for the euro sign.

ROUBLE

The rouble sign was added in 2014 as 0x20bd. Vim supports the digraphs =R and =P for this. Note that R= and P= are other characters.

digraph-table

char	digraph	hex	dec	official name
^@	NU	0x00	0	NULL (NUL)
^A	SH	0x01	1	START OF HEADING (SOH)
^B	SX	0x02	2	START OF TEXT (STX)
^C	EX	0x03	3	END OF TEXT (ETX)
^D	ET	0x04	4	END OF TRANSMISSION (EOT)
^E	EQ	0x05	5	ENQUIRY (ENQ)
^F	AK	0x06	6	ACKNOWLEDGE (ACK)
^G	BL	0x07	7	BELL (BEL)
^H	BS	0x08	8	BACKSPACE (BS)
^I	HT	0x09	9	CHARACTER TABULATION (HT)
^@	LF	0x0a	10	LINE FEED (LF)
^K	VT	0x0b	11	LINE TABULATION (VT)
^L	FF	0x0c	12	FORM FEED (FF)
^M	CR	0x0d	13	CARRIAGE RETURN (CR)
^N	SO	0x0e	14	SHIFT OUT (SO)
^O	SI	0x0f	15	SHIFT IN (SI)
^P	DL	0x10	16	DATALINK ESCAPE (DLE)
^Q	D1	0x11	17	DEVICE CONTROL ONE (DC1)
^R	D2	0x12	18	DEVICE CONTROL TWO (DC2)
^S	D3	0x13	19	DEVICE CONTROL THREE (DC3)
^T	D4	0x14	20	DEVICE CONTROL FOUR (DC4)
^U	NK	0x15	21	NEGATIVE ACKNOWLEDGE (NAK)
^V	SY	0x16	22	SYNCHRONOUS IDLE (SYN)
^W	EB	0x17	23	END OF TRANSMISSION BLOCK (ETB)
^X	CN	0x18	24	CANCEL (CAN)
^Y	EM	0x19	25	END OF MEDIUM (EM)
^Z	SB	0x1a	26	SUBSTITUTE (SUB)
^[	EC	0x1b	27	ESCAPE (ESC)
^\	FS	0x1c	28	FILE SEPARATOR (IS4)
^]	GS	0x1d	29	GROUP SEPARATOR (IS3)
^^	RS	0x1e	30	RECORD SEPARATOR (IS2)
^_	US	0x1f	31	UNIT SEPARATOR (IS1)
	SP	0x20	32	SPACE
#	Nb	0x23	35	NUMBER SIGN
$	DO	0x24	36	DOLLAR SIGN
@	At	0x40	64	COMMERCIAL AT
[	<(	0x5b	91	LEFT SQUARE BRACKET

\	//	0x5c	92	REVERSE SOLIDUS
]	)>	0x5d	93	RIGHT SQUARE BRACKET
^	'>	0x5e	94	CIRCUMFLEX ACCENT
`	'!	0x60	96	GRAVE ACCENT
{	(!	0x7b	123	LEFT CURLY BRACKET
|	!!	0x7c	124	VERTICAL LINE
}	!)	0x7d	125	RIGHT CURLY BRACKET
~	'?	0x7e	126	TILDE
^?	DT	0x7f	127	DELETE (DEL)
~@	PA	0x80	128	PADDING CHARACTER (PAD)
~A	HO	0x81	129	HIGH OCTET PRESET (HOP)
~B	BH	0x82	130	BREAK PERMITTED HERE (BPH)
~C	NH	0x83	131	NO BREAK HERE (NBH)
~D	IN	0x84	132	INDEX (IND)
~E	NL	0x85	133	NEXT LINE (NEL)
~F	SA	0x86	134	START OF SELECTED AREA (SSA)
~G	ES	0x87	135	END OF SELECTED AREA (ESA)
~H	HS	0x88	136	CHARACTER TABULATION SET (HTS)
~I	HJ	0x89	137	CHARACTER TABULATION WITH JUSTIFICATION (HTJ)
~J	VS	0x8a	138	LINE TABULATION SET (VTS)
~K	PD	0x8b	139	PARTIAL LINE FORWARD (PLD)
~L	PU	0x8c	140	PARTIAL LINE BACKWARD (PLU)
~M	RI	0x8d	141	REVERSE LINE FEED (RI)
~N	S2	0x8e	142	SINGLE-SHIFT TWO (SS2)
~O	S3	0x8f	143	SINGLE-SHIFT THREE (SS3)
~P	DC	0x90	144	DEVICE CONTROL STRING (DCS)
~Q	P1	0x91	145	PRIVATE USE ONE (PU1)
~R	P2	0x92	146	PRIVATE USE TWO (PU2)
~S	TS	0x93	147	SET TRANSMIT STATE (STS)
~T	CC	0x94	148	CANCEL CHARACTER (CCH)
~U	MW	0x95	149	MESSAGE WAITING (MW)
~V	SG	0x96	150	START OF GUARDED AREA (SPA)
~W	EG	0x97	151	END OF GUARDED AREA (EPA)
~X	SS	0x98	152	START OF STRING (SOS)
~Y	GC	0x99	153	SINGLE GRAPHIC CHARACTER INTRODUCER (SGCI)
~Z	SC	0x9a	154	SINGLE CHARACTER INTRODUCER (SCI)
~[	CI	0x9b	155	CONTROL SEQUENCE INTRODUCER (CSI)
~\	ST	0x9c	156	STRING TERMINATOR (ST)
~]	OC	0x9d	157	OPERATING SYSTEM COMMAND (OSC)
~^	PM	0x9e	158	PRIVACY MESSAGE (PM)
~_	AC	0x9f	159	APPLICATION PROGRAM COMMAND (APC)
|	NS	0xa0	160	NO-BREAK SPACE
¡	!I	0xa1	161	INVERTED EXCLAMATION MARK
¢	Ct	0xa2	162	CENT SIGN
£	Pd	0xa3	163	POUND SIGN
¤	Cu	0xa4	164	CURRENCY SIGN
¥	Ye	0xa5	165	YEN SIGN
¦	BB	0xa6	166	BROKEN BAR
§	SE	0xa7	167	SECTION SIGN
¨	':	0xa8	168	DIAERESIS
©	Co	0xa9	169	COPYRIGHT SIGN
a̲	-a	0xaa	170	FEMININE ORDINAL INDICATOR
«	<<	0xab	171	LEFT-POINTING DOUBLE ANGLE QUOTATION MARK
¬	NO	0xac	172	NOT SIGN

```
        --      0xad    173     SOFT HYPHEN
®       Rg      0xae    174     REGISTERED SIGN
¯       'm      0xaf    175     MACRON
°       DG      0xb0    176     DEGREE SIGN
±       +-      0xb1    177     PLUS-MINUS SIGN
²       2S      0xb2    178     SUPERSCRIPT TWO
³       3S      0xb3    179     SUPERSCRIPT THREE
´       ''      0xb4    180     ACUTE ACCENT
µ       My      0xb5    181     MICRO SIGN
¶       PI      0xb6    182     PILCROW SIGN
·       .M      0xb7    183     MIDDLE DOT
¸       ',      0xb8    184     CEDILLA
¹       1S      0xb9    185     SUPERSCRIPT ONE
º       -o      0xba    186     MASCULINE ORDINAL INDICATOR
»       >>      0xbb    187     RIGHT-POINTING DOUBLE ANGLE QUOTATION MARK
¼       14      0xbc    188     VULGAR FRACTION ONE QUARTER
½       12      0xbd    189     VULGAR FRACTION ONE HALF
¾       34      0xbe    190     VULGAR FRACTION THREE QUARTERS
¿       ?I      0xbf    191     INVERTED QUESTION MARK
À       A!      0xc0    192     LATIN CAPITAL LETTER A WITH GRAVE
Á       A'      0xc1    193     LATIN CAPITAL LETTER A WITH ACUTE
Â       A>      0xc2    194     LATIN CAPITAL LETTER A WITH CIRCUMFLEX
Ã       A?      0xc3    195     LATIN CAPITAL LETTER A WITH TILDE
Ä       A:      0xc4    196     LATIN CAPITAL LETTER A WITH DIAERESIS
Å       AA      0xc5    197     LATIN CAPITAL LETTER A WITH RING ABOVE
Æ       AE      0xc6    198     LATIN CAPITAL LETTER AE
Ç       C,      0xc7    199     LATIN CAPITAL LETTER C WITH CEDILLA
È       E!      0xc8    200     LATIN CAPITAL LETTER E WITH GRAVE
É       E'      0xc9    201     LATIN CAPITAL LETTER E WITH ACUTE
Ê       E>      0xca    202     LATIN CAPITAL LETTER E WITH CIRCUMFLEX
Ë       E:      0xcb    203     LATIN CAPITAL LETTER E WITH DIAERESIS
Ì       I!      0xcc    204     LATIN CAPITAL LETTER I WITH GRAVE
Í       I'      0xcd    205     LATIN CAPITAL LETTER I WITH ACUTE
Î       I>      0xce    206     LATIN CAPITAL LETTER I WITH CIRCUMFLEX
Ï       I:      0xcf    207     LATIN CAPITAL LETTER I WITH DIAERESIS
Ð       D-      0xd0    208     LATIN CAPITAL LETTER ETH (Icelandic)
Ñ       N?      0xd1    209     LATIN CAPITAL LETTER N WITH TILDE
Ò       O!      0xd2    210     LATIN CAPITAL LETTER O WITH GRAVE
Ó       O'      0xd3    211     LATIN CAPITAL LETTER O WITH ACUTE
Ô       O>      0xd4    212     LATIN CAPITAL LETTER O WITH CIRCUMFLEX
Õ       O?      0xd5    213     LATIN CAPITAL LETTER O WITH TILDE
Ö       O:      0xd6    214     LATIN CAPITAL LETTER O WITH DIAERESIS
×       *X      0xd7    215     MULTIPLICATION SIGN
Ø       O/      0xd8    216     LATIN CAPITAL LETTER O WITH STROKE
Ù       U!      0xd9    217     LATIN CAPITAL LETTER U WITH GRAVE
Ú       U'      0xda    218     LATIN CAPITAL LETTER U WITH ACUTE
Û       U>      0xdb    219     LATIN CAPITAL LETTER U WITH CIRCUMFLEX
Ü       U:      0xdc    220     LATIN CAPITAL LETTER U WITH DIAERESIS
Ý       Y'      0xdd    221     LATIN CAPITAL LETTER Y WITH ACUTE
Þ       TH      0xde    222     LATIN CAPITAL LETTER THORN (Icelandic)
ß       ss      0xdf    223     LATIN SMALL LETTER SHARP S (German)
à       a!      0xe0    224     LATIN SMALL LETTER A WITH GRAVE
á       a'      0xe1    225     LATIN SMALL LETTER A WITH ACUTE
â       a>      0xe2    226     LATIN SMALL LETTER A WITH CIRCUMFLEX
```

ã	a?	0xe3	227	LATIN SMALL LETTER A WITH TILDE
ä	a:	0xe4	228	LATIN SMALL LETTER A WITH DIAERESIS
å	aa	0xe5	229	LATIN SMALL LETTER A WITH RING ABOVE
æ	ae	0xe6	230	LATIN SMALL LETTER AE
ç	c,	0xe7	231	LATIN SMALL LETTER C WITH CEDILLA
è	e!	0xe8	232	LATIN SMALL LETTER E WITH GRAVE
é	e'	0xe9	233	LATIN SMALL LETTER E WITH ACUTE
ê	e>	0xea	234	LATIN SMALL LETTER E WITH CIRCUMFLEX
ë	e:	0xeb	235	LATIN SMALL LETTER E WITH DIAERESIS
ì	i!	0xec	236	LATIN SMALL LETTER I WITH GRAVE
í	i'	0xed	237	LATIN SMALL LETTER I WITH ACUTE
î	i>	0xee	238	LATIN SMALL LETTER I WITH CIRCUMFLEX
ï	i:	0xef	239	LATIN SMALL LETTER I WITH DIAERESIS
ð	d-	0xf0	240	LATIN SMALL LETTER ETH (Icelandic)
ñ	n?	0xf1	241	LATIN SMALL LETTER N WITH TILDE
ò	o!	0xf2	242	LATIN SMALL LETTER O WITH GRAVE
ó	o'	0xf3	243	LATIN SMALL LETTER O WITH ACUTE
ô	o>	0xf4	244	LATIN SMALL LETTER O WITH CIRCUMFLEX
õ	o?	0xf5	245	LATIN SMALL LETTER O WITH TILDE
ö	o:	0xf6	246	LATIN SMALL LETTER O WITH DIAERESIS
÷	-:	0xf7	247	DIVISION SIGN
ø	o/	0xf8	248	LATIN SMALL LETTER O WITH STROKE
ù	u!	0xf9	249	LATIN SMALL LETTER U WITH GRAVE
ú	u'	0xfa	250	LATIN SMALL LETTER U WITH ACUTE
û	u>	0xfb	251	LATIN SMALL LETTER U WITH CIRCUMFLEX
ü	u:	0xfc	252	LATIN SMALL LETTER U WITH DIAERESIS
ý	y'	0xfd	253	LATIN SMALL LETTER Y WITH ACUTE
þ	th	0xfe	254	LATIN SMALL LETTER THORN (Icelandic)
ÿ	y:	0xff	255	LATIN SMALL LETTER Y WITH DIAERESIS

If your Vim is compiled with multibyte support and you are using a multibyte 'encoding', Vim provides this enhanced set of additional digraphs:

digraph-table-mbyte

char	digraph	hex	dec	official name
Ā	A-	0100	0256	LATIN CAPITAL LETTER A WITH MACRON
ā	a-	0101	0257	LATIN SMALL LETTER A WITH MACRON
Ă	A(	0102	0258	LATIN CAPITAL LETTER A WITH BREVE
ă	a(	0103	0259	LATIN SMALL LETTER A WITH BREVE
Ą	A;	0104	0260	LATIN CAPITAL LETTER A WITH OGONEK
ą	a;	0105	0261	LATIN SMALL LETTER A WITH OGONEK
Ć	C'	0106	0262	LATIN CAPITAL LETTER C WITH ACUTE
ć	c'	0107	0263	LATIN SMALL LETTER C WITH ACUTE
Ĉ	C>	0108	0264	LATIN CAPITAL LETTER C WITH CIRCUMFLEX
ĉ	c>	0109	0265	LATIN SMALL LETTER C WITH CIRCUMFLEX
Ċ	C.	010A	0266	LATIN CAPITAL LETTER C WITH DOT ABOVE
ċ	c.	010B	0267	LATIN SMALL LETTER C WITH DOT ABOVE
Č	C<	010C	0268	LATIN CAPITAL LETTER C WITH CARON
č	c<	010D	0269	LATIN SMALL LETTER C WITH CARON
Ď	D<	010E	0270	LATIN CAPITAL LETTER D WITH CARON
ď	d<	010F	0271	LATIN SMALL LETTER D WITH CARON
Đ	D/	0110	0272	LATIN CAPITAL LETTER D WITH STROKE
đ	d/	0111	0273	LATIN SMALL LETTER D WITH STROKE
Ē	E-	0112	0274	LATIN CAPITAL LETTER E WITH MACRON

ē	e-	0113	0275	LATIN SMALL LETTER E WITH MACRON
Ĕ	E(	0114	0276	LATIN CAPITAL LETTER E WITH BREVE
ĕ	e(	0115	0277	LATIN SMALL LETTER E WITH BREVE
Ė	E.	0116	0278	LATIN CAPITAL LETTER E WITH DOT ABOVE
ė	e.	0117	0279	LATIN SMALL LETTER E WITH DOT ABOVE
Ę	E;	0118	0280	LATIN CAPITAL LETTER E WITH OGONEK
ę	e;	0119	0281	LATIN SMALL LETTER E WITH OGONEK
Ě	E<	011A	0282	LATIN CAPITAL LETTER E WITH CARON
ě	e<	011B	0283	LATIN SMALL LETTER E WITH CARON
Ĝ	G>	011C	0284	LATIN CAPITAL LETTER G WITH CIRCUMFLEX
ĝ	g>	011D	0285	LATIN SMALL LETTER G WITH CIRCUMFLEX
Ğ	G(	011E	0286	LATIN CAPITAL LETTER G WITH BREVE
ğ	g(	011F	0287	LATIN SMALL LETTER G WITH BREVE
Ġ	G.	0120	0288	LATIN CAPITAL LETTER G WITH DOT ABOVE
ġ	g.	0121	0289	LATIN SMALL LETTER G WITH DOT ABOVE
Ģ	G,	0122	0290	LATIN CAPITAL LETTER G WITH CEDILLA
ģ	g,	0123	0291	LATIN SMALL LETTER G WITH CEDILLA
Ĥ	H>	0124	0292	LATIN CAPITAL LETTER H WITH CIRCUMFLEX
ĥ	h>	0125	0293	LATIN SMALL LETTER H WITH CIRCUMFLEX
Ħ	H/	0126	0294	LATIN CAPITAL LETTER H WITH STROKE
ħ	h/	0127	0295	LATIN SMALL LETTER H WITH STROKE
Ĩ	I?	0128	0296	LATIN CAPITAL LETTER I WITH TILDE
ĩ	i?	0129	0297	LATIN SMALL LETTER I WITH TILDE
Ī	I-	012A	0298	LATIN CAPITAL LETTER I WITH MACRON
ī	i-	012B	0299	LATIN SMALL LETTER I WITH MACRON
Ĭ	I(	012C	0300	LATIN CAPITAL LETTER I WITH BREVE
ĭ	i(	012D	0301	LATIN SMALL LETTER I WITH BREVE
Į	I;	012E	0302	LATIN CAPITAL LETTER I WITH OGONEK
į	i;	012F	0303	LATIN SMALL LETTER I WITH OGONEK
İ	I.	0130	0304	LATIN CAPITAL LETTER I WITH DOT ABOVE
ı	i.	0131	0305	LATIN SMALL LETTER DOTLESS I
Ĳ	IJ	0132	0306	LATIN CAPITAL LIGATURE IJ
ĳ	ij	0133	0307	LATIN SMALL LIGATURE IJ
Ĵ	J>	0134	0308	LATIN CAPITAL LETTER J WITH CIRCUMFLEX
ĵ	j>	0135	0309	LATIN SMALL LETTER J WITH CIRCUMFLEX
Ķ	K,	0136	0310	LATIN CAPITAL LETTER K WITH CEDILLA
ķ	k,	0137	0311	LATIN SMALL LETTER K WITH CEDILLA
ĸ	kk	0138	0312	LATIN SMALL LETTER KRA
Ĺ	L'	0139	0313	LATIN CAPITAL LETTER L WITH ACUTE
ĺ	l'	013A	0314	LATIN SMALL LETTER L WITH ACUTE
Ļ	L,	013B	0315	LATIN CAPITAL LETTER L WITH CEDILLA
ļ	l,	013C	0316	LATIN SMALL LETTER L WITH CEDILLA
Ľ	L<	013D	0317	LATIN CAPITAL LETTER L WITH CARON
ľ	l<	013E	0318	LATIN SMALL LETTER L WITH CARON
Ŀ	L.	013F	0319	LATIN CAPITAL LETTER L WITH MIDDLE DOT
ŀ	l.	0140	0320	LATIN SMALL LETTER L WITH MIDDLE DOT
Ł	L/	0141	0321	LATIN CAPITAL LETTER L WITH STROKE
ł	l/	0142	0322	LATIN SMALL LETTER L WITH STROKE
Ń	N'	0143	0323	LATIN CAPITAL LETTER N WITH ACUTE
ń	n'	0144	0324	LATIN SMALL LETTER N WITH ACUTE
Ņ	N,	0145	0325	LATIN CAPITAL LETTER N WITH CEDILLA
ņ	n,	0146	0326	LATIN SMALL LETTER N WITH CEDILLA
Ň	N<	0147	0327	LATIN CAPITAL LETTER N WITH CARON
ň	n<	0148	0328	LATIN SMALL LETTER N WITH CARON

ŉ	'n	0149	0329	LATIN SMALL LETTER N PRECEDED BY APOSTROPHE
Ŋ	NG	014A	0330	LATIN CAPITAL LETTER ENG
ŋ	ng	014B	0331	LATIN SMALL LETTER ENG
Ō	O-	014C	0332	LATIN CAPITAL LETTER O WITH MACRON
ō	o-	014D	0333	LATIN SMALL LETTER O WITH MACRON
Ŏ	O(	014E	0334	LATIN CAPITAL LETTER O WITH BREVE
ŏ	o(	014F	0335	LATIN SMALL LETTER O WITH BREVE
Ő	O"	0150	0336	LATIN CAPITAL LETTER O WITH DOUBLE ACUTE
ő	o"	0151	0337	LATIN SMALL LETTER O WITH DOUBLE ACUTE
Œ	OE	0152	0338	LATIN CAPITAL LIGATURE OE
œ	oe	0153	0339	LATIN SMALL LIGATURE OE
Ŕ	R'	0154	0340	LATIN CAPITAL LETTER R WITH ACUTE
ŕ	r'	0155	0341	LATIN SMALL LETTER R WITH ACUTE
Ŗ	R,	0156	0342	LATIN CAPITAL LETTER R WITH CEDILLA
ŗ	r,	0157	0343	LATIN SMALL LETTER R WITH CEDILLA
Ř	R<	0158	0344	LATIN CAPITAL LETTER R WITH CARON
ř	r<	0159	0345	LATIN SMALL LETTER R WITH CARON
Ś	S'	015A	0346	LATIN CAPITAL LETTER S WITH ACUTE
ś	s'	015B	0347	LATIN SMALL LETTER S WITH ACUTE
Ŝ	S>	015C	0348	LATIN CAPITAL LETTER S WITH CIRCUMFLEX
ŝ	s>	015D	0349	LATIN SMALL LETTER S WITH CIRCUMFLEX
Ş	S,	015E	0350	LATIN CAPITAL LETTER S WITH CEDILLA
ş	s,	015F	0351	LATIN SMALL LETTER S WITH CEDILLA
Š	S<	0160	0352	LATIN CAPITAL LETTER S WITH CARON
š	s<	0161	0353	LATIN SMALL LETTER S WITH CARON
Ţ	T,	0162	0354	LATIN CAPITAL LETTER T WITH CEDILLA
ţ	t,	0163	0355	LATIN SMALL LETTER T WITH CEDILLA
Ť	T<	0164	0356	LATIN CAPITAL LETTER T WITH CARON
ť	t<	0165	0357	LATIN SMALL LETTER T WITH CARON
Ŧ	T/	0166	0358	LATIN CAPITAL LETTER T WITH STROKE
ŧ	t/	0167	0359	LATIN SMALL LETTER T WITH STROKE
Ũ	U?	0168	0360	LATIN CAPITAL LETTER U WITH TILDE
ũ	u?	0169	0361	LATIN SMALL LETTER U WITH TILDE
Ū	U-	016A	0362	LATIN CAPITAL LETTER U WITH MACRON
ū	u-	016B	0363	LATIN SMALL LETTER U WITH MACRON
Ŭ	U(	016C	0364	LATIN CAPITAL LETTER U WITH BREVE
ŭ	u(	016D	0365	LATIN SMALL LETTER U WITH BREVE
Ů	U0	016E	0366	LATIN CAPITAL LETTER U WITH RING ABOVE
ů	u0	016F	0367	LATIN SMALL LETTER U WITH RING ABOVE
Ű	U"	0170	0368	LATIN CAPITAL LETTER U WITH DOUBLE ACUTE
ű	u"	0171	0369	LATIN SMALL LETTER U WITH DOUBLE ACUTE
Ų	U;	0172	0370	LATIN CAPITAL LETTER U WITH OGONEK
ų	u;	0173	0371	LATIN SMALL LETTER U WITH OGONEK
Ŵ	W>	0174	0372	LATIN CAPITAL LETTER W WITH CIRCUMFLEX
ŵ	w>	0175	0373	LATIN SMALL LETTER W WITH CIRCUMFLEX
Ŷ	Y>	0176	0374	LATIN CAPITAL LETTER Y WITH CIRCUMFLEX
ŷ	y>	0177	0375	LATIN SMALL LETTER Y WITH CIRCUMFLEX
Ÿ	Y:	0178	0376	LATIN CAPITAL LETTER Y WITH DIAERESIS
Ź	Z'	0179	0377	LATIN CAPITAL LETTER Z WITH ACUTE
ź	z'	017A	0378	LATIN SMALL LETTER Z WITH ACUTE
Ż	Z.	017B	0379	LATIN CAPITAL LETTER Z WITH DOT ABOVE
ż	z.	017C	0380	LATIN SMALL LETTER Z WITH DOT ABOVE
Ž	Z<	017D	0381	LATIN CAPITAL LETTER Z WITH CARON
ž	z<	017E	0382	LATIN SMALL LETTER Z WITH CARON

Ơ	O9	01A0	0416	LATIN CAPITAL LETTER O WITH HORN
ơ	o9	01A1	0417	LATIN SMALL LETTER O WITH HORN
Ƣ	OI	01A2	0418	LATIN CAPITAL LETTER OI
ƣ	oi	01A3	0419	LATIN SMALL LETTER OI
ƦR	yr	01A6	0422	LATIN LETTER YR
Ư	U9	01AF	0431	LATIN CAPITAL LETTER U WITH HORN
ư	u9	01B0	0432	LATIN SMALL LETTER U WITH HORN
Ƶ	Z/	01B5	0437	LATIN CAPITAL LETTER Z WITH STROKE
ƶ	z/	01B6	0438	LATIN SMALL LETTER Z WITH STROKE
Ʒ	ED	01B7	0439	LATIN CAPITAL LETTER EZH
Ǎ	A<	01CD	0461	LATIN CAPITAL LETTER A WITH CARON
ǎ	a<	01CE	0462	LATIN SMALL LETTER A WITH CARON
Ǐ	I<	01CF	0463	LATIN CAPITAL LETTER I WITH CARON
ı	i<	01D0	0464	LATIN SMALL LETTER I WITH CARON
Ǒ	O<	01D1	0465	LATIN CAPITAL LETTER O WITH CARON
ǒ	o<	01D2	0466	LATIN SMALL LETTER O WITH CARON
Ǔ	U<	01D3	0467	LATIN CAPITAL LETTER U WITH CARON
ǔ	u<	01D4	0468	LATIN SMALL LETTER U WITH CARON
Ǟ	A1	01DE	0478	LATIN CAPITAL LETTER A WITH DIAERESIS AND MACRON
ǟ	a1	01DF	0479	LATIN SMALL LETTER A WITH DIAERESIS AND MACRON
Ā	A7	01E0	0480	LATIN CAPITAL LETTER A WITH DOT ABOVE AND MACRON
ā	a7	01E1	0481	LATIN SMALL LETTER A WITH DOT ABOVE AND MACRON
Ǣ	A3	01E2	0482	LATIN CAPITAL LETTER AE WITH MACRON
ǣ	a3	01E3	0483	LATIN SMALL LETTER AE WITH MACRON
Ǥ	G/	01E4	0484	LATIN CAPITAL LETTER G WITH STROKE
ǥ	g/	01E5	0485	LATIN SMALL LETTER G WITH STROKE
Ǧ	G<	01E6	0486	LATIN CAPITAL LETTER G WITH CARON
ǧ	g<	01E7	0487	LATIN SMALL LETTER G WITH CARON
Ǩ	K<	01E8	0488	LATIN CAPITAL LETTER K WITH CARON
ǩ	k<	01E9	0489	LATIN SMALL LETTER K WITH CARON
Ǫ	O;	01EA	0490	LATIN CAPITAL LETTER O WITH OGONEK
ǫ	o;	01EB	0491	LATIN SMALL LETTER O WITH OGONEK
Ǭ	O1	01EC	0492	LATIN CAPITAL LETTER O WITH OGONEK AND MACRON
ǭ	o1	01ED	0493	LATIN SMALL LETTER O WITH OGONEK AND MACRON
Ǯ	EZ	01EE	0494	LATIN CAPITAL LETTER EZH WITH CARON
ǯ	ez	01EF	0495	LATIN SMALL LETTER EZH WITH CARON
ǰ	j<	01F0	0496	LATIN SMALL LETTER J WITH CARON
Ǵ	G'	01F4	0500	LATIN CAPITAL LETTER G WITH ACUTE
ǵ	g'	01F5	0501	LATIN SMALL LETTER G WITH ACUTE
ʿ	;S	02BF	0703	MODIFIER LETTER LEFT HALF RING
ˇ	'<	02C7	0711	CARON
˘	'(	02D8	0728	BREVE
˙	'.	02D9	0729	DOT ABOVE
˚	'0	02DA	0730	RING ABOVE
˛	';	02DB	0731	OGONEK
˝	'"	02DD	0733	DOUBLE ACUTE ACCENT
Ά	A%	0386	0902	GREEK CAPITAL LETTER ALPHA WITH TONOS
Έ	E%	0388	0904	GREEK CAPITAL LETTER EPSILON WITH TONOS
Ή	Y%	0389	0905	GREEK CAPITAL LETTER ETA WITH TONOS
Ί	I%	038A	0906	GREEK CAPITAL LETTER IOTA WITH TONOS

Ό	O%	038C	0908	GREEK CAPITAL LETTER OMICRON WITH TONOS
Ύ	U%	038E	0910	GREEK CAPITAL LETTER UPSILON WITH TONOS
Ώ	W%	038F	0911	GREEK CAPITAL LETTER OMEGA WITH TONOS
ΐ	i3	0390	0912	GREEK SMALL LETTER IOTA WITH DIALYTIKA AND TONOS
Α	A*	0391	0913	GREEK CAPITAL LETTER ALPHA
Β	B*	0392	0914	GREEK CAPITAL LETTER BETA
Γ	G*	0393	0915	GREEK CAPITAL LETTER GAMMA
Δ	D*	0394	0916	GREEK CAPITAL LETTER DELTA
Ε	E*	0395	0917	GREEK CAPITAL LETTER EPSILON
Ζ	Z*	0396	0918	GREEK CAPITAL LETTER ZETA
Η	Y*	0397	0919	GREEK CAPITAL LETTER ETA
Θ	H*	0398	0920	GREEK CAPITAL LETTER THETA
Ι	I*	0399	0921	GREEK CAPITAL LETTER IOTA
Κ	K*	039A	0922	GREEK CAPITAL LETTER KAPPA
Λ	L*	039B	0923	GREEK CAPITAL LETTER LAMDA
Μ	M*	039C	0924	GREEK CAPITAL LETTER MU
Ν	N*	039D	0925	GREEK CAPITAL LETTER NU
Ξ	C*	039E	0926	GREEK CAPITAL LETTER XI
Ο	O*	039F	0927	GREEK CAPITAL LETTER OMICRON
Π	P*	03A0	0928	GREEK CAPITAL LETTER PI
Ρ	R*	03A1	0929	GREEK CAPITAL LETTER RHO
Σ	S*	03A3	0931	GREEK CAPITAL LETTER SIGMA
Τ	T*	03A4	0932	GREEK CAPITAL LETTER TAU
Υ	U*	03A5	0933	GREEK CAPITAL LETTER UPSILON
Φ	F*	03A6	0934	GREEK CAPITAL LETTER PHI
Χ	X*	03A7	0935	GREEK CAPITAL LETTER CHI
Ψ	Q*	03A8	0936	GREEK CAPITAL LETTER PSI
Ω	W*	03A9	0937	GREEK CAPITAL LETTER OMEGA
Ϊ	J*	03AA	0938	GREEK CAPITAL LETTER IOTA WITH DIALYTIKA
Ϋ	V*	03AB	0939	GREEK CAPITAL LETTER UPSILON WITH DIALYTIKA
ά	a%	03AC	0940	GREEK SMALL LETTER ALPHA WITH TONOS
έ	e%	03AD	0941	GREEK SMALL LETTER EPSILON WITH TONOS
ή	y%	03AE	0942	GREEK SMALL LETTER ETA WITH TONOS
ί	i%	03AF	0943	GREEK SMALL LETTER IOTA WITH TONOS
ΰ	u3	03B0	0944	GREEK SMALL LETTER UPSILON WITH DIALYTIKA AND TONOS
α	a*	03B1	0945	GREEK SMALL LETTER ALPHA
β	b*	03B2	0946	GREEK SMALL LETTER BETA
γ	g*	03B3	0947	GREEK SMALL LETTER GAMMA
δ	d*	03B4	0948	GREEK SMALL LETTER DELTA
ε	e*	03B5	0949	GREEK SMALL LETTER EPSILON
ζ	z*	03B6	0950	GREEK SMALL LETTER ZETA
η	y*	03B7	0951	GREEK SMALL LETTER ETA
θ	h*	03B8	0952	GREEK SMALL LETTER THETA
ι	i*	03B9	0953	GREEK SMALL LETTER IOTA
κ	k*	03BA	0954	GREEK SMALL LETTER KAPPA
λ	l*	03BB	0955	GREEK SMALL LETTER LAMDA
μ	m*	03BC	0956	GREEK SMALL LETTER MU
ν	n*	03BD	0957	GREEK SMALL LETTER NU
ξ	c*	03BE	0958	GREEK SMALL LETTER XI
ο	o*	03BF	0959	GREEK SMALL LETTER OMICRON
π	p*	03C0	0960	GREEK SMALL LETTER PI
ρ	r*	03C1	0961	GREEK SMALL LETTER RHO
ς	*s	03C2	0962	GREEK SMALL LETTER FINAL SIGMA
σ	s*	03C3	0963	GREEK SMALL LETTER SIGMA

τ	t*	03C4	0964	GREEK SMALL LETTER TAU
υ	u*	03C5	0965	GREEK SMALL LETTER UPSILON
φ	f*	03C6	0966	GREEK SMALL LETTER PHI
χ	x*	03C7	0967	GREEK SMALL LETTER CHI
ψ	q*	03C8	0968	GREEK SMALL LETTER PSI
ω	w*	03C9	0969	GREEK SMALL LETTER OMEGA
ϊ	j*	03CA	0970	GREEK SMALL LETTER IOTA WITH DIALYTIKA
ϋ	v*	03CB	0971	GREEK SMALL LETTER UPSILON WITH DIALYTIKA
ό	o%	03CC	0972	GREEK SMALL LETTER OMICRON WITH TONOS
ύ	u%	03CD	0973	GREEK SMALL LETTER UPSILON WITH TONOS
ώ	w%	03CE	0974	GREEK SMALL LETTER OMEGA WITH TONOS
Ϙ	'G	03D8	0984	GREEK LETTER ARCHAIC KOPPA
ϙ	,G	03D9	0985	GREEK SMALL LETTER ARCHAIC KOPPA
Ϛ	T3	03DA	0986	GREEK LETTER STIGMA
ϛ	t3	03DB	0987	GREEK SMALL LETTER STIGMA
Ϝ	M3	03DC	0988	GREEK LETTER DIGAMMA
ϝ	m3	03DD	0989	GREEK SMALL LETTER DIGAMMA
Ϟ	K3	03DE	0990	GREEK LETTER KOPPA
ϟ	k3	03DF	0991	GREEK SMALL LETTER KOPPA
Ϡ	P3	03E0	0992	GREEK LETTER SAMPI
ϡ	p3	03E1	0993	GREEK SMALL LETTER SAMPI
ϴ	'%	03F4	1012	GREEK CAPITAL THETA SYMBOL
ϵ	j3	03F5	1013	GREEK LUNATE EPSILON SYMBOL
Ё	IO	0401	1025	CYRILLIC CAPITAL LETTER IO
Ђ	D%	0402	1026	CYRILLIC CAPITAL LETTER DJE
Ѓ	G%	0403	1027	CYRILLIC CAPITAL LETTER GJE
Є	IE	0404	1028	CYRILLIC CAPITAL LETTER UKRAINIAN IE
S	DS	0405	1029	CYRILLIC CAPITAL LETTER DZE
I	II	0406	1030	CYRILLIC CAPITAL LETTER BYELORUSSIAN-UKRAINIAN I
Ї	YI	0407	1031	CYRILLIC CAPITAL LETTER YI
J	J%	0408	1032	CYRILLIC CAPITAL LETTER JE
Љ	LJ	0409	1033	CYRILLIC CAPITAL LETTER LJE
Њ	NJ	040A	1034	CYRILLIC CAPITAL LETTER NJE
Ћ	Ts	040B	1035	CYRILLIC CAPITAL LETTER TSHE
Ќ	KJ	040C	1036	CYRILLIC CAPITAL LETTER KJE
Ў	V%	040E	1038	CYRILLIC CAPITAL LETTER SHORT U
Џ	DZ	040F	1039	CYRILLIC CAPITAL LETTER DZHE
А	A=	0410	1040	CYRILLIC CAPITAL LETTER A
Б	B=	0411	1041	CYRILLIC CAPITAL LETTER BE
В	V=	0412	1042	CYRILLIC CAPITAL LETTER VE
Г	G=	0413	1043	CYRILLIC CAPITAL LETTER GHE
Д	D=	0414	1044	CYRILLIC CAPITAL LETTER DE
Е	E=	0415	1045	CYRILLIC CAPITAL LETTER IE
Ж	Z%	0416	1046	CYRILLIC CAPITAL LETTER ZHE
З	Z=	0417	1047	CYRILLIC CAPITAL LETTER ZE
И	I=	0418	1048	CYRILLIC CAPITAL LETTER I
Й	J=	0419	1049	CYRILLIC CAPITAL LETTER SHORT I
К	K=	041A	1050	CYRILLIC CAPITAL LETTER KA
Л	L=	041B	1051	CYRILLIC CAPITAL LETTER EL
М	M=	041C	1052	CYRILLIC CAPITAL LETTER EM
Н	N=	041D	1053	CYRILLIC CAPITAL LETTER EN
О	O=	041E	1054	CYRILLIC CAPITAL LETTER O
П	P=	041F	1055	CYRILLIC CAPITAL LETTER PE
Р	R=	0420	1056	CYRILLIC CAPITAL LETTER ER

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С       S=      0421    1057    CYRILLIC CAPITAL LETTER ES
Т       T=      0422    1058    CYRILLIC CAPITAL LETTER TE
У       U=      0423    1059    CYRILLIC CAPITAL LETTER U
Ф       F=      0424    1060    CYRILLIC CAPITAL LETTER EF
Х       H=      0425    1061    CYRILLIC CAPITAL LETTER HA
Ц       C=      0426    1062    CYRILLIC CAPITAL LETTER TSE
Ч       C%      0427    1063    CYRILLIC CAPITAL LETTER CHE
Ш       S%      0428    1064    CYRILLIC CAPITAL LETTER SHA
Щ       Sc      0429    1065    CYRILLIC CAPITAL LETTER SHCHA
Ъ       ="      042A    1066    CYRILLIC CAPITAL LETTER HARD SIGN
Ы       Y=      042B    1067    CYRILLIC CAPITAL LETTER YERU
Ь       %"      042C    1068    CYRILLIC CAPITAL LETTER SOFT SIGN
Э       JE      042D    1069    CYRILLIC CAPITAL LETTER E
Ю       JU      042E    1070    CYRILLIC CAPITAL LETTER YU
Я       JA      042F    1071    CYRILLIC CAPITAL LETTER YA
а       a=      0430    1072    CYRILLIC SMALL LETTER A
б       b=      0431    1073    CYRILLIC SMALL LETTER BE
в       v=      0432    1074    CYRILLIC SMALL LETTER VE
г       g=      0433    1075    CYRILLIC SMALL LETTER GHE
д       d=      0434    1076    CYRILLIC SMALL LETTER DE
е       e=      0435    1077    CYRILLIC SMALL LETTER IE
ж       z%      0436    1078    CYRILLIC SMALL LETTER ZHE
з       z=      0437    1079    CYRILLIC SMALL LETTER ZE
и       i=      0438    1080    CYRILLIC SMALL LETTER I
й       j=      0439    1081    CYRILLIC SMALL LETTER SHORT I
к       k=      043A    1082    CYRILLIC SMALL LETTER KA
л       l=      043B    1083    CYRILLIC SMALL LETTER EL
м       m=      043C    1084    CYRILLIC SMALL LETTER EM
н       n=      043D    1085    CYRILLIC SMALL LETTER EN
о       o=      043E    1086    CYRILLIC SMALL LETTER O
п       p=      043F    1087    CYRILLIC SMALL LETTER PE
р       r=      0440    1088    CYRILLIC SMALL LETTER ER
с       s=      0441    1089    CYRILLIC SMALL LETTER ES
т       t=      0442    1090    CYRILLIC SMALL LETTER TE
у       u=      0443    1091    CYRILLIC SMALL LETTER U
ф       f=      0444    1092    CYRILLIC SMALL LETTER EF
х       h=      0445    1093    CYRILLIC SMALL LETTER HA
ц       c=      0446    1094    CYRILLIC SMALL LETTER TSE
ч       c%      0447    1095    CYRILLIC SMALL LETTER CHE
ш       s%      0448    1096    CYRILLIC SMALL LETTER SHA
щ       sc      0449    1097    CYRILLIC SMALL LETTER SHCHA
ъ       ='      044A    1098    CYRILLIC SMALL LETTER HARD SIGN
ы       y=      044B    1099    CYRILLIC SMALL LETTER YERU
ь       %'      044C    1100    CYRILLIC SMALL LETTER SOFT SIGN
э       je      044D    1101    CYRILLIC SMALL LETTER E
ю       ju      044E    1102    CYRILLIC SMALL LETTER YU
я       ja      044F    1103    CYRILLIC SMALL LETTER YA
ё       io      0451    1105    CYRILLIC SMALL LETTER IO
ђ       d%      0452    1106    CYRILLIC SMALL LETTER DJE
ѓ       g%      0453    1107    CYRILLIC SMALL LETTER GJE
є       ie      0454    1108    CYRILLIC SMALL LETTER UKRAINIAN IE
ѕ       ds      0455    1109    CYRILLIC SMALL LETTER DZE
і       ii      0456    1110    CYRILLIC SMALL LETTER BYELORUSSIAN-UKRAINIAN I
ї       yi      0457    1111    CYRILLIC SMALL LETTER YI
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ј	j%	0458	1112	CYRILLIC SMALL LETTER JE
љ	lj	0459	1113	CYRILLIC SMALL LETTER LJE
њ	nj	045A	1114	CYRILLIC SMALL LETTER NJE
ћ	ts	045B	1115	CYRILLIC SMALL LETTER TSHE
ќ	kj	045C	1116	CYRILLIC SMALL LETTER KJE
ў	v%	045E	1118	CYRILLIC SMALL LETTER SHORT U
џ	dz	045F	1119	CYRILLIC SMALL LETTER DZHE
Ѣ	Y3	0462	1122	CYRILLIC CAPITAL LETTER YAT
ѣ	y3	0463	1123	CYRILLIC SMALL LETTER YAT
Ѫ	O3	046A	1130	CYRILLIC CAPITAL LETTER BIG YUS
ѫ	o3	046B	1131	CYRILLIC SMALL LETTER BIG YUS
Ѳ	F3	0472	1138	CYRILLIC CAPITAL LETTER FITA
ѳ	f3	0473	1139	CYRILLIC SMALL LETTER FITA
Ѵ	V3	0474	1140	CYRILLIC CAPITAL LETTER IZHITSA
ѵ	v3	0475	1141	CYRILLIC SMALL LETTER IZHITSA
Ҁ	C3	0480	1152	CYRILLIC CAPITAL LETTER KOPPA
ҁ	c3	0481	1153	CYRILLIC SMALL LETTER KOPPA
Ґ	G3	0490	1168	CYRILLIC CAPITAL LETTER GHE WITH UPTURN
ґ	g3	0491	1169	CYRILLIC SMALL LETTER GHE WITH UPTURN
א	A+	05D0	1488	HEBREW LETTER ALEF
ב	B+	05D1	1489	HEBREW LETTER BET
ג	G+	05D2	1490	HEBREW LETTER GIMEL
ד	D+	05D3	1491	HEBREW LETTER DALET
ה	H+	05D4	1492	HEBREW LETTER HE
ו	W+	05D5	1493	HEBREW LETTER VAV
ז	Z+	05D6	1494	HEBREW LETTER ZAYIN
ח	X+	05D7	1495	HEBREW LETTER HET
ט	Tj	05D8	1496	HEBREW LETTER TET
י	J+	05D9	1497	HEBREW LETTER YOD
ך	K%	05DA	1498	HEBREW LETTER FINAL KAF
כ	K+	05DB	1499	HEBREW LETTER KAF
ל	L+	05DC	1500	HEBREW LETTER LAMED
ם	M%	05DD	1501	HEBREW LETTER FINAL MEM
מ	M+	05DE	1502	HEBREW LETTER MEM
ן	N%	05DF	1503	HEBREW LETTER FINAL NUN
נ	N+	05E0	1504	HEBREW LETTER NUN
ס	S+	05E1	1505	HEBREW LETTER SAMEKH
ע	E+	05E2	1506	HEBREW LETTER AYIN
ף	P%	05E3	1507	HEBREW LETTER FINAL PE
פ	P+	05E4	1508	HEBREW LETTER PE
ץ	Zj	05E5	1509	HEBREW LETTER FINAL TSADI
צ	ZJ	05E6	1510	HEBREW LETTER TSADI
ק	Q+	05E7	1511	HEBREW LETTER QOF
ר	R+	05E8	1512	HEBREW LETTER RESH
ש	Sh	05E9	1513	HEBREW LETTER SHIN
ת	T+	05EA	1514	HEBREW LETTER TAV
،	,+	060C	1548	ARABIC COMMA

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        ;+      061B    1563    ARABIC SEMICOLON
        ?+      061F    1567    ARABIC QUESTION MARK
        H'      0621    1569    ARABIC LETTER HAMZA
        aM      0622    1570    ARABIC LETTER ALEF WITH MADDA ABOVE
        aH      0623    1571    ARABIC LETTER ALEF WITH HAMZA ABOVE
        wH      0624    1572    ARABIC LETTER WAW WITH HAMZA ABOVE
        ah      0625    1573    ARABIC LETTER ALEF WITH HAMZA BELOW
        yH      0626    1574    ARABIC LETTER YEH WITH HAMZA ABOVE
        a+      0627    1575    ARABIC LETTER ALEF
        b+      0628    1576    ARABIC LETTER BEH
        tm      0629    1577    ARABIC LETTER TEH MARBUTA
        t+      062A    1578    ARABIC LETTER TEH
        tk      062B    1579    ARABIC LETTER THEH
        g+      062C    1580    ARABIC LETTER JEEM
        hk      062D    1581    ARABIC LETTER HAH
        x+      062E    1582    ARABIC LETTER KHAH
        d+      062F    1583    ARABIC LETTER DAL
        dk      0630    1584    ARABIC LETTER THAL
        r+      0631    1585    ARABIC LETTER REH
        z+      0632    1586    ARABIC LETTER ZAIN
        s+      0633    1587    ARABIC LETTER SEEN
        sn      0634    1588    ARABIC LETTER SHEEN
        c+      0635    1589    ARABIC LETTER SAD
        dd      0636    1590    ARABIC LETTER DAD
        tj      0637    1591    ARABIC LETTER TAH
        zH      0638    1592    ARABIC LETTER ZAH
        e+      0639    1593    ARABIC LETTER AIN
        i+      063A    1594    ARABIC LETTER GHAIN
        ++      0640    1600    ARABIC TATWEEL
        f+      0641    1601    ARABIC LETTER FEH
        q+      0642    1602    ARABIC LETTER QAF
        k+      0643    1603    ARABIC LETTER KAF
        l+      0644    1604    ARABIC LETTER LAM
        m+      0645    1605    ARABIC LETTER MEEM
        n+      0646    1606    ARABIC LETTER NOON
        h+      0647    1607    ARABIC LETTER HEH
        w+      0648    1608    ARABIC LETTER WAW
        j+      0649    1609    ARABIC LETTER ALEF MAKSURA
        y+      064A    1610    ARABIC LETTER YEH
        :+      064B    1611    ARABIC FATHATAN
        "+      064C    1612    ARABIC DAMMATAN
        =+      064D    1613    ARABIC KASRATAN
        /+      064E    1614    ARABIC FATHA
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ﹼ	'+	064F	1615	ARABIC DAMMA
ﹽ	1+	0650	1616	ARABIC KASRA
ﹾ	3+	0651	1617	ARABIC SHADDA
ﹿ	0+	0652	1618	ARABIC SUKUN
ﭐ	aS	0670	1648	ARABIC LETTER SUPERSCRIPT ALEF
ﭖ	p+	067E	1662	ARABIC LETTER PEH
ﭦ	v+	06A4	1700	ARABIC LETTER VEH
ﮊ	gf	06AF	1711	ARABIC LETTER GAF
۰	0a	06F0	1776	EXTENDED ARABIC-INDIC DIGIT ZERO
۱	1a	06F1	1777	EXTENDED ARABIC-INDIC DIGIT ONE
۲	2a	06F2	1778	EXTENDED ARABIC-INDIC DIGIT TWO
۳	3a	06F3	1779	EXTENDED ARABIC-INDIC DIGIT THREE
۴	4a	06F4	1780	EXTENDED ARABIC-INDIC DIGIT FOUR
۵	5a	06F5	1781	EXTENDED ARABIC-INDIC DIGIT FIVE
۶	6a	06F6	1782	EXTENDED ARABIC-INDIC DIGIT SIX
۷	7a	06F7	1783	EXTENDED ARABIC-INDIC DIGIT SEVEN
۸	8a	06F8	1784	EXTENDED ARABIC-INDIC DIGIT EIGHT
۹	9a	06F9	1785	EXTENDED ARABIC-INDIC DIGIT NINE
Ḃ	B.	1E02	7682	LATIN CAPITAL LETTER B WITH DOT ABOVE
ḃ	b.	1E03	7683	LATIN SMALL LETTER B WITH DOT ABOVE
ﹸ	B_	1E06	7686	LATIN CAPITAL LETTER B WITH LINE BELOW
ﹹ	b_	1E07	7687	LATIN SMALL LETTER B WITH LINE BELOW
Ḋ	D.	1E0A	7690	LATIN CAPITAL LETTER D WITH DOT ABOVE
ḋ	d.	1E0B	7691	LATIN SMALL LETTER D WITH DOT ABOVE
ﹺ	D_	1E0E	7694	LATIN CAPITAL LETTER D WITH LINE BELOW
ﹻ	d_	1E0F	7695	LATIN SMALL LETTER D WITH LINE BELOW
Ḑ	D,	1E10	7696	LATIN CAPITAL LETTER D WITH CEDILLA
ḑ	d,	1E11	7697	LATIN SMALL LETTER D WITH CEDILLA
Ḟ	F.	1E1E	7710	LATIN CAPITAL LETTER F WITH DOT ABOVE
ḟ	f.	1E1F	7711	LATIN SMALL LETTER F WITH DOT ABOVE
Ḡ	G-	1E20	7712	LATIN CAPITAL LETTER G WITH MACRON
ḡ	g-	1E21	7713	LATIN SMALL LETTER G WITH MACRON
Ḣ	H.	1E22	7714	LATIN CAPITAL LETTER H WITH DOT ABOVE
ḣ	h.	1E23	7715	LATIN SMALL LETTER H WITH DOT ABOVE
Ḧ	H:	1E26	7718	LATIN CAPITAL LETTER H WITH DIAERESIS
ḧ	h:	1E27	7719	LATIN SMALL LETTER H WITH DIAERESIS
Ḩ	H,	1E28	7720	LATIN CAPITAL LETTER H WITH CEDILLA
ḩ	h,	1E29	7721	LATIN SMALL LETTER H WITH CEDILLA
Ḱ	K'	1E30	7728	LATIN CAPITAL LETTER K WITH ACUTE
ḱ	k'	1E31	7729	LATIN SMALL LETTER K WITH ACUTE
ﹴ	K_	1E34	7732	LATIN CAPITAL LETTER K WITH LINE BELOW
﹵	k_	1E35	7733	LATIN SMALL LETTER K WITH LINE BELOW
ﹶ	L_	1E3A	7738	LATIN CAPITAL LETTER L WITH LINE BELOW
ﹷ	l_	1E3B	7739	LATIN SMALL LETTER L WITH LINE BELOW
Ḿ	M'	1E3E	7742	LATIN CAPITAL LETTER M WITH ACUTE
ḿ	m'	1E3F	7743	LATIN SMALL LETTER M WITH ACUTE
Ṁ	M.	1E40	7744	LATIN CAPITAL LETTER M WITH DOT ABOVE
ṁ	m.	1E41	7745	LATIN SMALL LETTER M WITH DOT ABOVE

Ṅ	N.	1E44	7748	LATIN CAPITAL LETTER N WITH DOT ABOVE
ṅ	n.	1E45	7749	LATIN SMALL LETTER N WITH DOT ABOVE
□	N_	1E48	7752	LATIN CAPITAL LETTER N WITH LINE BELOW
□	n_	1E49	7753	LATIN SMALL LETTER N WITH LINE BELOW
Ṕ	P'	1E54	7764	LATIN CAPITAL LETTER P WITH ACUTE
ṕ	p'	1E55	7765	LATIN SMALL LETTER P WITH ACUTE
Ṗ	P.	1E56	7766	LATIN CAPITAL LETTER P WITH DOT ABOVE
ṗ	p.	1E57	7767	LATIN SMALL LETTER P WITH DOT ABOVE
Ṙ	R.	1E58	7768	LATIN CAPITAL LETTER R WITH DOT ABOVE
ṙ	r.	1E59	7769	LATIN SMALL LETTER R WITH DOT ABOVE
□	R_	1E5E	7774	LATIN CAPITAL LETTER R WITH LINE BELOW
□	r_	1E5F	7775	LATIN SMALL LETTER R WITH LINE BELOW
Ṡ	S.	1E60	7776	LATIN CAPITAL LETTER S WITH DOT ABOVE
ṡ	s.	1E61	7777	LATIN SMALL LETTER S WITH DOT ABOVE
Ṫ	T.	1E6A	7786	LATIN CAPITAL LETTER T WITH DOT ABOVE
ṫ	t.	1E6B	7787	LATIN SMALL LETTER T WITH DOT ABOVE
□	T_	1E6E	7790	LATIN CAPITAL LETTER T WITH LINE BELOW
□	t_	1E6F	7791	LATIN SMALL LETTER T WITH LINE BELOW
Ṽ	V?	1E7C	7804	LATIN CAPITAL LETTER V WITH TILDE
ṽ	v?	1E7D	7805	LATIN SMALL LETTER V WITH TILDE
Ẁ	W!	1E80	7808	LATIN CAPITAL LETTER W WITH GRAVE
ẁ	w!	1E81	7809	LATIN SMALL LETTER W WITH GRAVE
Ẃ	W'	1E82	7810	LATIN CAPITAL LETTER W WITH ACUTE
ẃ	w'	1E83	7811	LATIN SMALL LETTER W WITH ACUTE
Ẅ	W:	1E84	7812	LATIN CAPITAL LETTER W WITH DIAERESIS
ẅ	w:	1E85	7813	LATIN SMALL LETTER W WITH DIAERESIS
Ẇ	W.	1E86	7814	LATIN CAPITAL LETTER W WITH DOT ABOVE
ẇ	w.	1E87	7815	LATIN SMALL LETTER W WITH DOT ABOVE
Ẋ	X.	1E8A	7818	LATIN CAPITAL LETTER X WITH DOT ABOVE
ẋ	x.	1E8B	7819	LATIN SMALL LETTER X WITH DOT ABOVE
Ẍ	X:	1E8C	7820	LATIN CAPITAL LETTER X WITH DIAERESIS
ẍ	x:	1E8D	7821	LATIN SMALL LETTER X WITH DIAERESIS
Ẏ	Y.	1E8E	7822	LATIN CAPITAL LETTER Y WITH DOT ABOVE
ẏ	y.	1E8F	7823	LATIN SMALL LETTER Y WITH DOT ABOVE
Ẑ	Z>	1E90	7824	LATIN CAPITAL LETTER Z WITH CIRCUMFLEX
ẑ	z>	1E91	7825	LATIN SMALL LETTER Z WITH CIRCUMFLEX
□	Z_	1E94	7828	LATIN CAPITAL LETTER Z WITH LINE BELOW
□	z_	1E95	7829	LATIN SMALL LETTER Z WITH LINE BELOW
□	h_	1E96	7830	LATIN SMALL LETTER H WITH LINE BELOW
ẗ	t:	1E97	7831	LATIN SMALL LETTER T WITH DIAERESIS
ẘ	w0	1E98	7832	LATIN SMALL LETTER W WITH RING ABOVE
ẙ	y0	1E99	7833	LATIN SMALL LETTER Y WITH RING ABOVE
□	A2	1EA2	7842	LATIN CAPITAL LETTER A WITH HOOK ABOVE
□	a2	1EA3	7843	LATIN SMALL LETTER A WITH HOOK ABOVE
□	E2	1EBA	7866	LATIN CAPITAL LETTER E WITH HOOK ABOVE
□	e2	1EBB	7867	LATIN SMALL LETTER E WITH HOOK ABOVE
Ẽ	E?	1EBC	7868	LATIN CAPITAL LETTER E WITH TILDE
ẽ	e?	1EBD	7869	LATIN SMALL LETTER E WITH TILDE
□	I2	1EC8	7880	LATIN CAPITAL LETTER I WITH HOOK ABOVE
□	i2	1EC9	7881	LATIN SMALL LETTER I WITH HOOK ABOVE
□	O2	1ECE	7886	LATIN CAPITAL LETTER O WITH HOOK ABOVE

□	o2	1ECF	7887	LATIN SMALL LETTER O WITH HOOK ABOVE
□	U2	1EE6	7910	LATIN CAPITAL LETTER U WITH HOOK ABOVE
□	u2	1EE7	7911	LATIN SMALL LETTER U WITH HOOK ABOVE
Ỳ	Y!	1EF2	7922	LATIN CAPITAL LETTER Y WITH GRAVE
ỳ	y!	1EF3	7923	LATIN SMALL LETTER Y WITH GRAVE
□	Y2	1EF6	7926	LATIN CAPITAL LETTER Y WITH HOOK ABOVE
□	y2	1EF7	7927	LATIN SMALL LETTER Y WITH HOOK ABOVE
Ỹ	Y?	1EF8	7928	LATIN CAPITAL LETTER Y WITH TILDE
ỹ	y?	1EF9	7929	LATIN SMALL LETTER Y WITH TILDE
ἀ	;'	1F00	7936	GREEK SMALL LETTER ALPHA WITH PSILI
ἁ	,'	1F01	7937	GREEK SMALL LETTER ALPHA WITH DASIA
ἂ	;!	1F02	7938	GREEK SMALL LETTER ALPHA WITH PSILI AND VARIA
ἃ	,!	1F03	7939	GREEK SMALL LETTER ALPHA WITH DASIA AND VARIA
ἄ	?;	1F04	7940	GREEK SMALL LETTER ALPHA WITH PSILI AND OXIA
ἅ	?,	1F05	7941	GREEK SMALL LETTER ALPHA WITH DASIA AND OXIA
ἆ	!:	1F06	7942	GREEK SMALL LETTER ALPHA WITH PSILI AND PERISPOMENI
ἇ	?:	1F07	7943	GREEK SMALL LETTER ALPHA WITH DASIA AND PERISPOMENI
	1N	2002	8194	EN SPACE
	1M	2003	8195	EM SPACE
	3M	2004	8196	THREE-PER-EM SPACE
	4M	2005	8197	FOUR-PER-EM SPACE
	6M	2006	8198	SIX-PER-EM SPACE
	1T	2009	8201	THIN SPACE
	1H	200A	8202	HAIR SPACE
□	-1	2010	8208	HYPHEN
–	-N	2013	8211	EN DASH
—	-M	2014	8212	EM DASH
―	-3	2015	8213	HORIZONTAL BAR
□	!2	2016	8214	DOUBLE VERTICAL LINE
‗	=2	2017	8215	DOUBLE LOW LINE
‘	'6	2018	8216	LEFT SINGLE QUOTATION MARK
’	'9	2019	8217	RIGHT SINGLE QUOTATION MARK
‚	.9	201A	8218	SINGLE LOW-9 QUOTATION MARK
□	9'	201B	8219	SINGLE HIGH-REVERSED-9 QUOTATION MARK
“	"6	201C	8220	LEFT DOUBLE QUOTATION MARK
”	"9	201D	8221	RIGHT DOUBLE QUOTATION MARK
„	:9	201E	8222	DOUBLE LOW-9 QUOTATION MARK
□	9"	201F	8223	DOUBLE HIGH-REVERSED-9 QUOTATION MARK
†	/-	2020	8224	DAGGER
‡	/=	2021	8225	DOUBLE DAGGER
□	..	2025	8229	TWO DOT LEADER
…	,.	2026	8230	HORIZONTAL ELLIPSIS
‰	%0	2030	8240	PER MILLE SIGN
□	1'	2032	8242	PRIME
□	2'	2033	8243	DOUBLE PRIME
□	3'	2034	8244	TRIPLE PRIME
□	1"	2035	8245	REVERSED PRIME
□	2"	2036	8246	REVERSED DOUBLE PRIME
□	3"	2037	8247	REVERSED TRIPLE PRIME
□	Ca	2038	8248	CARET
‹	<1	2039	8249	SINGLE LEFT-POINTING ANGLE QUOTATION MARK

›	>1	203A	8250	SINGLE RIGHT-POINTING ANGLE QUOTATION MARK
※	:X	203B	8251	REFERENCE MARK
‾	'-	203E	8254	OVERLINE
⁄	/f	2044	8260	FRACTION SLASH
⁰	0S	2070	8304	SUPERSCRIPT ZERO
⁴	4S	2074	8308	SUPERSCRIPT FOUR
⁵	5S	2075	8309	SUPERSCRIPT FIVE
⁶	6S	2076	8310	SUPERSCRIPT SIX
⁷	7S	2077	8311	SUPERSCRIPT SEVEN
⁸	8S	2078	8312	SUPERSCRIPT EIGHT
⁹	9S	2079	8313	SUPERSCRIPT NINE
⁺	+S	207A	8314	SUPERSCRIPT PLUS SIGN
⁻	-S	207B	8315	SUPERSCRIPT MINUS
⁼	=S	207C	8316	SUPERSCRIPT EQUALS SIGN
⁽	(S	207D	8317	SUPERSCRIPT LEFT PARENTHESIS
⁾	)S	207E	8318	SUPERSCRIPT RIGHT PARENTHESIS
ⁿ	nS	207F	8319	SUPERSCRIPT LATIN SMALL LETTER N
₀	0s	2080	8320	SUBSCRIPT ZERO
₁	1s	2081	8321	SUBSCRIPT ONE
₂	2s	2082	8322	SUBSCRIPT TWO
₃	3s	2083	8323	SUBSCRIPT THREE
₄	4s	2084	8324	SUBSCRIPT FOUR
₅	5s	2085	8325	SUBSCRIPT FIVE
₆	6s	2086	8326	SUBSCRIPT SIX
₇	7s	2087	8327	SUBSCRIPT SEVEN
₈	8s	2088	8328	SUBSCRIPT EIGHT
₉	9s	2089	8329	SUBSCRIPT NINE
₊	+s	208A	8330	SUBSCRIPT PLUS SIGN
₋	-s	208B	8331	SUBSCRIPT MINUS
₌	=s	208C	8332	SUBSCRIPT EQUALS SIGN
₍	(s	208D	8333	SUBSCRIPT LEFT PARENTHESIS
₎	)s	208E	8334	SUBSCRIPT RIGHT PARENTHESIS
₤	Li	20A4	8356	LIRA SIGN
₧	Pt	20A7	8359	PESETA SIGN
₩	W=	20A9	8361	WON SIGN
€	Eu	20AC	8364	EURO SIGN
₽	=R	20BD	8381	ROUBLE SIGN
₽	=P	20BD	8381	ROUBLE SIGN
℃	oC	2103	8451	DEGREE CELSIUS
℅	co	2105	8453	CARE OF
℉	oF	2109	8457	DEGREE FAHRENHEIT
№	N0	2116	8470	NUMERO SIGN
℗	PO	2117	8471	SOUND RECORDING COPYRIGHT
℞	Rx	211E	8478	PRESCRIPTION TAKE
℠	SM	2120	8480	SERVICE MARK
™	TM	2122	8482	TRADE MARK SIGN
Ω	Om	2126	8486	OHM SIGN
Å	AO	212B	8491	ANGSTROM SIGN
⅓	13	2153	8531	VULGAR FRACTION ONE THIRD
⅔	23	2154	8532	VULGAR FRACTION TWO THIRDS
⅕	15	2155	8533	VULGAR FRACTION ONE FIFTH
⅖	25	2156	8534	VULGAR FRACTION TWO FIFTHS

⅗	35	2157	8535	VULGAR FRACTION THREE FIFTHS
⅘	45	2158	8536	VULGAR FRACTION FOUR FIFTHS
⅙	16	2159	8537	VULGAR FRACTION ONE SIXTH
⅚	56	215A	8538	VULGAR FRACTION FIVE SIXTHS
⅛	18	215B	8539	VULGAR FRACTION ONE EIGHTH
⅜	38	215C	8540	VULGAR FRACTION THREE EIGHTHS
⅝	58	215D	8541	VULGAR FRACTION FIVE EIGHTHS
⅞	78	215E	8542	VULGAR FRACTION SEVEN EIGHTHS
?	1R	2160	8544	ROMAN NUMERAL ONE
?	2R	2161	8545	ROMAN NUMERAL TWO
?	3R	2162	8546	ROMAN NUMERAL THREE
?	4R	2163	8547	ROMAN NUMERAL FOUR
?	5R	2164	8548	ROMAN NUMERAL FIVE
?	6R	2165	8549	ROMAN NUMERAL SIX
?	7R	2166	8550	ROMAN NUMERAL SEVEN
?	8R	2167	8551	ROMAN NUMERAL EIGHT
?	9R	2168	8552	ROMAN NUMERAL NINE
?	aR	2169	8553	ROMAN NUMERAL TEN
?	bR	216A	8554	ROMAN NUMERAL ELEVEN
?	cR	216B	8555	ROMAN NUMERAL TWELVE
?	1r	2170	8560	SMALL ROMAN NUMERAL ONE
?	2r	2171	8561	SMALL ROMAN NUMERAL TWO
?	3r	2172	8562	SMALL ROMAN NUMERAL THREE
?	4r	2173	8563	SMALL ROMAN NUMERAL FOUR
?	5r	2174	8564	SMALL ROMAN NUMERAL FIVE
?	6r	2175	8565	SMALL ROMAN NUMERAL SIX
?	7r	2176	8566	SMALL ROMAN NUMERAL SEVEN
?	8r	2177	8567	SMALL ROMAN NUMERAL EIGHT
?	9r	2178	8568	SMALL ROMAN NUMERAL NINE
?	ar	2179	8569	SMALL ROMAN NUMERAL TEN
?	br	217A	8570	SMALL ROMAN NUMERAL ELEVEN
?	cr	217B	8571	SMALL ROMAN NUMERAL TWELVE
←	<-	2190	8592	LEFTWARDS ARROW
↑	-!	2191	8593	UPWARDS ARROW
→	->	2192	8594	RIGHTWARDS ARROW
↓	-v	2193	8595	DOWNWARDS ARROW
↔	<>	2194	8596	LEFT RIGHT ARROW
↕	UD	2195	8597	UP DOWN ARROW
?	<=	21D0	8656	LEFTWARDS DOUBLE ARROW
?	=>	21D2	8658	RIGHTWARDS DOUBLE ARROW
?	==	21D4	8660	LEFT RIGHT DOUBLE ARROW
?	FA	2200	8704	FOR ALL
∂	dP	2202	8706	PARTIAL DIFFERENTIAL
?	TE	2203	8707	THERE EXISTS
?	/0	2205	8709	EMPTY SET
?	DE	2206	8710	INCREMENT
?	NB	2207	8711	NABLA

∈	(-	2208	8712	ELEMENT OF
∋	-)	220B	8715	CONTAINS AS MEMBER
∏	*P	220F	8719	N-ARY PRODUCT
∑	+Z	2211	8721	N-ARY SUMMATION
−	-2	2212	8722	MINUS SIGN
∓	-+	2213	8723	MINUS-OR-PLUS SIGN
∗	*-	2217	8727	ASTERISK OPERATOR
∘	Ob	2218	8728	RING OPERATOR
∙	Sb	2219	8729	BULLET OPERATOR
√	RT	221A	8730	SQUARE ROOT
∝	0(	221D	8733	PROPORTIONAL TO
∞	00	221E	8734	INFINITY
∟	-L	221F	8735	RIGHT ANGLE
∠	-V	2220	8736	ANGLE
∥	PP	2225	8741	PARALLEL TO
∧	AN	2227	8743	LOGICAL AND
∨	OR	2228	8744	LOGICAL OR
∩	(U	2229	8745	INTERSECTION
∪	)U	222A	8746	UNION
∫	In	222B	8747	INTEGRAL
∬	DI	222C	8748	DOUBLE INTEGRAL
∮	Io	222E	8750	CONTOUR INTEGRAL
∴	.:	2234	8756	THEREFORE
∵	:.	2235	8757	BECAUSE
∶	:R	2236	8758	RATIO
∷	::	2237	8759	PROPORTION
∽	?1	223C	8764	TILDE OPERATOR
∾	CG	223E	8766	INVERTED LAZY S
≁	?-	2243	8771	ASYMPTOTICALLY EQUAL TO
≅	?=	2245	8773	APPROXIMATELY EQUAL TO
≈	?2	2248	8776	ALMOST EQUAL TO
≊	=?	224C	8780	ALL EQUAL TO
≋	HI	2253	8787	IMAGE OF OR APPROXIMATELY EQUAL TO
≠	!=	2260	8800	NOT EQUAL TO
≡	=3	2261	8801	IDENTICAL TO
≤	=<	2264	8804	LESS-THAN OR EQUAL TO
≥	>=	2265	8805	GREATER-THAN OR EQUAL TO
≪	<*	226A	8810	MUCH LESS-THAN
≫	*>	226B	8811	MUCH GREATER-THAN
≮	!<	226E	8814	NOT LESS-THAN
≯	!>	226F	8815	NOT GREATER-THAN
⊂	(C	2282	8834	SUBSET OF
⊃	)C	2283	8835	SUPERSET OF
⊆	(_	2286	8838	SUBSET OF OR EQUAL TO
⊇	)_	2287	8839	SUPERSET OF OR EQUAL TO
⊙	0.	2299	8857	CIRCLED DOT OPERATOR
⊚	02	229A	8858	CIRCLED RING OPERATOR

-T	22A5	8869	UP TACK
.P	22C5	8901	DOT OPERATOR
:3	22EE	8942	VERTICAL ELLIPSIS
.3	22EF	8943	MIDLINE HORIZONTAL ELLIPSIS
Eh	2302	8962	HOUSE
<7	2308	8968	LEFT CEILING
>7	2309	8969	RIGHT CEILING
7<	230A	8970	LEFT FLOOR
7>	230B	8971	RIGHT FLOOR
NI	2310	8976	REVERSED NOT SIGN
(A	2312	8978	ARC
TR	2315	8981	TELEPHONE RECORDER
Iu	2320	8992	TOP HALF INTEGRAL
Il	2321	8993	BOTTOM HALF INTEGRAL
</	2329	9001	LEFT-POINTING ANGLE BRACKET
/>	232A	9002	RIGHT-POINTING ANGLE BRACKET
Vs	2423	9251	OPEN BOX
1h	2440	9280	OCR HOOK
3h	2441	9281	OCR CHAIR
2h	2442	9282	OCR FORK
4h	2443	9283	OCR INVERTED FORK
1j	2446	9286	OCR BRANCH BANK IDENTIFICATION
2j	2447	9287	OCR AMOUNT OF CHECK
3j	2448	9288	OCR DASH
4j	2449	9289	OCR CUSTOMER ACCOUNT NUMBER
1.	2488	9352	DIGIT ONE FULL STOP
2.	2489	9353	DIGIT TWO FULL STOP
3.	248A	9354	DIGIT THREE FULL STOP
4.	248B	9355	DIGIT FOUR FULL STOP
5.	248C	9356	DIGIT FIVE FULL STOP
6.	248D	9357	DIGIT SIX FULL STOP
7.	248E	9358	DIGIT SEVEN FULL STOP
8.	248F	9359	DIGIT EIGHT FULL STOP
9.	2490	9360	DIGIT NINE FULL STOP
hh	2500	9472	BOX DRAWINGS LIGHT HORIZONTAL
HH	2501	9473	BOX DRAWINGS HEAVY HORIZONTAL
vv	2502	9474	BOX DRAWINGS LIGHT VERTICAL
VV	2503	9475	BOX DRAWINGS HEAVY VERTICAL
3-	2504	9476	BOX DRAWINGS LIGHT TRIPLE DASH HORIZONTAL
3_	2505	9477	BOX DRAWINGS HEAVY TRIPLE DASH HORIZONTAL
3!	2506	9478	BOX DRAWINGS LIGHT TRIPLE DASH VERTICAL
3/	2507	9479	BOX DRAWINGS HEAVY TRIPLE DASH VERTICAL
4-	2508	9480	BOX DRAWINGS LIGHT QUADRUPLE DASH HORIZONTAL
4_	2509	9481	BOX DRAWINGS HEAVY QUADRUPLE DASH HORIZONTAL
4!	250A	9482	BOX DRAWINGS LIGHT QUADRUPLE DASH VERTICAL

	4/	250B	9483	BOX DRAWINGS HEAVY QUADRUPLE DASH VERTICAL
	dr	250C	9484	BOX DRAWINGS LIGHT DOWN AND RIGHT
	dR	250D	9485	BOX DRAWINGS DOWN LIGHT AND RIGHT HEAVY
	Dr	250E	9486	BOX DRAWINGS DOWN HEAVY AND RIGHT LIGHT
	DR	250F	9487	BOX DRAWINGS HEAVY DOWN AND RIGHT
	dl	2510	9488	BOX DRAWINGS LIGHT DOWN AND LEFT
	dL	2511	9489	BOX DRAWINGS DOWN LIGHT AND LEFT HEAVY
	Dl	2512	9490	BOX DRAWINGS DOWN HEAVY AND LEFT LIGHT
	LD	2513	9491	BOX DRAWINGS HEAVY DOWN AND LEFT
	ur	2514	9492	BOX DRAWINGS LIGHT UP AND RIGHT
	uR	2515	9493	BOX DRAWINGS UP LIGHT AND RIGHT HEAVY
	Ur	2516	9494	BOX DRAWINGS UP HEAVY AND RIGHT LIGHT
	UR	2517	9495	BOX DRAWINGS HEAVY UP AND RIGHT
	ul	2518	9496	BOX DRAWINGS LIGHT UP AND LEFT
	uL	2519	9497	BOX DRAWINGS UP LIGHT AND LEFT HEAVY
	Ul	251A	9498	BOX DRAWINGS UP HEAVY AND LEFT LIGHT
	UL	251B	9499	BOX DRAWINGS HEAVY UP AND LEFT
	vr	251C	9500	BOX DRAWINGS LIGHT VERTICAL AND RIGHT
	vR	251D	9501	BOX DRAWINGS VERTICAL LIGHT AND RIGHT HEAVY
	Vr	2520	9504	BOX DRAWINGS VERTICAL HEAVY AND RIGHT LIGHT
	VR	2523	9507	BOX DRAWINGS HEAVY VERTICAL AND RIGHT
	vl	2524	9508	BOX DRAWINGS LIGHT VERTICAL AND LEFT
	vL	2525	9509	BOX DRAWINGS VERTICAL LIGHT AND LEFT HEAVY
	Vl	2528	9512	BOX DRAWINGS VERTICAL HEAVY AND LEFT LIGHT
	VL	252B	9515	BOX DRAWINGS HEAVY VERTICAL AND LEFT
	dh	252C	9516	BOX DRAWINGS LIGHT DOWN AND HORIZONTAL
	dH	252F	9519	BOX DRAWINGS DOWN LIGHT AND HORIZONTAL HEAVY
	Dh	2530	9520	BOX DRAWINGS DOWN HEAVY AND HORIZONTAL LIGHT
	DH	2533	9523	BOX DRAWINGS HEAVY DOWN AND HORIZONTAL
	uh	2534	9524	BOX DRAWINGS LIGHT UP AND HORIZONTAL
	uH	2537	9527	BOX DRAWINGS UP LIGHT AND HORIZONTAL HEAVY
	Uh	2538	9528	BOX DRAWINGS UP HEAVY AND HORIZONTAL LIGHT
	UH	253B	9531	BOX DRAWINGS HEAVY UP AND HORIZONTAL
	vh	253C	9532	BOX DRAWINGS LIGHT VERTICAL AND HORIZONTAL
	vH	253F	9535	BOX DRAWINGS VERTICAL LIGHT AND HORIZONTAL HEAVY
	Vh	2542	9538	BOX DRAWINGS VERTICAL HEAVY AND HORIZONTAL LIGHT
	VH	254B	9547	BOX DRAWINGS HEAVY VERTICAL AND HORIZONTAL
	FD	2571	9585	BOX DRAWINGS LIGHT DIAGONAL UPPER RIGHT TO LOWER LEFT
	BD	2572	9586	BOX DRAWINGS LIGHT DIAGONAL UPPER LEFT TO LOWER RIGHT
	TB	2580	9600	UPPER HALF BLOCK
	LB	2584	9604	LOWER HALF BLOCK
	FB	2588	9608	FULL BLOCK
	lB	258C	9612	LEFT HALF BLOCK
	RB	2590	9616	RIGHT HALF BLOCK
	.S	2591	9617	LIGHT SHADE
	:S	2592	9618	MEDIUM SHADE
	?S	2593	9619	DARK SHADE

■	fS	25A0	9632	BLACK SQUARE
□	OS	25A1	9633	WHITE SQUARE
▢	RO	25A2	9634	WHITE SQUARE WITH ROUNDED CORNERS
▣	Rr	25A3	9635	WHITE SQUARE CONTAINING BLACK SMALL SQUARE
▤	RF	25A4	9636	SQUARE WITH HORIZONTAL FILL
▥	RY	25A5	9637	SQUARE WITH VERTICAL FILL
▦	RH	25A6	9638	SQUARE WITH ORTHOGONAL CROSSHATCH FILL
▧	RZ	25A7	9639	SQUARE WITH UPPER LEFT TO LOWER RIGHT FILL
▨	RK	25A8	9640	SQUARE WITH UPPER RIGHT TO LOWER LEFT FILL
▩	RX	25A9	9641	SQUARE WITH DIAGONAL CROSSHATCH FILL
▪	sB	25AA	9642	BLACK SMALL SQUARE
▬	SR	25AC	9644	BLACK RECTANGLE
▭	Or	25AD	9645	WHITE RECTANGLE
▲	UT	25B2	9650	BLACK UP-POINTING TRIANGLE
△	uT	25B3	9651	WHITE UP-POINTING TRIANGLE
▶	PR	25B6	9654	BLACK RIGHT-POINTING TRIANGLE
▷	Tr	25B7	9655	WHITE RIGHT-POINTING TRIANGLE
▼	Dt	25BC	9660	BLACK DOWN-POINTING TRIANGLE
▽	dT	25BD	9661	WHITE DOWN-POINTING TRIANGLE
◀	PL	25C0	9664	BLACK LEFT-POINTING TRIANGLE
◁	Tl	25C1	9665	WHITE LEFT-POINTING TRIANGLE
◆	Db	25C6	9670	BLACK DIAMOND
◇	Dw	25C7	9671	WHITE DIAMOND
◊	LZ	25CA	9674	LOZENGE
○	0m	25CB	9675	WHITE CIRCLE
◎	0o	25CE	9678	BULLSEYE
●	0M	25CF	9679	BLACK CIRCLE
◐	0L	25D0	9680	CIRCLE WITH LEFT HALF BLACK
◑	0R	25D1	9681	CIRCLE WITH RIGHT HALF BLACK
◘	Sn	25D8	9688	INVERSE BULLET
◙	Ic	25D9	9689	INVERSE WHITE CIRCLE
◢	Fd	25E2	9698	BLACK LOWER RIGHT TRIANGLE
◣	Bd	25E3	9699	BLACK LOWER LEFT TRIANGLE
★	*2	2605	9733	BLACK STAR
☆	*1	2606	9734	WHITE STAR
☜	<H	261C	9756	WHITE LEFT POINTING INDEX
☞	>H	261E	9758	WHITE RIGHT POINTING INDEX
☺	0u	263A	9786	WHITE SMILING FACE
☻	0U	263B	9787	BLACK SMILING FACE
☼	SU	263C	9788	WHITE SUN WITH RAYS
♀	Fm	2640	9792	FEMALE SIGN
♂	Ml	2642	9794	MALE SIGN
♠	cS	2660	9824	BLACK SPADE SUIT
♡	cH	2661	9825	WHITE HEART SUIT
♢	cD	2662	9826	WHITE DIAMOND SUIT
♣	cC	2663	9827	BLACK CLUB SUIT
♩	Md	2669	9833	QUARTER NOTE
♪	M8	266A	9834	EIGHTH NOTE
♫	M2	266B	9835	BEAMED EIGHTH NOTES
♭	Mb	266D	9837	MUSIC FLAT SIGN

```
        Mx      266E    9838    MUSIC NATURAL SIGN
        MX      266F    9839    MUSIC SHARP SIGN
        OK      2713    10003   CHECK MARK
        XX      2717    10007   BALLOT X
        -X      2720    10016   MALTESE CROSS
         IS      3000    12288   IDEOGRAPHIC SPACE
        ,_      3001    12289   IDEOGRAPHIC COMMA
        ._      3002    12290   IDEOGRAPHIC FULL STOP
        +"      3003    12291   DITTO MARK
        +_      3004    12292   JAPANESE INDUSTRIAL STANDARD SYMBOL
        *_      3005    12293   IDEOGRAPHIC ITERATION MARK
        ;_      3006    12294   IDEOGRAPHIC CLOSING MARK
        0_      3007    12295   IDEOGRAPHIC NUMBER ZERO
        <+      300A    12298   LEFT DOUBLE ANGLE BRACKET
        >+      300B    12299   RIGHT DOUBLE ANGLE BRACKET
        <'      300C    12300   LEFT CORNER BRACKET
        >'      300D    12301   RIGHT CORNER BRACKET
        <"      300E    12302   LEFT WHITE CORNER BRACKET
        >"      300F    12303   RIGHT WHITE CORNER BRACKET
        ("      3010    12304   LEFT BLACK LENTICULAR BRACKET
        )"      3011    12305   RIGHT BLACK LENTICULAR BRACKET
        =T      3012    12306   POSTAL MARK
        =_      3013    12307   GETA MARK
        ('      3014    12308   LEFT TORTOISE SHELL BRACKET
        )'      3015    12309   RIGHT TORTOISE SHELL BRACKET
        (I      3016    12310   LEFT WHITE LENTICULAR BRACKET
        )I      3017    12311   RIGHT WHITE LENTICULAR BRACKET
        -?      301C    12316   WAVE DASH
        A5      3041    12353   HIRAGANA LETTER SMALL A
        a5      3042    12354   HIRAGANA LETTER A
        I5      3043    12355   HIRAGANA LETTER SMALL I
        i5      3044    12356   HIRAGANA LETTER I
        U5      3045    12357   HIRAGANA LETTER SMALL U
        u5      3046    12358   HIRAGANA LETTER U
        E5      3047    12359   HIRAGANA LETTER SMALL E
        e5      3048    12360   HIRAGANA LETTER E
        O5      3049    12361   HIRAGANA LETTER SMALL O
        o5      304A    12362   HIRAGANA LETTER O
        ka      304B    12363   HIRAGANA LETTER KA
        ga      304C    12364   HIRAGANA LETTER GA
        ki      304D    12365   HIRAGANA LETTER KI
        gi      304E    12366   HIRAGANA LETTER GI
        ku      304F    12367   HIRAGANA LETTER KU
        gu      3050    12368   HIRAGANA LETTER GU
```

 ke 3051 12369 HIRAGANA LETTER KE
 ge 3052 12370 HIRAGANA LETTER GE
 ko 3053 12371 HIRAGANA LETTER KO
 go 3054 12372 HIRAGANA LETTER GO
 sa 3055 12373 HIRAGANA LETTER SA
 za 3056 12374 HIRAGANA LETTER ZA
 si 3057 12375 HIRAGANA LETTER SI
 zi 3058 12376 HIRAGANA LETTER ZI
 su 3059 12377 HIRAGANA LETTER SU
 zu 305A 12378 HIRAGANA LETTER ZU
 se 305B 12379 HIRAGANA LETTER SE
 ze 305C 12380 HIRAGANA LETTER ZE
 so 305D 12381 HIRAGANA LETTER SO
 zo 305E 12382 HIRAGANA LETTER ZO
 ta 305F 12383 HIRAGANA LETTER TA
 da 3060 12384 HIRAGANA LETTER DA
 ti 3061 12385 HIRAGANA LETTER TI
 di 3062 12386 HIRAGANA LETTER DI
 tU 3063 12387 HIRAGANA LETTER SMALL TU
 tu 3064 12388 HIRAGANA LETTER TU
 du 3065 12389 HIRAGANA LETTER DU
 te 3066 12390 HIRAGANA LETTER TE
 de 3067 12391 HIRAGANA LETTER DE
 to 3068 12392 HIRAGANA LETTER TO
 do 3069 12393 HIRAGANA LETTER DO
 na 306A 12394 HIRAGANA LETTER NA
 ni 306B 12395 HIRAGANA LETTER NI
 nu 306C 12396 HIRAGANA LETTER NU
 ne 306D 12397 HIRAGANA LETTER NE
 no 306E 12398 HIRAGANA LETTER NO
 ha 306F 12399 HIRAGANA LETTER HA
 ba 3070 12400 HIRAGANA LETTER BA
 pa 3071 12401 HIRAGANA LETTER PA
 hi 3072 12402 HIRAGANA LETTER HI
 bi 3073 12403 HIRAGANA LETTER BI
 pi 3074 12404 HIRAGANA LETTER PI
 hu 3075 12405 HIRAGANA LETTER HU
 bu 3076 12406 HIRAGANA LETTER BU
 pu 3077 12407 HIRAGANA LETTER PU
 he 3078 12408 HIRAGANA LETTER HE
 be 3079 12409 HIRAGANA LETTER BE
 pe 307A 12410 HIRAGANA LETTER PE
 ho 307B 12411 HIRAGANA LETTER HO

	bo	307C	12412	HIRAGANA LETTER BO
	po	307D	12413	HIRAGANA LETTER PO
	ma	307E	12414	HIRAGANA LETTER MA
	mi	307F	12415	HIRAGANA LETTER MI
	mu	3080	12416	HIRAGANA LETTER MU
	me	3081	12417	HIRAGANA LETTER ME
	mo	3082	12418	HIRAGANA LETTER MO
	yA	3083	12419	HIRAGANA LETTER SMALL YA
	ya	3084	12420	HIRAGANA LETTER YA
	yU	3085	12421	HIRAGANA LETTER SMALL YU
	yu	3086	12422	HIRAGANA LETTER YU
	yO	3087	12423	HIRAGANA LETTER SMALL YO
	yo	3088	12424	HIRAGANA LETTER YO
	ra	3089	12425	HIRAGANA LETTER RA
	ri	308A	12426	HIRAGANA LETTER RI
	ru	308B	12427	HIRAGANA LETTER RU
	re	308C	12428	HIRAGANA LETTER RE
	ro	308D	12429	HIRAGANA LETTER RO
	wA	308E	12430	HIRAGANA LETTER SMALL WA
	wa	308F	12431	HIRAGANA LETTER WA
	wi	3090	12432	HIRAGANA LETTER WI
	we	3091	12433	HIRAGANA LETTER WE
	wo	3092	12434	HIRAGANA LETTER WO
	n5	3093	12435	HIRAGANA LETTER N
	vu	3094	12436	HIRAGANA LETTER VU
	"5	309B	12443	KATAKANA-HIRAGANA VOICED SOUND MARK
	05	309C	12444	KATAKANA-HIRAGANA SEMI-VOICED SOUND MARK
	*5	309D	12445	HIRAGANA ITERATION MARK
	+5	309E	12446	HIRAGANA VOICED ITERATION MARK
	a6	30A1	12449	KATAKANA LETTER SMALL A
	A6	30A2	12450	KATAKANA LETTER A
	i6	30A3	12451	KATAKANA LETTER SMALL I
	I6	30A4	12452	KATAKANA LETTER I
	u6	30A5	12453	KATAKANA LETTER SMALL U
	U6	30A6	12454	KATAKANA LETTER U
	e6	30A7	12455	KATAKANA LETTER SMALL E
	E6	30A8	12456	KATAKANA LETTER E
	o6	30A9	12457	KATAKANA LETTER SMALL O
	O6	30AA	12458	KATAKANA LETTER O
	Ka	30AB	12459	KATAKANA LETTER KA
	Ga	30AC	12460	KATAKANA LETTER GA
	Ki	30AD	12461	KATAKANA LETTER KI
	Gi	30AE	12462	KATAKANA LETTER GI

?	Ku	30AF	12463	KATAKANA LETTER KU
?	Gu	30B0	12464	KATAKANA LETTER GU
?	Ke	30B1	12465	KATAKANA LETTER KE
?	Ge	30B2	12466	KATAKANA LETTER GE
?	Ko	30B3	12467	KATAKANA LETTER KO
?	Go	30B4	12468	KATAKANA LETTER GO
?	Sa	30B5	12469	KATAKANA LETTER SA
?	Za	30B6	12470	KATAKANA LETTER ZA
?	Si	30B7	12471	KATAKANA LETTER SI
?	Zi	30B8	12472	KATAKANA LETTER ZI
?	Su	30B9	12473	KATAKANA LETTER SU
?	Zu	30BA	12474	KATAKANA LETTER ZU
?	Se	30BB	12475	KATAKANA LETTER SE
?	Ze	30BC	12476	KATAKANA LETTER ZE
?	So	30BD	12477	KATAKANA LETTER SO
?	Zo	30BE	12478	KATAKANA LETTER ZO
?	Ta	30BF	12479	KATAKANA LETTER TA
?	Da	30C0	12480	KATAKANA LETTER DA
?	Ti	30C1	12481	KATAKANA LETTER TI
?	Di	30C2	12482	KATAKANA LETTER DI
?	TU	30C3	12483	KATAKANA LETTER SMALL TU
?	Tu	30C4	12484	KATAKANA LETTER TU
?	Du	30C5	12485	KATAKANA LETTER DU
?	Te	30C6	12486	KATAKANA LETTER TE
?	De	30C7	12487	KATAKANA LETTER DE
?	To	30C8	12488	KATAKANA LETTER TO
?	Do	30C9	12489	KATAKANA LETTER DO
?	Na	30CA	12490	KATAKANA LETTER NA
?	Ni	30CB	12491	KATAKANA LETTER NI
?	Nu	30CC	12492	KATAKANA LETTER NU
?	Ne	30CD	12493	KATAKANA LETTER NE
?	No	30CE	12494	KATAKANA LETTER NO
?	Ha	30CF	12495	KATAKANA LETTER HA
?	Ba	30D0	12496	KATAKANA LETTER BA
?	Pa	30D1	12497	KATAKANA LETTER PA
?	Hi	30D2	12498	KATAKANA LETTER HI
?	Bi	30D3	12499	KATAKANA LETTER BI
?	Pi	30D4	12500	KATAKANA LETTER PI
?	Hu	30D5	12501	KATAKANA LETTER HU
?	Bu	30D6	12502	KATAKANA LETTER BU
?	Pu	30D7	12503	KATAKANA LETTER PU
?	He	30D8	12504	KATAKANA LETTER HE
?	Be	30D9	12505	KATAKANA LETTER BE

	Pe	30DA	12506	KATAKANA LETTER PE
	Ho	30DB	12507	KATAKANA LETTER HO
	Bo	30DC	12508	KATAKANA LETTER BO
	Po	30DD	12509	KATAKANA LETTER PO
	Ma	30DE	12510	KATAKANA LETTER MA
	Mi	30DF	12511	KATAKANA LETTER MI
	Mu	30E0	12512	KATAKANA LETTER MU
	Me	30E1	12513	KATAKANA LETTER ME
	Mo	30E2	12514	KATAKANA LETTER MO
	YA	30E3	12515	KATAKANA LETTER SMALL YA
	Ya	30E4	12516	KATAKANA LETTER YA
	YU	30E5	12517	KATAKANA LETTER SMALL YU
	Yu	30E6	12518	KATAKANA LETTER YU
	YO	30E7	12519	KATAKANA LETTER SMALL YO
	Yo	30E8	12520	KATAKANA LETTER YO
	Ra	30E9	12521	KATAKANA LETTER RA
	Ri	30EA	12522	KATAKANA LETTER RI
	Ru	30EB	12523	KATAKANA LETTER RU
	Re	30EC	12524	KATAKANA LETTER RE
	Ro	30ED	12525	KATAKANA LETTER RO
	WA	30EE	12526	KATAKANA LETTER SMALL WA
	Wa	30EF	12527	KATAKANA LETTER WA
	Wi	30F0	12528	KATAKANA LETTER WI
	We	30F1	12529	KATAKANA LETTER WE
	Wo	30F2	12530	KATAKANA LETTER WO
	N6	30F3	12531	KATAKANA LETTER N
	Vu	30F4	12532	KATAKANA LETTER VU
	KA	30F5	12533	KATAKANA LETTER SMALL KA
	KE	30F6	12534	KATAKANA LETTER SMALL KE
	Va	30F7	12535	KATAKANA LETTER VA
	Vi	30F8	12536	KATAKANA LETTER VI
	Ve	30F9	12537	KATAKANA LETTER VE
	Vo	30FA	12538	KATAKANA LETTER VO
	.6	30FB	12539	KATAKANA MIDDLE DOT
	-6	30FC	12540	KATAKANA-HIRAGANA PROLONGED SOUND MARK
	*6	30FD	12541	KATAKANA ITERATION MARK
	+6	30FE	12542	KATAKANA VOICED ITERATION MARK
	b4	3105	12549	BOPOMOFO LETTER B
	p4	3106	12550	BOPOMOFO LETTER P
	m4	3107	12551	BOPOMOFO LETTER M
	f4	3108	12552	BOPOMOFO LETTER F
	d4	3109	12553	BOPOMOFO LETTER D
	t4	310A	12554	BOPOMOFO LETTER T

?	n4	310B	12555	BOPOMOFO LETTER N
?	l4	310C	12556	BOPOMOFO LETTER L
?	g4	310D	12557	BOPOMOFO LETTER G
?	k4	310E	12558	BOPOMOFO LETTER K
?	h4	310F	12559	BOPOMOFO LETTER H
?	j4	3110	12560	BOPOMOFO LETTER J
?	q4	3111	12561	BOPOMOFO LETTER Q
?	x4	3112	12562	BOPOMOFO LETTER X
?	zh	3113	12563	BOPOMOFO LETTER ZH
?	ch	3114	12564	BOPOMOFO LETTER CH
?	sh	3115	12565	BOPOMOFO LETTER SH
?	r4	3116	12566	BOPOMOFO LETTER R
?	z4	3117	12567	BOPOMOFO LETTER Z
?	c4	3118	12568	BOPOMOFO LETTER C
?	s4	3119	12569	BOPOMOFO LETTER S
?	a4	311A	12570	BOPOMOFO LETTER A
?	o4	311B	12571	BOPOMOFO LETTER O
?	e4	311C	12572	BOPOMOFO LETTER E
?	ai	311E	12574	BOPOMOFO LETTER AI
?	ei	311F	12575	BOPOMOFO LETTER EI
?	au	3120	12576	BOPOMOFO LETTER AU
?	ou	3121	12577	BOPOMOFO LETTER OU
?	an	3122	12578	BOPOMOFO LETTER AN
?	en	3123	12579	BOPOMOFO LETTER EN
?	aN	3124	12580	BOPOMOFO LETTER ANG
?	eN	3125	12581	BOPOMOFO LETTER ENG
?	er	3126	12582	BOPOMOFO LETTER ER
?	i4	3127	12583	BOPOMOFO LETTER I
?	u4	3128	12584	BOPOMOFO LETTER U
?	iu	3129	12585	BOPOMOFO LETTER IU
?	v4	312A	12586	BOPOMOFO LETTER V
?	nG	312B	12587	BOPOMOFO LETTER NG
?	gn	312C	12588	BOPOMOFO LETTER GN
?	1c	3220	12832	PARENTHESIZED IDEOGRAPH ONE
?	2c	3221	12833	PARENTHESIZED IDEOGRAPH TWO
?	3c	3222	12834	PARENTHESIZED IDEOGRAPH THREE
?	4c	3223	12835	PARENTHESIZED IDEOGRAPH FOUR
?	5c	3224	12836	PARENTHESIZED IDEOGRAPH FIVE
?	6c	3225	12837	PARENTHESIZED IDEOGRAPH SIX
?	7c	3226	12838	PARENTHESIZED IDEOGRAPH SEVEN
?	8c	3227	12839	PARENTHESIZED IDEOGRAPH EIGHT
?	9c	3228	12840	PARENTHESIZED IDEOGRAPH NINE
?	ff	FB00	64256	LATIN SMALL LIGATURE FF

ﬁ	fi	FB01	64257	LATIN SMALL LIGATURE FI
ﬂ	fl	FB02	64258	LATIN SMALL LIGATURE FL
	ft	FB05	64261	LATIN SMALL LIGATURE LONG S T
	st	FB06	64262	LATIN SMALL LIGATURE ST

vim:tw=78:ts=8:noet:ft=help:norl:

mbyte.txt For Vim version 8.1. Last change: 2018 Jan 21

VIM REFERENCE MANUAL by Bram Moolenaar et al.

Multi-byte support multibyte multi-byte
Chinese Japanese Korean

This is about editing text in languages which have many characters that can not be represented using one byte (one octet). Examples are Chinese, Japanese and Korean. Unicode is also covered here.

For an introduction to the most common features, see usr_45.txt in the user manual.
For changing the language of messages and menus see mlang.txt .

{not available when compiled without the |+multi_byte| feature}

NOTE: This file contains UTF-8 characters. These may show up as strange characters or boxes when using another encoding.

==========

1. Getting started mbyte-first

This is a summary of the multibyte features in Vim. If you are lucky it works as described and you can start using Vim without much trouble. If something doesn't work you will have to read the rest. Don't be surprised if it takes quite a bit of work and experimenting to make Vim use all the multi-byte features. Unfortunately, every system has its own way to deal with multibyte languages and it is quite complicated.

COMPILING

If you already have a compiled Vim program, check if the +multi_byte feature is included. The :version command can be used for this.

If +multi_byte is not included, you should compile Vim with "normal", "big" or "huge" features. You can further tune what features are included. See the INSTALL files in the source directory.

LOCALE

First of all, you must make sure your current locale is set correctly. If your system has been installed to use the language, it probably works right away. If not, you can often make it work by setting the $LANG environment variable in your shell:

```
setenv LANG ja_JP.EUC
```

Unfortunately, the name of the locale depends on your system. Japanese might also be called "ja_JP.EUCjp" or just "ja". To see what is currently used:

```
:language
```

To change the locale inside Vim use:

```
:language ja_JP.EUC
```

Vim will give an error message if this doesn't work. This is a good way to experiment and find the locale name you want to use. But it's always better to set the locale in the shell, so that it is used right from the start.

See mbyte-locale for details.

ENCODING

If your locale works properly, Vim will try to set the 'encoding' option accordingly. If this doesn't work you can overrule its value:

```
:set encoding=utf-8
```

See encoding-values for a list of acceptable values.

The result is that all the text that is used inside Vim will be in this encoding. Not only the text in the buffers, but also in registers, variables, etc. This also means that changing the value of 'encoding' makes the existing text invalid! The text doesn't change, but it will be displayed wrong.

You can edit files in another encoding than what 'encoding' is set to. Vim will convert the file when you read it and convert it back when you write it. See 'fileencoding', 'fileencodings' and ++enc .

DISPLAY AND FONTS

If you are working in a terminal (emulator) you must make sure it accepts the same encoding as which Vim is working with. If this is not the case, you can use the 'termencoding' option to make Vim convert text automatically.

For the GUI you must select fonts that work with the current 'encoding'. This is the difficult part. It depends on the system you are using, the locale and

a few other things. See the chapters on fonts: mbyte-fonts-X11 for
X-Windows and mbyte-fonts-MSwin for MS-Windows.

For GTK+ 2, you can skip most of this section. The option 'guifontset' does
no longer exist. You only need to set 'guifont' and everything should "just
work". If your system comes with Xft2 and fontconfig and the current font
does not contain a certain glyph, a different font will be used automatically
if available. The 'guifontwide' option is still supported but usually you do
not need to set it. It is only necessary if the automatic font selection does
not suit your needs.

For X11 you can set the 'guifontset' option to a list of fonts that together
cover the characters that are used. Example for Korean:

```
:set guifontset=k12,r12
```

Alternatively, you can set 'guifont' and 'guifontwide'. 'guifont' is used for
the single-width characters, 'guifontwide' for the double-width characters.
Thus the 'guifontwide' font must be exactly twice as wide as 'guifont'.
Example for UTF-8:

```
:set guifont=-misc-fixed-medium-r-normal-*-18-120-100-100-c-90-iso10646-1
:set guifontwide=-misc-fixed-medium-r-normal-*-18-120-100-100-c-180-iso10646-1
```

You can also set 'guifont' alone, Vim will try to find a matching
'guifontwide' for you.

INPUT

There are several ways to enter multi-byte characters:
- For X11 XIM can be used. See XIM .
- For MS-Windows IME can be used. See IME .
- For all systems keymaps can be used. See mbyte-keymap .

The options 'iminsert', 'imsearch' and 'imcmdline' can be used to chose
the different input methods or disable them temporarily.

==
2. Locale   mbyte-locale

The easiest setup is when your whole system uses the locale you want to work
in. But it's also possible to set the locale for one shell you are working
in, or just use a certain locale inside Vim.

WHAT IS A LOCALE?   locale

There are many of languages in the world. And there are different cultures
and environments at least as much as the number of languages. A linguistic
environment corresponding to an area is called "locale". This includes
information about the used language, the charset, collating order for sorting,
date format, currency format and so on. For Vim only the language and charset
really matter.

You can only use a locale if your system has support for it. Some systems have only a few locales, especially in the USA. The language which you want to use may not be on your system. In that case you might be able to install it as an extra package. Check your system documentation for how to do that.

The location in which the locales are installed varies from system to system. For example, "/usr/share/locale" or "/usr/lib/locale". See your system's setlocale() man page.

Looking in these directories will show you the exact name of each locale. Mostly upper/lowercase matters, thus "ja_JP.EUC" and "ja_jp.euc" are different. Some systems have a locale.alias file, which allows translation from a short name like "nl" to the full name "nl_NL.ISO_8859-1".

Note that X-windows has its own locale stuff. And unfortunately uses locale names different from what is used elsewhere. This is confusing! For Vim it matters what the setlocale() function uses, which is generally NOT the X-windows stuff. You might have to do some experiments to find out what really works.

locale-name

The (simplified) format of locale name is:

```
        language
or      language_territory
or      language_territory.codeset
```

Territory means the country (or part of it), codeset means the charset . For example, the locale name "ja_JP.eucJP" means:

```
        ja      the language is Japanese
        JP      the country is Japan
        eucJP   the codeset is EUC-JP
```

But it also could be "ja", "ja_JP.EUC", "ja_JP.ujis", etc. And unfortunately, the locale name for a specific language, territory and codeset is not unified and depends on your system.

Examples of locale name:

charset	language	locale name
GB2312	Chinese (simplified)	zh_CN.EUC, zh_CN.GB2312
Big5	Chinese (traditional)	zh_TW.BIG5, zh_TW.Big5
CNS-11643	Chinese (traditional)	zh_TW
EUC-JP	Japanese	ja, ja_JP.EUC, ja_JP.ujis, ja_JP.eucJP
Shift_JIS	Japanese	ja_JP.SJIS, ja_JP.Shift_JIS
EUC-KR	Korean	ko, ko_KR.EUC

USING A LOCALE

To start using a locale for the whole system, see the documentation of your system. Mostly you need to set it in a configuration file in "/etc".

To use a locale in a shell, set the $LANG environment value. When you want to use Korean and the locale name is "ko", do this:

```
    sh:    export LANG=ko
    csh:   setenv LANG ko

You can put this in your ~/.profile or ~/.cshrc file to always use it.

To use a locale in Vim only, use the  :language  command:

        :language ko

Put this in your ~/.vimrc file to use it always.

Or specify $LANG when starting Vim:

   sh:    LANG=ko vim {vim-arguments}
   csh:   env LANG=ko vim {vim-arguments}

You could make a small shell script for this.

==============================================================================
3.  Encoding                                    mbyte-encoding

Vim uses the 'encoding' option to specify how characters are identified and
encoded when they are used inside Vim.  This applies to all the places where
text is used, including buffers (files loaded into memory), registers and
variables.

                                                        charset   codeset
Charset is another name for encoding.  There are subtle differences, but these
don't matter when using Vim.  "codeset" is another similar name.

Each character is encoded as one or more bytes.  When all characters are
encoded with one byte, we call this a single-byte encoding.  The most often
used one is called "latin1".  This limits the number of characters to 256.
Some of these are control characters, thus even fewer can be used for text.

When some characters use two or more bytes, we call this a multi-byte
encoding.  This allows using much more than 256 characters, which is required
for most East Asian languages.

Most multi-byte encodings use one byte for the first 127 characters.  These
are equal to ASCII, which makes it easy to exchange plain-ASCII text, no
matter what language is used.  Thus you might see the right text even when the
encoding was set wrong.

                                                        encoding-names
Vim can use many different character encodings.  There are three major groups:

1   8bit        Single-byte encodings, 256 different characters.  Mostly used
                in USA and Europe.  Example: ISO-8859-1 (Latin1).  All
                characters occupy one screen cell only.

2   2byte       Double-byte encodings, over 10000 different characters.
                Mostly used in Asian countries.  Example: euc-kr (Korean)
```

```
                The number of screen cells is equal to the number of bytes
                (except for euc-jp when the first byte is 0x8e).

u   Unicode     Universal encoding, can replace all others.  ISO 10646.
                Millions of different characters.  Example: UTF-8.  The
                relation between bytes and screen cells is complex.

Other encodings cannot be used by Vim internally.  But files in other
encodings can be edited by using conversion, see 'fileencoding'.
Note that all encodings must use ASCII for the characters up to 128 (except
when compiled for EBCDIC).

Supported 'encoding' values are:                          encoding-values
1   latin1      8-bit characters (ISO 8859-1, also used for cp1252)
1   iso-8859-n  ISO_8859 variant (n = 2 to 15)
1   koi8-r      Russian
1   koi8-u      Ukrainian
1   macroman    MacRoman (Macintosh encoding)
1   8bit-{name} any 8-bit encoding (Vim specific name)
1   cp437       similar to iso-8859-1
1   cp737       similar to iso-8859-7
1   cp775       Baltic
1   cp850       similar to iso-8859-4
1   cp852       similar to iso-8859-1
1   cp855       similar to iso-8859-2
1   cp857       similar to iso-8859-5
1   cp860       similar to iso-8859-9
1   cp861       similar to iso-8859-1
1   cp862       similar to iso-8859-1
1   cp863       similar to iso-8859-8
1   cp865       similar to iso-8859-1
1   cp866       similar to iso-8859-5
1   cp869       similar to iso-8859-7
1   cp874       Thai
1   cp1250      Czech, Polish, etc.
1   cp1251      Cyrillic
1   cp1253      Greek
1   cp1254      Turkish
1   cp1255      Hebrew
1   cp1256      Arabic
1   cp1257      Baltic
1   cp1258      Vietnamese
1   cp{number}  MS-Windows: any installed single-byte codepage
2   cp932       Japanese (Windows only)
2   euc-jp      Japanese (Unix only)
2   sjis        Japanese (Unix only)
2   cp949       Korean (Unix and Windows)
2   euc-kr      Korean (Unix only)
2   cp936       simplified Chinese (Windows only)
2   euc-cn      simplified Chinese (Unix only)
2   cp950       traditional Chinese (on Unix alias for big5)
2   big5        traditional Chinese (on Windows alias for cp950)
2   euc-tw      traditional Chinese (Unix only)
2   2byte-{name} Unix: any double-byte encoding (Vim specific name)
```

```
2   cp{number}  MS-Windows: any installed double-byte codepage
u   utf-8       32 bit UTF-8 encoded Unicode (ISO/IEC 10646-1)
u   ucs-2       16 bit UCS-2 encoded Unicode (ISO/IEC 10646-1)
u   ucs-2le     like ucs-2, little endian
u   utf-16      ucs-2 extended with double-words for more characters
u   utf-16le    like utf-16, little endian
u   ucs-4       32 bit UCS-4 encoded Unicode (ISO/IEC 10646-1)
u   ucs-4le     like ucs-4, little endian
```

The {name} can be any encoding name that your system supports. It is passed to iconv() to convert between the encoding of the file and the current locale. For MS-Windows "cp{number}" means using codepage {number}.
Examples:

```
:set encoding=8bit-cp1252
:set encoding=2byte-cp932
```

The MS-Windows codepage 1252 is very similar to latin1. For practical reasons the same encoding is used and it's called latin1. 'isprint' can be used to display the characters 0x80 - 0xA0 or not.

Several aliases can be used, they are translated to one of the names above. An incomplete list:

```
1   ansi        same as latin1 (obsolete, for backward compatibility)
2   japan       Japanese: on Unix "euc-jp", on MS-Windows cp932
2   korea       Korean: on Unix "euc-kr", on MS-Windows cp949
2   prc         simplified Chinese: on Unix "euc-cn", on MS-Windows cp936
2   chinese     same as "prc"
2   taiwan      traditional Chinese: on Unix "euc-tw", on MS-Windows cp950
u   utf8        same as utf-8
u   unicode     same as ucs-2
u   ucs2be      same as ucs-2 (big endian)
u   ucs-2be     same as ucs-2 (big endian)
u   ucs-4be     same as ucs-4 (big endian)
u   utf-32      same as ucs-4
u   utf-32le    same as ucs-4le
    default     stands for the default value of 'encoding', depends on the
                environment
```

For the UCS codes the byte order matters. This is tricky, use UTF-8 whenever you can. The default is to use big-endian (most significant byte comes first):

```
            name        bytes           char
            ucs-2             11 22         1122
            ucs-2le           22 11         1122
            ucs-4       11 22 33 44     11223344
            ucs-4le     44 33 22 11     11223344
```

On MS-Windows systems you often want to use "ucs-2le", because it uses little endian UCS-2.

There are a few encodings which are similar, but not exactly the same. Vim treats them as if they were different encodings, so that conversion will be done when needed. You might want to use the similar name to avoid conversion

or when conversion is not possible:

```
        cp932, shift-jis, sjis
        cp936, euc-cn
```

encoding-table

Normally 'encoding' is equal to your current locale and 'termencoding' is empty. This means that your keyboard and display work with characters encoded in your current locale, and Vim uses the same characters internally.

You can make Vim use characters in a different encoding by setting the 'encoding' option to a different value. Since the keyboard and display still use the current locale, conversion needs to be done. The 'termencoding' then takes over the value of the current locale, so Vim converts between 'encoding' and 'termencoding'. Example:

```
        :let &termencoding = &encoding
        :set encoding=utf-8
```

However, not all combinations of values are possible. The table below tells you how each of the nine combinations works. This is further restricted by not all conversions being possible, iconv() being present, etc. Since this depends on the system used, no detailed list can be given.

('tenc' is the short name for 'termencoding' and 'enc' short for 'encoding')

'tenc'	'enc'	remark
8bit	8bit	Works. When 'termencoding' is different from 'encoding' typing and displaying may be wrong for some characters, Vim does NOT perform conversion (set 'encoding' to "utf-8" to get this).
8bit	2byte	MS-Windows: works for all codepages installed on your system; you can only type 8bit characters; Other systems: does NOT work.
8bit	Unicode	Works, but only 8bit characters can be typed directly (others through digraphs, keymaps, etc.); in a terminal you can only see 8bit characters; the GUI can show all characters that the 'guifont' supports.
2byte	8bit	Works, but typing non-ASCII characters might be a problem.
2byte	2byte	MS-Windows: works for all codepages installed on your system; typing characters might be a problem when locale is different from 'encoding'. Other systems: Only works when 'termencoding' is equal to 'encoding', you might as well leave it empty.
2byte	Unicode	works, Vim will translate typed characters.
Unicode	8bit	works (unusual)
Unicode	2byte	does NOT work
Unicode	Unicode	works very well (leaving 'termencoding' empty works the same way, because all Unicode is handled internally as UTF-8)

CONVERSION charset-conversion

Vim will automatically convert from one to another encoding in several places:
- When reading a file and 'fileencoding' is different from 'encoding'
- When writing a file and 'fileencoding' is different from 'encoding'
- When displaying characters and 'termencoding' is different from 'encoding'
- When reading input and 'termencoding' is different from 'encoding'
- When displaying messages and the encoding used for LC_MESSAGES differs from 'encoding' (requires a gettext version that supports this).
- When reading a Vim script where :scriptencoding is different from 'encoding'.
- When reading or writing a viminfo file.

Most of these require the +iconv feature. Conversion for reading and writing files may also be specified with the 'charconvert' option.

Useful utilities for converting the charset:

All: iconv

GNU iconv can convert most encodings. Unicode is used as the intermediate encoding, which allows conversion from and to all other encodings. See http://www.gnu.org/directory/libiconv.html.

Japanese: nkf

Nkf is "Network Kanji code conversion Filter". One of the most unique facility of nkf is the guess of the input Kanji code. So, you don't need to know what the inputting file's charset is. When convert to EUC-JP from ISO-2022-JP or Shift_JIS, simply do the following command in Vim:

```
:%!nkf -e
```

Nkf can be found at:
http://www.sfc.wide.ad.jp/~max/FreeBSD/ports/distfiles/nkf-1.62.tar.gz

Chinese: hc

Hc is "Hanzi Converter". Hc convert a GB file to a Big5 file, or Big5 file to GB file. Hc can be found at:
ftp://ftp.cuhk.hk/pub/chinese/ifcss/software/unix/convert/hc-30.tar.gz

Korean: hmconv

Hmconv is Korean code conversion utility especially for E-mail. It can convert between EUC-KR and ISO-2022-KR. Hmconv can be found at:
ftp://ftp.kaist.ac.kr/pub/hangul/code/hmconv/

Multilingual: lv

Lv is a Powerful Multilingual File Viewer. And it can be worked as charset converter. Supported charset : ISO-2022-CN, ISO-2022-JP, ISO-2022-KR, EUC-CN, EUC-JP, EUC-KR, EUC-TW, UTF-7, UTF-8, ISO-8859 series, Shift_JIS, Big5 and HZ. Lv can be found at:
http://www.ff.iij4u.or.jp/~nrt/lv/index.html

mbyte-conversion

When reading and writing files in an encoding different from 'encoding', conversion needs to be done. These conversions are supported:
- All conversions between Latin-1 (ISO-8859-1), UTF-8, UCS-2 and UCS-4 are handled internally.

- For MS-Windows, when 'encoding' is a Unicode encoding, conversion from and
  to any codepage should work.
- Conversion specified with 'charconvert'
- Conversion with the iconv library, if it is available.
	Old versions of GNU iconv() may cause the conversion to fail (they
	request a very large buffer, more than Vim is willing to provide).
	Try getting another iconv() implementation.

iconv-dynamic
On MS-Windows Vim can be compiled with the +iconv/dyn feature. This means Vim will search for the "iconv.dll" and "libiconv.dll" libraries. When neither of them can be found Vim will still work but some conversions won't be possible.

==
4. Using a terminal mbyte-terminal

The GUI fully supports multi-byte characters. It is also possible in a terminal, if the terminal supports the same encoding that Vim uses. Thus this is less flexible.

For example, you can run Vim in a xterm with added multi-byte support and/or XIM. Examples are kterm (Kanji term) and hanterm (for Korean), Eterm (Enlightened terminal) and rxvt.

If your terminal does not support the right encoding, you can set the 'termencoding' option. Vim will then convert the typed characters from 'termencoding' to 'encoding'. And displayed text will be converted from 'encoding' to 'termencoding'. If the encoding supported by the terminal doesn't include all the characters that Vim uses, this leads to lost characters. This may mess up the display. If you use a terminal that supports Unicode, such as the xterm mentioned below, it should work just fine, since nearly every character set can be converted to Unicode without loss of information.

UTF-8 IN XFREE86 XTERM UTF8-xterm

This is a short explanation of how to use UTF-8 character encoding in the xterm that comes with XFree86 by Thomas Dickey (text by Markus Kuhn).

Get the latest xterm version which has now UTF-8 support:

	http://invisible-island.net/xterm/xterm.html

Compile it with "./configure --enable-wide-chars ; make"

Also get the ISO 10646-1 version of various fonts, which is available on

	http://www.cl.cam.ac.uk/~mgk25/download/ucs-fonts.tar.gz

and install the font as described in the README file.

Now start xterm with

```
  xterm -u8 -fn -misc-fixed-medium-r-semicondensed--13-120-75-75-c-60-iso10646-1
or, for bigger character:
  xterm -u8 -fn -misc-fixed-medium-r-normal--15-140-75-75-c-90-iso10646-1

and you will have a working UTF-8 terminal emulator.  Try both

   cat utf-8-demo.txt
   vim utf-8-demo.txt

with the demo text that comes with ucs-fonts.tar.gz in order to see
whether there are any problems with UTF-8 in your xterm.

For Vim you may need to set 'encoding' to "utf-8".

==============================================================================
5.  Fonts on X11                                            mbyte-fonts-X11

Unfortunately, using fonts in X11 is complicated.  The name of a single-byte
font is a long string.  For multi-byte fonts we need several of these...

Note: Most of this is no longer relevant for GTK+ 2.  Selecting a font via
its XLFD is not supported; see 'guifont' for an example of how to
set the font.  Do yourself a favor and ignore the  XLFD  and  xfontset
sections below.

First of all, Vim only accepts fixed-width fonts for displaying text.  You
cannot use proportionally spaced fonts.  This excludes many of the available
(and nicer looking) fonts.  However, for menus and tooltips any font can be
used.

Note that Display and Input are independent.  It is possible to see your
language even though you have no input method for it.

You should get a default font for menus and tooltips that works, but it might
be ugly.  Read the following to find out how to select a better font.


X LOGICAL FONT DESCRIPTION (XLFD)
                                                                  XLFD
XLFD is the X font name and contains the information about the font size,
charset, etc.  The name is in this format:

FOUNDRY-FAMILY-WEIGHT-SLANT-WIDTH-STYLE-PIXEL-POINT-X-Y-SPACE-AVE-CR-CE

Each field means:

- FOUNDRY:  FOUNDRY field.  The company that created the font.
- FAMILY:   FAMILY_NAME field.  Basic font family name.  (helvetica, gothic,
            times, etc)
- WEIGHT:   WEIGHT_NAME field.  How thick the letters are.  (light, medium,
            bold, etc)
- SLANT:    SLANT field.
                r:  Roman (no slant)
```

```
                i:  Italic
                o:  Oblique
                ri: Reverse Italic
                ro: Reverse Oblique
                ot: Other
                number: Scaled font
- WIDTH:    SETWIDTH_NAME field.  Width of characters.  (normal, condensed,
            narrow, double wide)
- STYLE:    ADD_STYLE_NAME field.  Extra info to describe font.  (Serif, Sans
            Serif, Informal, Decorated, etc)
- PIXEL:    PIXEL_SIZE field.  Height, in pixels, of characters.
- POINT:    POINT_SIZE field.  Ten times height of characters in points.
- X:        RESOLUTION_X field.  X resolution (dots per inch).
- Y:        RESOLUTION_Y field.  Y resolution (dots per inch).
- SPACE:    SPACING field.
                p:  Proportional
                m:  Monospaced
                c:  CharCell
- AVE:      AVERAGE_WIDTH field.  Ten times average width in pixels.
- CR:       CHARSET_REGISTRY field.  The name of the charset group.
- CE:       CHARSET_ENCODING field.  The rest of the charset name.  For some
            charsets, such as JIS X 0208, if this field is 0, code points has
            the same value as GL, and GR if 1.

For example, in case of a 16 dots font corresponding to JIS X 0208, it is
written like:
    -misc-fixed-medium-r-normal--16-110-100-100-c-160-jisx0208.1990-0


X FONTSET                                                   fontset   xfontset

A single-byte charset is typically associated with one font.  For multi-byte
charsets a combination of fonts is often used.  This means that one group of
characters are used from one font and another group from another font (which
might be double wide).  This collection of fonts is called a fontset.

Which fonts are required in a fontset depends on the current locale.  X
windows maintains a table of which groups of characters are required for a
locale.  You have to specify all the fonts that a locale requires in the
'guifontset' option.

NOTE: The fontset always uses the current locale, even though 'encoding' may
be set to use a different charset.  In that situation you might want to use
'guifont' and 'guifontwide' instead of 'guifontset'.

Example:
    |charset| language              "groups of characters"
    GB2312    Chinese (simplified)  ISO-8859-1 and GB 2312
    Big5      Chinese (traditional) ISO-8859-1 and Big5
    CNS-11643 Chinese (traditional) ISO-8859-1, CNS 11643-1 and CNS 11643-2
    EUC-JP    Japanese              JIS X 0201 and JIS X 0208
    EUC-KR    Korean                ISO-8859-1 and KS C 5601 (KS X 1001)

You can search for fonts using the xlsfonts command.  For example, when you're
```

searching for a font for KS C 5601:
    xlsfonts | grep ksc5601

This is complicated and confusing. You might want to consult the X-Windows
documentation if there is something you don't understand.

                                                    base_font_name_list
When you have found the names of the fonts you want to use, you need to set
the 'guifontset' option. You specify the list by concatenating the font names
and putting a comma in between them.

For example, when you use the ja_JP.eucJP locale, this requires JIS X 0201
and JIS X 0208. You could supply a list of fonts that explicitly specifies
the charsets, like:

 :set guifontset=-misc-fixed-medium-r-normal--14-130-75-75-c-140-jisx0208.1983-0,
       \-misc-fixed-medium-r-normal--14-130-75-75-c-70-jisx0201.1976-0

Alternatively, you can supply a base font name list that omits the charset
name, letting X-Windows select font characters required for the locale. For
example:

 :set guifontset=-misc-fixed-medium-r-normal--14-130-75-75-c-140,
       \-misc-fixed-medium-r-normal--14-130-75-75-c-70

Alternatively, you can supply a single base font name that allows X-Windows to
select from all available fonts. For example:

 :set guifontset=-misc-fixed-medium-r-normal--14-*

Alternatively, you can specify alias names. See the fonts.alias file in the
fonts directory (e.g., /usr/X11R6/lib/X11/fonts/). For example:

 :set guifontset=k14,r14

                                                              E253
Note that in East Asian fonts, the standard character cell is square. When
mixing a Latin font and an East Asian font, the East Asian font width should
be twice the Latin font width.

If 'guifontset' is not empty, the "font" argument of the :highlight command
is also interpreted as a fontset. For example, you should use for
highlighting:
        :hi Comment font=english_font,your_font
If you use a wrong "font" argument you will get an error message.
Also make sure that you set 'guifontset' before setting fonts for highlight
groups.

USING RESOURCE FILES

Instead of specifying 'guifontset', you can set X11 resources and Vim will
pick them up. This is only for people who know how X resource files work.

For Motif and Athena insert these three lines in your $HOME/.Xdefaults file:

```
Vim.font:  base_font_name_list
Vim*fontSet:  base_font_name_list
Vim*fontList: your_language_font
```

Note: Vim.font is for text area.
Vim*fontSet is for menu.
Vim*fontList is for menu (for Motif GUI)

For example, when you are using Japanese and a 14 dots font,

```
Vim.font: -misc-fixed-medium-r-normal--14-*
Vim*fontSet: -misc-fixed-medium-r-normal--14-*
Vim*fontList: -misc-fixed-medium-r-normal--14-*
```

or:

```
Vim*font: k14,r14
Vim*fontSet: k14,r14
Vim*fontList: k14,r14
```

To have them take effect immediately you will have to do

```
xrdb -merge ~/.Xdefaults
```

Otherwise you will have to stop and restart the X server before the changes take effect.

The GTK+ version of GUI Vim does not use .Xdefaults, use ~/.gtkrc instead. The default mostly works OK. But for the menus you might have to change it. Example:

```
style "default"
{
        fontset="-*-*-medium-r-normal--14-*-*-*-c-*-*-*"
}
widget_class "*" style "default"
```

==========

6. Fonts on MS-Windows mbyte-fonts-MSwin

The simplest is to use the font dialog to select fonts and try them out. You can find this at the "Edit/Select Font..." menu. Once you find a font name that works well you can use this command to see its name:

```
:set guifont
```

Then add a command to your gvimrc file to set 'guifont':

```
:set guifont=courier_new:h12
```

==========

7. Input on X11 mbyte-XIM

X INPUT METHOD (XIM) BACKGROUND XIM xim x-input-method

XIM is an international input module for X. There are two kinds of structures, Xlib unit type and IM-server (Input-Method server) type. IM-server type is suitable for complex input, such as CJK.

- IM-server

  IM-server

  In IM-server type input structures, the input event is handled by either of the two ways: FrontEnd system and BackEnd system. In the FrontEnd system, input events are snatched by the IM-server first, then IM-server give the application the result of input. On the other hand, the BackEnd system works reverse order. MS Windows adopt BackEnd system. In X, most of IM-server s adopt FrontEnd system. The demerit of BackEnd system is the large overhead in communication, but it provides safe synchronization with no restrictions on applications.

  For example, there are xwnmo and kinput2 Japanese IM-server , both are FrontEnd system. Xwnmo is distributed with Wnn (see below), kinput2 can be found at: ftp://ftp.sra.co.jp/pub/x11/kinput2/

  For Chinese, there's a great XIM server named "xcin", you can input both Traditional and Simplified Chinese characters. And it can accept other locale if you make a correct input table. Xcin can be found at:
  http://cle.linux.org.tw/xcin/
  Others are scim: http://scim.freedesktop.org/ and fcitx:
  http://www.fcitx.org/

- Conversion Server

  conversion-server

  Some system needs additional server: conversion server. Most of Japanese IM-server s need it, Kana-Kanji conversion server. For Chinese inputting, it depends on the method of inputting, in some methods, PinYin or ZhuYin to HanZi conversion server is needed. For Korean inputting, if you want to input Hanja, Hangul-Hanja conversion server is needed.

  For example, the Japanese inputting process is divided into 2 steps. First we pre-input Hira-gana, second Kana-Kanji conversion. There are so many Kanji characters (6349 Kanji characters are defined in JIS X 0208) and the number of Hira-gana characters are 76. So, first, we pre-input text as pronounced in Hira-gana, second, we convert Hira-gana to Kanji or Kata-Kana, if needed. There are some Kana-Kanji conversion server: jserver (distributed with Wnn, see below) and canna. Canna can be found at:
  http://canna.sourceforge.jp/

There is a good input system: Wnn4.2. Wnn 4.2 contains,
    xwnmo (IM-server)
    jserver (Japanese Kana-Kanji conversion server)
    cserver (Chinese PinYin or ZhuYin to simplified HanZi conversion server)
    tserver (Chinese PinYin or ZhuYin to traditional HanZi conversion server)
    kserver (Hangul-Hanja conversion server)
Wnn 4.2 for several systems can be found at various places on the internet.

Use the RPM or port for your system.

- Input Style
                                                        xim-input-style

  When inputting CJK, there are four areas:
      1. The area to display of the input while it is being composed
      2. The area to display the currently active input mode.
      3. The area to display the next candidate for the selection.
      4. The area to display other tools.

  The third area is needed when converting. For example, in Japanese inputting, multiple Kanji characters could have the same pronunciation, so a sequence of Hira-gana characters could map to a distinct sequence of Kanji characters.

  The first and second areas are defined in international input of X with the names of "Preedit Area", "Status Area" respectively. The third and fourth areas are not defined and are left to be managed by the IM-server . In the international input, four input styles have been defined using combinations of Preedit Area and Status Area: OnTheSpot , OffTheSpot , OverTheSpot and Root .

  Currently, GUI Vim supports three styles, OverTheSpot , OffTheSpot and Root .
  When compiled with +GUI_GTK feature, GUI Vim supports two styles, OnTheSpot and OverTheSpot . You can select the style with the 'imstyle' option.

*. on-the-spot   OnTheSpot
    Preedit Area and Status Area are performed by the client application in the area of application. The client application is directed by the IM-server to display all pre-edit data at the location of text insertion. The client registers callbacks invoked by the input method during pre-editing.
*. over-the-spot   OverTheSpot
    Status Area is created in a fixed position within the area of application, in case of Vim, the position is the additional status line. Preedit Area is made at present input position of application. The input method displays pre-edit data in a window which it brings up directly over the text insertion position.
*. off-the-spot   OffTheSpot
    Preedit Area and Status Area are performed in the area of application, in case of Vim, the area is additional status line. The client application provides display windows for the pre-edit data to the input method which displays into them directly.
*. root-window   Root
    Preedit Area and Status Area are outside of the application. The input method displays all pre-edit data in a separate area of the screen in a window specific to the input method.

USING XIM   multibyte-input E284 E286 E287 E288
                                E285 E289

Note that Display and Input are independent. It is possible to see your language even though you have no input method for it. But when your Display method doesn't match your Input method, the text will be displayed wrong.

```
        Note: You can not use IM unless you specify 'guifontset'.
              Therefore, Latin users, you have to also use 'guifontset'
              if you use IM.
```

To input your language you should run the IM-server which supports your language and conversion-server if needed.

The next 3 lines should be put in your ~/.Xdefaults file. They are common for all X applications which uses XIM . If you already use XIM , you can skip this.

```
        *international: True
        *.inputMethod: your_input_server_name
        *.preeditType: your_input_style
```

input_server_name	is your IM-server name (check your IM-server manual).
your_input_style	is one of OverTheSpot , OffTheSpot , Root . See also xim-input-style .

*international may not necessary if you use X11R6.
*.inputMethod and *.preeditType are optional if you use X11R6.

For example, when you are using kinput2 as IM-server ,

```
        *international: True
        *.inputMethod: kinput2
        *.preeditType: OverTheSpot
```

When using OverTheSpot , GUI Vim always connects to the IM Server even in Normal mode, so you can input your language with commands like "f" and "r". But when using one of the other two methods, GUI Vim connects to the IM Server only if it is not in Normal mode.

If your IM Server does not support OverTheSpot , and if you want to use your language with some Normal mode command like "f" or "r", then you should use a localized xterm or an xterm which supports XIM

If needed, you can set the XMODIFIERS environment variable:

```
        sh:  export XMODIFIERS="@im=input_server_name"
        csh: setenv XMODIFIERS "@im=input_server_name"
```

For example, when you are using kinput2 as IM-server and sh,

```
        export XMODIFIERS="@im=kinput2"
```

FULLY CONTROLLED XIM

You can fully control XIM, like with IME of MS-Windows (see multibyte-ime).
This is currently only available for the GTK GUI.

Before using fully controlled XIM, one setting is required. Set the
'imactivatekey' option to the key that is used for the activation of the input
method. For example, when you are using kinput2 + canna as IM Server, the
activation key is probably Shift+Space:

```
:set imactivatekey=S-space
```

See 'imactivatekey' for the format.

==
8. Input on MS-Windows mbyte-IME

(Windows IME support) multibyte-ime IME

{only works Windows GUI and compiled with the |+multi_byte_ime| feature}

To input multibyte characters on Windows, you can use an Input Method Editor
(IME). In process of your editing text, you must switch status (on/off) of
IME many many many times. Because IME with status on is hooking all of your
key inputs, you cannot input 'j', 'k', or almost all of keys to Vim directly.

This +multi_byte_ime feature help this. It reduce times of switch status of
IME manually. In normal mode, there are almost no need working IME, even
editing multibyte text. So exiting insert mode with ESC, Vim memorize last
status of IME and force turn off IME. When re-enter insert mode, Vim revert
IME status to that memorized automatically.

This works on not only insert-normal mode, but also search-command input and
replace mode.
The options 'iminsert', 'imsearch' and 'imcmdline' can be used to chose
the different input methods or disable them temporarily.

WHAT IS IME
    IME is a part of East asian version Windows. That helps you to input
    multibyte character. English and other language version Windows does not
    have any IME. (Also there is no need usually.) But there is one that
    called Microsoft Global IME. Global IME is a part of Internet Explorer
    4.0 or above. You can get more information about Global IME, at below
    URL.

WHAT IS GLOBAL IME global-ime
    Global IME makes capability to input Chinese, Japanese, and Korean text
    into Vim buffer on any language version of Windows 98, Windows 95, and
    Windows NT 4.0.
    On Windows 2000 and XP it should work as well (without downloading). On
    Windows 2000 Professional, Global IME is built in, and the Input Locales
    can be added through Control Panel/Regional Options/Input Locales.
    Please see below URL for detail of Global IME. You can also find various
    language version of Global IME at same place.

- Global IME detailed information.
  http://search.microsoft.com/results.aspx?q=global+ime

- Active Input Method Manager (Global IME)
  http://msdn.microsoft.com/en-us/library/aa741221(v=VS.85).aspx

Support for Global IME is an experimental feature.

NOTE: For IME to work you must make sure the input locales of your language
are added to your system. The exact location of this depends on the version
of Windows you use. For example, on my Windows 2000 box:
1. Control Panel
2. Regional Options
3. Input Locales Tab
4. Add Installed input locales -> Chinese(PRC)
   The default is still English (United Stated)

Cursor color when IME or XIM is on CursorIM

There is a little cute feature for IME. Cursor can indicate status of IME by changing its color. Usually status of IME was indicated by little icon at a corner of desktop (or taskbar). It is not easy to verify status of IME. But this feature help this.
This works in the same way when using XIM.

You can select cursor color when status is on by using highlight group CursorIM. For example, add these lines to your gvimrc :

```
if has('multi_byte_ime')
    highlight Cursor guifg=NONE guibg=Green
    highlight CursorIM guifg=NONE guibg=Purple
endif
```

Cursor color with off IME is green. And purple cursor indicates that status is on.

==
9. Input with a keymap mbyte-keymap

When the keyboard doesn't produce the characters you want to enter in your text, you can use the 'keymap' option. This will translate one or more (English) characters to another (non-English) character. This only happens when typing text, not when typing Vim commands. This avoids having to switch between two keyboard settings.
{only available when compiled with the |+keymap| feature}

The value of the 'keymap' option specifies a keymap file to use. The name of this file is one of these two:

```
keymap/{keymap}_{encoding}.vim
keymap/{keymap}.vim
```

Here {keymap} is the value of the 'keymap' option and {encoding} of the 'encoding' option. The file name with the {encoding} included is tried first.

'runtimepath' is used to find these files. To see an overview of all
available keymap files, use this:
	:echo globpath(&rtp, "keymap/*.vim")

In Insert and Command-line mode you can use CTRL-^ to toggle between using the
keyboard map or not. i_CTRL-^ c_CTRL-^
This flag is remembered for Insert mode with the 'iminsert' option. When
leaving and entering Insert mode the previous value is used. The same value
is also used for commands that take a single character argument, like f and
 r .
For Command-line mode the flag is NOT remembered. You are expected to type an
Ex command first, which is ASCII.
For typing search patterns the 'imsearch' option is used. It can be set to
use the same value as for 'iminsert'.
lCursor
It is possible to give the GUI cursor another color when the language mappings
are being used. This is disabled by default, to avoid that the cursor becomes
invisible when you use a non-standard background color. Here is an example to
use a brightly colored cursor:
	:highlight Cursor guifg=NONE guibg=Green
	:highlight lCursor guifg=NONE guibg=Cyan

keymap-file-format :loadk :loadkeymap E105 E791
The keymap file looks something like this:

```
	" Maintainer:	name <email@address>
	" Last Changed: 2001 Jan 1

	let b:keymap_name = "short"

	loadkeymap
	a	A
	b	B	comment
```

The lines starting with a " are comments and will be ignored. Blank lines are
also ignored. The lines with the mappings may have a comment after the useful
text.

The "b:keymap_name" can be set to a short name, which will be shown in the
status line. The idea is that this takes less room than the value of
'keymap', which might be long to distinguish between different languages,
keyboards and encodings.

The actual mappings are in the lines below "loadkeymap". In the example "a"
is mapped to "A" and "b" to "B". Thus the first item is mapped to the second
item. This is done for each line, until the end of the file.
These items are exactly the same as what can be used in a :lnoremap command,
using "<buffer>" to make the mappings local to the buffer.
You can check the result with this command:
	:lmap
The two items must be separated by white space. You cannot include white
space inside an item, use the special names "<Tab>" and "<Space>" instead.
The length of the two items together must not exceed 200 bytes.

It's possible to have more than one character in the first column. This works
like a dead key. Example:

```
        'a      á
```

Since Vim doesn't know if the next character after a quote is really an "a",
it will wait for the next character. To be able to insert a single quote,
also add this line:

```
        ''      '
```

Since the mapping is defined with :lnoremap the resulting quote will not be
used for the start of another character.
The "accents" keymap uses this.   keymap-accents

The first column can also be in <> form:

```
        <C-c>           Ctrl-C
        <A-c>           Alt-c
        <A-C>           Alt-C
```

Note that the Alt mappings may not work, depending on your keyboard and
terminal.

Although it's possible to have more than one character in the second column,
this is unusual. But you can use various ways to specify the character:

```
        A       a               literal character
        A       <char-97>       decimal value
        A       <char-0x61>     hexadecimal value
        A       <char-0141>     octal value
        x       <Space>         special key name
```

The characters are assumed to be encoded for the current value of 'encoding'.
It's possible to use ":scriptencoding" when all characters are given
literally. That doesn't work when using the <char-> construct, because the
conversion is done on the keymap file, not on the resulting character.

The lines after "loadkeymap" are interpreted with 'cpoptions' set to "C".
This means that continuation lines are not used and a backslash has a special
meaning in the mappings. Examples:

```
        " a comment line
        \"      x       maps " to x
        \\      y       maps \ to y
```

If you write a keymap file that will be useful for others, consider submitting
it to the Vim maintainer for inclusion in the distribution:
<maintainer@vim.org>

HEBREW KEYMAP   keymap-hebrew

This file explains what characters are available in UTF-8 and CP1255 encodings,
and what the keymaps are to get those characters:

```
glyph   encoding          keymap
Char   utf-8 cp1255  hebrew  hebrewp  name
□    0x5d0  0xe0     t        a     'alef
```

	0x5d1	0xe1	c	b	bet
	0x5d2	0xe2	d	g	gimel
	0x5d3	0xe3	s	d	dalet
	0x5d4	0xe4	v	h	he
	0x5d5	0xe5	u	v	vav
	0x5d6	0xe6	z	z	zayin
	0x5d7	0xe7	j	j	het
	0x5d8	0xe8	y	T	tet
	0x5d9	0xe9	h	y	yod
	0x5da	0xea	l	K	kaf sofit
	0x5db	0xeb	f	k	kaf
	0x5dc	0xec	k	l	lamed
	0x5dd	0xed	o	M	mem sofit
	0x5de	0xee	n	m	mem
	0x5df	0xef	i	N	nun sofit
	0x5e0	0xf0	b	n	nun
	0x5e1	0xf1	x	s	samech
	0x5e2	0xf2	g	u	`ayin
	0x5e3	0xf3	;	P	pe sofit
	0x5e4	0xf4	p	p	pe
	0x5e5	0xf5	.	X	tsadi sofit
	0x5e6	0xf6	m	x	tsadi
	0x5e7	0xf7	e	q	qof
	0x5e8	0xf8	r	r	resh
	0x5e9	0xf9	a	w	shin
	0x5ea	0xfa	,	t	tav

Vowel marks and special punctuation:

	0x5b0	0xc0	A:	A:	sheva
	0x5b1	0xc1	HE	HE	hataf segol
	0x5b2	0xc2	HA	HA	hataf patah
	0x5b3	0xc3	HO	HO	hataf qamats
	0x5b4	0xc4	I	I	hiriq
	0x5b5	0xc5	AY	AY	tsere
	0x5b6	0xc6	E	E	segol
	0x5b7	0xc7	AA	AA	patah
	0x5b8	0xc8	AO	AO	qamats
	0x5b9	0xc9	O	O	holam
	0x5bb	0xcb	U	U	qubuts
	0x5bc	0xcc	D	D	dagesh
	0x5bd	0xcd	]T	]T	meteg
	0x5be	0xce	]Q	]Q	maqaf
	0x5bf	0xcf	]R	]R	rafe
	0x5c0	0xd0	]p	]p	paseq

```
??    0x5c1  0xd1     SR      SR   shin-dot
??    0x5c2  0xd2     SL      SL   sin-dot
?     0x5c3  0xd3     ]P      ]P   sof-pasuq
?     0x5f0  0xd4     VV      VV   double-vav
?     0x5f1  0xd5     VY      VY   vav-yod
?     0x5f2  0xd6     YY      YY   yod-yod

The following are only available in utf-8

Cantillation marks:
glyph
Char utf-8 hebrew name
??    0x591   C:   etnahta
??    0x592   Cs   segol
??    0x593   CS   shalshelet
??    0x594   Cz   zaqef qatan
??    0x595   CZ   zaqef gadol
??    0x596   Ct   tipeha
??    0x597   Cr   revia
??    0x598   Cq   zarqa
??    0x599   Cp   pashta
??    0x59a   C!   yetiv
??    0x59b   Cv   tevir
??    0x59c   Cg   geresh
??    0x59d   C*   geresh qadim
??    0x59e   CG   gershayim
??    0x59f   CP   qarnei-parah
??    0x5aa   Cy   yerach-ben-yomo
??    0x5ab   Co   ole
??    0x5ac   Ci   iluy
??    0x5ad   Cd   dehi
??    0x5ae   Cn   zinor
??    0x5af   CC   masora circle

Combining forms:
?     0xfb20  X`   Alternative `ayin
?     0xfb21  X'   Alternative 'alef
?     0xfb22  X-d  Alternative dalet
?     0xfb23  X-h  Alternative he
?     0xfb24  X-k  Alternative kaf
?     0xfb25  X-l  Alternative lamed
?     0xfb26  X-m  Alternative mem-sofit
?     0xfb27  X-r  Alternative resh
?     0xfb28  X-t  Alternative tav
?     0xfb29  X-+  Alternative plus
```

```
    0xfb2a  XW   shin+shin-dot
    0xfb2b  Xw   shin+sin-dot
    0xfb2c  X..W  shin+shin-dot+dagesh
    0xfb2d  X..w  shin+sin-dot+dagesh
    0xfb2e  XA   alef+patah
    0xfb2f  XO   alef+qamats
    0xfb30  XI   alef+hiriq (mapiq)
    0xfb31  X.b  bet+dagesh
    0xfb32  X.g  gimel+dagesh
    0xfb33  X.d  dalet+dagesh
    0xfb34  X.h  he+dagesh
    0xfb35  Xu  vav+dagesh
    0xfb36  X.z  zayin+dagesh
    0xfb38  X.T  tet+dagesh
    0xfb39  X.y  yud+dagesh
    0xfb3a  X.K  kaf sofit+dagesh
    0xfb3b  X.k  kaf+dagesh
    0xfb3c  X.l  lamed+dagesh
    0xfb3e  X.m  mem+dagesh
    0xfb40  X.n  nun+dagesh
    0xfb41  X.s  samech+dagesh
    0xfb43  X.P  pe sofit+dagesh
    0xfb44  X.p  pe+dagesh
    0xfb46  X.x  tsadi+dagesh
    0xfb47  X.q  qof+dagesh
    0xfb48  X.r  resh+dagesh
    0xfb49  X.w  shin+dagesh
    0xfb4a  X.t  tav+dagesh
    0xfb4b  Xo   vav+holam
    0xfb4c  XRb  bet+rafe
    0xfb4d  XRk  kaf+rafe
    0xfb4e  XRp  pe+rafe
    0xfb4f  Xal  alef-lamed
```

==========

10. Input with imactivatefunc() mbyte-func

Vim has the 'imactivatefunc' and 'imstatusfunc' options. These are useful to activate/deactivate the input method from Vim in any way, also with an external command. For example, fcitx provide fcitx-remote command:

```
set iminsert=2
set imsearch=2
set imcmdline

set imactivatefunc=ImActivate
```

```
        function! ImActivate(active)
          if a:active
            call system('fcitx-remote -o')
          else
            call system('fcitx-remote -c')
          endif
        endfunction

        set imstatusfunc=ImStatus
        function! ImStatus()
          return system('fcitx-remote')[0] is# '2'
        endfunction
```

Using this script, you can activate/deactivate XIM via Vim even when it is not compiled with +xim .

==

11. Using UTF-8 mbyte-utf8 UTF-8 utf-8 utf8 Unicode unicode

The Unicode character set was designed to include all characters from other character sets. Therefore it is possible to write text in any language using Unicode (with a few rarely used languages excluded). And it's mostly possible to mix these languages in one file, which is impossible with other encodings.

Unicode can be encoded in several ways. The most popular one is UTF-8, which uses one or more bytes for each character and is backwards compatible with ASCII. On MS-Windows UTF-16 is also used (previously UCS-2), which uses 16-bit words. Vim can support all of these encodings, but always uses UTF-8 internally.

Vim has comprehensive UTF-8 support. It works well in:
- xterm with utf-8 support enabled
- Athena, Motif and GTK GUI
- MS-Windows GUI
- several other platforms

Double-width characters are supported. This works best with 'guifontwide' or 'guifontset'. When using only 'guifont' the wide characters are drawn in the normal width and a space to fill the gap. Note that the 'guifontset' option is no longer relevant in the GTK+ 2 GUI.

bom-bytes

When reading a file a BOM (Byte Order Mark) can be used to recognize the Unicode encoding:

```
        EF BB BF     utf-8
        FE FF        utf-16 big endian
        FF FE        utf-16 little endian
        00 00 FE FF  utf-32 big endian
        FF FE 00 00  utf-32 little endian
```

Utf-8 is the recommended encoding. Note that it's difficult to tell utf-16 and utf-32 apart. Utf-16 is often used on MS-Windows, utf-32 is not widespread as file format.

mbyte-combining mbyte-composing

A composing or combining character is used to change the meaning of the character before it. The combining characters are drawn on top of the preceding character.
Up to two combining characters can be used by default. This can be changed with the 'maxcombine' option.
When editing text a composing character is mostly considered part of the preceding character. For example "x" will delete a character and its following composing characters by default.
If the 'delcombine' option is on, then pressing 'x' will delete the combining characters, one at a time, then the base character. But when inserting, you type the first character and the following composing characters separately, after which they will be joined. The "r" command will not allow you to type a combining character, because it doesn't know one is coming. Use "R" instead.

Bytes which are not part of a valid UTF-8 byte sequence are handled like a single character and displayed as <xx>, where "xx" is the hex value of the byte.

Overlong sequences are not handled specially and displayed like a valid character. However, search patterns may not match on an overlong sequence. (an overlong sequence is where more bytes are used than required for the character.) An exception is NUL (zero) which is displayed as "<00>".

In the file and buffer the full range of Unicode characters can be used (31 bits). However, displaying only works for the characters present in the selected font.

Useful commands:
- "ga" shows the decimal, hexadecimal and octal value of the character under the cursor. If there are composing characters these are shown too. (If the message is truncated, use ":messages").
- "g8" shows the bytes used in a UTF-8 character, also the composing characters, as hex numbers.
- ":set encoding=utf-8 fileencodings=" forces using UTF-8 for all files. The default is to use the current locale for 'encoding' and set 'fileencodings' to automatically detect the encoding of a file.

STARTING VIM

If your current locale is in an utf-8 encoding, Vim will automatically start in utf-8 mode.

If you are using another locale:

```
set encoding=utf-8
```

You might also want to select the font used for the menus. Unfortunately this doesn't always work. See the system specific remarks below, and 'langmenu'.

USING UTF-8 IN X-Windows utf-8-in-xwindows

Note: This section does not apply to the GTK+ 2 GUI.

You need to specify a font to be used. For double-wide characters another font is required, which is exactly twice as wide. There are three ways to do this:

1. Set 'guifont' and let Vim find a matching 'guifontwide'
2. Set 'guifont' and 'guifontwide'
3. Set 'guifontset'

See the documentation for each option for details. Example:

```
:set guifont=-misc-fixed-medium-r-normal--15-140-75-75-c-90-iso10646-1
```

You might also want to set the font used for the menus. This only works for Motif. Use the ":hi Menu font={fontname}" command for this. :highlight

TYPING UTF-8 utf-8-typing

If you are using X-Windows, you should find an input method that supports utf-8.

If your system does not provide support for typing utf-8, you can use the 'keymap' feature. This allows writing a keymap file, which defines a utf-8 character as a sequence of ASCII characters. See mbyte-keymap .

Another method is to set the current locale to the language you want to use and for which you have a XIM available. Then set 'termencoding' to that language and Vim will convert the typed characters to 'encoding' for you.

If everything else fails, you can type any character as four hex bytes:

```
CTRL-V u 1234
```

"1234" is interpreted as a hex number. You must type four characters, prepend a zero if necessary.

COMMAND ARGUMENTS utf-8-char-arg

Commands like f , F , t and r take an argument of one character. For UTF-8 this argument may include one or two composing characters. These need to be produced together with the base character, Vim doesn't wait for the next character to be typed to find out if it is a composing character or not. Using 'keymap' or :lmap is a nice way to type these characters.

The commands that search for a character in a line handle composing characters as follows. When searching for a character without a composing character, this will find matches in the text with or without composing characters. When searching for a character with a composing character, this will only find matches with that composing character. It was implemented this way, because not everybody is able to type a composing character.

==
12. Overview of options   mbyte-options

These options are relevant for editing multi-byte files. Check the help in
options.txt for detailed information.

'encoding'   Encoding used for the keyboard and display. It is also the
                default encoding for files.

'fileencoding' Encoding of a file. When it's different from 'encoding'
                conversion is done when reading or writing the file.

'fileencodings' List of possible encodings of a file. When opening a file
                these will be tried and the first one that doesn't cause an
                error is used for 'fileencoding'.

'charconvert'   Expression used to convert files from one encoding to another.

'formatoptions' The 'm' flag can be included to have formatting break a line
                at a multibyte character of 256 or higher. Thus is useful for
                languages where a sequence of characters can be broken
                anywhere.

'guifontset'   The list of font names used for a multi-byte encoding. When
                this option is not empty, it replaces 'guifont'.

'keymap'   Specify the name of a keyboard mapping.

==

Contributions specifically for the multi-byte features by:
        Chi-Deok Hwang <hwang@mizi.co.kr>
        SungHyun Nam <goweol@gmail.com>
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        Taro Muraoka <koron@tka.att.ne.jp>
        Yasuhiro Matsumoto <mattn@mail.goo.ne.jp>

 vim:tw=78:ts=8:noet:ft=help:norl:

VIM REFERENCE MANUAL by Bram Moolenaar

Multi-language features multilang multi-lang

This is about using messages and menus in various languages. For editing multi-byte text see multibyte .

The basics are explained in the user manual: usr_45.txt .

Also see help-translated for multi-language help.

{Vi does not have any of these features}
{not available when compiled without the |+multi_lang| feature}

---

1. Messages multilang-messages

Vim picks up the locale from the environment. In most cases this means Vim will use the language that you prefer, unless it's not available.

To see a list of supported locale names on your system, look in one of these directories (for Unix):

```
/usr/lib/locale
/usr/share/locale
```

Unfortunately, upper/lowercase differences matter. Also watch out for the use of "-" and "_".

:lan :lang :language E197

:lan[guage]
:lan[guage] mes[sages]
:lan[guage] cty[pe]
:lan[guage] tim[e]

Print the current language (aka locale).
With the "messages" argument the language used for messages is printed. Technical: LC_MESSAGES.
With the "ctype" argument the language used for character encoding is printed. Technical: LC_CTYPE.
With the "time" argument the language used for strftime() is printed. Technical: LC_TIME.
Without argument all parts of the locale are printed (this is system dependent).
The current language can also be obtained with the v:lang , v:ctype and v:lc_time variables.

:lan[guage] {name}
:lan[guage] mes[sages] {name}

:lan[guage] cty[pe] {name}
:lan[guage] tim[e] {name}
Set the current language (aka locale) to {name}.
The locale {name} must be a valid locale on your
system. Some systems accept aliases like "en" or
"en_US", but some only accept the full specification
like "en_US.ISO_8859-1". On Unix systems you can use
this command to see what locales are supported:

```
:!locale -a
```

With the "messages" argument the language used for
messages is set. This can be different when you want,
for example, English messages while editing Japanese
text. This sets $LC_MESSAGES.
With the "ctype" argument the language used for
character encoding is set. This affects the libraries
that Vim was linked with. It's unusual to set this to
a different value from 'encoding' or "C". This sets
$LC_CTYPE.
With the "time" argument the language used for time
and date messages is set. This affects strftime().
This sets $LC_TIME.
Without an argument both are set, and additionally
$LANG is set.
When compiled with the +float feature the LC_NUMERIC
value will always be set to "C", so that floating
point numbers use '.' as the decimal point.
This will make a difference for items that depend on
the language (some messages, time and date format).
Not fully supported on all systems
If this fails there will be an error message. If it
succeeds there is no message. Example:

```
:language
Current language: C
:language de_DE.ISO_8859-1
:language mes
Current messages language: de_DE.ISO_8859-1
:lang mes en
```

MS-WINDOWS MESSAGE TRANSLATIONS win32-gettext

If you used the self-installing .exe file, message translations should work
already. Otherwise get the libintl.dll file if you don't have it yet:

http://sourceforge.net/projects/gettext
Or:
https://mlocati.github.io/gettext-iconv-windows/

This also contains tools xgettext, msgformat and others.

libintl.dll should be placed in same directory with (g)vim.exe, or some
place where PATH environment value describe. Vim also finds libintl-8.dll.
Message files (vim.mo) have to be placed in "$VIMRUNTIME/lang/xx/LC_MESSAGES",
where "xx" is the abbreviation of the language (mostly two letters).

If you write your own translations you need to generate the .po file and convert it to a .mo file. You need to get the source distribution and read the file "src/po/README.txt".

To overrule the automatic choice of the language, set the $LANG variable to the language of your choice. use "en" to disable translations.

```
:let $LANG = 'ja'
```

(text for Windows by Muraoka Taro)

==
2. Menus multilang-menus

See 45.2 for the basics, esp. using 'langmenu'.

Note that if changes have been made to the menus after the translation was done, some of the menus may be shown in English. Please try contacting the maintainer of the translation and ask him to update it. You can find the name and e-mail address of the translator in "$VIMRUNTIME/lang/menu_<lang>.vim".

To set the font (or fontset) to use for the menus, use the :highlight command. Example:

```
:highlight Menu font=k12,r12
```

ALIAS LOCALE NAMES

Unfortunately, the locale names are different on various systems, even though they are for the same language and encoding. If you do not get the menu translations you expected, check the output of this command:

```
echo v:lang
```

Now check the "$VIMRUNTIME/lang" directory for menu translation files that use a similar language. A difference in a "-" being a "_" already causes a file not to be found! Another common difference to watch out for is "iso8859-1" versus "iso_8859-1". Fortunately Vim makes all names lowercase, thus you don't have to worry about case differences. Spaces are changed to underscores, to avoid having to escape them.

If you find a menu translation file for your language with a different name, create a file in your own runtime directory to load that one. The name of that file could be:

```
~/.vim/lang/menu_<v:lang>.vim
```

Check the 'runtimepath' option for directories which are searched. In that file put a command to load the menu file with the other name:

```
runtime lang/menu_<other_lang>.vim
```

TRANSLATING MENUS

If you want to do your own translations, you can use the :menutrans command, explained below. It is recommended to put the translations for one language in a Vim script. For a language that has no translation yet, please consider becoming the maintainer and make your translations available to all Vim users. Send an e-mail to the Vim maintainer <maintainer@vim.org>.

:menut :menutrans :menutranslate

:menut[ranslate] clear
Clear all menu translations.

:menut[ranslate] {english} {mylang}
Translate menu name {english} to {mylang}. All special characters like "&" and "<Tab>" need to be included. Spaces and dots need to be escaped with a backslash, just like in other :menu commands. Case in {english} is ignored.

See the $VIMRUNTIME/lang directory for examples.

To try out your translations you first have to remove all menus. This is how you can do it without restarting Vim:

```
:source $VIMRUNTIME/delmenu.vim
:source <your-new-menu-file>
:source $VIMRUNTIME/menu.vim
```

Each part of a menu path is translated separately. The result is that when "Help" is translated to "Hilfe" and "Overview" to "Überblick" then "Help.Overview" will be translated to "Hilfe.Überblick".

==
3. Scripts multilang-scripts

In Vim scripts you can use the v:lang variable to get the current language (locale). The default value is "C" or comes from the $LANG environment variable.

The following example shows how this variable is used in a simple way, to make a message adapt to language preferences of the user,

```
:if v:lang =~ "de_DE"
:  echo "Guten Morgen"
:else
:  echo "Good morning"
:endif
```

vim:tw=78:sw=4:ts=8:noet:ft=help:norl:

arabic.txt For Vim version 8.1. Last change: 2010 Nov 13

VIM REFERENCE MANUAL by Nadim Shaikli

Arabic Language support (options & mappings) for Vim Arabic

{Vi does not have any of these commands}

E800

In order to use right-to-left and Arabic mapping support, it is necessary to compile Vim with the +arabic feature.

These functions have been created by Nadim Shaikli <nadim-at-arabeyes.org>

It is best to view this file with these settings within Vim's GUI:

```
:set encoding=utf-8
:set arabicshape
```

Introduction

Arabic is a rather demanding language in which a number of special features are required. Characters are right-to-left oriented and ought to appear as such on the screen (i.e. from right to left). Arabic also requires shaping of its characters, meaning the same character has a different visual form based on its relative location within a word (initial, medial, final or stand-alone). Arabic also requires two different forms of combining and the ability, in certain instances, to either superimpose up to two characters on top of another (composing) or the actual substitution of two characters into one (combining). Lastly, to display Arabic properly one will require not only ISO-8859-6 (U+0600-U+06FF) fonts, but will also require Presentation Form-B (U+FE70-U+FEFF) fonts both of which are subsets within a so-called ISO-10646-1 font.

The commands, prompts and help files are not in Arabic, therefore the user interface remains the standard Vi interface.

Highlights

- Editing left-to-right files as in the original Vim hasn't changed.
- Viewing and editing files in right-to-left windows. File orientation is per window, so it is possible to view the same file in right-to-left and left-to-right modes, simultaneously.
- No special terminal with right-to-left capabilities is required. The right-to-left changes are completely hardware independent. Only Arabic fonts are necessary.

o Compatible with the original Vim. Almost all features work in
   right-to-left mode (there are liable to be bugs).

o Changing keyboard mapping and reverse insert modes using a single
   command.

o Toggling complete Arabic support via a single command.

o While in Arabic mode, numbers are entered from left to right. Upon
   entering a none number character, that character will be inserted
   just into the left of the last number.

o Arabic keymapping on the command line in reverse insert mode.

o Proper Bidirectional functionality is possible given Vim is
   started within a Bidi capable terminal emulator.

Arabic Fonts arabicfonts

Vim requires monospaced fonts of which there are many out there.
Arabic requires ISO-8859-6 as well as Presentation Form-B fonts
(without Form-B, Arabic will _NOT_ be usable). It is highly
recommended that users search for so-called 'ISO-10646-1' fonts.
Do an Internet search or check www.arabeyes.org for further
info on where to attain the necessary Arabic fonts.

Font Installation

o Installation of fonts for X Window systems (Unix/Linux)

   Depending on your system, copy your_ARABIC_FONT file into a
   directory of your choice. Change to the directory containing
   the Arabic fonts and execute the following commands:

     % mkfontdir
     % xset +fp path_name_of_arabic_fonts_directory

Usage

Prior to the actual usage of Arabic within Vim, a number of settings
need to be accounted for and invoked.

o Setting the Arabic fonts

   + For Vim GUI set the 'guifont' to your_ARABIC_FONT. This is done
      by entering the following command in the Vim window.

                :set guifont=your_ARABIC_FONT

NOTE: the string 'your_ARABIC_FONT' is used to denote a complete
font name akin to that used in Linux/Unix systems.
(e.g. -misc-fixed-medium-r-normal--20-200-75-75-c-100-iso10646-1)

You can append the 'guifont' set command to your .vimrc file
in order to get the same above noted results. In other words,
you can include ':set guifont=your_ARABIC_FONT' to your .vimrc
file.

+ Under the X Window environment, you can also start Vim with
'-fn your_ARABIC_FONT' option.

o Setting the appropriate character Encoding
To enable the correct Arabic encoding the following command needs
to be appended,

:set encoding=utf-8

to your .vimrc file (entering the command manually into you Vim
window is highly discouraged). In short, include ':set
encoding=utf-8' to your .vimrc file.

Attempts to use Arabic without UTF-8 will result the following
warning message,

W17
Arabic requires UTF-8, do ':set encoding=utf-8'

o Enable Arabic settings [short-cut]

In order to simplify and streamline things, you can either invoke
Vim with the command-line option,

% vim -A my_utf8_arabic_file ...

or enable 'arabic' via the following command within Vim

:set arabic

The two above noted possible invocations are the preferred manner
in which users are instructed to proceed. Barring an enabled 'termbidi'
setting, both command options:

1. set the appropriate keymap
2. enable the deletion of a single combined pair character
3. enable rightleft mode
4. enable rightleftcmd mode (affecting the command-line)
5. enable arabicshape mode (do visual character alterations)

You may also append the command to your .vimrc file and simply
include ':set arabic' to it.

You are also capable of disabling Arabic support via

```
            :set noarabic

which resets everything that the command had enabled without touching
the global settings as they could affect other possible open buffers.
In short the 'noarabic' command,

  1. resets to the alternate keymap
  2. disables the deletion of a single combined pair character
  3. disables rightleft mode

NOTE: the 'arabic' command takes into consideration 'termbidi' for
      possible external bi-directional (bidi) support from the
      terminal ("mlterm" for instance offers such support).
      'termbidi', if available, is superior to rightleft support
      and its support is preferred due to its level of offerings.
      'arabic' when 'termbidi' is enabled only sets the keymap.

If, on the other hand, you'd like to be verbose and explicit and
are opting not to use the 'arabic' short-cut command, here's what
is needed (i.e. if you use ':set arabic' you can skip this section) -

+  Arabic Keymapping Activation

   To activate the Arabic keymap (i.e. to remap your English/Latin
   keyboard to look-n-feel like a standard Arabic one), set the
   'keymap' command to "arabic".  This is done by entering

            :set keymap=arabic

   in your Vim window.  You can also append the 'keymap' set command to
   your .vimrc file.  In other words, you can include ':set keymap=arabic'
   to your .vimrc file.

   To turn toggle (or switch) your keymapping between Arabic and the
   default mapping (English), it is advised that users use the 'CTRL-^'
   key press while in insert (or add/replace) mode.  The command-line
   will display your current mapping by displaying an "Arabic" string
   next to your insertion mode (e.g. -- INSERT Arabic --) indicating
   your current keymap.

+  Arabic deletion of a combined pair character

   By default Vim has the 'delcombine' option disabled.  This option
   allows the deletion of ALEF in a LAM_ALEF (LAA) combined character
   and still retain the LAM (i.e. it reverts to treating the combined
   character as its natural two characters form -- this also pertains
   to harakat and their combined forms).  You can enable this option
   by entering

            :set delcombine

   in our Vim window.  You can also append the 'delcombine' set command
   to your .vimrc file.  In other words, you can include ':set delcombine'
   to your .vimrc file.
```

+ Arabic right-to-left Mode

  By default Vim starts in Left-to-right mode. 'rightleft' is the
  command that allows one to alter a window's orientation - that can
  be accomplished via,

  - Toggling between left-to-right and right-to-left modes is
    accomplished through ':set rightleft' and ':set norightleft'.

  - While in Left-to-right mode, enter ':set rl' in the command line
    ('rl' is the abbreviation for rightleft).

  - Put the ':set rl' line in your '.vimrc' file to start Vim in
    right-to-left mode permanently.

+ Arabic right-to-left command-line Mode

  For certain commands the editing can be done in right-to-left mode.
  Currently this is only applicable to search commands.

  This is controlled with the 'rightleftcmd' option. The default is
  "search", which means that windows in which 'rightleft' is set will
  edit search commands in right-left mode. To disable this behavior,

          :set rightleftcmd=

  To enable right-left editing of search commands again,

          :set rightleftcmd&

+ Arabic Shaping Mode

  To activate the required visual characters alterations (shaping,
  composing, combining) which the Arabic language requires, enable
  the 'arabicshape' command. This is done by entering

          :set arabicshape

  in our Vim window. You can also append the 'arabicshape' set
  command to your .vimrc file. In other words, you can include
  ':set arabicshape' to your .vimrc file.

Keymap/Keyboard   arabickeymap

The character/letter encoding used in Vim is the standard UTF-8.
It is widely discouraged that any other encoding be used or even
attempted.

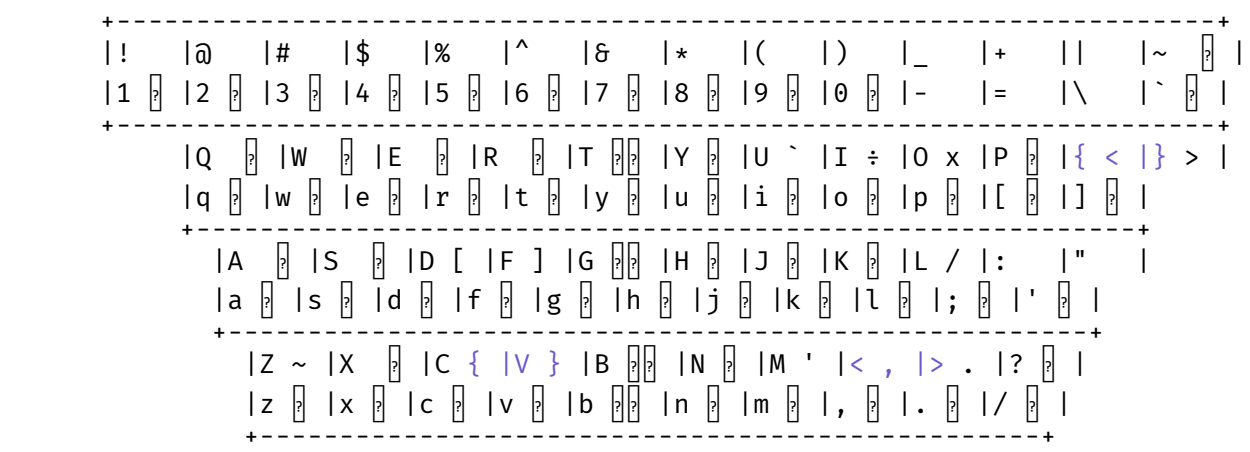
Note: UTF-8 is an all encompassing encoding and as such is
      the only supported (and encouraged) encoding with
      regard to Arabic (all other proprietary encodings

should be discouraged and frowned upon).

o Keyboard

   + CTRL-^ in insert/replace mode toggles between Arabic/Latin mode

   + Keyboard mapping is based on the Microsoft's Arabic keymap (the
      de facto standard in the Arab world):



Restrictions
----

o Vim in its GUI form does not currently support Bi-directionality
   (i.e. the ability to see both Arabic and Latin intermixed within
   the same line).

Known Bugs

There is one known minor bug,

 1. If you insert a haraka (e.g. Fatha (U+064E)) after a LAM (U+0644)
    and then insert an ALEF (U+0627), the appropriate combining will
    not happen due to the sandwiched haraka resulting in something
    that will NOT be displayed correctly.

    WORK-AROUND: Don't include harakats between LAM and ALEF combos.
                 In general, don't anticipate to see correct visual
                 representation with regard to harakats and LAM+ALEF
                 combined characters (even those entered after both
                 characters). The problem noted is strictly a visual
                 one, meaning saving such a file will contain all the
                 appropriate info/encodings - nothing is lost.

No other bugs are known to exist.

 vim:tw=78:ts=8:noet:ft=help:norl:

farsi.txt For Vim version 8.1. Last change: 2015 Aug 29

VIM REFERENCE MANUAL by Mortaza Ghassab Shiran

Right to Left and Farsi Mapping for Vim farsi Farsi

{Vi does not have any of these commands}

E27
In order to use right-to-left and Farsi mapping support, it is necessary to compile Vim with the +farsi feature.

These functions have been made by Mortaza G. Shiran <shiran@jps.net>

Introduction

In right-to-left oriented files the characters appear on the screen from right to left. This kind of file is most useful when writing Farsi documents, composing faxes or writing Farsi memos.

The commands, prompts and help files are not in Farsi, therefore the user interface remains the standard Vi interface.

Highlights

- Editing left-to-right files as in the original Vim, no change.
- Viewing and editing files in right-to-left windows. File orientation is per window, so it is possible to view the same file in right-to-left and left-to-right modes, simultaneously.
- Compatibility to the original Vim. Almost all features work in right-to-left mode (see bugs below).
- Changing keyboard mapping and reverse insert modes using a single command.
- Backing from reverse insert mode to the correct place in the file (if possible).
- While in Farsi mode, numbers are entered from left to right. Upon entering a none number character, that character will be inserted just into the left of the last number.
- No special terminal with right-to-left capabilities is required. The right-to-left changes are completely hardware independent. Only Farsi font is necessary.
- Farsi keymapping on the command line in reverse insert mode.

o Toggling between left-to-right and right-to-left via F8 function key.

o Toggling between Farsi ISIR-3342 standard encoding and Vim Farsi via F9
   function key. Since this makes sense only for the text written in
   right-to-left mode, this function is also supported only in right-to-left
   mode.

Farsi Fonts farsi-fonts

The following files are found in the subdirectories of the '$VIM/farsi/fonts'
directory:

   + far-a01.pcf   X Windows fonts for Unix including Linux systems
   + far-a01.bf   X Windows fonts for SunOS
   + far-a01.f16   a screen fonts for Unix including Linux systems
   + far-a01.fon   a monospaced fonts for Windows NT/95/98
   + far-a01.com   a screen fonts for DOS

Font Installation

o Installation of fonts for MS Window systems (NT/95/98)

   From 'Control Panel' folder, start the 'Fonts' program. Then from 'file'
   menu item select 'Install New Fonts ...'. Browse and select the
   'far-a01.fon', then follow the installation guide.
   NOTE: several people have reported that this does not work. The solution
   is unknown.

o Installation of fonts for X Window systems (Unix/Linux)

   Depending on your system, copy far-a01.pcf.Z or far-a01.pcf.gz into a
   directory of your choice. Change to the directory containing the Farsi
   fonts and execute the following commands:

   > mkfontdir
   > xset +fp path_name_of_farsi_fonts_directory

o Installation of fonts for X Window systems (SunOS)

   Copy far-a01.bf font into a directory of your choice.
   Change to the directory containing the far-a01.fb fonts and
   execute the following commands:

   > fldfamily
   > xset +fp path_name_of_fonts_directory

o Installation of ASCII screen fonts (Unix/Linux)

   For Linux system, copy the far-a01.f16 fonts into /usr/lib/kbd/consolefonts
   directory and execute the setfont program as "setfont far-a01.f16". For
   other systems (e.g. SCO Unix), please refer to the fonts installation

section of your system administration manuals.

o Installation of ASCII screen fonts (DOS)

   After system power on, prior to the first use of Vim, upload the Farsi
   fonts by executing the far-a01.com font uploading program.

Usage

Prior to starting Vim, the environment in which Vim can run in Farsi mode,
must be set. In addition to installation of Farsi fonts, following points
refer to some of the system environments, which you may need to set:
Key code mapping, loading graphic card in ASCII screen mode, setting the IO
driver in 8 bit clean mode ... .

o Setting the Farsi fonts

   + For Vim GUI set the 'guifont' to far-a01. This is done by entering
      ':set guifont=far-a01' in the Vim window.

      You can have 'guifont' set to far-a01 by Vim during the Vim startup
      by appending the ':set guifont=far-a01' into your .vimrc file
      (in case of NT/95/98 platforms _vimrc).

      Under the X Window environment, you can also start Vim with the
      '-fn far-a01' option.

   + For Vim within a xterm, start a xterm with the Farsi fonts (e.g.
      kterm -fn far-a01). Then start Vim inside the kterm.

   + For Vim under DOS, prior to the first usage of Vim, upload the Farsi
      fonts by executing the far-a01.com fonts uploading program.

o Farsi Keymapping Activation

   To activate the Farsi keymapping, set either 'altkeymap' or 'fkmap'.
   This is done by entering ':set akm' or ':set fk' in the Vim window.
   You can have 'altkeymap' or 'fkmap' set as default by appending ':set akm'
   or ':set fk' in your .vimrc file or _vimrc in case of NT/95/98 platforms.

   To turn off the Farsi keymapping as a default second language keymapping,
   reset the 'altkeymap' by entering ':set noakm'.

o right-to-left Farsi Mode

   By default Vim starts in Left-to-right mode. Following are ways to change
   the window orientation:

   + Start Vim with the -F option (e.g. vim -F ...).

   + Use the F8 function key to toggle between left-to-right and right-to-left.

   + While in Left-to-right mode, enter 'set rl' in the command line ('rl' is

the abbreviation for rightleft).

+ Put the 'set rl' line in your '.vimrc' file to start Vim in right-to-left mode permanently.

Encoding

The letter encoding used is the Vim extended ISIR-3342 standard with a built in function to convert between Vim extended ISIR-3342 and ISIR-3342 standard.

For document portability reasons, the letter encoding is kept the same across different platforms (i.e. UNIX's, NT/95/98, MS DOS, ...).

o Keyboard

+ CTRL-_ in insert/replace modes toggles between Farsi(akm)/Latin mode as follows:

+ CTRL-_ moves the cursor to the end of the typed text in edit mode.

+ CTRL-_ in command mode only toggles keyboard mapping between Farsi(akm)/ Latin. The Farsi text is then entered in reverse insert mode.

+ F8 - Toggles between left-to-right and right-to-left.

+ F9 - Toggles the encoding between ISIR-3342 standard and Vim extended ISIR-3342 (supported only in right-to-left mode).

+ Keyboard mapping is based on the Iranian ISIRI-2901 standard. Following table shows the keyboard mapping while Farsi(akm) mode set:

`	1	2	3	4	5	6	7	8	9	0	-	=
¢	±	²	³	´	µ	¶	·	¸	¹	º		½
~	!	@	#	$	%	^	&	*	(	)	_	+
~	£	§	®	¤	¥	ª	¬	è	¨	©	é	«
q	w	e	r	t	z	u	i	o	p	[	]	
Ó	Ò	Æ	Ù	Ø	Õ	Ö	à	Ê	É	Ç	?	
Q	W	E	R	T	Z	U	I	O	P	{	}	
÷	õ	ô	ó	ò	ý	ð	ö	[	]	{	}	
a	s	d	f	g	h	j	k	l	;	'	\	
Ñ	Ð	á	Ã	Ü	Á	Å	Þ	Ý	Ú	Û	ë	
A	S	D	F	G	H	J	K	L	:	"	|	
ù	û	þ	ú	ø	À	ü	æ	ç	º	»	ê	
<	y	x	c	v	b	n	m	,	.	/		
¾	×	Ô	Î	Í	Ì	Ë	Ä	ß	¦	¯		

```
        ------------------------------------
        >  Y  X  C  V  B  N  M  <  >  ?
        ¼  ñ  Ô  Ï  Í  ¡  Ë  Â  ¾  ¼  ¿
        ------------------------------------
```

Note:

```
        ¡  stands for Farsi PSP (break without space)

        ¿  stands for Farsi PCN (for HAMZE attribute)
```

Restrictions
----

o In insert/replace mode and fkmap (Farsi mode) set, CTRL-B is not supported.

o If you change the character mapping between Latin/Farsi, the redo buffer will be reset (emptied). That is, redo is valid and will function (using '.') only within the mode you are in.

o While numbers are entered in Farsi mode, the redo buffer will be reset (emptied). That is, you cannot redo the last changes (using '.') after entering numbers.

o While in left-to-right mode and Farsi mode set, CTRL-R is not supported.

o While in right-to-left mode, the search on 'Latin' pattern does not work, except if you enter the Latin search pattern in reverse.

o In command mode there is no support for entering numbers from left to right and also for the sake of flexibility the keymapping logic is restricted.

o Under the X Window environment, if you want to run Vim within a xterm terminal emulator and Farsi mode set, you need to have an ANSI compatible xterm terminal emulator. This is because the letter codes above 128 decimal have certain meanings in the standard xterm terminal emulator.

  Note: Under X Window environment, Vim GUI works fine in Farsi mode. This eliminates the need of any xterm terminal emulator.

Bugs

While in insert/replace and Farsi mode set, if you repeatedly change the cursor position (via cursor movement) and enter new text and then try to undo the last change, the undo will lag one change behind. But as you continue to undo, you will reach the original line of text. You can also use U to undo all changes made in the current line.

For more information about the bugs refer to rileft.txt.

vim:tw=78:ts=8:noet:ft=help:norl:

hebrew.txt For Vim version 8.1. Last change: 2007 Jun 14

VIM REFERENCE MANUAL by Ron Aaron (and Avner Lottem)

Hebrew Language support (options & mapping) for Vim hebrew

The supporting 'rightleft' functionality was originally created by Avner Lottem. <alottem at gmail dot com> Ron Aaron <ron at ronware dot org> is currently helping support these features.

{Vi does not have any of these commands}

All this is only available when the +rightleft feature was enabled at compile time.

Introduction

Hebrew-specific options are 'hkmap', 'hkmapp' 'keymap'=hebrew and 'aleph'. Hebrew-useful options are 'delcombine', 'allowrevins', 'revins', 'rightleft' and 'rightleftcmd'.

The 'rightleft' mode reverses the display order, so characters are displayed from right to left instead of the usual left to right. This is useful primarily when editing Hebrew or other Middle-Eastern languages.
See rileft.txt for further details.

Details

+ Options:
  + 'rightleft' ('rl') sets window orientation to right-to-left. This means that the logical text 'ABC' will be displayed as 'CBA', and will start drawing at the right edge of the window, not the left edge.
  + 'hkmap' ('hk') sets keyboard mapping to Hebrew, in insert/replace modes.
  + 'aleph' ('al'), numeric, holds the decimal code of Aleph, for keyboard mapping.
  + 'hkmapp' ('hkp') sets keyboard mapping to 'phonetic hebrew'

  NOTE: these three ('hkmap', 'hkmapp' and 'aleph') are obsolete. You should use ":set keymap=hebrewp" instead.

  + 'delcombine' ('deco'), boolean, if editing UTF-8 encoded Hebrew, allows one to remove the niqud or te`amim by pressing 'x' on a character (with associated niqud).

  + 'rightleftcmd' ('rlc') makes the command-prompt for searches show up on the right side. It only takes effect if the window is 'rightleft'.

+ Encoding:
  + Under Unix, ISO 8859-8 encoding (Hebrew letters codes: 224-250).
  + Under MS DOS, PC encoding (Hebrew letters codes: 128-154).
  These are defaults, that can be overridden using the 'aleph' option.

- You should prefer using UTF8, as it supports the combining-characters ('deco' does nothing if UTF8 encoding is not active).

- Vim arguments:
  - 'vim -H file' starts editing a Hebrew file, i.e. 'rightleft' and 'hkmap' are set.

- Keyboard:
  - The 'allowrevins' option enables the CTRL-_ command in Insert mode and in Command-line mode.

  - CTRL-_ in insert/replace modes toggles 'revins' and 'hkmap' as follows:

    When in rightleft window, 'revins' and 'nohkmap' are toggled, since English will likely be inserted in this case.

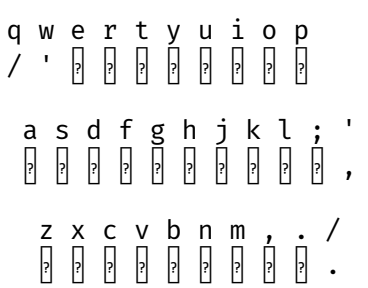
    When in norightleft window, 'revins' 'hkmap' are toggled, since Hebrew will likely be inserted in this case.

    CTRL-_ moves the cursor to the end of the typed text.

  - CTRL-_ in command mode only toggles keyboard mapping (see Bugs below). This setting is independent of 'hkmap' option, which only applies to insert/replace mode.

    Note: On some keyboards, CTRL-_ is mapped to CTRL-?.

  - Keyboard mapping while 'hkmap' is set (standard Israeli keyboard):

    This is also the keymap when 'keymap=hebrew' is set. The advantage of 'keymap' is that it works properly when using UTF8, e.g. it inserts the correct characters; 'hkmap' does not. The 'keymap' keyboard can also insert niqud and te`amim. To see what those mappings are, look at the keymap file 'hebrew.vim' etc.

Typing backwards

If the 'revins' (reverse insert) option is set, inserting happens backwards. This can be used to type Hebrew. When inserting characters the cursor is not moved and the text moves rightwards. A <BS> deletes the character under the cursor. CTRL-W and CTRL-U also work in the opposite direction. <BS>, CTRL-W and CTRL-U do not stop at the start of insert or end of line, no matter how the 'backspace' option is set.

There is no reverse replace mode (yet).

If the 'showmode' option is set, "-- REVERSE INSERT --" will be shown in the status line when reverse Insert mode is active.

When the 'allowrevins' option is set, reverse Insert mode can be also entered via CTRL-_, which has some extra functionality: First, keyboard mapping is changed according to the window orientation -- if in a left-to-right window, 'revins' is used to enter Hebrew text, so the keyboard changes to Hebrew ('hkmap' is set); if in a right-to-left window, 'revins' is used to enter English text, so the keyboard changes to English ('hkmap' is reset). Second, when exiting 'revins' via CTRL-_, the cursor moves to the end of the typed text (if possible).

Pasting when in a rightleft window

When cutting text with the mouse and pasting it in a rightleft window the text will be reversed, because the characters come from the cut buffer from the left to the right, while inserted in the file from the right to the left. In order to avoid it, toggle 'revins' (by typing CTRL-? or CTRL-_) before pasting.

Hebrew characters and the 'isprint' variable

Sometimes Hebrew character codes are in the non-printable range defined by the 'isprint' variable. For example in the Linux console, the Hebrew font encoding starts from 128, while the default 'isprint' variable is @,161-255. The result is that all Hebrew characters are displayed as ~x. To solve this problem, set isprint=@,128-255.

vim:tw=78:ts=8:noet:ft=help:norl:

russian.txt For Vim version 8.1. Last change: 2006 Apr 24

VIM REFERENCE MANUAL by Vassily Ragosin

Russian language localization and support in Vim russian Russian

==========
1. Introduction russian-intro

Russian language is supported perfectly well in Vim. You can type and view
Russian text just as any other, without the need to tweak the settings.

==========
2. Russian keymaps russian-keymap

To switch between languages you can use your system native keyboard switcher,
or use one of the Russian keymaps, included in the Vim distribution. For
example,

```
:set keymap=russian-jcukenwin
```

In the latter case, you can switch between languages even if you do not have
system Russian keyboard or independently from a system-wide keyboard settings.
See 'keymap'. You can also map a key to switch between keyboards, if you
choose the latter option. See :map .

For your convenience, to avoid switching between keyboards, when you need to
enter Normal mode command, you can also set 'langmap' option:

```
:set langmap=ФИСВУАПРШОЛДЬТЩЗЙКЫЕГМЦЧНЯ;ABCDEFGHIJKLMNOPQRSTUVWXYZ,
фисвуапршолдьтщзйкыегмцчня;abcdefghijklmnopqrstuvwxyz
```

This is in utf-8, you cannot read this if your 'encoding' is not utf-8.
You have to type this command in one line, it is wrapped for the sake of
readability.

==========
3. Localization russian-l18n

If you wish to use messages, help files, menus and other items translated to
Russian, you will need to install the RuVim Language Pack, available in
different codepages from

http://www.sourceforge.net/projects/ruvim/

Make sure that your Vim is at least 6.2.506 and use ruvim 0.5 or later for
automatic installs. Vim also needs to be compiled with +gettext feature for

user interface items translations to work.

After downloading an archive from RuVim project, unpack it into your
$VIMRUNTIME directory. We recommend using UTF-8 archive, if your version of
Vim is compiled with +multi_byte feature enabled.

In order to use the Russian documentation, make sure you have set the
'helplang' option to "ru".

==
4. Known issues   russian-issues

-- If you are using Russian message translations in Win32 console, then
   you may see the output produced by "vim --help", "vim --version" commands
   and Win32 console window title appearing in a wrong codepage. This problem
   is related to a bug in GNU gettext library and may be fixed in the future
   releases of gettext.

==
 vim:tw=78:ts=8:noet:ft=help:norl:

ft_ada.txt For Vim version 8.1. Last change: 2010 Jul 20

ADA FILE TYPE PLUG-INS REFERENCE MANUAL

ADA ada.vim

==

1. Syntax Highlighting

ft-ada-syntax

This mode is designed for the 2005 edition of Ada ("Ada 2005"), which includes support for objected-programming, protected types, and so on. It handles code written for the original Ada language ("Ada83", "Ada87", "Ada95") as well, though code which uses Ada 2005-only keywords will be wrongly colored (such code should be fixed anyway). For more information about Ada, see http://www.adapower.com.

The Ada mode handles a number of situations cleanly.

For example, it knows that the "-" in "-5" is a number, but the same character in "A-5" is an operator. Normally, a "with" or "use" clause referencing another compilation unit is coloured the same way as C's "#include" is coloured. If you have "Conditional" or "Repeat" groups coloured differently, then "end if" and "end loop" will be coloured as part of those respective groups.

You can set these to different colours using vim's "highlight" command (e.g., to change how loops are displayed, enter the command ":hi Repeat" followed by the colour specification; on simple terminals the colour specification ctermfg=White often shows well).

There are several options you can select in this Ada mode. See ft-ada-options for a complete list.

To enable them, assign a value to the option. For example, to turn one on:

```
> let g:ada_standard_types = 1
```

To disable them use ":unlet". Example:

```
> unlet g:ada_standard_types
```

You can just use ":" and type these into the command line to set these temporarily before loading an Ada file. You can make these option settings permanent by adding the "let" command(s), without a colon, to your "~/.vimrc" file.

Even on a slow (90Mhz) PC this mode works quickly, but if you find the performance unacceptable, turn on g:ada_withuse_ordinary .

Syntax folding instructions (fold-syntax) are added when g:ada_folding is set.

2. File type Plug-in

ft-ada-indent ft-ada-plugin

The Ada plug-in provides support for:

- auto indenting   (indent.txt)
- insert completion   (i_CTRL-N)
- user completion   (i_CTRL-X_CTRL-U)
- tag searches   (tagsrch.txt)
- Quick Fix   (quickfix.txt)
- backspace handling   ('backspace')
- comment handling   ('comments' , 'commentstring')

The plug-in only activates the features of the Ada mode whenever an Ada file is opened and adds Ada related entries to the main and pop-up menu.

3. Omni Completion

ft-ada-omni

The Ada omni-completions (i_CTRL-X_CTRL-O) uses tags database created either by "gnat xref -v" or the "exuberant Ctags (http://ctags.sourceforge.net). The complete function will automatically detect which tool was used to create the tags file.

3.1 Omni Completion with "gnat xref"

gnat-xref

GNAT XREF uses the compiler internal information (ali-files) to produce the tags file. This has the advantage to be 100% correct and the option of deep nested analysis. However the code must compile, the generator is quite slow and the created tags file contains only the basic Ctags information for each entry - not enough for some of the more advanced Vim code browser plug-ins.

NOTE: "gnat xref -v" is very tricky to use as it has almost no diagnostic
      output - If nothing is printed then usually the parameters are wrong.

Here some important tips:

1) You need to compile your code first and use the "-aO" option to point to your .ali files.
2) "gnat xref -v ../Include/adacl.ads" won't work - use the "gnat xref -v -aI../Include adacl.ads" instead.
3) "gnat xref -v -aI../Include *.ad?" won't work - use "cd ../Include" and then "gnat xref -v *.ad?"
4) Project manager support is completely broken - don't even try "gnat xref -Padacl.gpr".
5) Vim is faster when the tags file is sorted - use "sort --unique --ignore-case --output=tags tags" .
6) Remember to insert "!_TAG_FILE_SORTED 2 %sort ui" as first line to mark the file assorted.

3.2 Omni Completion with "ctags"

ada-ctags

Exuberant Ctags uses its own multi-language code parser. The parser is quite fast, produces a lot of extra information (hence the name "Exuberant Ctags") and can run on files which currently do not compile.

There are also lots of other Vim-tools which use exuberant Ctags.

You will need to install a version of the Exuberant Ctags which has Ada support patched in. Such a version is available from the GNU Ada Project (http://gnuada.sourceforge.net).

The Ada parser for Exuberant Ctags is fairly new - don't expect complete support yet.

==========

4. Compiler Support

ada-compiler

The Ada mode supports more than one Ada compiler and will automatically load the compiler set in g:ada_default_compiler whenever an Ada source is opened. The provided compiler plug-ins are split into the actual compiler plug-in and a collection of support functions and variables. This allows the easy development of specialized compiler plug-ins fine tuned to your development environment.

4.1 GNAT

compiler-gnat

GNAT is the only free (beer and speech) Ada compiler available. There are several versions available which differ in the licence terms used.

The GNAT compiler plug-in will perform a compile on pressing <F7> and then immediately shows the result. You can set the project file to be used by setting:

```
 > call g:gnat.Set_Project_File ('my_project.gpr')
```

Setting a project file will also create a Vim session (views-sessions) so - like with the GPS - opened files, window positions etc. will be remembered separately for all projects.

gnat_members

GNAT OBJECT

g:gnat.Make()

g:gnat.Make()
Calls g:gnat.Make_Command and displays the result inside a quickfix window.

g:gnat.Pretty()

g:gnat.Pretty()
Calls g:gnat.Pretty_Program

g:gnat.Find()

g:gnat.Find()
Calls g:gnat.Find_Program

g:gnat.Tags()

g:gnat.Tags()
Calls g:gnat.Tags_Command

g:gnat.Set_Project_File()

g:gnat.Set_Project_File([{file}])
Set gnat project file and load associated session. An open project will be closed and the session written. If called without file name the file selector opens for selection of a project file. If called with an empty string then the project and associated session are closed.

g:gnat.Project_File

g:gnat.Project_File string
Current project file.

g:gnat.Make_Command

g:gnat.Make_Command string
External command used for g:gnat.Make() ('makeprg').

g:gnat.Pretty_Program

g:gnat.Pretty_Program string
External command used for g:gnat.Pretty()

g:gnat.Find_Program

g:gnat.Find_Program string
External command used for g:gnat.Find()

g:gnat.Tags_Command

g:gnat.Tags_Command string
External command used for g:gnat.Tags()

g:gnat.Error_Format

g:gnat.Error_Format   string
                Error format ('errorformat')

4.2 Dec Ada

compiler-hpada compiler-decada
compiler-vaxada compiler-compaqada

Dec Ada (also known by - in chronological order - VAX Ada, Dec Ada, Compaq Ada and HP Ada) is a fairly dated Ada 83 compiler. Support is basic: <F7> will compile the current unit.

The Dec Ada compiler expects the package name and not the file name to be passed as a parameter. The compiler plug-in supports the usual file name convention to convert the file into a unit name. Both '-' and '__' are allowed as separators.

decada_members

DEC ADA OBJECT

g:decada.Make()

g:decada.Make()   function
                Calls g:decada.Make_Command and displays the result inside a quickfix window.

g:decada.Unit_Name()

g:decada.Unit_Name()   function
                Get the Unit name for the current file.

g:decada.Make_Command

g:decada.Make_Command   string
                External command used for g:decada.Make() ('makeprg').

g:decada.Error_Format

g:decada.Error_Format   string
                Error format ('errorformat').

==========

5. References

ada-reference

5.1 Options

ft-ada-options

g:ada_standard_types

g:ada_standard_types   bool (true when exists)
                Highlight types in package Standard (e.g., "Float").

g:ada_space_errors
g:ada_no_trail_space_error
g:ada_no_tab_space_error
g:ada_all_tab_usage

```
g:ada_space_errors       bool (true when exists)
                Highlight extraneous errors in spaces ...
                g:ada_no_trail_space_error
                    - but ignore trailing spaces at the end of a line
                g:ada_no_tab_space_error
                    - but ignore tabs after spaces
                g:ada_all_tab_usage
                    - highlight all tab use

                                                        g:ada_line_errors
g:ada_line_errors        bool (true when exists)
                Highlight lines which are too long. Note: This highlighting
                option is quite CPU intensive.

                                                      g:ada_rainbow_color
g:ada_rainbow_color      bool (true when exists)
                Use rainbow colours for '(' and ')'. You need the
                rainbow_parenthesis for this to work.

                                                          g:ada_folding
g:ada_folding            set ('sigpft')
                Use folding for Ada sources.
                    's':    activate syntax folding on load
                        'p':    fold packages
                        'f':    fold functions and procedures
                        't':    fold types
                        'c':    fold conditionals
                    'g':    activate gnat pretty print folding on load
                        'i':    lone 'is' folded with line above
                        'b':    lone 'begin' folded with line above
                        'p':    lone 'private' folded with line above
                        'x':    lone 'exception' folded with line above
                    'i':    activate indent folding on load

                Note: Syntax folding is in an early (unusable) stage and
                      indent or gnat pretty folding is suggested.

                For gnat pretty folding to work the following settings are
                suggested: -cl3 -M79 -c2 -c3 -c4 -A1 -A2 -A3 -A4 -A5

                For indent folding to work the following settings are
                suggested: shiftwidth=3 softtabstop=3

                                                           g:ada_abbrev
g:ada_abbrev             bool (true when exists)
                Add some abbreviations. This feature is more or less superseded
                by the various completion methods.

                                                    g:ada_withuse_ordinary
g:ada_withuse_ordinary   bool (true when exists)
                Show "with" and "use" as ordinary keywords (when used to
                reference other compilation units they're normally highlighted
                specially).
```

g:ada_begin_preproc

g:ada_begin_preproc bool (true when exists)
Show all begin-like keywords using the colouring of C preprocessor commands.

g:ada_omni_with_keywords

g:ada_omni_with_keywords
Add Keywords, Pragmas, Attributes to omni-completions (compl-omni). Note: You can always complete then with user completion (i_CTRL-X_CTRL-U).

g:ada_extended_tagging

g:ada_extended_tagging enum ('jump', 'list')
use extended tagging, two options are available
'jump': use tjump to jump.
'list': add tags quick fix list.
Normal tagging does not support function or operator overloading as these features are not available in C and tagging was originally developed for C.

g:ada_extended_completion

g:ada_extended_completion
Uses extended completion for <C-N> and <C-R> completions (i_CTRL-N). In this mode the '.' is used as part of the identifier so that 'Object.Method' or 'Package.Procedure' are completed together.

g:ada_gnat_extensions

g:ada_gnat_extensions bool (true when exists)
Support GNAT extensions.

g:ada_with_gnat_project_files

g:ada_with_gnat_project_files bool (true when exists)
Add gnat project file keywords and Attributes.

g:ada_default_compiler

g:ada_default_compiler string
set default compiler. Currently supported are 'gnat' and 'decada'.

An "exists" type is a boolean considered true when the variable is defined and false when the variable is undefined. The value to which the variable is set makes no difference.

5.2 Commands

ft-ada-commands

:AdaRainbow :AdaRainbow
Toggles rainbow colour (g:ada_rainbow_color) mode for '(' and ')'.

:AdaLines :AdaLines
Toggles line error (g:ada_line_errors) display.

:AdaSpaces :AdaSpaces
Toggles space error (g:ada_space_errors) display.

:AdaTagDir :AdaTagDir
Creates tags file for the directory of the current file.

:AdaTagFile :AdaTagFile
Creates tags file for the current file.

:AdaTypes :AdaTypes
Toggles standard types (g:ada_standard_types) colour.

:GnatFind :GnatFind
Calls g:gnat.Find()

:GnatPretty :GnatPretty
Calls g:gnat.Pretty()

:GnatTags :GnatTags
Calls g:gnat.Tags()

5.3 Variables

ft-ada-variables

g:gnat

g:gnat object
Control object which manages GNAT compiles. The object is created when the first Ada source code is loaded provided that g:ada_default_compiler is set to 'gnat'. See gnat_members for details.

g:decada

g:decada object
Control object which manages Dec Ada compiles. The object is created when the first Ada source code is loaded provided that g:ada_default_compiler is set to 'decada'. See decada_members for details.

5.4 Constants

ft-ada-constants

All constants are locked. See :lockvar for details.

g:ada#WordRegex

g:ada#WordRegex string
Regular expression to search for Ada words.

g:ada#DotWordRegex

g:ada#DotWordRegex string
Regular expression to search for Ada words separated by dots.

g:ada#Comment

g:ada#Comment string
Regular expression to search for Ada comments.

g:ada#Keywords

g:ada#Keywords list of dictionaries
List of keywords, attributes etc. pp. in the format used by omni completion. See complete-items for details.

g:ada#Ctags_Kinds

g:ada#Ctags_Kinds dictionary of lists
Dictionary of the various kinds of items which the Ada support for Ctags generates.

5.5 Functions

ft-ada-functions

ada#Word([{line}, {col}]) ada#Word()
Return full name of Ada entity under the cursor (or at given line/column), stripping white space/newlines as necessary.

ada#List_Tag([{line}, {col}]) ada#Listtags()
List all occurrences of the Ada entity under the cursor (or at given line/column) inside the quick-fix window.

ada#Jump_Tag ({ident}, {mode}) ada#Jump_Tag()
List all occurrences of the Ada entity under the cursor (or at given line/column) in the tag jump list. Mode can either be 'tjump' or 'stjump'.

ada#Create_Tags ({option}) ada#Create_Tags()
Creates tag file using Ctags. The option can either be 'file' for the current file, 'dir' for the directory of the current file or a file name.

gnat#Insert_Tags_Header() gnat#Insert_Tags_Header()
Adds the tag file header (!_TAG_) information to the current file which are missing from the GNAT XREF output.

ada#Switch_Syntax_Option ({option}) ada#Switch_Syntax_Option()
Toggles highlighting options on or off. Used for the Ada menu.

gnat#New()

gnat#New ()
Create a new gnat object. See g:gnat for details.

==========

6. Extra Plugins

ada-extra-plugins

You can optionally install the following extra plug-ins. They work well with Ada and enhance the ability of the Ada mode:

backup.vim
	http://www.vim.org/scripts/script.php?script_id=1537
	Keeps as many backups as you like so you don't have to.

rainbow_parenthsis.vim
	http://www.vim.org/scripts/script.php?script_id=1561
	Very helpful since Ada uses only '(' and ')'.

nerd_comments.vim
	http://www.vim.org/scripts/script.php?script_id=1218
	Excellent commenting and uncommenting support for almost any
	programming language.

matchit.vim
	http://www.vim.org/scripts/script.php?script_id=39
	'%' jumping for any language. The normal '%' jump only works for '{}'
	style languages. The Ada mode will set the needed search patterns.

taglist.vim
	http://www.vim.org/scripts/script.php?script_id=273
	Source code explorer sidebar. There is a patch for Ada available.

The GNU Ada Project distribution (http://gnuada.sourceforge.net) of Vim
contains all of the above.

==
vim: textwidth=78 nowrap tabstop=8 shiftwidth=4 softtabstop=4 noexpandtab
vim: filetype=help

ft_sql.txt For Vim version 8.1. Last change: 2013 May 15

by David Fishburn

This is a filetype plugin to work with SQL files.

The Structured Query Language (SQL) is a standard which specifies statements
that allow a user to interact with a relational database. Vim includes
features for navigation, indentation and syntax highlighting.

==
1. Navigation sql-navigation

The SQL ftplugin provides a number of options to assist with file
navigation.

1.1 Matchit sql-matchit

The matchit plugin (http://www.vim.org/scripts/script.php?script_id=39)
provides many additional features and can be customized for different
languages. The matchit plugin is configured by defining a local
buffer variable, b:match_words. Pressing the % key while on various
keywords will move the cursor to its match. For example, if the cursor
is on an "if", pressing % will cycle between the "else", "elseif" and
"end if" keywords.

The following keywords are supported:

```
if
elseif | elsif
else [if]
end if
```

```
    [while condition] loop
        leave
        break
        continue
        exit
    end loop

    for
        leave
        break
        continue
        exit
    end loop

    do
        statements
    doend

    case
    when
    when
    default
    end case

    merge
    when not matched
    when matched

    create[ or replace] procedure|function|event
    returns
```

1.2 Text Object Motions sql-object-motions

Vim has a number of predefined keys for working with text object-motions . This filetype plugin attempts to translate these keys to maps which make sense for the SQL language.

The following Normal mode and Visual mode maps exist (when you edit a SQL file):

```
    ]]              move forward to the next 'begin'
    [[              move backwards to the previous 'begin'
    ][              move forward to the next 'end'
    []              move backwards to the previous 'end'
```

1.3 Predefined Object Motions sql-predefined-objects

Most relational databases support various standard features, tables, indices, triggers and stored procedures. Each vendor also has a variety of proprietary objects. The next set of maps have been created to help move between these objects. Depends on which database vendor you are using, the list of objects must be configurable. The filetype plugin attempts to define many of the

standard objects, plus many additional ones. In order to make this as flexible as possible, you can override the list of objects from within your vimrc with the following:

```
let g:ftplugin_sql_objects = 'function,procedure,event,table,trigger' .
            \ ',schema,service,publication,database,datatype,domain' .
            \ ',index,subscription,synchronization,view,variable'
```

The following Normal mode and Visual mode maps have been created which use the above list:

```
]}              move forward to the next 'create <object name>'
[{              move backward to the previous 'create <object name>'
```

Repeatedly pressing]} will cycle through each of these create statements:

```
create table t1 (
    ...
);

create procedure p1
begin
    ...
end;

create index i1 on t1 (c1);
```

The default setting for g:ftplugin_sql_objects is:

```
let g:ftplugin_sql_objects = 'function,procedure,event,' .
            \ '\\(existing\\\\|global\\s\\+temporary\\s\\+\\)\\\{,1}' .
            \ 'table,trigger' .
            \ ',schema,service,publication,database,datatype,domain' .
            \ ',index,subscription,synchronization,view,variable'
```

The above will also handle these cases:

```
create table t1 (
    ...
);
create existing table t2 (
    ...
);
create global temporary table t3 (
    ...
);
```

By default, the ftplugin only searches for CREATE statements. You can also override this via your vimrc with the following:

```
let g:ftplugin_sql_statements = 'create,alter'
```

The filetype plugin defines three types of comments:

```
1.  --
2.  //
3.  /*
     *
     */
```

The following Normal mode and Visual mode maps have been created to work

with comments:
    ]"   move forward to the beginning of a comment
    ["   move forward to the end of a comment

1.4 Macros   sql-macros

Vim's feature to find macro definitions, 'define', is supported using this regular expression:

```
\c\<\(VARIABLE\|DECLARE\|IN\|OUT\|INOUT\)\>
```

This addresses the following code:

```
CREATE VARIABLE myVar1 INTEGER;

CREATE PROCEDURE sp_test(
    IN myVar2 INTEGER,
    OUT myVar3 CHAR(30),
    INOUT myVar4 NUMERIC(20,0)
)
BEGIN
    DECLARE myVar5 INTEGER;

    SELECT c1, c2, c3
      INTO myVar2, myVar3, myVar4
      FROM T1
     WHERE c4 = myVar1;
END;
```

Place your cursor on "myVar1" on this line:

```
     WHERE c4 = myVar1;
                ^
```

Press any of the following keys:

    [d
    [D
    [CTRL-D

==

2. SQL Dialects   sql-dialects sql-types
                                                  sybase TSQL Transact-SQL
                                                  sqlanywhere
                                                  oracle plsql sqlj
                                                  sqlserver
                                                  mysql postgresql psql
                                                  informix

All relational databases support SQL. There is a portion of SQL that is portable across vendors (ex. CREATE TABLE, CREATE INDEX), but there is a great deal of vendor specific extensions to SQL. Oracle supports the "CREATE OR REPLACE" syntax, column defaults specified in the CREATE TABLE statement and the procedural language (for stored procedures and triggers).

The default Vim distribution ships with syntax highlighting based on Oracle's PL/SQL. The default SQL indent script works for Oracle and SQL Anywhere. The default filetype plugin works for all vendors and should remain vendor neutral, but extendable.

Vim currently has support for a variety of different vendors, currently this is via syntax scripts. Unfortunately, to flip between different syntax rules you must either create:

1. New filetypes
2. Custom autocmds
3. Manual steps / commands

The majority of people work with only one vendor's database product, it would be nice to specify a default in your vimrc .

2.1 SQLSetType sqlsettype SQLSetType

For the people that work with many different databases, it is nice to be able to flip between the various vendors rules (indent, syntax) on a per buffer basis, at any time. The ftplugin/sql.vim file defines this function:

```
SQLSetType
```

Executing this function without any parameters will set the indent and syntax scripts back to their defaults, see sql-type-default . If you have turned off Vi's compatibility mode, 'compatible' , you can use the <Tab> key to complete the optional parameter.

After typing the function name and a space, you can use the completion to supply a parameter. The function takes the name of the Vim script you want to source. Using the cmdline-completion feature, the SQLSetType function will search the 'runtimepath' for all Vim scripts with a name containing 'sql'. This takes the guess work out of the spelling of the names. The following are examples:

```
:SQLSetType
:SQLSetType sqloracle
:SQLSetType sqlanywhere
:SQLSetType sqlinformix
:SQLSetType mysql
```

The easiest approach is to the use <Tab> character which will first complete the command name (SQLSetType), after a space and another <Tab>, display a list of available Vim script names:

```
:SQL<Tab><space><Tab>
```

2.2 SQLGetType sqlgettype SQLGetType

At anytime you can determine which SQL dialect you are using by calling the SQLGetType command. The ftplugin/sql.vim file defines this function:

```
SQLGetType
```

This will echo:

```
Current SQL dialect in use:sqlanywhere
```

2.3 SQL Dialect Default sql-type-default

As mentioned earlier, the default syntax rules for Vim is based on Oracle (PL/SQL). You can override this default by placing one of the following in your vimrc :

```
let g:sql_type_default = 'sqlanywhere'
let g:sql_type_default = 'sqlinformix'
let g:sql_type_default = 'mysql'
```

If you added the following to your vimrc :

```
let g:sql_type_default = 'sqlinformix'
```

The next time edit a SQL file the following scripts will be automatically loaded by Vim:

```
ftplugin/sql.vim
syntax/sqlinformix.vim
indent/sql.vim
```

Notice indent/sqlinformix.sql was not loaded. There is no indent file for Informix, Vim loads the default files if the specified files does not exist.

3. Adding new SQL Dialects sql-adding-dialects

If you begin working with a SQL dialect which does not have any customizations available with the default Vim distribution you can check http://www.vim.org to see if any customization currently exist. If not, you can begin by cloning an existing script. Read filetype-plugins for more details.

To help identify these scripts, try to create the files with a "sql" prefix. If you decide you wish to create customizations for the SQLite database, you can create any of the following:

```
Unix
    ~/.vim/syntax/sqlite.vim
    ~/.vim/indent/sqlite.vim
Windows
    $VIM/vimfiles/syntax/sqlite.vim
    $VIM/vimfiles/indent/sqlite.vim
```

No changes are necessary to the SQLSetType function. It will automatically pickup the new SQL files and load them when you issue the SQLSetType command.

4. OMNI SQL Completion sql-completion omni-sql-completion

Vim 7 includes a code completion interface and functions which allows plugin developers to build in code completion for any language. Vim 7 includes code completion for the SQL language.

There are two modes to the SQL completion plugin, static and dynamic. The static mode populates the popups with the data generated from current syntax highlight rules. The dynamic mode populates the popups with data retrieved directly from a database. This includes, table lists, column lists, procedures names and more.

4.1 Static Mode sql-completion-static

The static popups created contain items defined by the active syntax rules while editing a file with a filetype of SQL. The plugin defines (by default) various maps to help the user refine the list of items to be displayed. The defaults static maps are:

```
imap <buffer> <C-C>a <C-\><C-O>:call sqlcomplete#Map('syntax')<CR><C-X><C-O>
imap <buffer> <C-C>k <C-\><C-O>:call sqlcomplete#Map('sqlKeyword')<CR><C-X><C-O>
imap <buffer> <C-C>f <C-\><C-O>:call sqlcomplete#Map('sqlFunction')<CR><C-X><C-O>
imap <buffer> <C-C>o <C-\><C-O>:call sqlcomplete#Map('sqlOption')<CR><C-X><C-O>
imap <buffer> <C-C>T <C-\><C-O>:call sqlcomplete#Map('sqlType')<CR><C-X><C-O>
imap <buffer> <C-C>s <C-\><C-O>:call sqlcomplete#Map('sqlStatement')<CR><C-X><C-O>
```

The use of "<C-C>" can be user chosen by using the following in your .vimrc as it may not work properly on all platforms:

```
let g:ftplugin_sql_omni_key = '<C-C>'
```

The static maps (which are based on the syntax highlight groups) follow this format:

```
imap <buffer> <C-C>k <C-\><C-O>:call sqlcomplete#Map('sqlKeyword')<CR><C-X><C-O>
imap <buffer> <C-C>k <C-\><C-O>:call sqlcomplete#Map('sqlKeyword\w*')<CR><C-X><C-O>
```

This command breaks down as:

```
imap                    - Create an insert map
<buffer>                - Only for this buffer
<C-C>k                  - Your choice of key map
<C-\><C-O>              - Execute one command, return to Insert mode
:call sqlcomplete#Map(  - Allows the SQL completion plugin to perform some
                          housekeeping functions to allow it to be used in
                          conjunction with other completion plugins.
                          Indicate which item you want the SQL completion
                          plugin to complete.
                          In this case we are asking the plugin to display
                          items from the syntax highlight group
                          'sqlKeyword'.
                          You can view a list of highlight group names to
                          choose from by executing the
                              :syntax list
                          command while editing a SQL file.
'sqlKeyword'            - Display the items for the sqlKeyword highlight
                          group
'sqlKeyword\w*'         - A second option available with Vim 7.4 which
                          uses a regular expression to determine which
                          syntax groups to use
)<CR>                   - Execute the :let command
<C-X><C-O>              - Trigger the standard omni completion key stroke.
                          Passing in 'sqlKeyword' instructs the SQL
```

completion plugin to populate the popup with
items from the sqlKeyword highlight group. The
plugin will also cache this result until Vim is
restarted. The syntax list is retrieved using
the syntaxcomplete plugin.

Using the 'syntax' keyword is a special case. This instructs the
syntaxcomplete plugin to retrieve all syntax items. So this will effectively
work for any of Vim's SQL syntax files. At the time of writing this includes
10 different syntax files for the different dialects of SQL (see section 3
above, sql-dialects).

Here are some examples of the entries which are pulled from the syntax files:

All
    - Contains the contents of all syntax highlight groups
Statements
    - Select, Insert, Update, Delete, Create, Alter, ...
Functions
    - Min, Max, Trim, Round, Date, ...
Keywords
    - Index, Database, Having, Group, With
Options
    - Isolation_level, On_error, Qualify_owners, Fire_triggers, ...
Types
    - Integer, Char, Varchar, Date, DateTime, Timestamp, ...

4.2 Dynamic Mode sql-completion-dynamic

Dynamic mode populates the popups with data directly from a database. In
order for the dynamic feature to be enabled you must have the dbext.vim
plugin installed, (http://vim.sourceforge.net/script.php?script_id=356).

Dynamic mode is used by several features of the SQL completion plugin.
After installing the dbext plugin see the dbext-tutorial for additional
configuration and usage. The dbext plugin allows the SQL completion plugin
to display a list of tables, procedures, views and columns.

Table List
    - All tables for all schema owners
Procedure List
    - All stored procedures for all schema owners
View List
    - All stored procedures for all schema owners
Column List
    - For the selected table, the columns that are part of the table

To enable the popup, while in INSERT mode, use the following key combinations
for each group (where <C-C> means hold the CTRL key down while pressing
the space bar):

```
Table List            - <C-C>t
                      - <C-X><C-O> (the default map assumes tables)
Stored Procedure List - <C-C>p
View List             - <C-C>v
Column List           - <C-C>c
```

Drilling In / Out - When viewing a popup window displaying the list of tables, you can press <Right>, this will replace the table currently highlighted with the column list for that table.
- When viewing a popup window displaying the list of columns, you can press <Left>, this will replace the column list with the list of tables.
- This allows you to quickly drill down into a table to view its columns and back again.
- <Right> and <Left> can be also be chosen via your .vimrc

```
let g:ftplugin_sql_omni_key_right = '<Right>'
let g:ftplugin_sql_omni_key_left  = '<Left>'
```

The SQL completion plugin caches various lists that are displayed in the popup window. This makes the re-displaying of these lists very fast. If new tables or columns are added to the database it may become necessary to clear the plugins cache. The default map for this is:

```
imap <buffer> <C-C>R <C-\><C-O>:call sqlcomplete#Map('ResetCache')<CR><C-X><C-O>
```

4.3 SQL Tutorial sql-completion-tutorial

This tutorial is designed to take you through the common features of the SQL completion plugin so that:

a) You gain familiarity with the plugin
b) You are introduced to some of the more common features
c) Show how to customize it to your preferences
d) Demonstrate "Best of Use" of the plugin (easiest way to configure).

First, create a new buffer:

```
:e tutorial.sql
```

Static features

To take you through the various lists, simply enter insert mode, hit:

```
<C-C>s   (show SQL statements)
```

At this point, you can page down through the list until you find "select". If you are familiar with the item you are looking for, for example you know the statement begins with the letter "s". You can type ahead (without the quotes) "se" then press:

```
<C-Space>t
```

Assuming "select" is highlighted in the popup list press <Enter> to choose the entry. Now type:

```
* fr<C-C>a (show all syntax items)
```

choose "from" from the popup list.

When writing stored procedures using the "type" list is useful. It contains a list of all the database supported types. This may or may not be true depending on the syntax file you are using. The SQL Anywhere syntax file (sqlanywhere.vim) has support for this:

```
BEGIN
   DECLARE customer_id <C-C>T <-- Choose a type from the list
```

Dynamic features

To take advantage of the dynamic features you must first install the dbext.vim plugin (http://vim.sourceforge.net/script.php?script_id=356). It also comes with a tutorial. From the SQL completion plugin's perspective, the main feature dbext provides is a connection to a database. dbext connection profiles are the most efficient mechanism to define connection information. Once connections have been setup, the SQL completion plugin uses the features of dbext in the background to populate the popups.

What follows assumes dbext.vim has been correctly configured, a simple test is to run the command, :DBListTable. If a list of tables is shown, you know dbext.vim is working as expected. If not, please consult the dbext.txt documentation.

Assuming you have followed the dbext-tutorial you can press <C-C>t to display a list of tables. There is a delay while dbext is creating the table list. After the list is displayed press <C-W>. This will remove both the popup window and the table name already chosen when the list became active.

4.3.1 Table Completion: *sql-completion-tables*

Press <C-C>t to display a list of tables from within the database you have connected via the dbext plugin.
NOTE: All of the SQL completion popups support typing a prefix before pressing the key map. This will limit the contents of the popup window to just items beginning with those characters.

4.3.2 Column Completion: *sql-completion-columns*

The SQL completion plugin can also display a list of columns for particular tables. The column completion is trigger via <C-C>c.

NOTE: The following example uses <Right> to trigger a column list while the popup window is active.

Example of using column completion:

- Press <C-C>t again to display the list of tables.
- When the list is displayed in the completion window, press <Right>, this will replace the list of tables, with a list of columns for the table highlighted (after the same short delay).
- If you press <Left>, this will again replace the column list with the list of tables. This allows you to drill into tables and column lists very quickly.
- Press <Right> again while the same table is highlighted. You will notice there is no delay since the column list has been cached. If you change the schema of a cached table you can press <C-C>R, which clears the SQL completion cache.
- NOTE: <Right> and <Left> have been designed to work while the completion window is active. If the completion popup window is

not active, a normal <Right> or <Left> will be executed.

Let's look at how we can build a SQL statement dynamically. A select statement requires a list of columns. There are two ways to build a column list using the SQL completion plugin.

One column at a time:

1. After typing SELECT press <C-C>t to display a list of tables.
2. Choose a table from the list.
3. Press <Right> to display a list of columns.
4. Choose the column from the list and press enter.
5. Enter a "," and press <C-C>c. Generating a column list generally requires having the cursor on a table name. The plugin uses this name to determine what table to retrieve the column list. In this step, since we are pressing <C-C>c without the cursor on a table name the column list displayed will be for the previous table. Choose a different column and move on.
6. Repeat step 5 as often as necessary.

All columns for a table:

1. After typing SELECT press <C-C>t to display a list of tables.
2. Highlight the table you need the column list for.
3. Press <Enter> to choose the table from the list.
4. Press <C-C>l to request a comma separated list of all columns for this table.
5. Based on the table name chosen in step 3, the plugin attempts to decide on a reasonable table alias. You are then prompted to either accept of change the alias. Press OK.
6. The table name is replaced with the column list of the table is replaced with the comma separate list of columns with the alias prepended to each of the columns.
7. Step 3 and 4 can be replaced by pressing <C-C>L, which has a <C-Y> embedded in the map to choose the currently highlighted table in the list.

There is a special provision when writing select statements. Consider the following statement:

```
select *
  from customer c,
       contact cn,
       department as dp,
       employee e,
       site_options so
 where c.
```

In INSERT mode after typing the final "c." which is an alias for the "customer" table, you can press either <C-C>c or <C-X><C-O>. This will popup a list of columns for the customer table. It does this by looking back to the beginning of the select statement and finding a list of the tables specified in the FROM clause. In this case it notes that in the string "customer c", "c" is an alias for the customer table. The optional "AS" keyword is also supported, "customer AS c".

4.3.3 Procedure Completion: *sql-completion-procedures*

Similar to the table list, <C-C>p, will display a list of stored
procedures stored within the database.

4.3.4 View Completion: *sql-completion-views*

Similar to the table list, <C-C>v, will display a list of views in the
database.

4.4 Completion Customization sql-completion-customization

The SQL completion plugin can be customized through various options set in
your vimrc :

omni_sql_no_default_maps
- Default: This variable is not defined
- If this variable is defined, no maps are created for OMNI
  completion. See sql-completion-maps for further discussion.

omni_sql_use_tbl_alias
- Default: a
- This setting is only used when generating a comma separated
  column list. By default the map is <C-C>l. When generating
  a column list, an alias can be prepended to the beginning of each
  column, for example: e.emp_id, e.emp_name. This option has three
  settings:
  n - do not use an alias
  d - use the default (calculated) alias
  a - ask to confirm the alias name

  An alias is determined following a few rules:
  1. If the table name has an '_', then use it as a separator:
     MY_TABLE_NAME --> MTN
     my_table_name --> mtn
     My_table_NAME --> MtN
  2. If the table name does NOT contain an '_', but DOES use
     mixed case then the case is used as a separator:
     MyTableName --> MTN
  3. If the table name does NOT contain an '_', and does NOT
     use mixed case then the first letter of the table is used:
     mytablename --> m
     MYTABLENAME --> M

omni_sql_ignorecase
- Default: Current setting for 'ignorecase'
- Valid settings are 0 or 1.
- When entering a few letters before initiating completion, the list
  will be filtered to display only the entries which begin with the
  list of characters. When this option is set to 0, the list will be
  filtered using case sensitivity.

omni_sql_include_owner
- Default: 0, unless dbext.vim 3.00 has been installed
- Valid settings are 0 or 1.

- When completing tables, procedure or views and using dbext.vim 3.00
  or higher the list of objects will also include the owner name.
  When completing these objects and omni_sql_include_owner is enabled
  the owner name will be replaced.

omni_sql_precache_syntax_groups
- Default:
  ['syntax','sqlKeyword','sqlFunction','sqlOption','sqlType','sqlStatement']
- sqlcomplete can be used in conjunction with other completion
  plugins. This is outlined at sql-completion-filetypes . When the
  filetype is changed temporarily to SQL, the sqlcompletion plugin
  will cache the syntax groups listed in the List specified in this
  option.

4.5 SQL Maps sql-completion-maps

The default SQL maps have been described in other sections of this document in greater detail. Here is a list of the maps with a brief description of each.

Static Maps

These are maps which use populate the completion list using Vim's syntax highlighting rules.

<C-C>a
- Displays all SQL syntax items.

<C-C>k
- Displays all SQL syntax items defined as 'sqlKeyword'.

<C-C>f
- Displays all SQL syntax items defined as 'sqlFunction.

<C-C>o
- Displays all SQL syntax items defined as 'sqlOption'.

<C-C>T
- Displays all SQL syntax items defined as 'sqlType'.

<C-C>s
- Displays all SQL syntax items defined as 'sqlStatement'.

Dynamic Maps

These are maps which use populate the completion list using the dbext.vim plugin.

<C-C>t
- Displays a list of tables.

<C-C>p
- Displays a list of procedures.

<C-C>v
- Displays a list of views.

<C-C>c
- Displays a list of columns for a specific table.

<C-C>l
- Displays a comma separated list of columns for a specific table.

<C-C>L
- Displays a comma separated list of columns for a specific table.

This should only be used when the completion window is active.

<Right>
- Displays a list of columns for the table currently highlighted in the completion window. <Right> is not recognized on most Unix systems, so this maps is only created on the Windows platform. If you would like the same feature on Unix, choose a different key and make the same map in your vimrc.

<Left>
- Displays the list of tables. <Left> is not recognized on most Unix systems, so this maps is only created on the Windows platform. If you would like the same feature on Unix, choose a different key and make the same map in your vimrc.

<C-C>R
- This maps removes all cached items and forces the SQL completion to regenerate the list of items.

Customizing Maps

You can create as many additional key maps as you like. Generally, the maps will be specifying different syntax highlight groups.

If you do not wish the default maps created or the key choices do not work on your platform (often a case on *nix) you define the following variable in your vimrc :

```
let g:omni_sql_no_default_maps = 1
```

Do no edit ftplugin/sql.vim directly! If you change this file your changes will be over written on future updates. Vim has a special directory structure which allows you to make customizations without changing the files that are included with the Vim distribution. If you wish to customize the maps create an after/ftplugin/sql.vim (see after-directory) and place the same maps from the ftplugin/sql.vim in it using your own key strokes. <C-C> was chosen since it will work on both Windows and *nix platforms. On the windows platform you can also use <C-Space> or ALT keys.

4.6 Using with other filetypes sql-completion-filetypes

Many times SQL can be used with different filetypes. For example Perl, Java, PHP, Javascript can all interact with a database. Often you need both the SQL completion and the completion capabilities for the current language you are editing.

This can be enabled easily with the following steps (assuming a Perl file):

1. :e test.pl
2. :set filetype=sql
3. :set ft=perl

Step 1

Begins by editing a Perl file. Vim automatically sets the filetype to "perl". By default, Vim runs the appropriate filetype file

ftplugin/perl.vim. If you are using the syntax completion plugin by following the directions at ft-syntax-omni then the 'omnifunc' option has been set to "syntax#Complete". Pressing <C-X><C-O> will display the omni popup containing the syntax items for Perl.

Step 2

Manually setting the filetype to 'sql' will also fire the appropriate filetype files ftplugin/sql.vim. This file will define a number of buffer specific maps for SQL completion, see sql-completion-maps . Now these maps have been created and the SQL completion plugin has been initialized. All SQL syntax items have been cached in preparation. The SQL filetype script detects we are attempting to use two different completion plugins. Since the SQL maps begin with <C-C>, the maps will toggle the 'omnifunc' when in use. So you can use <C-X><C-O> to continue using the completion for Perl (using the syntax completion plugin) and <C-C> to use the SQL completion features.

Step 3

Setting the filetype back to Perl sets all the usual "perl" related items back as they were.

vim:tw=78:ts=8:noet:ft=help:norl:

hangulin.txt For Vim version 8.1. Last change: 2015 Nov 24

VIM REFERENCE MANUAL by Chi-Deok Hwang and Sung-Hyun Nam

Introduction hangul

It is to input hangul, the Korean language, with Vim GUI version.
If you have a XIM program, you can use another +xim feature.
Basically, it is for anybody who has no XIM program.

Compile

Next is a basic option. You can add any other configure option.

```
./configure --with-x --enable-multibyte --enable-hangulinput \
        --disable-xim
```

And you should check feature.h. If +hangul_input feature is enabled
by configure, you can select more options such as keyboard type, 2 bulsik
or 3 bulsik. You can find keywords like next in there.

```
#define HANGUL_DEFAULT_KEYBOARD 2
#define ESC_CHG_TO_ENG_MODE
/* #define X_LOCALE */
```

Environment variables

You should set LANG variable to Korean locale such as ko, ko_KR.eucKR
or ko_KR.UTF-8.
If you set LC_ALL variable, it should be set to Korean locale also.

Vim resource

You may want to set 'encoding' and 'fileencodings'.
Next are examples:

```
:set encoding=euc-kr
:set encoding=utf-8
:set fileencodings=ucs-bom,utf-8,cp949,euc-kr,latin1
```

Keyboard

You can change keyboard type (2 bulsik or 3 bulsik) using VIM_KEYBOARD
or HANGUL_KEYBOARD_TYPE environment variables. For sh, just do (2 bulsik):

```
export VIM_KEYBOARD="2"
```
or
```
export HANGUL_KEYBOARD_TYPE="2"
```

If both are set, VIM_KEYBOARD has higher priority.

Hangul Fonts

```
------------
If you use GTK version of gvim, you should set 'guifont' and 'guifontwide'.
For example:
    set guifont=Courier\ 12
    set guifontwide=NanumGothicCoding\ 12

If you use Motif or Athena version of gvim, you should set 'guifontset' in
your vimrc.  You can set fontset in the .Xdefaults file.

$HOME/.gvimrc:
    set guifontset=english_font,hangul_font

$HOME/.Xdefaults:
    Vim.font: english_font

    ! Nexts are for hangul menu with Athena
    *international: True
    Vim*fontSet: english_font,hangul_font

    ! Nexts are for hangul menu with Motif
    *international: True
    Vim*fontList: english_font;hangul_font:

attention! the , (comma) or ; (semicolon)

And there should be no ':set guifont'.  If it exists, then gvim ignores
':set guifontset'.  It means Vim runs without fontset supporting.
So, you can see only English.  Hangul does not be correctly displayed.

After "fontset" feature is enabled, Vim does not allow using english
font only in "font" setting for syntax.
For example, if you use
   :set guifontset=eng_font,your_font
in your .gvimrc, then you should do for syntax
   :hi Comment guifg=Cyan font=another_eng_font,another_your_font
If you just do
   :hi Comment font=another_eng_font
then you can see a error message.  Be careful!

hangul_font width should be twice than english_font width.

Unsupported Feature
-------------------
We don't support Johab font.
We don't support Hanja input.
And We don't have any plan to support them.

If you really need such features, you can use console version of Vim with a
capable terminal emulator.

Bug or Comment
--------------
Send comments, patches and suggestions to:
```

SungHyun Nam <goweol@gmail.com>
Chi-Deok Hwang <...>

vim:tw=78:ts=8:noet:ft=help:norl:

rileft.txt For Vim version 8.1. Last change: 2006 Apr 24

VIM REFERENCE MANUAL by Avner Lottem
updated by Nadim Shaikli

Right to Left display mode for Vim rileft

These functions were originally created by Avner Lottem:
E-mail: alottem@iil.intel.com
Phone: +972-4-8307322

{Vi does not have any of these commands}

E26
{only available when compiled with the |+rightleft| feature}

Introduction

Some languages such as Arabic, Farsi, Hebrew (among others) require the ability to display their text from right-to-left. Files in those languages are stored conventionally and the right-to-left requirement is only a function of the display engine (per the Unicode specification). In right-to-left oriented files the characters appear on the screen from right to left.

Bidirectionality (or bidi for short) is what Unicode offers as a full solution to these languages. Bidi offers the user the ability to view both right-to-left as well as left-to-right text properly at the same time within the same window. Vim currently, due to simplicity, does not offer bidi and is merely opting to present a functional means to display/enter/use right-to-left languages. An older hybrid solution in which direction is encoded for every character (or group of characters) are not supported either as this kind of support is out of the scope of a simple addition to an existing editor (and it's not sanctioned by Unicode either).

Highlights

- Editing left-to-right files as in the original Vim, no change.
- Viewing and editing files in right-to-left windows. File orientation is per window, so it is possible to view the same file in right-to-left and left-to-right modes, simultaneously. (Useful for editing mixed files in which both right-to-left and left-to-right text exist).
- Compatibility to the original Vim. Almost all features work in right-to-left mode (see Bugs below).
- Backing from reverse insert mode to the correct place in the file (if possible).

o No special terminal with right-to-left capabilities is required. The
   right-to-left changes are completely hardware independent.

o Many languages use and require right-to-left support. These languages
   can quite easily be supported given the inclusion of their required
   keyboard mappings and some possible minor code change. Some of the
   current supported languages include - arabic.txt , farsi.txt and
    hebrew.txt .

Of Interest...
----

o Invocations

   + 'rightleft' ('rl') sets window orientation to right-to-left.
   + 'delcombine' ('deco'), boolean, if editing UTF-8 encoded languages,
     allows one to remove a composing character which gets superimposed
     on those that proceeded them (some languages require this).
   + 'rightleftcmd' ('rlc') sets the command-line within certain modes
     (such as search) to be utilized in right-to-left orientation as well.

o Typing backwards   ins-reverse

   In lieu of using full-fledged the 'rightleft' option, one can opt for
   reverse insertion. When the 'revins' (reverse insert) option is set,
   inserting happens backwards. This can be used to type right-to-left
   text. When inserting characters the cursor is not moved and the text
   moves rightwards. A <BS> deletes the character under the cursor.
   CTRL-W and CTRL-U also work in the opposite direction. <BS>, CTRL-W
   and CTRL-U do not stop at the start of insert or end of line, no matter
   how the 'backspace' option is set.

   There is no reverse replace mode (yet).

   If the 'showmode' option is set, "-- REVERSE INSERT --" will be shown
   in the status line when reverse Insert mode is active.

o Pasting when in a rightleft window

   When cutting text with the mouse and pasting it in a rightleft window
   the text will be reversed, because the characters come from the cut buffer
   from the left to the right, while inserted in the file from the right to
   the left.   In order to avoid it, toggle 'revins' before pasting.

Bugs
----
o Does not handle CTRL-A and CTRL-X commands (add and subtract) correctly
   when in rightleft window.

o Does not support reverse insert and rightleft modes on the command-line.
   However, functionality of the editor is not reduced, because it is

possible to enter mappings, abbreviations and searches typed from the left to the right on the command-line.

- Somewhat slower in right-to-left mode, because right-to-left motion is emulated inside Vim, not by the controlling terminal.

- When the Athena GUI is used, the bottom scrollbar works in the wrong direction. This is difficult to fix.

- When both 'rightleft' and 'revins' are on: 'textwidth' does not work. Lines do not wrap at all; you just get a single, long line.

- There is no full bidirectionality (bidi) support.

vim:tw=78:ts=8:noet:ft=help:norl:

channel.txt For Vim version 8.1. Last change: 2018 Apr 18

VIM REFERENCE MANUAL by Bram Moolenaar

Inter-process communication channel

Vim uses channels to communicate with other processes.
A channel uses a socket or pipes. socket-interface
Jobs can be used to start processes and communicate with them.
The Netbeans interface also uses a channel. netbeans

{Vi does not have any of these features}
{only when compiled with the |+channel| feature for channel stuff}
        You can check this with: `has('channel')`
{only when compiled with the |+job| feature for job stuff}
        You can check this with: `has('job')`

==
1. Overview job-channel-overview

There are four main types of jobs:
1. A daemon, serving several Vim instances.
   Vim connects to it with a socket.
2. One job working with one Vim instance, asynchronously.
   Uses a socket or pipes.
3. A job performing some work for a short time, asynchronously.
   Uses a socket or pipes.
4. Running a filter, synchronously.
   Uses pipes.

For when using sockets See job-start , job-start-nochannel and
 channel-open . For 2 and 3, one or more jobs using pipes, see job-start .
For 4 use the ":{range}!cmd" command, see filter .

Over the socket and pipes these protocols are available:
RAW   nothing known, Vim cannot tell where a message ends
NL   every message ends in a NL (newline) character
JSON   JSON encoding json_encode()
JS   JavaScript style JSON-like encoding js_encode()

Common combination are:
- Using a job connected through pipes in NL mode. E.g., to run a style
  checker and receive errors and warnings.
- Using a daemon, connecting over a socket in JSON mode. E.g. to lookup
  cross-references in a database.

==
2. Channel demo   channel-demo   demoserver.py

This requires Python. The demo program can be found in
$VIMRUNTIME/tools/demoserver.py
Run it in one terminal. We will call this T1.

Run Vim in another terminal. Connect to the demo server with:
```
let channel = ch_open('localhost:8765')
```

In T1 you should see:
```
=== socket opened ===
```

You can now send a message to the server:
```
echo ch_evalexpr(channel, 'hello!')
```

The message is received in T1 and a response is sent back to Vim.
You can see the raw messages in T1. What Vim sends is:
```
[1,"hello!"]
```
And the response is:
```
[1,"got it"]
```
The number will increase every time you send a message.

The server can send a command to Vim. Type this on T1 (literally, including
the quotes):
```
["ex","echo 'hi there'"]
```
And you should see the message in Vim. You can move the cursor a word forward:
```
["normal","w"]
```

To handle asynchronous communication a callback needs to be used:
```
func MyHandler(channel, msg)
  echo "from the handler: " . a:msg
endfunc
call ch_sendexpr(channel, 'hello!', {'callback': "MyHandler"})
```
Vim will not wait for a response. Now the server can send the response later
and MyHandler will be invoked.

Instead of giving a callback with every send call, it can also be specified
when opening the channel:
```
call ch_close(channel)
let channel = ch_open('localhost:8765', {'callback': "MyHandler"})
call ch_sendexpr(channel, 'hello!')
```

When trying out channels it's useful to see what is going on. You can tell
Vim to write lines in log file:
```
call ch_logfile('channellog', 'w')
```
See ch_logfile() .

```
==============================================================================
3. Opening a channel                                            channel-open

To open a channel:
    let channel = ch_open({address} [, {options}])
    if ch_status(channel) == "open"
      " use the channel

Use  ch_status()  to see if the channel could be opened.

{address} has the form "hostname:port".  E.g., "localhost:8765".

{options} is a dictionary with optional entries:         channel-open-options

"mode" can be:                                                  channel-mode
        "json" - Use JSON, see below; most convenient way. Default.
        "js"   - Use JS (JavaScript) encoding, more efficient than JSON.
        "nl"   - Use messages that end in a NL character
        "raw"  - Use raw messages
                                                  channel-callback   E921
"callback"      A function that is called when a message is received that is
                not handled otherwise.  It gets two arguments: the channel
                and the received message. Example:
        func Handle(channel, msg)
          echo 'Received: ' . a:msg
        endfunc
        let channel = ch_open("localhost:8765", {"callback": "Handle"})

                When "mode" is "json" or "js" the "msg" argument is the body
                of the received message, converted to Vim types.
                When "mode" is "nl" the "msg" argument is one message,
                excluding the NL.
                When "mode" is "raw" the "msg" argument is the whole message
                as a string.

                For all callbacks: Use  function()  to bind it to arguments
                and/or a Dictionary.  Or use the form "dict.function" to bind
                the Dictionary.

                Callbacks are only called at a "safe" moment, usually when Vim
                is waiting for the user to type a character.  Vim does not use
                multi-threading.

                                                                close_cb
"close_cb"      A function that is called when the channel gets closed, other
                than by calling ch_close().  It should be defined like this:
        func MyCloseHandler(channel)
               Vim will invoke callbacks that handle data before invoking
                close_cb, thus when this function is called no more data will
                be passed to the callbacks.
                                                                channel-drop
"drop"          Specifies when to drop messages:
                    "auto"      When there is no callback to handle a message.
```

The "close_cb" is also considered for this.
"never" All messages will be kept.

waittime
"waittime" The time to wait for the connection to be made in milliseconds. A negative number waits forever.

The default is zero, don't wait, which is useful if a local server is supposed to be running already. On Unix Vim actually uses a 1 msec timeout, that is required on many systems. Use a larger value for a remote server, e.g. 10 msec at least.

channel-timeout
"timeout" The time to wait for a request when blocking, E.g. when using ch_evalexpr(). In milliseconds. The default is 2000 (2 seconds).

When "mode" is "json" or "js" the "callback" is optional. When omitted it is only possible to receive a message after sending one.

To change the channel options after opening it use ch_setoptions() . The arguments are similar to what is passed to ch_open() , but "waittime" cannot be given, since that only applies to opening the channel.

For example, the handler can be added or changed:
```
call ch_setoptions(channel, {'callback': callback})
```
When "callback" is empty (zero or an empty string) the handler is removed.

After a callback has been invoked Vim will update the screen and put the cursor back where it belongs. Thus the callback should not need to do `:redraw`.

The timeout can be changed:
```
call ch_setoptions(channel, {'timeout': msec})
```

channel-close E906
Once done with the channel, disconnect it like this:
```
call ch_close(channel)
```
When a socket is used this will close the socket for both directions. When pipes are used (stdin/stdout/stderr) they are all closed. This might not be what you want! Stopping the job with job_stop() might be better.
All readahead is discarded, callbacks will no longer be invoked.

Note that a channel is closed in three stages:
- The I/O ends, log message: "Closing channel". There can still be queued messages to read or callbacks to invoke.
- The readahead is cleared, log message: "Clearing channel". Some variables may still reference the channel.
- The channel is freed, log message: "Freeing channel".

When the channel can't be opened you will get an error message. There is a difference between MS-Windows and Unix: On Unix when the port doesn't exist ch_open() fails quickly. On MS-Windows "waittime" applies.
E898 E901 E902

If there is an error reading or writing a channel it will be closed.
E630 E631

==
4. Using a JSON or JS channel channel-use

If mode is JSON then a message can be sent synchronously like this:
```
    let response = ch_evalexpr(channel, {expr})
```
This awaits a response from the other side.

When mode is JS this works the same, except that the messages use
JavaScript encoding. See js_encode() for the difference.

To send a message, without handling a response or letting the channel callback
handle the response:
```
    call ch_sendexpr(channel, {expr})
```

To send a message and letting the response handled by a specific function,
asynchronously:
```
    call ch_sendexpr(channel, {expr}, {'callback': Handler})
```

Vim will match the response with the request using the message ID. Once the
response is received the callback will be invoked. Further responses with the
same ID will be ignored. If your server sends back multiple responses you
need to send them with ID zero, they will be passed to the channel callback.

The {expr} is converted to JSON and wrapped in an array. An example of the
message that the receiver will get when {expr} is the string "hello":
```
        [12,"hello"]
```

The format of the JSON sent is:
```
    [{number},{expr}]
```

In which {number} is different every time. It must be used in the response
(if any):

```
    [{number},{response}]
```

This way Vim knows which sent message matches with which received message and
can call the right handler. Also when the messages arrive out of order.

A newline character is terminating the JSON text. This can be used to
separate the read text. For example, in Python:
```
        splitidx = read_text.find('\n')
        message = read_text[:splitidx]
        rest = read_text[splitidx + 1:]
```

The sender must always send valid JSON to Vim. Vim can check for the end of
the message by parsing the JSON. It will only accept the message if the end
was received. A newline after the message is optional.

When the process wants to send a message to Vim without first receiving a
message, it must use the number zero:

```
    [0,{response}]

Then channel handler will then get {response} converted to Vim types.  If the
channel does not have a handler the message is dropped.

It is also possible to use ch_sendraw() and ch_evalraw() on a JSON or JS
channel.  The caller is then completely responsible for correct encoding and
decoding.

==============================================================================
5. Channel commands                                     channel-commands

With a JSON channel the process can send commands to Vim that will be
handled by Vim internally, it does not require a handler for the channel.

Possible commands are:                              E903   E904   E905
    ["redraw", {forced}]
    ["ex",     {Ex command}]
    ["normal", {Normal mode command}]
    ["expr",   {expression}, {number}]
    ["expr",   {expression}]
    ["call",   {func name}, {argument list}, {number}]
    ["call",   {func name}, {argument list}]

With all of these: Be careful what these commands do!  You can easily
interfere with what the user is doing.  To avoid trouble use  mode()  to check
that the editor is in the expected state.  E.g., to send keys that must be
inserted as text, not executed as a command:
    ["ex","if mode() == 'i' | call feedkeys('ClassName') | endif"]

Errors in these commands are normally not reported to avoid them messing up
the display.  If you do want to see them, set the 'verbose' option to 3 or
higher.


Command "redraw"

The other commands do not update the screen, so that you can send a sequence
of commands without the cursor moving around.  You must end with the "redraw"
command to show any changed text and show the cursor where it belongs.

The argument is normally an empty string:
        ["redraw", ""]
To first clear the screen pass "force":
        ["redraw", "force"]


Command "ex"

The "ex" command is executed as any Ex command.  There is no response for
completion or error.  You could use functions in an  autoload  script:
        ["ex","call myscript#MyFunc(arg)"]

You can also use "call  feedkeys() " to insert any key sequence.
```

When there is an error a message is written to the channel log, if it exists,
and v:errmsg is set to the error.

Command "normal"

The "normal" command is executed like with ":normal!", commands are not
mapped. Example to open the folds under the cursor:
```
["normal" "zO"]
```

Command "expr" with response

The "expr" command can be used to get the result of an expression. For
example, to get the number of lines in the current buffer:
```
["expr","line('$')", -2]
```

It will send back the result of the expression:
```
[-2, "last line"]
```
The format is:
```
[{number}, {result}]
```

Here {number} is the same as what was in the request. Use a negative number
to avoid confusion with message that Vim sends. Use a different number on
every request to be able to match the request with the response.

{result} is the result of the evaluation and is JSON encoded. If the
evaluation fails or the result can't be encoded in JSON it is the string
"ERROR".

Command "expr" without a response

This command is similar to "expr" above, but does not send back any response.
Example:
```
["expr","setline('$', ['one', 'two', 'three'])"]
```
There is no third argument in the request.

Command "call"

This is similar to "expr", but instead of passing the whole expression as a
string this passes the name of a function and a list of arguments. This
avoids the conversion of the arguments to a string and escaping and
concatenating them. Example:
```
["call", "line", ["$"], -2]
```

Leave out the fourth argument if no response is to be sent:
```
["call", "setline", ["$", ["one", "two", "three"]]]
```

==
6. Using a RAW or NL channel channel-raw

If mode is RAW or NL then a message can be sent like this:
    let response = ch_evalraw(channel, {string})

The {string} is sent as-is. The response will be what can be read from the channel right away. Since Vim doesn't know how to recognize the end of the message you need to take care of it yourself. The timeout applies for reading the first byte, after that it will not wait for anything more.

If mode is "nl" you can send a message in a similar way. You are expected to put in the NL after each message. Thus you can also send several messages ending in a NL at once. The response will be the text up to and including the first NL. This can also be just the NL for an empty response.
If no NL was read before the channel timeout an empty string is returned.

To send a message, without expecting a response:
    call ch_sendraw(channel, {string})
The process can send back a response, the channel handler will be called with it.

To send a message and letting the response handled by a specific function, asynchronously:
    call ch_sendraw(channel, {string}, {'callback': 'MyHandler'})

This {string} can also be JSON, use json_encode() to create it and json_decode() to handle a received JSON message.

It is not possible to use ch_evalexpr() or ch_sendexpr() on a raw channel.

A String in Vim cannot contain NUL bytes. To send or receive NUL bytes read or write from a buffer. See in_io-buffer and out_io-buffer .

==
7. More channel functions   channel-more

To obtain the status of a channel: ch_status(channel). The possible results are:
        "fail"   Failed to open the channel.
        "open"   The channel can be used.
        "buffered"   The channel was closed but there is data to read.
        "closed"   The channel was closed.

To obtain the job associated with a channel: ch_getjob(channel)

To read one message from a channel:
        let output = ch_read(channel)
This uses the channel timeout. To read without a timeout, just get any message that is available:
        let output = ch_read(channel, {'timeout': 0})
When no message was available then the result is v:none for a JSON or JS mode channels, an empty string for a RAW or NL channel. You can use ch_canread() to check if there is something to read.

Note that when there is no callback, messages are dropped. To avoid that add a close callback to the channel.

To read all output from a RAW channel that is available:
        let output = ch_readraw(channel)
To read the error output:
        let output = ch_readraw(channel, {"part": "err"})

ch_read() and ch_readraw() use the channel timeout. When there is nothing to
read within that time an empty string is returned. To specify a different
timeout in msec use the "timeout" option:
        {"timeout": 123}
To read from the error output use the "part" option:
        {"part": "err"}
To read a message with a specific ID, on a JS or JSON channel:
        {"id": 99}
When no ID is specified or the ID is -1, the first message is returned. This
overrules any callback waiting for this message.

For a RAW channel this returns whatever is available, since Vim does not know
where a message ends.
For a NL channel this returns one message.
For a JS or JSON channel this returns one decoded message.
This includes any sequence number.

==
8. Starting a job with a channel   job-start   job

To start a job and open a channel for stdin/stdout/stderr:
    let job = job_start(command, {options})

You can get the channel with:
    let channel = job_getchannel(job)

The channel will use NL mode. If you want another mode it's best to specify
this in {options}. When changing the mode later some text may have already
been received and not parsed correctly.

If the command produces a line of output that you want to deal with, specify
a handler for stdout:
    let job = job_start(command, {"out_cb": "MyHandler"})
The function will be called with the channel and a message. You would define
it like this:
    func MyHandler(channel, msg)

Without the handler you need to read the output with ch_read() or
 ch_readraw() . You can do this in the close callback, see read-in-close-cb .

Note that if the job exits before you read the output, the output may be lost.
This depends on the system (on Unix this happens because closing the write end
of a pipe causes the read end to get EOF). To avoid this make the job sleep
for a short while before it exits.

The handler defined for "out_cb" will not receive stderr. If you want to
handle that separately, add an "err_cb" handler:
    let job = job_start(command, {"out_cb": "MyHandler",

```
            \                    "err_cb": "ErrHandler"})
```

If you want to handle both stderr and stdout with one handler use the "callback" option:

```
    let job = job_start(command, {"callback": "MyHandler"})
```

Depending on the system, starting a job can put Vim in the background, the started job gets the focus. To avoid that, use the `foreground()` function. This might not always work when called early, put in the callback handler or use a timer to call it after the job has started.

You can send a message to the command with ch_evalraw(). If the channel is in JSON or JS mode you can use ch_evalexpr().

There are several options you can use, see job-options .
For example, to start a job and write its output in buffer "dummy":

```
        let logjob = job_start("tail -f /tmp/log",
                        \ {'out_io': 'buffer', 'out_name': 'dummy'})
        sbuf dummy
```

Job input from a buffer

in_io-buffer

To run a job that reads from a buffer:

```
        let job = job_start({command},
            \ {'in_io': 'buffer', 'in_name': 'mybuffer'})
```

E915 E918

The buffer is found by name, similar to bufnr() . The buffer must exist and be loaded when job_start() is called.

By default this reads the whole buffer. This can be changed with the "in_top" and "in_bot" options.

A special mode is when "in_top" is set to zero and "in_bot" is not set: Every time a line is added to the buffer, the last-but-one line will be sent to the job stdin. This allows for editing the last line and sending it when pressing Enter.

channel-close-in

When not using the special mode the pipe or socket will be closed after the last line has been written. This signals the reading end that the input finished. You can also use ch_close_in() to close it sooner.

NUL bytes in the text will be passed to the job (internally Vim stores these as NL bytes).

Reading job output in the close callback

read-in-close-cb

If the job can take some time and you don't need intermediate results, you can add a close callback and read the output there:

```
        func! CloseHandler(channel)
          while ch_status(a:channel, {'part': 'out'}) == 'buffered'
```

```
            echomsg ch_read(a:channel)
          endwhile
        endfunc
        let job = job_start(command, {'close_cb': 'CloseHandler'})
```

You will want to do something more useful than "echomsg".

==
9. Starting a job without a channel   job-start-nochannel

To start another process without creating a channel:

```
    let job = job_start(command,
        \ {"in_io": "null", "out_io": "null", "err_io": "null"})
```

This starts {command} in the background, Vim does not wait for it to finish.

When Vim sees that neither stdin, stdout or stderr are connected, no channel will be created. Often you will want to include redirection in the command to avoid it getting stuck.

There are several options you can use, see job-options .

                                                       job-start-if-needed
To start a job only when connecting to an address does not work, do something like this:

```
        let channel = ch_open(address, {"waittime": 0})
        if ch_status(channel) == "fail"
          let job = job_start(command)
          let channel = ch_open(address, {"waittime": 1000})
        endif
```

Note that the waittime for ch_open() gives the job one second to make the port available.

==
10. Job options   job-options

The {options} argument in job_start() is a dictionary. All entries are optional. Some options can be used after the job has started, using job_setoptions(job, {options}). Many options can be used with the channel related to the job, using ch_setoptions(channel, {options}).
See job_setoptions() and ch_setoptions() .

                                                  in_mode out_mode err_mode
"in_mode"   mode specifically for stdin, only when using pipes
"out_mode"   mode specifically for stdout, only when using pipes
"err_mode"   mode specifically for stderr, only when using pipes
                       See channel-mode for the values.

                       Note: when setting "mode" the part specific mode is
                       overwritten. Therefore set "mode" first and the part
                       specific mode later.

                       Note: when writing to a file or buffer and when

reading from a buffer NL mode is used by default.

job-callback
"callback": handler Callback for something to read on any part of the channel.

job-out_cb *out_cb*
"out_cb": handler Callback for when there is something to read on stdout. Only for when the channel uses pipes. When "out_cb" wasn't set the channel callback is used. The two arguments are the channel and the message.

job-err_cb *err_cb*
"err_cb": handler Callback for when there is something to read on stderr. Only for when the channel uses pipes. When "err_cb" wasn't set the channel callback is used. The two arguments are the channel and the message.

job-close_cb
"close_cb": handler Callback for when the channel is closed. Same as "close_cb" on ch_open() , see close_cb .

job-drop
"drop": when Specifies when to drop messages. Same as "drop" on ch_open() , see channel-drop . For "auto" the exit_cb is not considered.

job-exit_cb
"exit_cb": handler Callback for when the job ends. The arguments are the job and the exit status.
Vim checks up to 10 times per second for jobs that ended. The check can also be triggered by calling job_status() , which may then invoke the exit_cb handler.
Note that data can be buffered, callbacks may still be called after the process ends.

job-timeout
"timeout": time The time to wait for a request when blocking, E.g. when using ch_evalexpr(). In milliseconds. The default is 2000 (2 seconds).

out_timeout *err_timeout*
"out_timeout": time Timeout for stdout. Only when using pipes.
"err_timeout": time Timeout for stderr. Only when using pipes.
Note: when setting "timeout" the part specific mode is overwritten. Therefore set "timeout" first and the part specific mode later.

job-stoponexit
"stoponexit": {signal} Send {signal} to the job when Vim exits. See job_stop() for possible values.
"stoponexit": "" Do not stop the job when Vim exits.
The default is "term".

job-term
"term": "open" Start a terminal in a new window and connect the job stdin/stdout/stderr to it. Similar to using `:terminal`.
NOTE: Not implemented yet!

```
"channel": {channel}    Use an existing channel instead of creating a new one.
                        The parts of the channel that get used for the new job
                        will be disconnected from what they were used before.
                        If the channel was still used by another job this may
                        cause I/O errors.
                        Existing callbacks and other settings remain.

"pty": 1                Use a pty (pseudo-tty) instead of a pipe when
                        possible.  This is most useful in combination with a
                        terminal window, see  terminal .
                        {only on Unix and Unix-like systems}

                                job-in_io   in_top   in_bot   in_name   in_buf
"in_io": "null"         disconnect stdin (read from /dev/null)
"in_io": "pipe"         stdin is connected to the channel (default)
"in_io": "file"         stdin reads from a file
"in_io": "buffer"       stdin reads from a buffer
"in_top": number        when using "buffer": first line to send (default: 1)
"in_bot": number        when using "buffer": last line to send (default: last)
"in_name": "/path/file" the name of the file or buffer to read from
"in_buf": number        the number of the buffer to read from

                                job-out_io   out_name   out_buf
"out_io": "null"        disconnect stdout (goes to /dev/null)
"out_io": "pipe"        stdout is connected to the channel (default)
"out_io": "file"        stdout writes to a file
"out_io": "buffer"      stdout appends to a buffer (see below)
"out_name": "/path/file" the name of the file or buffer to write to
"out_buf": number       the number of the buffer to write to
"out_modifiable": 0     when writing to a buffer, 'modifiable' will be off
                        (see below)
"out_msg": 0            when writing to a new buffer, the first line will be
                        set to "Reading from channel output..."

                                job-err_io   err_name   err_buf
"err_io": "out"         stderr messages to go to stdout
"err_io": "null"        disconnect stderr  (goes to /dev/null)
"err_io": "pipe"        stderr is connected to the channel (default)
"err_io": "file"        stderr writes to a file
"err_io": "buffer"      stderr appends to a buffer (see below)
"err_name": "/path/file" the name of the file or buffer to write to
"err_buf": number       the number of the buffer to write to
"err_modifiable": 0     when writing to a buffer, 'modifiable' will be off
                        (see below)
"err_msg": 0            when writing to a new buffer, the first line will be
                        set to "Reading from channel error..."

"block_write": number   only for testing: pretend every other write to stdin
                        will block

"env": dict             environment variables for the new process
"cwd": "/path/to/dir"   current working directory for the new process;
                        if the directory does not exist an error is given
```

Writing to a buffer

out_io-buffer

When the out_io or err_io mode is "buffer" and there is a callback, the text is appended to the buffer before invoking the callback.

When a buffer is used both for input and output, the output lines are put above the last line, since the last line is what is written to the channel input. Otherwise lines are appended below the last line.

When using JS or JSON mode with "buffer", only messages with zero or negative ID will be added to the buffer, after decoding + encoding. Messages with a positive number will be handled by a callback, commands are handled as usual.

The name of the buffer from "out_name" or "err_name" is compared the full name of existing buffers, also after expanding the name for the current directory. E.g., when a buffer was created with ":edit somename" and the buffer name is "somename" it will use that buffer.

If there is no matching buffer a new buffer is created. Use an empty name to always create a new buffer. ch_getbufnr() can then be used to get the buffer number.

For a new buffer 'buftype' is set to "nofile" and 'bufhidden' to "hide". If you prefer other settings, create the buffer first and pass the buffer number.

out_modifiable err_modifiable

The "out_modifiable" and "err_modifiable" options can be used to set the 'modifiable' option off, or write to a buffer that has 'modifiable' off. That means that lines will be appended to the buffer, but the user can't easily change the buffer.

out_msg err_msg

The "out_msg" option can be used to specify whether a new buffer will have the first line set to "Reading from channel output...". The default is to add the message. "err_msg" does the same for channel error.

When an existing buffer is to be written where 'modifiable' is off and the "out_modifiable" or "err_modifiable" options is not zero, an error is given and the buffer will not be written to.

When the buffer written to is displayed in a window and the cursor is in the first column of the last line, the cursor will be moved to the newly added line and the window is scrolled up to show the cursor if needed.

Undo is synced for every added line. NUL bytes are accepted (internally Vim stores these as NL bytes).

Writing to a file

E920

The file is created with permissions 600 (read-write for the user, not accessible for others). Use setfperm() to change this.

If the file already exists it is truncated.

==
11. Controlling a job   job-control

To get the status of a job:
        echo job_status(job)

To make a job stop running:
        job_stop(job)

This is the normal way to end a job. On Unix it sends a SIGTERM to the job.
It is possible to use other ways to stop the job, or even send arbitrary
signals. E.g. to force a job to stop, "kill it":
        job_stop(job, "kill")

For more options see job_stop() .

==
12. Using a prompt buffer   prompt-buffer

If you want to type input for the job in a Vim window you have a few options:
- Use a normal buffer and handle all possible commands yourself.
  This will be complicated, since there are so many possible commands.
- Use a terminal window. This works well if what you type goes directly to
  the job and the job output is directly displayed in the window.
  See terminal-window .
- Use a prompt window. This works well when entering a line for the job in Vim
  while displaying (possibly filtered) output from the job.

A prompt buffer is created by setting 'buftype' to "prompt". You would
normally only do that in a newly created buffer.

The user can edit and enter one line of text at the very last line of the
buffer. When pressing Enter in the prompt line the callback set with
 prompt_setcallback() is invoked. It would normally send the line to a job.
Another callback would receive the output from the job and display it in the
buffer, below the prompt (and above the next prompt).

Only the text in the last line, after the prompt, is editable. The rest of the
buffer is not modifiable with Normal mode commands. It can be modified by
calling functions, such as append() . Using other commands may mess up the
buffer.

After setting 'buftype' to "prompt" Vim does not automatically start Insert
mode, use `:startinsert` if you want to enter Insert mode, so that the user
can start typing a line.

The text of the prompt can be set with the prompt_setprompt() function.

The user can go to Normal mode and navigate through the buffer. This can be
useful see older output or copy text.

The CTRL-W key can be used to start a window command, such as CTRL-W w to
switch to the next window. This also works in Insert mode (use Shift-CTRL-W

to delete a word). When leaving the window Insert mode will be stopped. When coming back to the prompt window Insert mode will be restored.

Any command that starts Insert mode, such as "a", "i", "A" and "I", will move the cursor to the last line. "A" will move to the end of the line, "I" to the start of the line.

 vim:tw=78:ts=8:noet:ft=help:norl:

gui.txt For Vim version 8.1. Last change: 2018 Mar 06

VIM REFERENCE MANUAL by Bram Moolenaar

Vim's Graphical User Interface gui GUI

Other GUI documentation:
gui_x11.txt For specific items of the X11 GUI.
gui_w32.txt For specific items of the Win32 GUI.

{Vi does not have any of these commands}

==========

1. Starting the GUI gui-start E229 E233

First you must make sure you actually have a version of Vim with the GUI code included. You can check this with the ":version" command, it says "with xxx GUI", where "xxx" is X11-Motif, X11-Athena, Photon, GTK2, GTK3, etc., or "MS-Windows 32 bit GUI version".

How to start the GUI depends on the system used. Mostly you can run the GUI version of Vim with:

```
gvim [options] [files...]
```

The X11 version of Vim can run both in GUI and in non-GUI mode. See gui-x11-start .

gui-init gvimrc .gvimrc _gvimrc $MYGVIMRC
The gvimrc file is where GUI-specific startup commands should be placed. It is always sourced after the vimrc file. If you have one then the $MYGVIMRC environment variable has its name.

When the GUI starts up initializations are carried out, in this order:
- The 'term' option is set to "builtin_gui" and terminal options are reset to their default value for the GUI terminal-options .
- If the system menu file exists, it is sourced. The name of this file is normally "$VIMRUNTIME/menu.vim". You can check this with ":version". Also see $VIMRUNTIME . To skip loading the system menu include 'M' in 'guioptions'. buffers-menu no_buffers_menu
  The system menu file includes a "Buffers" menu. If you don't want this, set the "no_buffers_menu" variable in your .vimrc (not .gvimrc!):
  ```
  :let no_buffers_menu = 1
  ```
  NOTE: Switching on syntax highlighting also loads the menu file, thus disabling the Buffers menu must be done before ":syntax on".

  The path names are truncated to 35 characters. You can truncate them at a
  different length, for example 50, like this:
        :let bmenu_max_pathlen = 50
- If the "-U {gvimrc}" command-line option has been used when starting Vim,
  the {gvimrc} file will be read for initializations. The following
  initializations are skipped. When {gvimrc} is "NONE" no file will be read
  for initializations.
- For Unix and MS-Windows, if the system gvimrc exists, it is sourced. The
  name of this file is normally "$VIM/gvimrc". You can check this with
  ":version". Also see $VIM .
- The following are tried, and only the first one that exists is used:
  - If the GVIMINIT environment variable exists and is not empty, it is
    executed as an Ex command.
  - If the user gvimrc file exists, it is sourced. The name of this file is
    normally "$HOME/.gvimrc". You can check this with ":version".
  - For Win32, $HOME is set by Vim if needed, see $HOME-windows .
  - When a "_gvimrc" file is not found, ".gvimrc" is tried too. And vice
    versa.
  The name of the first file found is stored in $MYGVIMRC, unless it was
  already set.
- If the 'exrc' option is set (which is NOT the default) the file ./.gvimrc
  is sourced, if it exists and isn't the same file as the system or user
  gvimrc file. If this file is not owned by you, some security restrictions
  apply. When ".gvimrc" is not found, "_gvimrc" is tried too. For Macintosh
  and DOS/Win32 "_gvimrc" is tried first.

NOTE: All but the first one are not carried out if Vim was started with
"-u NONE" or "-u DEFAULTS" and no "-U" argument was given, or when started
with "-U NONE".

All this happens AFTER the normal Vim initializations, like reading your
.vimrc file. See initialization .
But the GUI window is only opened after all the initializations have been
carried out. If you want some commands to be executed just after opening the
GUI window, use the GUIEnter autocommand event. Example:
        :autocmd GUIEnter * winpos 100 50

You can use the gvimrc files to set up your own customized menus (see :menu)
and initialize other things that you may want to set up differently from the
terminal version.

Recommended place for your personal GUI initializations:
        Unix $HOME/.gvimrc or $HOME/.vim/gvimrc
        OS/2 $HOME/.gvimrc, $HOME/vimfiles/gvimrc
                            or $VIM/.gvimrc
        MS-DOS and Win32 $HOME/_gvimrc, $HOME/vimfiles/gvimrc
                            or $VIM/_gvimrc
        Amiga   s:.gvimrc, home:.gvimrc, home:vimfiles:gvimrc
                            or $VIM/.gvimrc

The personal initialization files are searched in the order specified above
and only the first one that is found is read.

There are a number of options which only have meaning in the GUI version of

Vim. These are 'guicursor', 'guifont', 'guipty' and 'guioptions'. They are documented in options.txt with all the other options.

If using the Motif or Athena version of the GUI (but not for the GTK+ or Win32 version), a number of X resources are available. See gui-resources .

Another way to set the colors for different occasions is with highlight groups. The "Normal" group is used to set the background and foreground colors. Example (which looks nice):

```
:highlight Normal guibg=grey90
```

The "guibg" and "guifg" settings override the normal background and foreground settings. The other settings for the Normal highlight group are not used. Use the 'guifont' option to set the font.

Also check out the 'guicursor' option, to set the colors for the cursor in various modes.

Vim tries to make the window fit on the screen when it starts up. This avoids that you can't see part of it. On the X Window System this requires a bit of guesswork. You can change the height that is used for the window title and a task bar with the 'guiheadroom' option.

:winp :winpos E188

:winp[os]
Display current position of the top left corner of the GUI vim window in pixels. Does not work in all versions.
Also see getwinpos() , getwinposx() and getwinposy() .

:winp[os] {X} {Y} E466
Put the GUI vim window at the given {X} and {Y} coordinates. The coordinates should specify the position in pixels of the top left corner of the window. Does not work in all versions.
Does work in an (new) xterm xterm-color .
When the GUI window has not been opened yet, the values are remembered until the window is opened. The position is adjusted to make the window fit on the screen (if possible).

:win :winsize E465

:win[size] {width} {height}
Set the window height to {width} by {height} characters.
Obsolete, use ":set lines=11 columns=22".
If you get less lines than expected, check the 'guiheadroom' option.

If you are running the X Window System, you can get information about the window Vim is running in with these commands:

```
:!xwininfo -id $WINDOWID
:!xprop -id $WINDOWID
:execute '!xwininfo -id ' . v:windowid
:execute '!xprop -id ' . v:windowid
```

gui-IME iBus

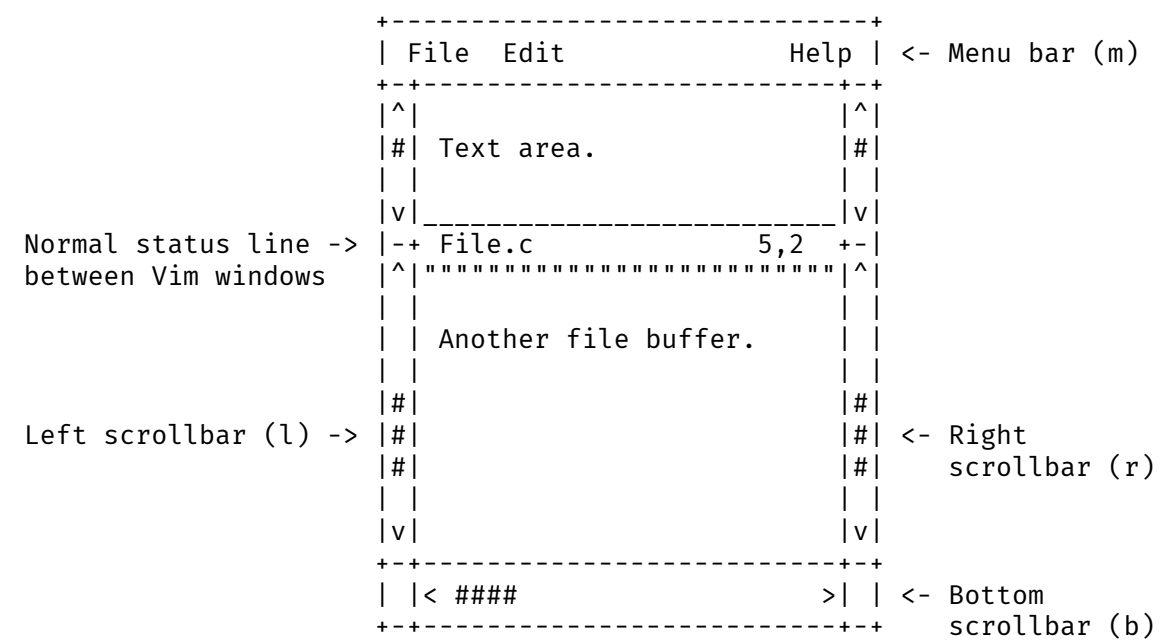
Input methods for international characters in X that rely on the XIM framework, most notably iBus, have been known to produce undesirable results in gvim. These may include an inability to enter spaces, or long delays between typing a character and it being recognized by the application.

One workaround that has been successful, for unknown reasons, is to prevent gvim from forking into the background by starting it with the `-f` argument.

==
2. Scrollbars gui-scrollbars

There are vertical scrollbars and a horizontal scrollbar. You may configure which ones appear with the 'guioptions' option.

The interface looks like this (with ":set guioptions=mlrb"):



Any of the scrollbar or menu components may be turned off by not putting the appropriate letter in the 'guioptions' string. The bottom scrollbar is only useful when 'nowrap' is set.

VERTICAL SCROLLBARS gui-vert-scroll

Each Vim window has a scrollbar next to it which may be scrolled up and down to move through the text in that buffer. The size of the scrollbar-thumb indicates the fraction of the buffer which can be seen in the window. When the scrollbar is dragged all the way down, the last line of the file will appear in the top of the window.

If a window is shrunk to zero height (by the growth of another window) its scrollbar disappears. It reappears when the window is restored.

If a window is vertically split, it will get a scrollbar when it is the

current window and when, taking the middle of the current window and drawing a vertical line, this line goes through the window.
When there are scrollbars on both sides, and the middle of the current window is on the left half, the right scrollbar column will contain scrollbars for the rightmost windows. The same happens on the other side.

HORIZONTAL SCROLLBARS gui-horiz-scroll

The horizontal scrollbar (at the bottom of the Vim GUI) may be used to scroll text sideways when the 'wrap' option is turned off. The scrollbar-thumb size is such that the text of the longest visible line may be scrolled as far as possible left and right. The cursor is moved when necessary, it must remain on a visible character (unless 'virtualedit' is set).

Computing the length of the longest visible line takes quite a bit of computation, and it has to be done every time something changes. If this takes too much time or you don't like the cursor jumping to another line, include the 'h' flag in 'guioptions'. Then the scrolling is limited by the text of the current cursor line.

athena-intellimouse

If you have an Intellimouse and an X server that supports using the wheel, then you can use the wheel to scroll the text up and down in gvim. This works with XFree86 4.0 and later, and with some older versions when you add patches. See scroll-mouse-wheel .

For older versions of XFree86 you must patch your X server. The following page has a bit of information about using the Intellimouse on Linux as well as links to the patches and X server binaries (may not have the one you need though):
    http://www.inria.fr/koala/colas/mouse-wheel-scroll/

==
3. Mouse Control gui-mouse

The mouse only works if the appropriate flag in the 'mouse' option is set. When the GUI is switched on, and 'mouse' wasn't set yet, the 'mouse' option is automatically set to "a", enabling it for all modes except for the hit-enter prompt. If you don't want this, a good place to change the 'mouse' option is the "gvimrc" file.

Other options that are relevant:
'mousefocus'   window focus follows mouse pointer gui-mouse-focus
'mousemodel'   what mouse button does which action
'mousehide'   hide mouse pointer while typing text
'selectmode'   whether to start Select mode or Visual mode

A quick way to set these is with the ":behave" command.

:behave :be
:be[have] {model}   Set behavior for mouse and selection. Valid
                        arguments are:
                           mswin   MS-Windows behavior

```
   xterm        Xterm behavior

Using ":behave" changes these options:
option          mswin                   xterm
'selectmode'    "mouse,key"             ""
'mousemodel'    "popup"                 "extend"
'keymodel'      "startsel,stopsel"      ""
'selection'     "exclusive"             "inclusive"
```

In the $VIMRUNTIME directory, there is a script called mswin.vim , which will also map a few keys to the MS-Windows cut/copy/paste commands. This is NOT compatible, since it uses the CTRL-V, CTRL-X and CTRL-C keys. If you don't mind, use this command:

```
:so $VIMRUNTIME/mswin.vim
```

For scrolling with a wheel on a mouse, see scroll-mouse-wheel .

3.1 Moving Cursor with Mouse gui-mouse-move

Click the left mouse button somewhere in a text buffer where you want the cursor to go, and it does!

This works in	when 'mouse' contains
Normal mode	'n' or 'a'
Visual mode	'v' or 'a'
Insert mode	'i' or 'a'

Select mode is handled like Visual mode.

You may use this with an operator such as 'd' to delete text from the current cursor position to the position you point to with the mouse. That is, you hit 'd' and then click the mouse somewhere.

gui-mouse-focus

The 'mousefocus' option can be set to make the keyboard focus follow the mouse pointer. This means that the window where the mouse pointer is, is the active window. Warning: this doesn't work very well when using a menu, because the menu command will always be applied to the top window.

If you are on the ':' line (or '/' or '?'), then clicking the left or right mouse button will position the cursor on the ':' line (if 'mouse' contains 'c', 'a' or 'A').

In any situation the middle mouse button may be clicked to paste the current selection.

3.2 Selection with Mouse gui-mouse-select

The mouse can be used to start a selection. How depends on the 'mousemodel' option:

'mousemodel' is "extend": use the right mouse button
'mousemodel' is "popup": use the left mouse button, while keeping the Shift key pressed.

If there was no selection yet, this starts a selection from the old cursor position to the position pointed to with the mouse. If there already is a selection then the closest end will be extended.

If 'selectmode' contains "mouse", then the selection will be in Select mode. This means that typing normal text will replace the selection. See Select-mode . Otherwise, the selection will be in Visual mode.

Double clicking may be done to make the selection word-wise, triple clicking makes it line-wise, and quadruple clicking makes it rectangular block-wise.

See gui-selections on how the selection is used.

3.3 Other Text Selection with Mouse gui-mouse-modeless modeless-selection

A different kind of selection is used when:
- in Command-line mode
- in the Command-line window and pointing in another window
- at the hit-enter prompt
- whenever the current mode is not in the 'mouse' option
- when holding the CTRL and SHIFT keys in the GUI

Since Vim continues like the selection isn't there, and there is no mode associated with the selection, this is called modeless selection. Any text in the Vim window can be selected. Select the text by pressing the left mouse button at the start, drag to the end and release. To extend the selection, use the right mouse button when 'mousemodel' is "extend", or the left mouse button with the shift key pressed when 'mousemodel' is "popup".
The selection is removed when the selected text is scrolled or changed.

On the command line CTRL-Y can be used to copy the selection into the clipboard. To do this from Insert mode, use CTRL-O : CTRL-Y <CR>. When 'guioptions' contains a or A (default on X11), the selection is automatically copied to the "* register.

The middle mouse button can then paste the text. On non-X11 systems, you can use CTRL-R +.

3.4 Using Mouse on Status Lines gui-mouse-status

Clicking the left or right mouse button on the status line below a Vim window makes that window the current window. This actually happens on button release (to be able to distinguish a click from a drag action).

With the left mouse button a status line can be dragged up and down, thus resizing the windows above and below it. This does not change window focus.

The same can be used on the vertical separator: click to give the window left of it focus, drag left and right to make windows wider and narrower.

3.5 Various Mouse Clicks gui-mouse-various

<S-LeftMouse>	Search forward for the word under the mouse click. When 'mousemodel' is "popup" this starts or extends a selection.
<S-RightMouse>	Search backward for the word under the mouse click.
<C-LeftMouse>	Jump to the tag name under the mouse click.
<C-RightMouse>	Jump back to position before the previous tag jump (same as "CTRL-T")

3.6 Mouse Mappings gui-mouse-mapping

The mouse events, complete with modifiers, may be mapped. Eg:

```
:map <S-LeftMouse>     <RightMouse>
:map <S-LeftDrag>      <RightDrag>
:map <S-LeftRelease>   <RightRelease>
:map <2-S-LeftMouse>   <2-RightMouse>
:map <2-S-LeftDrag>    <2-RightDrag>
:map <2-S-LeftRelease> <2-RightRelease>
:map <3-S-LeftMouse>   <3-RightMouse>
:map <3-S-LeftDrag>    <3-RightDrag>
:map <3-S-LeftRelease> <3-RightRelease>
:map <4-S-LeftMouse>   <4-RightMouse>
:map <4-S-LeftDrag>    <4-RightDrag>
:map <4-S-LeftRelease> <4-RightRelease>
```

These mappings make selection work the way it probably should in a Motif application, with shift-left mouse allowing for extending the visual area rather than the right mouse button.

Mouse mapping with modifiers does not work for modeless selection.

3.7 Drag and drop drag-n-drop

You can drag and drop one or more files into the Vim window, where they will be opened as if a :drop command was used.

If you hold down Shift while doing this, Vim changes to the first dropped file's directory. If you hold Ctrl Vim will always split a new window for the file. Otherwise it's only done if the current buffer has been changed.

You can also drop a directory on Vim. This starts the explorer plugin for that directory (assuming it was enabled, otherwise you'll get an error message). Keep Shift pressed to change to the directory instead.

If Vim happens to be editing a command line, the names of the dropped files and directories will be inserted at the cursor. This allows you to use these names with any Ex command. Special characters (space, tab, double quote and '|'; backslash on non-MS-Windows systems) will be escaped.

==========

4. Making GUI Selections gui-selections

quotestar

You may make selections with the mouse (see gui-mouse-select), or by using Vim's Visual mode (see v). If 'a' is present in 'guioptions', then whenever a selection is started (Visual or Select mode), or when the selection is changed, Vim becomes the owner of the windowing system's primary selection (on MS-Windows the gui-clipboard is used; under X11, the x11-selection is used - you should read whichever of these is appropriate now).

clipboard

There is a special register for storing this selection, it is the "* register. Nothing is put in here unless the information about what text is selected is about to change (e.g. with a left mouse click somewhere), or when another application wants to paste the selected text. Then the text is put in the "* register. For example, to cut a line and make it the current selection/put it on the clipboard:

```
"*dd
```

Similarly, when you want to paste a selection from another application, e.g., by clicking the middle mouse button, the selection is put in the "* register first, and then 'put' like any other register. For example, to put the selection (contents of the clipboard):

```
"*p
```

When using this register under X11, also see x11-selection . This also explains the related "+ register.

Note that when pasting text from one Vim into another separate Vim, the type of selection (character, line, or block) will also be copied. For other applications the type is always character. However, if the text gets transferred via the x11-cut-buffer , the selection type is ALWAYS lost.

When the "unnamed" string is included in the 'clipboard' option, the unnamed register is the same as the "* register. Thus you can yank to and paste the selection without prepending "* to commands.

==

5. Menus menus

For an introduction see usr_42.txt in the user manual.

5.1 Using Menus using-menus

Basically, menus can be used just like mappings. You can define your own menus, as many as you like.
Long-time Vim users won't use menus much. But the power is in adding your own menus and menu items. They are most useful for things that you can't remember what the key sequence was.

For creating menus in a different language, see :menutrans .
If you don't want to use menus at all, see 'go-M' .

menu.vim

The default menus are read from the file "$VIMRUNTIME/menu.vim". See
$VIMRUNTIME for where the path comes from. You can set up your own menus.
Starting off with the default set is a good idea. You can add more items, or,
if you don't like the defaults at all, start with removing all menus
:unmenu-all . You can also avoid the default menus being loaded by adding
this line to your .vimrc file (NOT your .gvimrc file!):

```
:let did_install_default_menus = 1
```

If you also want to avoid the Syntax menu:

```
:let did_install_syntax_menu = 1
```

The first item in the Syntax menu can be used to show all available filetypes
in the menu (which can take a bit of time to load). If you want to have all
filetypes already present at startup, add:

```
:let do_syntax_sel_menu = 1
```

The following menuitems show all available color schemes, keymaps and compiler
settings:

```
Edit > Color Scheme
Edit > Keymap
Tools > Set Compiler
```

However, they can also take a bit of time to load, because they search all
related files from the directories in 'runtimepath'. Therefore they are
loaded lazily (by the CursorHold event), or you can also load them manually.
If you want to have all these items already present at startup, add:

```
:let do_no_lazyload_menus = 1
```

Note that the menu.vim is sourced when `:syntax on` or `:filetype on` is
executed or after your .vimrc file is sourced. This means that the 'encoding'
option and the language of messages (`:language messages`) must be set before
that (if you want to change them).

console-menus

Although this documentation is in the GUI section, you can actually use menus
in console mode too. You will have to load menu.vim explicitly then, it is
not done by default. You can use the :emenu command and command-line
completion with 'wildmenu' to access the menu entries almost like a real menu
system. To do this, put these commands in your .vimrc file:

```
:source $VIMRUNTIME/menu.vim
:set wildmenu
:set cpo-=<
:set wcm=<C-Z>
:map <F4> :emenu <C-Z>
```

Pressing <F4> will start the menu. You can now use the cursor keys to select
a menu entry. Hit <Enter> to execute it. Hit <Esc> if you want to cancel.
This does require the +menu feature enabled at compile time.

tear-off-menus

GTK+ 2 and Motif support Tear-off menus. These are sort of sticky menus or
pop-up menus that are present all the time. If the resizing does not work
correctly, this may be caused by using something like "Vim*geometry" in the
defaults. Use "Vim.geometry" instead.

As to GTK+ 3, tear-off menus have been deprecated since GTK+ 3.4.
Accordingly, they are disabled if gvim is linked against GTK+ 3.4 or later.

The Win32 GUI version emulates Motif's tear-off menus. Actually, a Motif user will spot the differences easily, but hopefully they're just as useful. You can also use the :tearoff command together with hidden-menus to create floating menus that do not appear on the main menu bar.

5.2 Creating New Menus creating-menus

:me	:menu	:noreme	:noremenu
:am	:amenu	:an	:anoremenu
:nme	:nmenu	:nnoreme	:nnoremenu
:ome	:omenu	:onoreme	:onoremenu
:vme	:vmenu	:vnoreme	:vnoremenu
:xme	:xmenu	:xnoreme	:xnoremenu
:sme	:smenu	:snoreme	:snoremenu
:ime	:imenu	:inoreme	:inoremenu
:cme	:cmenu	:cnoreme	:cnoremenu
E330	E327	E331	E336	E333
E328	E329	E337	E792	

To create a new menu item, use the ":menu" commands. They are mostly like the ":map" set of commands but the first argument is a menu item name, given as a path of menus and submenus with a '.' between them, e.g.:

```
:menu File.Save  :w<CR>
:inoremenu File.Save  <C-O>:w<CR>
:menu Edit.Big\ Changes.Delete\ All\ Spaces  :%s/[ ^I]//g<CR>
```

This last one will create a new item in the menu bar called "Edit", holding the mouse button down on this will pop up a menu containing the item "Big Changes", which is a sub-menu containing the item "Delete All Spaces", which when selected, performs the operation.

Special characters in a menu name:

&	The next character is the shortcut key. Make sure each shortcut key is only used once in a (sub)menu. If you want to insert a literal "&" in the menu name use "&&".
<Tab>	Separates the menu name from right-aligned text. This can be used to show the equivalent typed command. The text "<Tab>" can be used here for convenience. If you are using a real tab, don't forget to put a backslash before it!

Example:

```
:amenu &File.&Open<Tab>:e  :browse e<CR>
```

[typed literally]
With the shortcut "F" (while keeping the <Alt> key pressed), and then "O", this menu can be used. The second part is shown as "Open :e". The ":e" is right aligned, and the "O" is underlined, to indicate it is the shortcut.

The ":amenu" command can be used to define menu entries for all modes at once. To make the command work correctly, a character is automatically inserted for some modes:

```
        mode            inserted        appended
        Normal          nothing         nothing
        Visual          <C-C>           <C-\><C-G>
        Insert          <C-\><C-O>
        Cmdline         <C-C>           <C-\><C-G>
        Op-pending      <C-C>           <C-\><C-G>
```

Appending CTRL-\ CTRL-G is for going back to insert mode when 'insertmode' is set. CTRL-_CTRL-G

Example:

```
   :amenu File.Next     :next^M
```

is equal to:

```
   :nmenu File.Next     :next^M
   :vmenu File.Next     ^C:next^M^\^G
   :imenu File.Next     ^\^O:next^M
   :cmenu File.Next     ^C:next^M^\^G
   :omenu File.Next     ^C:next^M^\^G
```

Careful: In Insert mode this only works for a SINGLE Normal mode command, because of the CTRL-O. If you have two or more commands, you will need to use the ":imenu" command. For inserting text in any mode, you can use the expression register:

```
   :amenu Insert.foobar   "='foobar'<CR>P
```

Note that the '<' and 'k' flags in 'cpoptions' also apply here (when included they make the <> form and raw key codes not being recognized).

Note that <Esc> in Cmdline mode executes the command, like in a mapping. This is Vi compatible. Use CTRL-C to quit Cmdline mode.

:menu-<silent> :menu-silent

To define a menu which will not be echoed on the command line, add "<silent>" as the first argument. Example:

```
        :menu <silent> Settings.Ignore\ case  :set ic<CR>
```

The ":set ic" will not be echoed when using this menu. Messages from the executed command are still given though. To shut them up too, add a ":silent" in the executed command:

```
        :menu <silent> Search.Header :exe ":silent normal /Header\r"<CR>
```

"<silent>" may also appear just after "<special>" or "<script>".

:menu-<special> :menu-special

Define a menu with <> notation for special keys, even though the "<" flag may appear in 'cpoptions'. This is useful if the side effect of setting 'cpoptions' is not desired. Example:

```
        :menu <special> Search.Header /Header<CR>
```

"<special>" must appear as the very first argument to the ":menu" command or just after "<silent>" or "<script>".

:menu-<script> :menu-script

The "to" part of the menu will be inspected for mappings. If you don't want
this, use the ":noremenu" command (or the similar one for a specific mode).
If you do want to use script-local mappings, add "<script>" as the very first
argument to the ":menu" command or just after "<silent>" or "<special>".

menu-priority

You can give a priority to a menu. Menus with a higher priority go more to
the right. The priority is given as a number before the ":menu" command.
Example:

```
:80menu Buffer.next :bn<CR>
```

The default menus have these priorities:

```
File            10
Edit            20
Tools           40
Syntax          50
Buffers         60
Window          70
Help            9999
```

When no or zero priority is given, 500 is used.
The priority for the PopUp menu is not used.

The Help menu will be placed on the far right side of the menu bar on systems
which support this (Motif and GTK+). For GTK+ 2 and 3, this is not done
anymore because right-aligning the Help menu is now discouraged UI design.

You can use a priority higher than 9999, to make it go after the Help menu,
but that is non-standard and is discouraged. The highest possible priority is
about 32000. The lowest is 1.

sub-menu-priority

The same mechanism can be used to position a sub-menu. The priority is then
given as a dot-separated list of priorities, before the menu name:

```
:menu 80.500 Buffer.next :bn<CR>
```

Giving the sub-menu priority is only needed when the item is not to be put
in a normal position. For example, to put a sub-menu before the other items:

```
:menu 80.100 Buffer.first :brew<CR>
```

Or to put a sub-menu after the other items, and further items with default
priority will be put before it:

```
:menu 80.900 Buffer.last :blast<CR>
```

When a number is missing, the default value 500 will be used:

```
:menu .900 myMenu.test :echo "text"<CR>
```

The menu priority is only used when creating a new menu. When it already
existed, e.g., in another mode, the priority will not change. Thus, the
priority only needs to be given the first time a menu is used.
An exception is the PopUp menu. There is a separate menu for each mode
(Normal, Op-pending, Visual, Insert, Cmdline). The order in each of these
menus can be different. This is different from menu-bar menus, which have
the same order for all modes.
NOTE: sub-menu priorities currently don't work for all versions of the GUI.

menu-separator E332

Menu items can be separated by a special item that inserts some space between

items. Depending on the system this is displayed as a line or a dotted line.
These items must start with a '-' and end in a '-'. The part in between is
used to give it a unique name. Priorities can be used as with normal items.
Example:

```
        :menu Example.item1     :do something
        :menu Example.-Sep-     :
        :menu Example.item2     :do something different
```

Note that the separator also requires a rhs. It doesn't matter what it is,
because the item will never be selected. Use a single colon to keep it
simple.

gui-toolbar

The toolbar is currently available in the Win32, Athena, Motif, GTK+ (X11),
and Photon GUI. It should turn up in other GUIs in due course. The
default toolbar is setup in menu.vim.
The display of the toolbar is controlled by the 'guioptions' letter 'T'. You
can thus have menu & toolbar together, or either on its own, or neither.
The appearance is controlled by the 'toolbar' option. You can choose between
an image, text or both.

toolbar-icon

The toolbar is defined as a special menu called ToolBar, which only has one
level. Vim interprets the items in this menu as follows:

1) If an "icon=" argument was specified, the file with this name is used.
    The file can either be specified with the full path or with the base name.
    In the last case it is searched for in the "bitmaps" directory in
    'runtimepath', like in point 3. Examples:

```
        :amenu icon=/usr/local/pixmaps/foo_icon.xpm ToolBar.Foo :echo "Foo"<CR>
        :amenu icon=FooIcon ToolBar.Foo :echo "Foo"<CR>
```

    Note that in the first case the extension is included, while in the second
    case it is omitted.
    If the file cannot be opened the next points are tried.
    A space in the file name must be escaped with a backslash.
    A menu priority must come _after_ the icon argument:

```
        :amenu icon=foo 1.42 ToolBar.Foo :echo "42!"<CR>
```

2) An item called 'BuiltIn##', where ## is a number, is taken as number ## of
    the built-in bitmaps available in Vim. Currently there are 31 numbered
    from 0 to 30 which cover most common editing operations builtin-tools .

```
        :amenu ToolBar.BuiltIn22 :call SearchNext("back")<CR>
```

3) An item with another name is first searched for in the directory
    "bitmaps" in 'runtimepath'. If found, the bitmap file is used as the
    toolbar button image. Note that the exact filename is OS-specific: For
    example, under Win32 the command

```
        :amenu ToolBar.Hello :echo "hello"<CR>
```

    would find the file 'hello.bmp'. Under GTK+/X11 it is 'Hello.xpm'. With
    GTK+ 2 the files 'Hello.png', 'Hello.xpm' and 'Hello.bmp' are checked for
    existence, and the first one found would be used.
    For MS-Windows and GTK+ 2 the bitmap is scaled to fit the button. For
    MS-Windows a size of 18 by 18 pixels works best.
    For MS-Windows the bitmap should have 16 colors with the standard palette.
    The light grey pixels will be changed to the Window frame color and the
    dark grey pixels to the window shadow color. More colors might also work,
    depending on your system.
4) If the bitmap is still not found, Vim checks for a match against its list

of built-in names. Each built-in button image has a name.
So the command
:amenu ToolBar.Open :e
will show the built-in "open a file" button image if no open.bmp exists.
All the built-in names can be seen used in menu.vim.
5) If all else fails, a blank, but functioning, button is displayed.

builtin-tools

nr	Name	Normal action
00	New	open new window
01	Open	browse for file to open in current window
02	Save	write buffer to file
03	Undo	undo last change
04	Redo	redo last undone change
05	Cut	delete selected text to clipboard
06	Copy	copy selected text to clipboard
07	Paste	paste text from clipboard
08	Print	print current buffer
09	Help	open a buffer on Vim's builtin help
10	Find	start a search command
11	SaveAll	write all modified buffers to file
12	SaveSesn	write session file for current situation
13	NewSesn	write new session file
14	LoadSesn	load session file
15	RunScript	browse for file to run as a Vim script
16	Replace	prompt for substitute command
17	WinClose	close current window
18	WinMax	make current window use many lines
19	WinMin	make current window use few lines
20	WinSplit	split current window
21	Shell	start a shell
22	FindPrev	search again, backward
23	FindNext	search again, forward
24	FindHelp	prompt for word to search help for
25	Make	run make and jump to first error
26	TagJump	jump to tag under the cursor
27	RunCtags	build tags for files in current directory
28	WinVSplit	split current window vertically
29	WinMaxWidth	make current window use many columns
30	WinMinWidth	make current window use few columns

hidden-menus win32-hidden-menus

In the Win32 and GTK+ GUI, starting a menu name with ']' excludes that menu from the main menu bar. You must then use the :popup or :tearoff command to display it.

window-toolbar WinBar

Each window can have a local toolbar. This uses the first line of the window, thus reduces the space for the text by one line. The items in the toolbar must start with "WinBar".

Only text can be used. When using Unicode, special characters can be used to make the items look like icons.

If the items do not fit then the last ones cannot be used. The toolbar does not wrap.

Note that Vim may be in any mode when executing these commands. The menu should be defined for Normal mode and will be executed without changing the current mode. Thus if the current window is in Visual mode and the menu command does not intentionally change the mode, Vim will remain in Visual mode. Best is to use `:nnoremenu` to avoid side effects.

Example for debugger tools:
```
        nnoremenu 1.10 WinBar.Step :Step<CR>
        nnoremenu 1.20 WinBar.Next :Next<CR>
        nnoremenu 1.30 WinBar.Finish :Finish<CR>
        nnoremenu 1.40 WinBar.Cont :Continue<CR>
```

The window toolbar uses the ToolbarLine and ToolbarButton highlight groups.

When splitting the window the window toolbar is not copied to the new window.

popup-menu

In the Win32, GTK+, Motif, Athena and Photon GUI, you can define the special menu "PopUp". This is the menu that is displayed when the right mouse button is pressed, if 'mousemodel' is set to popup or popup_setpos.
Example:
```
    nnoremenu 1.40 PopUp.&Paste "+gP
    menu PopUp
```

5.3 Showing What Menus Are Mapped To showing-menus

To see what an existing menu is mapped to, use just one argument after the menu commands (just like you would with the ":map" commands). If the menu specified is a submenu, then all menus under that hierarchy will be shown. If no argument is given after :menu at all, then ALL menu items are shown for the appropriate mode (e.g., Command-line mode for :cmenu).

Special characters in the list, just before the rhs:
```
*       The menu was defined with "nore" to disallow remapping.
&       The menu was defined with "<script>" to allow remapping script-local
        mappings only.
-       The menu was disabled.
```

Note that hitting <Tab> while entering a menu name after a menu command may be used to complete the name of the menu item.

5.4 Executing Menus execute-menus

:em :emenu E334 E335

:[range]em[enu] {menu} Execute {menu} from the command line.
The default is to execute the Normal mode menu. If a range is specified, it executes the Visual mode menu.
If used from <c-o>, it executes the

insert-mode menu Eg:

```
:emenu File.Exit
```

If the console-mode vim has been compiled with WANT_MENU defined, you can use :emenu to access useful menu items you may have got used to from GUI mode. See 'wildmenu' for an option that works well with this. See console-menus for an example.

When using a range, if the lines match with '<,'>, then the menu is executed using the last visual selection.

5.5 Deleting Menus delete-menus

:unme :unmenu
:aun :aunmenu
:nunme :nunmenu
:ounme :ounmenu
:vunme :vunmenu
:xunme :xunmenu
:sunme :sunmenu
:iunme :iunmenu
:cunme :cunmenu

To delete a menu item or a whole submenu, use the unmenu commands, which are analogous to the unmap commands. Eg:

```
:unmenu! Edit.Paste
```

This will remove the Paste item from the Edit menu for Insert and Command-line modes.

Note that hitting <Tab> while entering a menu name after an umenu command may be used to complete the name of the menu item for the appropriate mode.

To remove all menus use: :unmenu-all

```
:unmenu *       " remove all menus in Normal and visual mode
:unmenu! *      " remove all menus in Insert and Command-line mode
:aunmenu *      " remove all menus in all modes
```

If you want to get rid of the menu bar:

```
:set guioptions-=m
```

5.6 Disabling Menus disable-menus

:menu-disable :menu-enable

If you do not want to remove a menu, but disable it for a moment, this can be done by adding the "enable" or "disable" keyword to a ":menu" command. Examples:

```
:menu disable &File.&Open\.\.\.
:amenu enable *
:amenu disable &Tools.*
```

The command applies to the modes as used with all menu commands. Note that characters like "&" need to be included for translated names to be found.

When the argument is "*", all menus are affected. Otherwise the given menu name and all existing submenus below it are affected.

5.7 Examples for Menus menu-examples

Here is an example on how to add menu items with menu's! You can add a menu item for the keyword under the cursor. The register "z" is used.

```
:nmenu Words.Add\ Var         wb"zye:menu! Words.<C-R>z <C-R>z<CR>
:nmenu Words.Remove\ Var      wb"zye:unmenu! Words.<C-R>z<CR>
:vmenu Words.Add\ Var         "zy:menu! Words.<C-R>z <C-R>z <CR>
:vmenu Words.Remove\ Var      "zy:unmenu! Words.<C-R>z<CR>
:imenu Words.Add\ Var         <Esc>wb"zye:menu! Words.<C-R>z <C-R>z<CR>a
:imenu Words.Remove\ Var      <Esc>wb"zye:unmenu! Words.<C-R>z<CR>a
```

(the rhs is in <> notation, you can copy/paste this text to try out the mappings, or put these lines in your gvimrc; "<C-R>" is CTRL-R, "<CR>" is the <CR> key. <>)

5.8 Tooltips & Menu tips

See section 42.4 in the user manual.

:tmenu :tm

:tm[enu] {menupath} {rhs} Define a tip for a menu or tool. {only in X11 and Win32 GUI}

:tm[enu] [menupath] List menu tips. {only in X11 and Win32 GUI}

:tunmenu :tu

:tu[nmenu] {menupath} Remove a tip for a menu or tool. {only in X11 and Win32 GUI}

When a tip is defined for a menu item, it appears in the command-line area when the mouse is over that item, much like a standard Windows menu hint in the status bar. (Except when Vim is in Command-line mode, when of course nothing is displayed.)
When a tip is defined for a ToolBar item, it appears as a tooltip when the mouse pauses over that button, in the usual fashion. Use the hl-Tooltip highlight group to change its colors.

A "tip" can be defined for each menu item. For example, when defining a menu item like this:

```
:amenu MyMenu.Hello :echo "Hello"<CR>
```

The tip is defined like this:

```
:tmenu MyMenu.Hello Displays a greeting.
```

And delete it with:

```
:tunmenu MyMenu.Hello
```

Tooltips are currently only supported for the X11 and Win32 GUI. However, they should appear for the other gui platforms in the not too distant future.

The ":tmenu" command works just like other menu commands, it uses the same arguments. ":tunmenu" deletes an existing menu tip, in the same way as the other unmenu commands.

If a menu item becomes invalid (i.e. its actions in all modes are deleted) Vim deletes the menu tip (and the item) for you. This means that :aunmenu deletes a menu item - you don't need to do a :tunmenu as well.

5.9 Popup Menus

In the Win32 and GTK+ GUI, you can cause a menu to popup at the cursor. This behaves similarly to the PopUp menus except that any menu tree can be popped up.

This command is for backwards compatibility, using it is discouraged, because it behaves in a strange way.

:popup :popu

:popu[p] {name} Popup the menu {name}. The menu named must have at least one subentry, but need not appear on the menu-bar (see hidden-menus). {only available for Win32 and GTK GUI or in the terminal when compiled with +insert_expand}

:popu[p]! {name} Like above, but use the position of the mouse pointer instead of the cursor. In the terminal this is the last known position, which is usually at the last click or release (mouse movement is irrelevant).

Example:

```
:popup File
```

will make the "File" menu (if there is one) appear at the text cursor (mouse pointer if ! was used).

```
:amenu ]Toolbar.Make    :make<CR>
:popup ]Toolbar
```

This creates a popup menu that doesn't exist on the main menu-bar.

Note that in the GUI the :popup command will return immediately, before a selection has been made. In the terminal the commands waits for the user to make a selection.

Note that a menu that starts with ']' will not be displayed.

==========

6. Extras gui-extras

This section describes other features which are related to the GUI.

- With the GUI, there is no wait for one second after hitting escape, because the key codes don't start with <Esc>.

- Typing ^V followed by a special key in the GUI will insert "<Key>", since
  the internal string used is meaningless. Modifiers may also be held down to
  get "<Modifiers-Key>".

- In the GUI, the modifiers SHIFT, CTRL, and ALT (or META) may be used within
  mappings of special keys and mouse events. E.g.: :map <M-LeftDrag> <LeftDrag>

- In the GUI, several normal keys may have modifiers in mappings etc, these
  are <Space>, <Tab>, <NL>, <CR>, <Esc>.

- To check in a Vim script if the GUI is being used, you can use something
  like this:

```
if has("gui_running")
   echo "yes, we have a GUI"
else
   echo "Boring old console"
endif
```

setting-guifont

- When you use the same vimrc file on various systems, you can use something
  like this to set options specifically for each type of GUI:

```
if has("gui_running")
    if has("gui_gtk2")
        :set guifont=Luxi\ Mono\ 12
    elseif has("x11")
        " Also for GTK 1
        :set guifont=*-lucidatypewriter-medium-r-normal-*-*-180-*-*-m-*-*
    elseif has("gui_win32")
        :set guifont=Luxi_Mono:h12:cANSI
    endif
endif
```

A recommended Japanese font is MS Mincho. You can find info here:
http://www.lexikan.com/mincho.htm

==
7. Shell Commands gui-shell

For the X11 GUI the external commands are executed inside the gvim window.
See gui-pty .

WARNING: Executing an external command from the X11 GUI will not always
work. "normal" commands like "ls", "grep" and "make" mostly work fine.
Commands that require an intelligent terminal like "less" and "ispell" won't
work. Some may even hang and need to be killed from another terminal. So be
careful!

For the Win32 GUI the external commands are executed in a separate window.
See gui-shell-win32 .

vim:tw=78:sw=4:ts=8:noet:ft=help:norl:

gui_w32.txt For Vim version 8.1. Last change: 2017 Oct 27

VIM REFERENCE MANUAL by Bram Moolenaar

Vim's Win32 Graphical User Interface gui-w32 win32-gui

Other relevant documentation:
gui.txt For generic items of the GUI.
os_win32.txt For Win32 specific items.

{Vi does not have a Windows GUI}

==========

1. Starting the GUI gui-w32-start

The Win32 GUI version of Vim will always start the GUI, no matter how you start it or what it's called.

The GUI will always run in the Windows subsystem. Mostly shells automatically return with a command prompt after starting gvim. If not, you should use the "start" command:

```
start gvim [options] file ..
```

Note: All fonts (bold, italic) must be of the same size!!! If you don't do this, text will disappear or mess up the display. Vim does not check the font sizes. It's the size in screen pixels that must be the same. Note that some fonts that have the same point size don't have the same pixel size! Additionally, the positioning of the fonts must be the same (ascent and descent).

The Win32 GUI has an extra menu item: "Edit/Select Font". It brings up the standard Windows font selector.

Setting the menu height doesn't work for the Win32 GUI.

gui-win32-maximized

If you want Vim to start with a maximized window, add this command to your vimrc or gvimrc file:

```
au GUIEnter * simalt ~x
```

Using Vim as a plugin gui-w32-windowid

When gvim starts up normally, it creates its own top level window. If you
pass Vim the command-line option --windowid with a decimal or hexadecimal
value, Vim will create a window that is a child of the window with the given
ID. This enables Vim to act as a plugin in another application. This really
is a programmer's interface, and is of no use without a supporting application
to spawn Vim correctly.

==
2. Vim as default editor   vim-default-editor

To set Vim as the default editor for a file type:
1. Start a Windows Explorer
2. Choose View/Options -> File Types
3. Select the path to gvim for every file type that you want to use it for.
   (you can also use three spaces in the file type field, for files without an
   extension).
   In the "open" action, use:
        gvim "%1"
  The quotes are required for using file names with embedded spaces.
   You can also use this:
        gvim "%L"
  This should avoid short (8.3 character) file names in some situations. But
   I'm not sure if this works everywhere.

When you open a file in Vim by double clicking it, Vim changes to that
file's directory.

If you want Vim to start full-screen, use this for the Open action:
        gvim -c "simalt ~x" "%1"

Another method, which also works when you put Vim in another directory (e.g.,
when you have got a new version):
1. select a file you want to use Vim with
2. <Shift-F10>
3. select "Open With..." menu entry
4. click "Other..."
5. browse to the (new) location of Vim and click "Open"
6. make "Always Use this program..." checked
7. <OK>

                                                send-to-menu   sendto
You can also install Vim in the "Send To" menu:
1. Start a Windows Explorer
2. Navigate to your sendto directory:
   Windows NT: %windir%\profiles\%user%\sendto (e.g.
               "c:\winnt\profiles\mattha\sendto")
   Windows XP: C:\Documents and Settings\%user%\SendTo
   Windows Vista: C:\Users\%user%\AppData\Roaming\Microsoft\Windows\SendTo .
3. Right-click in the file pane and select New->Shortcut
4. Follow the shortcut wizard, using the full path to VIM/GVIM.

When you 'send a file to Vim', Vim changes to that file's directory. Note,
however, that any long directory names will appear in their short (MS-DOS)
form. This is a limitation of the Windows "Send To" mechanism.

notepad

You could replace notepad.exe with gvim.exe, but that has a few side effects. Some programs rely on notepad arguments, which are not recognized by Vim. For example "notepad -p" is used by some applications to print a file. It's better to leave notepad where it is and use another way to start Vim.

win32-popup-menu

A more drastic approach is to install an "Edit with Vim" entry in the popup menu for the right mouse button. With this you can edit any file with Vim.

This can co-exist with the file associations mentioned above. The difference is that the file associations will make starting Vim the default action. With the "Edit with Vim" menu entry you can keep the existing file association for double clicking on the file, and edit the file with Vim when you want. For example, you can associate "*.mak" with your make program. You can execute the makefile by double clicking it and use the "Edit with Vim" entry to edit the makefile.

You can select any files and right-click to see a menu option called "Edit with gvim". Choosing this menu option will invoke gvim with the file you have selected. If you select multiple files, you will find two gvim-related menu options:
"Edit with multiple gvims" -- one gvim for each file in the selection
"Edit with single gvim" -- one gvim for all the files in the selection
And if there already is a gvim running:
"Edit with existing gvim" -- edit the file with the running gvim

The "edit with existing Vim" entries can be disabled by adding an entry in the registry under HKLM\Software\Vim\Gvim, named DisableEditWithExisting, and with any value.

install-registry

You can add the "Edit with Vim" menu entry in an easy way by using the "install.exe" program. It will add several registry entries for you.

You can also do this by hand. This is complicated! Use the install.exe if you can.

1. Start the registry editor with "regedit".
2. Add these keys:

key	value name	value
HKEY_CLASSES_ROOT\CLSID\{51EEE242-AD87-11d3-9C1E-0090278BBD99}		
	{default}	Vim Shell Extension
HKEY_CLASSES_ROOT\CLSID\{51EEE242-AD87-11d3-9C1E-0090278BBD99}\InProcServer32		
	{default}	{path}\gvimext.dll
	ThreadingModel	Apartment
HKEY_CLASSES_ROOT*\shellex\ContextMenuHandlers\gvim		
	{default}	{51EEE242-AD87-11d3-9C1E-0090278BBD99}
HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Shell Extensions\Approved		
	{51EEE242-AD87-11d3-9C1E-0090278BBD99}	
		Vim Shell Extension
HKEY_LOCAL_MACHINE\Software\Vim\Gvim		
	path	{path}\gvim.exe
HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Uninstall\vim 5.6		

```
                DisplayName                Vim 5.6: Edit with Vim popup menu entry
                UninstallString            {path}\uninstal.exe
```

   Replace {path} with the path that leads to the executable.
   Don't type {default}, this is the value for the key itself.

To remove "Edit with Vim" from the popup menu, just remove the registry entries mentioned above. The "uninstal.exe" program can do this for you. You can also use the entry in the Windows standard "Add/Remove Programs" list.

If you notice that this entry overrules other file type associations, set those associations again by hand (using Windows Explorer, see above). This only seems to happen on some Windows NT versions (Windows bug?). Procedure:
1. Find the name of the file type. This can be done by starting the registry editor, and searching for the extension in \\HKEY_CLASSES_ROOT
2. In a Windows Explorer, use View/Options/File Types. Search for the file type in the list and click "Edit". In the actions list, you can select on to be used as the default (normally the "open" action) and click on the "Set Default" button.

Vim in the "Open With..." context menu *win32-open-with-menu*

If you use the Vim install program you have the choice to add Vim to the "Open With..." menu. This means you can use Vim to edit many files. Not every file (for unclear reasons...), thus the "Edit with Vim" menu entry is still useful.

One reason to add this is to be able to edit HTML files directly from Internet Explorer. To enable this use the "Tools" menu, "Internet Options..." entry. In the dialog select the "Programs" tab and select Vim in the "HTML editor" choice. If it's not there than installing didn't work properly.

Doing this manually can be done with this script:

```
------------------------------------------------------------
REGEDIT4

[HKEY_CLASSES_ROOT\Applications\gvim.exe]

[HKEY_CLASSES_ROOT\Applications\gvim.exe\shell]

[HKEY_CLASSES_ROOT\Applications\gvim.exe\shell\edit]

[HKEY_CLASSES_ROOT\Applications\gvim.exe\shell\edit\command]
@="c:\\vim\\vim62\\gvim.exe \"%1\""

[HKEY_CLASSES_ROOT\.htm\OpenWithList\gvim.exe]

[HKEY_CLASSES_ROOT\*\OpenWithList\gvim.exe]

------------------------------------------------------------
```

Change the "c:\\vim\\vim62" bit to where gvim.exe is actually located.

To uninstall this run the Vim uninstall program or manually delete the
registry entries with "regedit".

==
3. Using the clipboard   gui-clipboard

Windows has a clipboard, where you can copy text to, and paste text from. Vim
supports this in several ways. For other systems see gui-selections .

The "* register reflects the contents of the clipboard.   quotestar

When the "unnamed" string is included in the 'clipboard' option, the unnamed
register is the same. Thus you can yank to and paste from the clipboard
without prepending "* to commands.

The 'a' flag in 'guioptions' is not included by default. This means that text
is only put on the clipboard when an operation is performed on it. Just
Visually selecting text doesn't put it on the clipboard. When the 'a' flag is
included, the text is copied to the clipboard even when it is not operated
upon.

                                                        mswin.vim
To use the standard MS-Windows way of CTRL-X, CTRL-C and CTRL-V, use the
$VIMRUNTIME/mswin.vim script. You could add this line to your _vimrc file:
        source $VIMRUNTIME/mswin.vim

Since CTRL-C is used to copy the text to the clipboard, it can't be used to
cancel an operation. Use CTRL-Break for that.

CTRL-Z is used for undo. This means you can't suspend Vim with this key, use
 :suspend instead (if it's supported at all).

                                              CTRL-V-alternative   CTRL-Q
Since CTRL-V is used to paste, you can't use it to start a blockwise Visual
selection. You can use CTRL-Q instead. You can also use CTRL-Q in Insert
mode and Command-line mode to get the old meaning of CTRL-V. But CTRL-Q
doesn't work for terminals when it's used for control flow.

NOTE: The clipboard support still has a number of bugs. See todo .

==
4. Shell Commands   gui-shell-win32

Vim uses another window for external commands, to make it possible to run any
command. The external command gets its own environment for running, just like
it was started from a DOS prompt.

                                                        win32-vimrun
Executing an external command is done indirectly by the "vimrun" command. The
"vimrun.exe" must be in the path for this to work. Or it must be in the same
directory as the Vim executable. If "vimrun" cannot be found, the command is
executed directly, but then the DOS window closes immediately after the
external command has finished.
WARNING: If you close this window with the "X" button, and confirm the

question if you really want to kill the application, Vim may be killed too!
(This does not apply to commands run asynchronously with ":!start".)

The window in which the commands are executed will be the default you have set up for "Console" in Control Panel.

win32-!start

Normally, Vim waits for a command to complete before continuing (this makes sense for most shell commands which produce output for Vim to use). If you want Vim to start a program and return immediately, you can use the following syntax:

```
:!start [/min] {command}
```

The optional "/min" causes the window to be minimized.

==

5. Special colors win32-colors

On Win32, the normal DOS colors can be used. See dos-colors .

Additionally the system configured colors can also be used. These are known by the names Sys_XXX, where XXX is the appropriate system color name, from the following list (see the Win32 documentation for full descriptions). Case is ignored.

Sys_3DDKShadow	Sys_3DFace	Sys_BTNFace
Sys_3DHilight	Sys_3DHighlight	Sys_BTNHilight
Sys_BTNHighlight	Sys_3DLight	Sys_3DShadow
Sys_BTNShadow	Sys_ActiveBorder	Sys_ActiveCaption
Sys_AppWorkspace	Sys_Background	Sys_Desktop
Sys_BTNText	Sys_CaptionText	Sys_GrayText
Sys_Highlight	Sys_HighlightText	Sys_InactiveBorder
Sys_InactiveCaption	Sys_InactiveCaptionText	Sys_InfoBK
Sys_InfoText	Sys_Menu	Sys_MenuText
Sys_ScrollBar	Sys_Window	Sys_WindowFrame
Sys_WindowText		

Probably the most useful values are

Sys_Window	Normal window background
Sys_WindowText	Normal window text
Sys_Highlight	Highlighted background
Sys_HighlightText	Highlighted text

These extra colors are also available:
Gray, Grey, LightYellow, SeaGreen, Orange, Purple, SlateBlue, Violet,

rgb.txt

Additionally, colors defined by a "rgb.txt" file can be used. This file is well known from X11. A few lines from it:

```
  255 218 185             peach puff
  205 133  63             peru
  255 181 197             pink
```

This shows the layout of the file: First the R, G and B value as a decimal

number, followed by the name of the color. The four fields are separated by spaces.

You can get an rgb.txt file from any X11 distribution. It is located in a directory like "/usr/X11R6/lib/X11/". For Vim it must be located in the $VIMRUNTIME directory. Thus the file can be found with "$VIMRUNTIME/rgb.txt".

==
gui-w32-dialogs dialog

6. Windows dialogs & browsers

The Win32 GUI can use familiar Windows components for some operations, as well as the traditional interface shared with the console version.

6.1 Dialogs

The dialogs displayed by the "confirm" family (i.e. the 'confirm' option, :confirm command and confirm() function) are GUI-based rather than the console-based ones used by other versions. The 'c' flag in 'guioptions' changes this.

6.2 File Browsers

When prepending ":browse" before file editing commands, a file requester is used to allow you to select an existing file. See :browse .

6.3 Tearoff Menus

The Win32 GUI emulates Motif's tear-off menus. At the top of each menu you will see a small graphic "rip here" sign. Selecting it will cause a floating window to be created with the same menu entries on it. The floating menu can then be accessed just as if it was the original (including sub-menus), but without having to go to the menu bar each time.
This is most useful if you find yourself using a command buried in a sub-menu over and over again.
The tearoff menus can be positioned where you like, and always stay just above the Main Vim window. You can get rid of them by closing them as usual; they also of course close when you exit Vim.

:tearoff :te

:te[aroff] {name} Tear-off the menu {name}. The menu named must have at least one subentry, but need not appear on the menu-bar (see win32-hidden-menus).

Example:

```
:tearoff File
```

will make the "File" menu (if there is one) appear as a tearoff menu.

```
:amenu ]Toolbar.Make    :make<CR>
:tearoff ]Toolbar
```

This creates a floating menu that doesn't exist on the main menu-bar.

Note that a menu that starts with ']' will not be displayed.

==
7. Command line arguments   gui-w32-cmdargs

Command line arguments behave the same way as with the console application,
see win32-cmdargs .

==
8. Various   gui-w32-various

                                                            gui-w32-printing
The "File/Print" menu prints the text with syntax highlighting, see
 :hardcopy . If you just want to print the raw text and have a default
printer installed this should also work:
        :w >>prn

Vim supports a number of standard MS Windows features. Some of these are
detailed elsewhere: see 'mouse' , win32-hidden-menus .

                                                            drag-n-drop-win32
You can drag and drop one or more files into the Vim window, where they will
be opened as normal. See drag-n-drop .

                                                            :simalt   :sim
:sim[alt] {key}   simulate pressing {key} while holding Alt pressed.
                        {not in Vi} {only for Win32 versions}
                        Note: ":si" means ":s" with the "i" flag.

Normally, Vim takes control of all Alt-<Key> combinations, to increase the
number of possible mappings. This clashes with the standard use of Alt as the
key for accessing menus.
The quick way of getting standard behavior is to set the 'winaltkeys' option
to "yes". This however prevents you from mapping Alt keys at all.
Another way is to set 'winaltkeys' to "menu". Menu shortcut keys are then
handled by windows, other ALT keys can be mapped. This doesn't allow a
dependency on the current state though.
To get round this, the :simalt command allows Vim (when 'winaltkeys' is not
"yes") to fake a Windows-style Alt keypress. You can use this to map Alt key
combinations (or anything else for that matter) to produce standard Windows
actions. Here are some examples:

        :map <M-f> :simalt f<CR>
This makes Alt-F pop down the 'File' menu (with the stock Menu.vim) by
simulating the keystrokes Alt, F.
        :map <M-Space> :simalt ~<CR>
This maps Alt-Space to pop down the system menu for the Vim window. Note that
~ is used by simalt to represent the <Space> character.
        :map <C-n> :simalt ~n<CR>
Maps Control-N to produce the keys Alt-Space followed by N. This minimizes the
Vim window via the system menu.

Note that the key changes depending on the language you are using.

intellimouse-wheel-problems

When using the Intellimouse mouse wheel causes Vim to stop accepting input, go to:
	ControlPanel - Mouse - Wheel - UniversalScrolling - Exceptions

And add gvim to the list of applications. This problem only appears to happen with the Intellimouse driver 2.2 and when "Universal Scrolling" is turned on.

XPM support w32-xpm-support

GVim can be build on MS-Windows with support for XPM files. +xpm_w32
See the Make_mvc.mak file for instructions, search for XPM.

To try out if XPM support works do this:

```
:help
:exe 'sign define vimxpm icon=' . $VIMRUNTIME . '\\vim16x16.xpm'
:exe 'sign place 1 line=1 name=vimxpm file=' . expand('%:p')
```

vim:tw=78:sw=4:ts=8:noet:ft=help:norl:

gui_x11.txt For Vim version 8.1. Last change: 2018 May 06

VIM REFERENCE MANUAL by Bram Moolenaar

Vim's Graphical User Interface gui-x11 GUI-X11
Athena Motif

Other relevant documentation:
gui.txt For generic items of the GUI.

{Vi does not have any of these commands}

==========

1. Starting the X11 GUI gui-x11-start E665

Then you can run the GUI version of Vim in either of these ways:

```
gvim [options] [files...]
vim -g [options] [files...]
```

So if you call the executable "gvim", or make "gvim" a link to the executable, then the GUI version will automatically be used. Additional characters may be added after "gvim", for example "gvim-5".

You may also start up the GUI from within the terminal version by using one of these commands:

```
:gui [++opt] [+cmd] [-f|-b] [files...]  :gu  :gui
:gvim [++opt] [+cmd] [-f|-b] [files...]  :gv  :gvim
```

The "-f" option runs Vim in the foreground.
The "-b" option runs Vim in the background (this is the default).
Also see ++opt and +cmd .

gui-fork

When the GUI is started, it does a fork() and exits the current process. When gvim was started from a shell this makes the shell accept further commands. If you don't want this (e.g. when using gvim for a mail program that waits for gvim to exit), start gvim with "gvim -f", "vim -gf" or use ":gui -f". Don't use "vim -fg", because "-fg" specifies the foreground color.

When using "gvim -f" and then ":gui", Vim will run in the foreground. The "-f" argument will be remembered. To force running Vim in the background use ":gui -b".

"gvim --nofork" does the same as "gvim -f".

When there are running jobs Vim will not fork, because the processes would no
longer be child processes.
                                                                E851 E852
When starting the GUI fails Vim will try to continue running in the terminal.

If you want the GUI to run in the foreground always, include the 'f'
flag in 'guioptions'. -f .

==
2. GUI Resources   gui-resources .Xdefaults

If using the Motif or Athena version of the GUI (not for the KDE, GTK+ or Win32
version), a number of X resources are available. You should use Vim's class
"Vim" when setting these. They are as follows:

    Resource name   Meaning

    reverseVideo   Boolean: should reverse video be used?
    background   Color of background.
    foreground   Color of normal text.
    scrollBackground   Color of trough portion of scrollbars.
    scrollForeground   Color of slider and arrow portions of scrollbars.
    menuBackground   Color of menu backgrounds.
    menuForeground   Color of menu foregrounds.
    tooltipForeground   Color of tooltip and balloon foreground.
    tooltipBackground   Color of tooltip and balloon background.

    font   Name of font used for normal text.
    boldFont   Name of font used for bold text.
    italicFont   Name of font used for italic text.
    boldItalicFont   Name of font used for bold, italic text.
    menuFont   Name of font used for the menus, used when compiled
                        without the +xfontset feature
    menuFontSet   Name of fontset used for the menus, used when compiled
                        with the +xfontset feature
    tooltipFont   Name of the font used for the tooltip and balloons.
                        When compiled with the +xfontset feature this is a
                        fontset name.

    geometry   Initial geometry to use for gvim's window (default
                        is same size as terminal that started it).
    scrollbarWidth   Thickness of scrollbars.
    borderWidth   Thickness of border around text area.
    menuHeight   Height of the menu bar (only for Athena).

A special font for italic, bold, and italic-bold text will only be used if
the user has specified one via a resource. No attempt is made to guess what
fonts should be used for these based on the normal text font.

Note that the colors can also be set with the ":highlight" command, using the
"Normal", "Menu", "Tooltip", and "Scrollbar" groups. Example:
        :highlight Menu guibg=lightblue

```
        :highlight Tooltip guibg=yellow
        :highlight Scrollbar guibg=lightblue guifg=blue
        :highlight Normal guibg=grey90
```

font-sizes

Note: All fonts (except for the menu and tooltip) must be of the same size!!! If you don't do this, text will disappear or mess up the display. Vim does not check the font sizes. It's the size in screen pixels that must be the same. Note that some fonts that have the same point size don't have the same pixel size! Additionally, the positioning of the fonts must be the same (ascent and descent). You can check this with "xlsfonts -l {fontname}".

If any of these things are also set with Vim commands, e.g. with ":set guifont=Screen15", then this will override the X resources (currently 'guifont' is the only option that is supported).

Here is an example of what you might put in your ~/.Xdefaults file:

```
        Vim*useSchemes:                 all
        Vim*sgiMode:                    true
        Vim*useEnhancedFSB:             true
        Vim.foreground:                 Black
        Vim.background:                 Wheat
        Vim*fontList:                   7x13
```

The first three of these are standard resources on Silicon Graphics machines which make Motif applications look even better, highly recommended!

The "Vim*fontList" is to set the menu font for Motif. Example:

```
        Vim*menuBar*fontList:        -*-courier-medium-r-*-*-10-*-*-*-*-*-*-*
```

With Athena:

```
        Vim*menuBar*SmeBSB*font:     -*-courier-medium-r-*-*-10-*-*-*-*-*-*-*
        Vim*menuBar*MenuButton*font: -*-courier-medium-r-*-*-10-*-*-*-*-*-*-*
```

NOTE: A more portable, and indeed more correct, way to specify the menu font in either Motif or Athena is through the resource:

```
        Vim.menuFont:        -*-courier-medium-r-*-*-10-*-*-*-*-*-*-*
```

Or, when compiled with the +xfontset feature:

```
        Vim.menuFontSet:     -*-courier-medium-r-*-*-10-*-*-*-*-*-*-*
```

Don't use "Vim*geometry" in the defaults. This will break the menus. Use "Vim.geometry" instead.

If you get an error message "Cannot allocate colormap entry for "gray60", try adding this to your Vim resources (change the colors to your liking):

```
        Vim*scrollBackground:           Black
        Vim*scrollForeground:           Blue
```

The resources can also be set with arguments to Vim:

argument	meaning	
		-gui
-display {display}	Run vim on {display}	-display

```
    -iconic              Start vim iconified              -iconic
    -background {color}  Use {color} for the background   -background
    -bg {color}          idem                             -bg
    -foreground {color}  Use {color} for normal text      -foreground
    -fg {color}          idem                             -fg
    -ul {color}          idem                             -ul
    -font {font}         Use {font} for normal text       -font
    -fn {font}           idem                             -fn
    -boldfont {font}     Use {font} for bold text         -boldfont
    -italicfont {font}   Use {font} for italic text       -italicfont
    -menufont {font}     Use {font} for menu items        -menufont
    -menufontset {fontset} Use {fontset} for menu items   -menufontset
    -mf {font}           idem                             -mf
    -geometry {geom}     Use {geom} for initial geometry  -geometry
    -geom {geom}         idem, see  -geometry-example     -geom
    -borderwidth {width} Use a border width of {width}    -borderwidth
    -bw {width}          idem                             -bw
                                                          -scrollbarwidth
    -scrollbarwidth {width}      Use a scrollbar width of {width}
    -sw {width}          idem                             -sw
    -menuheight {height} Use a menu bar height of {height}  -menuheight
    -mh {height}         idem                             -mh
                         NOTE: On Motif the value is ignored, the menu height
                         is computed to fit the menus.
    -reverse             Use reverse video                -reverse
    -rv                  idem                             -rv
    +reverse             Don't use reverse video          -+reverse
    +rv                  idem                             -+rv
    -xrm {resource}      Set the specified resource       -xrm
```

Note about reverse video: Vim checks that the result is actually a light text on a dark background. The reason is that some X11 versions swap the colors, and some don't. These two examples will both give yellow text on a blue background:

```
    gvim -fg Yellow -bg Blue -reverse
    gvim -bg Yellow -fg Blue -reverse
```

-geometry-example

An example for the geometry argument:

```
        gvim -geometry 80x63+8+100
```

This creates a window with 80 columns and 63 lines at position 8 pixels from the left and 100 pixels from the top of the screen.

==

3. Shell Commands gui-pty

WARNING: Executing an external command from the GUI will not always work. "normal" commands like "ls", "grep" and "make" mostly work fine. Commands that require an intelligent terminal like "less" and "ispell" won't work. Some may even hang and need to be killed from another terminal. So be careful!

There are two ways to do the I/O with a shell command: Pipes and a pseudo-tty. The default is to use a pseudo-tty. This should work best on most systems.

Unfortunately, the implementation of the pseudo-tty is different on every Unix system. And some systems require root permission. To avoid running into problems with a pseudo-tty when you least expect it, test it when not editing a file. Be prepared to "kill" the started command or Vim. Commands like ":r !cat" may hang!

If using a pseudo-tty does not work for you, reset the 'guipty' option:

```
:set noguipty
```

Using a pipe should work on any Unix system, but there are disadvantages:
- Some shell commands will notice that a pipe is being used and behave differently. E.g., ":!ls" will list the files in one column.
- The ":sh" command won't show a prompt, although it will sort of work.
- When using ":make" it's not possible to interrupt with a CTRL-C.

Typeahead while the external command is running is often lost. This happens both with a pipe and a pseudo-tty. This is a known problem, but it seems it can't be fixed (or at least, it's very difficult).

gui-pty-erase

When your erase character is wrong for an external command, you should fix this in your "~/.cshrc" file, or whatever file your shell uses for initializations. For example, when you want to use backspace to delete characters, but hitting backspaces produces "^H" instead, try adding this to your "~/.cshrc":

```
stty erase ^H
```

The ^H is a real CTRL-H, type it as CTRL-V CTRL-H.

==

4. Various gui-x11-various

gui-x11-printing

The "File/Print" menu simply sends the current buffer to "lpr". No options or whatever. If you want something else, you can define your own print command. For example:

```
:10amenu File.Print :w !lpr -Php3
:10vmenu File.Print :w !lpr -Php3
```

X11-icon

Vim uses a black&white icon by default when compiled with Motif or Athena. A colored Vim icon is included as $VIMRUNTIME/vim32x32.xpm. For GTK+, this is the builtin icon used. Unfortunately, how you should install it depends on your window manager. When you use this, remove the 'i' flag from 'guioptions', to remove the black&white icon:

```
:set guioptions-=i
```

If you use one of the fvwm* family of window managers simply add this line to your .fvwm2rc configuration file:

```
Style "vim"           Icon vim32x32.xpm
```

Make sure the icon file's location is consistent with the window manager's ImagePath statement. Either modify the ImagePath from within your .fvwm2rc or drop the icon into one the pre-defined directories:

```
  ImagePath /usr/X11R6/include/X11/pixmaps:/usr/X11R6/include/X11/bitmaps
```

Note: older versions of fvwm use "IconPath" instead of "ImagePath".

For CDE "dtwm" (a derivative of Motif) add this line in the .Xdefaults:

```
   Dtwm*Vim*iconImage: /usr/local/share/vim/vim32x32.xpm
```

For "mwm" (Motif window manager) the line would be:

```
   Mwm*Vim*iconImage: /usr/local/share/vim/vim32x32.xpm
```

Mouse Pointers Available in X11

X11_mouse_shapes

By using the 'mouseshape' option, the mouse pointer can be automatically changed whenever Vim enters one of its various modes (e.g., Insert or Command). Currently, the available pointers are:

arrow	an arrow pointing northwest
beam	a I-like vertical bar
size	an arrow pointing up and down
busy	a wristwatch
blank	an invisible pointer
crosshair	a thin "+" sign
hand1	a dark hand pointing northeast
hand2	a light hand pointing northwest
pencil	a pencil pointing southeast
question	question_arrow
right_arrow	an arrow pointing northeast
up_arrow	an arrow pointing upwards

Additionally, any of the mouse pointers that are built into X11 may be used by specifying an integer from the X11/cursorfont.h include file.

If a name is used that exists on other systems, but not in X11, the default "arrow" pointer is used.

==

5. GTK version

gui-gtk GTK+ GTK GTK3

The GTK version of the GUI works a little bit different.

GTK does _not_ use the traditional X resource settings. Thus items in your ~/.Xdefaults or app-defaults files are not used.
Many of the traditional X command line arguments are not supported. (e.g., stuff like -bg, -fg, etc). The ones that are supported are:

command line argument	resource name	meaning
-fn or -font	.font	font name for the text
-geom or -geometry	.geometry	size of the gvim window
-rv or -reverse	*reverseVideo	white text on black background

```
    -display                                    display to be used
    -fg -foreground {color}                     foreground color
    -bg -background {color}                     background color
```

To set the font, see 'guifont'. For GTK, there's also a menu option that does this.

Additionally, there are these command line arguments, which are handled by GTK internally. Look in the GTK documentation for how they are used:

```
        --sync
        --gdk-debug
        --gdk-no-debug
        --no-xshm       (not in GTK+ 2)
        --xim-preedit   (not in GTK+ 2)
        --xim-status    (not in GTK+ 2)
        --gtk-debug
        --gtk-no-debug
        --g-fatal-warnings
        --gtk-module
        --display       (GTK+ counterpart of -display; works the same way.)
        --screen        (The screen number; for GTK+ 2.2 multihead support.)
```

These arguments are ignored when the +netbeans_intg feature is used:

```
        -xrm
        -mf
```

As for colors, Vim's color settings (for syntax highlighting) is still done the traditional Vim way. See :highlight for more help.

If you want to set the colors of remaining gui components (e.g., the menubar, scrollbar, whatever), those are GTK specific settings and you need to set those up in some sort of gtkrc file. You'll have to refer to the GTK documentation, however little there is, on how to do this. See http://developer.gnome.org/doc/API/2.0/gtk/gtk-Resource-Files.html for more information.

Tooltip Colors

gtk-tooltip-colors

Example, which sets the tooltip colors to black on light-yellow:

```
        style "tooltips"
        {
                bg[NORMAL] = "#ffffcc"
                fg[NORMAL] = "#000000"
        }

        widget "gtk-tooltips*"          style "tooltips"
```

Write this in the file ~/.gtkrc and it will be used by GTK+. For GTK+ 2 you might have to use the file ~/.gtkrc-2.0 instead, depending on your distribution.

For GTK+ 3, an effect similar to the above can be obtained by adding the

following snippet of CSS code to $XDG_HOME_DIR/gtk-3.0/gtk.css (usually, $HOME/.config/gtk-3.0/gtk.css):

For GTK+ 3 < 3.20:

```
        .tooltip {
                background-color: #ffffcc;
                color: #000000;
        }
```

For GTK+ 3 >= 3.20:

```
        tooltip {
            background-color: #ffffcc;
            text-shadow: none;
        }

        tooltip label {
            color: #2e3436;
        }
```

A Quick Look at GTK+ CSS

gtk-css

The contents of this subsection apply to GTK+ 3.20 or later which provides stable support for GTK+ CSS:

        https://developer.gnome.org/gtk3/stable/theming.html

GTK+ uses CSS for styling and layout of widgets. In this subsection, we'll have a quick look at GTK+ CSS through simple, illustrative examples.

Example 1. Empty Space Adjustment

By default, the toolbar and the tabline of the GTK+ 3 GUI are somewhat larger than those of the GTK+ 2 GUI. Some people may want to make them look similar to the GTK+ 2 GUI in size.

To do that, we'll try reducing empty space around icons and labels that looks apparently superfluous.

Add the following lines to $XDG_HOME_DIR/gtk-3.0/gtk.css (usually, $HOME/.config/gtk-3.0/gtk.css):

```
        toolbar button {
            margin-top: -2px;
            margin-right: 0px;
            margin-bottom: -2px;
            margin-left: 0px;

            padding-top: 0px;
            padding-right: 0px;
            padding-bottom: 0px;
            padding-left: 0px
```

```
        }

        notebook tab {
            margin-top: -1px;
            margin-right: 3px;
            margin-bottom: -1px;
            margin-left: 3px;

            padding-top: 0px;
            padding-right: 0px;
            padding-bottom: 0px;
            padding-left: 0px
        }
```

Since it's a CSS, they can be rewritten using shorthand:

```
        toolbar button {
            margin: -2px 0px;
            padding: 0px;
        }

        notebook tab {
            margin: -1px 3px;
            padding: 0px
        }
```

Note: You might want to use 'toolbariconsize' to adjust the icon size, too.

Note: Depending on the icon theme and/or the font in use, some extra tweaks may be needed for a satisfactory result.

Note: In addition to margin and padding, you can use border. For details, refer to the box model of CSS, e.g.,

```
        https://www.w3schools.com/css/css_boxmodel.asp
```

Example 2. More Than Just Colors

GTK+ CSS supports gradients as well:

```
        tooltip {
            background-image: -gtk-gradient(linear,
                                            0 0, 0 1,
                                            color-stop(0, #344752),
                                            color-stop(0.5, #546772),
                                            color-stop(1, #243742));
        }

        tooltip label {
            color: #f3f3f3;
        }
```

Gradients can be used to make a GUI element visually distinguishable from others without relying on high contrast. Accordingly, effective use of them is

a useful technique to give a theme a sense of unity in color and luminance.

Note: Theming can be difficult since it must make every application look equally good; making a single application more charming often gets others unexpectedly less attractive or even deteriorates their usability. Keep this in mind always when you try improving a theme.

Using Vim as a GTK+ plugin

gui-gtk-socketid

When the GTK+ version of Vim starts up normally, it creates its own top level window (technically, a 'GtkWindow'). GTK+ provides an embedding facility with its GtkSocket and GtkPlug widgets. If one GTK+ application creates a GtkSocket widget in one of its windows, an entirely different GTK+ application may embed itself into the first application by creating a top-level GtkPlug widget using the socket's ID.

If you pass Vim the command-line option '--socketid' with a decimal or hexadecimal value, Vim will create a GtkPlug widget using that value instead of the normal GtkWindow. This enables Vim to act as a GTK+ plugin.

This really is a programmer's interface, and is of no use without a supporting application to spawn the Vim correctly. For more details on GTK+ sockets, see http://www.gtk.org/api/

Note that this feature requires the latest GTK version. GTK 1.2.10 still has a small problem. The socket feature has not yet been tested with GTK+ 2 -- feel free to volunteer.

==
6. GNOME version

gui-gnome Gnome GNOME

The GNOME GUI works just like the GTK+ version. See GTK+ above for how it works. It looks a bit different though, and implements one important feature that's not available in the plain GTK+ GUI: Interaction with the session manager. gui-gnome-session

These are the different looks:
- Uses GNOME dialogs (GNOME 1 only). The GNOME 2 GUI uses the same nice dialogs as the GTK+ 2 version.
- Uses the GNOME dock, so that the toolbar and menubar can be moved to different locations other than the top (e.g., the toolbar can be placed on the left, right, top, or bottom). The placement of the menubar and toolbar is only saved in the GNOME 2 version.
- That means the menubar and toolbar handles are back! Yeah! And the resizing grid still works too.

GNOME is compiled with if it was found by configure and the --enable-gnome-check argument was used.

Note: Avoid use of --enable-gnome-check with GTK+ 3 GUI build. The functionality mentioned above is consolidated in GTK+ 3.

GNOME session support
                                                gui-gnome-session gnome-session
On logout, Vim shows the well-known exit confirmation dialog if any buffers
are modified. Clicking [Cancel] will stop the logout process. Otherwise the
current session is stored to disk by using the :mksession command, and
restored the next time you log in.

The GNOME session support should also work with the KDE session manager.
If you are experiencing any problems please report them as bugs.

Note: The automatic session save works entirely transparent, in order to
avoid conflicts with your own session files, scripts and autocommands. That
means in detail:
- The session file is stored to a separate directory (usually $HOME/.gnome2).
- 'sessionoptions' is ignored, and a hardcoded set of appropriate flags is
  used instead:
        blank,curdir,folds,globals,help,options,tabpages,winsize
- The internal variable v:this_session is not changed when storing the
  session. Also, it is restored to its old value when logging in again.

The position and size of the GUI window is not saved by Vim since doing so
is the window manager's job. But if compiled with GTK+ 2 support, Vim helps
the WM to identify the window by restoring the window role (using the --role
command line argument).

==
7. KDE version   gui-kde kde KDE KVim
                                                          gui-x11-kde
There is no KDE version of Vim. There has been some work on a port using the
Qt toolkit, but it never worked properly and it has been abandoned. Work
continues on Yzis: https://github.com/chrizel/Yzis.

==
8. Compiling   gui-x11-compiling

If using X11, Vim's configure will by default first try to find the necessary
GTK+ files on your system. When both GTK+ 2 and GTK+ 3 are available, GTK+ 2
will be chosen unless --enable-gui=gtk3 is passed explicitly to configure.

If the GTK+ files cannot be found, then the Motif files will be searched for.
Finally, if this fails, the Athena files will be searched for. If all three
fail, the GUI will be disabled.

For GTK+, Vim's configuration process uses pkg-config(1) to check if the
GTK+ required for a specified build is properly installed and usable.
Accordingly, it is a good idea to make sure before running configure that
your system has a working pkg-config together with the .pc file of the
required GTK+. For that, say, run the following on the command line to see if
your pkg-config works with your GTK+ 2:

    $ pkg-config --modversion gtk+-2.0

Replace gtk+-2.0 with gtk+-3.0 for GTK+ 3. If you get the correct version
number of your GTK+, you can proceed; if not, you probably need to do some

system administration chores to set up pkg-config and GTK+ correctly.

The GTK+ 2 GUI is built by default. Therefore, you usually don't need to pass any options such as --enable-gui=gtk2 to configure and build that.

Optionally, the GTK+ 2 GUI can consolidate the GNOME 2 support. This support is enabled by passing --enable-gnome-check to configure.

If you want to build the GTK+ 3 GUI, you have to pass --enable-gui=gtk3 explicitly to configure, and avoid passing --enable-gnome-check to that, as the functionality of the GNOME 2 support has already been consolidated in GTK+ 3.

Otherwise, if you are using Motif or Athena, when you have the Motif or Athena files in a directory where configure doesn't look, edit the Makefile to enter the names of the directories. Search for "GUI_INC_LOC" for an example to set the Motif directories, "CONF_OPT_X" for Athena.

gui-x11-gtk

Currently, Vim supports both GTK+ 2 and GTK+ 3.

The GTK+ 2 GUI requires GTK+ 2.2 or later.

Although the GTK+ 3 GUI is written in such a way that the source code can be compiled against all versions of the 3.x series, we recommend GTK+ 3.10 or later because of its substantial implementation changes in redraw done at that version.

gui-x11-motif

For Motif, you need at least Motif version 1.2 and/or X11R5. Motif 2.0 and X11R6 are OK. Motif 1.1 and X11R4 might work, no guarantee (there may be a few problems, but you might make it compile and run with a bit of work, please send me the patches if you do). The newest releases of LessTif have been reported to work fine too.

gui-x11-athena

The Athena version uses the Xaw widget set by default. If you have the 3D version, you might want to link with Xaw3d instead. This will make the menus look a bit better. Edit the Makefile and look for "XAW_LIB". The scrollbars will remain the same, because Vim has its own, which are already 3D (in fact, they look more like Motif).

gui-x11-neXtaw

The neXtaw version is mostly like Athena, but uses different widgets.

gui-x11-misc

In general, do not try to mix files from different GTK+, Motif, Athena and X11 versions. This will cause problems. For example, using header files for X11R5 with a library for X11R6 probably doesn't work (although the linking won't give an error message, Vim will crash later).

==
9. X11 selection mechanism   x11-selection

If using X11, in either the GUI or an xterm with an X11-aware Vim, then Vim provides varied access to the X11 selection and clipboard. These are accessed by using the two selection registers "* and "+.

X11 provides two basic types of global store, selections and cut-buffers, which differ in one important aspect: selections are "owned" by an application, and disappear when that application (e.g., Vim) exits, thus losing the data, whereas cut-buffers, are stored within the X-server itself and remain until written over or the X-server exits (e.g., upon logging out).

The contents of selections are held by the originating application (e.g., upon a copy), and only passed on to another application when that other application asks for them (e.g., upon a paste).

The contents of cut-buffers are immediately written to, and are then accessible directly from the X-server, without contacting the originating application.

quoteplus quote+

There are three documented X selections: PRIMARY (which is expected to represent the current visual selection - as in Vim's Visual mode), SECONDARY (which is ill-defined) and CLIPBOARD (which is expected to be used for cut, copy and paste operations).

Of these three, Vim uses PRIMARY when reading and writing the "* register (hence when the X11 selections are available, Vim sets a default value for 'clipboard' of "autoselect"), and CLIPBOARD when reading and writing the "+ register. Vim does not access the SECONDARY selection.

Examples: (assuming the default option values)
- Select a URL in Visual mode in Vim. Go to your browser and click the middle mouse button in the URL text field. The selected text will be inserted (hopefully!). Note: in Firefox you can set the middlemouse.contentLoadURL preference to true in about:config, then the selected URL will be used when pressing middle mouse button in most places in the window.
- Select some text in your browser by dragging with the mouse. Go to Vim and press the middle mouse button: The selected text is inserted.
- Select some text in Vim and do "+y. Go to your browser, select some text in a textfield by dragging with the mouse. Now use the right mouse button and select "Paste" from the popup menu. The selected text is overwritten by the text from Vim.

Note that the text in the "+ register remains available when making a Visual selection, which makes other text available in the "* register. That allows overwriting selected text.

x11-cut-buffer

There are, by default, 8 cut-buffers: CUT_BUFFER0 to CUT_BUFFER7. Vim only uses CUT_BUFFER0, which is the one that xterm uses by default.

Whenever Vim is about to become unavailable (either via exiting or becoming suspended), and thus unable to respond to another application's selection request, it writes the contents of any owned selection to CUT_BUFFER0. If the "+ CLIPBOARD selection is owned by Vim, then this is written in preference, otherwise if the "* PRIMARY selection is owned by Vim, then that is written.

Similarly, when Vim tries to paste from "* or "+ (either explicitly, or, in the case of the "* register, when the middle mouse button is clicked), if the requested X selection is empty or unavailable, Vim reverts to reading the current value of the CUT_BUFFER0.

Note that when text is copied to CUT_BUFFER0 in this way, the type of selection (character, line or block) is always lost, even if it is a Vim which later pastes it.

Xterm, by default, always writes visible selections to both PRIMARY and CUT_BUFFER0. When it pastes, it uses PRIMARY if this is available, or else falls back upon CUT_BUFFER0. For this reason, when cutting and pasting between Vim and an xterm, you should use the "* register. Xterm doesn't use CLIPBOARD, thus the "+ doesn't work with xterm.

Most newer applications will provide their current selection via PRIMARY ("*) and use CLIPBOARD ("+) for cut/copy/paste operations. You thus have access to both by choosing to use either of the "* or "+ registers.

vim:tw=78:sw=4:ts=8:noet:ft=help:norl:

if_cscop.txt For Vim version 8.1. Last change: 2018 Jan 21

VIM REFERENCE MANUAL by Andy Kahn

cscope Cscope

This document explains how to use Vim's cscope interface.

Cscope is a tool like ctags, but think of it as ctags on steroids since it does a lot more than what ctags provides. In Vim, jumping to a result from a cscope query is just like jumping to any tag; it is saved on the tag stack so that with the right keyboard mappings, you can jump back and forth between functions as you normally would with tags .

This is currently for Unix and Win32 only.
{Vi does not have any of these commands}

==========

1. Cscope introduction cscope-intro

The following text is taken from a version of the cscope man page:

Cscope is an interactive screen-oriented tool that helps you:

Learn how a C program works without endless flipping through a thick listing.

Locate the section of code to change to fix a bug without having to learn the entire program.

Examine the effect of a proposed change such as adding a value to an enum variable.

Verify that a change has been made in all source files such as adding an argument to an existing function.

Rename a global variable in all source files.

Change a constant to a preprocessor symbol in selected lines of files.

It is designed to answer questions like:
Where is this symbol used?
Where is it defined?
Where did this variable get its value?

```
        What is this global symbol's definition?
        Where is this function in the source files?
        What functions call this function?
        What functions are called by this function?
        Where does the message "out of space" come from?
        Where is this source file in the directory structure?
        What files include this header file?

  Cscope answers these questions from a symbol database that it builds the
  first time it is used on the source files.  On a subsequent call, cscope
  rebuilds the database only if a source file has changed or the list of
  source files is different.  When the database is rebuilt the data for the
  unchanged files is copied from the old database, which makes rebuilding
  much faster than the initial build.

                                     -----

When cscope is normally invoked, you will get a full-screen selection
screen allowing you to make a query for one of the above questions.
However, once a match is found to your query and you have entered your
text editor to edit the source file containing match, you cannot simply
jump from tag to tag as you normally would with vi's Ctrl-] or :tag
command.

Vim's cscope interface is done by invoking cscope with its line-oriented
interface, and then parsing the output returned from a query.  The end
result is that cscope query results become just like regular tags, so
you can jump to them just like you do with normal tags (Ctrl-] or :tag)
and then go back by popping off the tagstack with Ctrl-T.  (Please note
however, that you don't actually jump to a cscope tag simply by doing
Ctrl-] or :tag without remapping these commands or setting an option.
See the remaining sections on how the cscope interface works and for
suggested use.)


==============================================================================
2. Cscope related commands                                cscope-commands

                :cscope   :cs   :scs   :scscope   E259   E262   E561   E560
All cscope commands are accessed through suboptions to the cscope commands.
        `:cscope` or `:cs` is the main command
        `:scscope` or `:scs` does the same and splits the window
        `:lcscope` or `:lcs` uses the location list, see  :lcscope

The available subcommands are:

                        E563   E564   E566   E568   E622   E623   E625
                        E626   E609
    add   : Add a new cscope database/connection.

        USAGE   :cs add {file|dir} [pre-path] [flags]

            [pre-path] is the pathname used with the -P command to cscope.
```

[flags] are any additional flags you want to pass to cscope.

EXAMPLES
```
:cscope add /usr/local/cdb/cscope.out
:cscope add /projects/vim/cscope.out /usr/local/vim
:cscope add cscope.out /usr/local/vim -C
```

cscope-find cs-find E567

find : Query cscope. All cscope query options are available except option #5 ("Change this grep pattern").

USAGE :cs find {querytype} {name}

{querytype} corresponds to the actual cscope line interface numbers as well as default nvi commands:

0 or s: Find this C symbol
1 or g: Find this definition
2 or d: Find functions called by this function
3 or c: Find functions calling this function
4 or t: Find this text string
6 or e: Find this egrep pattern
7 or f: Find this file
8 or i: Find files #including this file
9 or a: Find places where this symbol is assigned a value

For all types, except 4 and 6, leading white space for {name} is removed. For 4 and 6 there is exactly one space between {querytype} and {name}. Further white space is included in {name}.

EXAMPLES
```
:cscope find c vim_free
:cscope find 3  vim_free
```

These two examples perform the same query: functions calling "vim_free".

```
:cscope find t initOnce
:cscope find t  initOnce
```

The first one searches for the text "initOnce", the second one for " initOnce".

```
:cscope find 0 DEFAULT_TERM
```

Executing this example on the source code for Vim 5.1 produces the following output:

```
Cscope tag: DEFAULT_TERM
   #   line  filename / context / line
   1   1009  vim-5.1-gtk/src/term.c <<GLOBAL>>
             #define DEFAULT_TERM (char_u *)"amiga"
   2   1013  vim-5.1-gtk/src/term.c <<GLOBAL>>
             #define DEFAULT_TERM (char_u *)"win32"
```

```
            3   1017  vim-5.1-gtk/src/term.c <<GLOBAL>>
                      #define DEFAULT_TERM (char_u *)"pcterm"
            4   1021  vim-5.1-gtk/src/term.c <<GLOBAL>>
                      #define DEFAULT_TERM (char_u *)"ansi"
            5   1025  vim-5.1-gtk/src/term.c <<GLOBAL>>
                      #define DEFAULT_TERM (char_u *)"vt52"
            6   1029  vim-5.1-gtk/src/term.c <<GLOBAL>>
                      #define DEFAULT_TERM (char_u *)"os2ansi"
            7   1033  vim-5.1-gtk/src/term.c <<GLOBAL>>
                      #define DEFAULT_TERM (char_u *)"ansi"
            8   1037  vim-5.1-gtk/src/term.c <<GLOBAL>>
                      # undef DEFAULT_TERM
            9   1038  vim-5.1-gtk/src/term.c <<GLOBAL>>
                      #define DEFAULT_TERM (char_u *)"beos-ansi"
           10   1042  vim-5.1-gtk/src/term.c <<GLOBAL>>
                      #define DEFAULT_TERM (char_u *)"mac-ansi"
           11   1335  vim-5.1-gtk/src/term.c <<set_termname>>
                      term = DEFAULT_TERM;
           12   1459  vim-5.1-gtk/src/term.c <<set_termname>>
                      if (STRCMP(term, DEFAULT_TERM))
           13   1826  vim-5.1-gtk/src/term.c <<termcapinit>>
                      term = DEFAULT_TERM;
           14   1833  vim-5.1-gtk/src/term.c <<termcapinit>>
                      term = DEFAULT_TERM;
           15   3635  vim-5.1-gtk/src/term.c <<update_tcap>>
                      p = find_builtin_term(DEFAULT_TERM);
    Enter nr of choice (<CR> to abort):

    The output shows several pieces of information:
    1. The tag number (there are 15 in this example).
    2. The line number where the tag occurs.
    3. The filename where the tag occurs.
    4. The context of the tag (e.g., global, or the function name).
    5. The line from the file itself.

help  : Show a brief synopsis.

    USAGE   :cs help

                                                          E261
kill  : Kill a cscope connection (or kill all cscope connections).

    USAGE   :cs kill {num|partial_name}

    To kill a cscope connection, the connection number or a partial
    name must be specified.  The partial name is simply any part of
    the pathname of the cscope database.  Kill a cscope connection
    using the partial name with caution!

    If the specified connection number is -1, then _ALL_ cscope
    connections will be killed.

reset : Reinit all cscope connections.
```

USAGE	:cs reset

show : Show cscope connections.

USAGE	:cs show

:lcscope :lcs

This command is same as the ":cscope" command, except when the 'cscopequickfix' option is set, the location list for the current window is used instead of the quickfix list to show the cscope results.

:cstag E257 E562

If you use cscope as well as ctags, :cstag allows you to search one or the other before making a jump. For example, you can choose to first search your cscope database(s) for a match, and if one is not found, then your tags file(s) will be searched. The order in which this happens is determined by the value of csto . See cscope-options for more details.

:cstag performs the equivalent of ":cs find g" on the identifier when searching through the cscope database(s).

:cstag performs the equivalent of :tjump on the identifier when searching through your tags file(s).

==

3. Cscope options cscope-options

Use the :set command to set all cscope options. Ideally, you would do this in one of your startup files (e.g., .vimrc). Some cscope related variables are only valid within .vimrc . Setting them after vim has started will have no effect!

cscopeprg csprg

'cscopeprg' specifies the command to execute cscope. The default is "cscope". For example:

```
:set csprg=/usr/local/bin/cscope
```

cscopequickfix csqf E469

{not available when compiled without the |+quickfix| feature}

'cscopequickfix' specifies whether to use quickfix window to show cscope results. This is a list of comma-separated values. Each item consists of cscope-find command (s, g, d, c, t, e, f, i or a) and flag (+, - or 0). '+' indicates that results must be appended to quickfix window, '-' implies previous results clearance, '0' or command absence - don't use quickfix. Search is performed from start until first command occurrence. The default value is "" (don't use quickfix anyway). The following value seems to be useful:

```
:set cscopequickfix=s-,c-,d-,i-,t-,e-,a-
```

cscopetag cst

If 'cscopetag' is set, the commands ":tag" and CTRL-] as well as "vim -t" will always use :cstag instead of the default :tag behavior. Effectively,

by setting 'cst', you will always search your cscope databases as well as
your tag files. The default is off. Examples:
	:set cst
	:set nocst

cscoperelative csre
If 'cscoperelative' is set, then in absence of a prefix given to cscope
(prefix is the argument of -P option of cscope), basename of cscope.out
location (usually the project root directory) will be used as the prefix
to construct an absolute path. The default is off. Note: This option is
only effective when cscope (cscopeprg) is initialized without a prefix
path (-P). Examples:
	:set csre
	:set nocsre

cscopetagorder csto
The value of 'csto' determines the order in which :cstag performs a search.
If 'csto' is set to zero, cscope database(s) are searched first, followed
by tag file(s) if cscope did not return any matches. If 'csto' is set to
one, tag file(s) are searched before cscope database(s). The default is zero.
Examples:
	:set csto=0
	:set csto=1

cscopeverbose csverb
If 'cscopeverbose' is not set (the default), messages will not be printed
indicating success or failure when adding a cscope database. Ideally, you
should reset this option in your .vimrc before adding any cscope databases,
and after adding them, set it. From then on, when you add more databases
within Vim, you will get a (hopefully) useful message should the database fail
to be added. Examples:
	:set csverb
	:set nocsverb

cscopepathcomp cspc
The value of 'cspc' determines how many components of a file's path to
display. With the default value of zero the entire path will be displayed.
The value one will display only the filename with no path. Other values
display that many components. For example:
	:set cspc=3
will display the last 3 components of the file's path, including the file
name itself.

==
4. How to use cscope in Vim cscope-howtouse

The first thing you need to do is to build a cscope database for your
source files. For the most basic case, simply do "cscope -b". Please
refer to the cscope man page for more details.

Assuming you have a cscope database, you need to "add" the database to Vim.
This establishes a cscope "connection" and makes it available for Vim to use.
You can do this in your .vimrc file, or you can do it manually after starting
vim. For example, to add the cscope database "cscope.out", you would do:

```
        :cs add cscope.out
```

You can double-check the result of this by executing ":cs show". This will produce output which looks like this:

```
 # pid    database name                       prepend path
 0 28806  cscope.out                          <none>
```

Note:
Because of the Microsoft RTL limitations, Win32 version shows 0 instead of the real pid.

Once a cscope connection is established, you can make queries to cscope and the results will be printed to you. Queries are made using the command ":cs find". For example:

```
        :cs find g ALIGN_SIZE
```

This can get a little cumbersome since one ends up doing a significant amount of typing. Fortunately, there are ways around this by mapping shortcut keys. See cscope-suggestions for suggested usage.

If the results return only one match, you will automatically be taken to it. If there is more than one match, you will be given a selection screen to pick the match you want to go to. After you have jumped to the new location, simply hit Ctrl-T to get back to the previous one.

==
5. Limitations cscope-limitations

Cscope support for Vim is only available on systems that support these four system calls: fork(), pipe(), execl(), waitpid(). This means it is mostly limited to Unix systems.

Additionally Cscope support works for Win32. For more information and a cscope version for Win32 see:

```
        http://iamphet.nm.ru/cscope/index.html
```

The DJGPP-built version from http://cscope.sourceforge.net is known to not work with Vim.

Hard-coded limitation: doing a :tjump when :cstag searches the tag files is not configurable (e.g., you can't do a tselect instead).

==
6. Suggested usage cscope-suggestions

Put these entries in your .vimrc (adjust the pathname accordingly to your setup):

```
        if has("cscope")
```

```
            set csprg=/usr/local/bin/cscope
            set csto=0
            set cst
            set nocsverb
            " add any database in current directory
            if filereadable("cscope.out")
                cs add cscope.out
            " else add database pointed to by environment
            elseif $CSCOPE_DB != ""
                cs add $CSCOPE_DB
            endif
            set csverb
    endif
```

By setting 'cscopetag', we have effectively replaced all instances of the :tag command with :cstag. This includes :tag, Ctrl-], and "vim -t". In doing this, the regular tag command not only searches your ctags generated tag files, but your cscope databases as well.

Some users may want to keep the regular tag behavior and have a different shortcut to access :cstag. For example, one could map Ctrl-_ (underscore) to :cstag with the following command:

```
    map <C-_> :cstag <C-R>=expand("<cword>")<CR><CR>
```

A couple of very commonly used cscope queries (using ":cs find") is to find all functions calling a certain function and to find all occurrences of a particular C symbol. To do this, you can use these mappings as an example:

```
    map g<C-]> :cs find 3 <C-R>=expand("<cword>")<CR><CR>
    map g<C-\> :cs find 0 <C-R>=expand("<cword>")<CR><CR>
```

These mappings for Ctrl-] (right bracket) and Ctrl-\ (backslash) allow you to place your cursor over the function name or C symbol and quickly query cscope for any matches.

Or you may use the following scheme, inspired by Vim/Cscope tutorial from Cscope Home Page (http://cscope.sourceforge.net/):

```
    nmap <C-_>s :cs find s <C-R>=expand("<cword>")<CR><CR>
    nmap <C-_>g :cs find g <C-R>=expand("<cword>")<CR><CR>
    nmap <C-_>c :cs find c <C-R>=expand("<cword>")<CR><CR>
    nmap <C-_>t :cs find t <C-R>=expand("<cword>")<CR><CR>
    nmap <C-_>e :cs find e <C-R>=expand("<cword>")<CR><CR>
    nmap <C-_>f :cs find f <C-R>=expand("<cfile>")<CR><CR>
    nmap <C-_>i :cs find i ^<C-R>=expand("<cfile>")<CR>$<CR>
    nmap <C-_>d :cs find d <C-R>=expand("<cword>")<CR><CR>
    nmap <C-_>a :cs find a <C-R>=expand("<cword>")<CR><CR>

    " Using 'CTRL-spacebar' then a search type makes the vim window
    " split horizontally, with search result displayed in
    " the new window.
```

```
        nmap <C-Space>s :scs find s <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space>g :scs find g <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space>c :scs find c <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space>t :scs find t <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space>e :scs find e <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space>f :scs find f <C-R>=expand("<cfile>")<CR><CR>
        nmap <C-Space>i :scs find i ^<C-R>=expand("<cfile>")<CR>$<CR>
        nmap <C-Space>d :scs find d <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space>a :scs find a <C-R>=expand("<cword>")<CR><CR>

        " Hitting CTRL-space *twice* before the search type does a vertical
        " split instead of a horizontal one

        nmap <C-Space><C-Space>s
               \:vert scs find s <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space><C-Space>g
               \:vert scs find g <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space><C-Space>c
               \:vert scs find c <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space><C-Space>t
               \:vert scs find t <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space><C-Space>e
               \:vert scs find e <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space><C-Space>i
               \:vert scs find i ^<C-R>=expand("<cfile>")<CR>$<CR>
        nmap <C-Space><C-Space>d
               \:vert scs find d <C-R>=expand("<cword>")<CR><CR>
        nmap <C-Space><C-Space>a
               \:vert scs find a <C-R>=expand("<cword>")<CR><CR>
```

==========

7. Cscope availability and information cscope-info

If you do not already have cscope (it did not come with your compiler license or OS distribution), then you can download it for free from:

        http://cscope.sourceforge.net/

This is released by SCO under the BSD license.

In Solaris 2.x, if you have the C compiler license, you will also have cscope. Both are usually located under /opt/SUNWspro/bin

There is source to an older version of a cscope clone (called "cs") available on the net. Due to various reasons, this is not supported with Vim.

The cscope interface/support for Vim was originally written by Andy Kahn <ackahn@netapp.com>. The original structure (as well as a tiny bit of code) was adapted from the cscope interface in nvi.

cscope-win32

For a cscope version for Win32 see (seems abandoned):

        https://code.google.com/archive/p/cscope-win32/

Win32 support was added by Sergey Khorev <sergey.khorev@gmail.com>. Contact him if you have Win32-specific issues.

vim:tw=78:ts=8:noet:ft=help:norl:

if_lua.txt For Vim version 8.1. Last change: 2015 Oct 16

VIM REFERENCE MANUAL by Luis Carvalho

The Lua Interface to Vim lua Lua

{Vi does not have any of these commands}

The Lua interface is available only when Vim was compiled with the
+lua feature.

==========

1. Commands lua-commands

:lua

:[range]lua {chunk}
Execute Lua chunk {chunk}. {not in Vi}

Examples:

```
:lua print("Hello, Vim!")
:lua local curbuf = vim.buffer() curbuf[7] = "line #7"
```

:[range]lua << {endmarker}
{script}
{endmarker}
Execute Lua script {script}. {not in Vi}
Note: This command doesn't work when the Lua
feature wasn't compiled in. To avoid errors, see
script-here .

{endmarker} must NOT be preceded by any white space. If {endmarker} is
omitted from after the "<<", a dot '.' must be used after {script}, like
for the :append and :insert commands.
This form of the :lua command is mainly useful for including Lua code
in Vim scripts.

Example:

```
function! CurrentLineInfo()
lua << EOF
```

```
        local linenr = vim.window().line
        local curline = vim.buffer()[linenr]
        print(string.format("Current line [%d] has %d chars",
                linenr, #curline))
        EOF
        endfunction
```

To see what version of Lua you have:

```
        :lua print(_VERSION)
```

If you use LuaJIT you can also use this:

```
        :lua print(jit.version)
```

:luado

:[range]luado {body} Execute Lua function "function (line, linenr) {body} end" for each line in the [range], with the function argument being set to the text of each line in turn, without a trailing <EOL>, and the current line number. If the value returned by the function is a string it becomes the text of the line in the current turn. The default for [range] is the whole file: "1,$". {not in Vi}

Examples:

```
        :luado return string.format("%s\t%d", line:reverse(), #line)

        :lua require"lpeg"
        :lua -- balanced parenthesis grammar:
        :lua bp = lpeg.P{ "(" * ((1 - lpeg.S"()") + lpeg.V(1))^0 * ")" }
        :luado if bp:match(line) then return "-->\t" .. line end
```

:luafile

:[range]luafile {file}
        Execute Lua script in {file}. {not in Vi}
        The whole argument is used as a single file name.

Examples:

```
        :luafile script.lua
        :luafile %
```

All these commands execute a Lua chunk from either the command line (:lua and :luado) or a file (:luafile) with the given line [range]. Similarly to the Lua interpreter, each chunk has its own scope and so only global variables are shared between command calls. All Lua default libraries are available. In addition, Lua "print" function has its output redirected to the Vim message area, with arguments separated by a white space instead of a tab.

Lua uses the "vim" module (see lua-vim) to issue commands to Vim and manage buffers (lua-buffer) and windows (lua-window). However,

procedures that alter buffer content, open new buffers, and change cursor position are restricted when the command is executed in the sandbox .

==
2. The vim module lua-vim

Lua interfaces Vim through the "vim" module. The first and last line of the input range are stored in "vim.firstline" and "vim.lastline" respectively. The module also includes routines for buffer, window, and current line queries, Vim evaluation and command execution, and others.

vim.list([arg])
Returns an empty list or, if "arg" is a Lua table with numeric keys 1, ..., n (a "sequence"), returns a list l such that l[i] = arg[i] for i = 1, ..., n (see List). Non-numeric keys are not used to initialize the list. See also lua-eval for conversion rules. Example:

```
:lua t = {math.pi, false, say = 'hi'}
:echo luaeval('vim.list(t)')
:" [3.141593, v:false], 'say' is ignored
```

vim.dict([arg])
Returns an empty dictionary or, if "arg" is a Lua table, returns a dict d such that d[k] = arg[k] for all string keys k in "arg" (see Dictionary). Number keys are converted to strings. Keys that are not strings are not used to initialize the dictionary. See also lua-eval for conversion rules. Example:

```
:lua t = {math.pi, false, say = 'hi'}
:echo luaeval('vim.dict(t)')
:" {'1': 3.141593, '2': v:false,
:" 'say': 'hi'}
```

vim.funcref({name})
Returns a Funcref to function {name} (see Funcref). It is equivalent to Vim's function().

vim.buffer([arg])
If "arg" is a number, returns buffer with number "arg" in the buffer list or, if "arg" is a string, returns buffer whose full or short name is "arg". In both cases, returns 'nil' (nil value, not string) if the buffer is not found. Otherwise, if "toboolean(arg)" is 'true' returns the first buffer in the buffer list or else the current buffer.

vim.window([arg])
If "arg" is a number, returns window with number "arg" or 'nil' (nil value, not string) if not found. Otherwise, if "toboolean(arg)" is 'true' returns the first window or else the current window.

vim.type({arg}) Returns the type of {arg}. It is equivalent to Lua's "type" function, but returns "list", "dict", "funcref", "buffer", or "window" if {arg} is a list, dictionary, funcref, buffer, or window, respectively. Examples:

```
:lua l = vim.list()
:lua print(type(l), vim.type(l))
:" list
```

vim.command({cmd}) Executes the vim (ex-mode) command {cmd}. Examples:

```
:lua vim.command"set tw=60"
:lua vim.command"normal ddp"
```

vim.eval({expr}) Evaluates expression {expr} (see expression), converts the result to Lua, and returns it. Vim strings and numbers are directly converted to Lua strings and numbers respectively. Vim lists and dictionaries are converted to Lua userdata (see lua-list and lua-dict). Examples:

```
:lua tw = vim.eval"&tw"
:lua print(vim.eval"{'a': 'one'}".a)
```

vim.line() Returns the current line (without the trailing <EOL>), a Lua string.

vim.beep() Beeps.

vim.open({fname}) Opens a new buffer for file {fname} and returns it. Note that the buffer is not set as current.

==
3. List userdata lua-list

List userdata represent vim lists, and the interface tries to follow closely Vim's syntax for lists. Since lists are objects, changes in list references in Lua are reflected in Vim and vice-versa. A list "l" has the following properties and methods:

Properties

- "#l" is the number of items in list "l", equivalent to "len(l)" in Vim.
- "l[k]" returns the k-th item in "l"; "l" is zero-indexed, as in Vim. To modify the k-th item, simply do "l[k] = newitem"; in particular, "l[k] = nil" removes the k-th item from "l".
- "l()" returns an iterator for "l".

Methods

- "l:add(item)" appends "item" to the end of "l".

- "l:insert(item[, pos])" inserts "item" at (optional) position "pos" in the list. The default value for "pos" is 0.

Examples:

```
:let l = [1, 'item']
:lua l = vim.eval('l') -- same 'l'
:lua l:add(vim.list())
:lua l[0] = math.pi
:echo l[0] " 3.141593
:lua l[0] = nil -- remove first item
:lua l:insert(true, 1)
:lua print(l, #l, l[0], l[1], l[-1])
:lua for item in l() do print(item) end
```

==
4. Dict userdata lua-dict

Similarly to list userdata, dict userdata represent vim dictionaries; since dictionaries are also objects, references are kept between Lua and Vim. A dict "d" has the following properties:

Properties

- "#d" is the number of items in dict "d", equivalent to "len(d)" in Vim.
- "d.key" or "d['key']" returns the value at entry "key" in "d". To modify the entry at this key, simply do "d.key = newvalue"; in particular, "d.key = nil" removes the entry from "d".
- "d()" returns an iterator for "d" and is equivalent to "items(d)" in Vim.

Examples:

```
:let d = {'n':10}
:lua d = vim.eval('d') -- same 'd'
:lua print(d, d.n, #d)
:let d.self = d
:lua for k, v in d() do print(d, k, v) end
:lua d.x = math.pi
:lua d.self = nil -- remove entry
:echo d
```

==
5. Funcref userdata lua-funcref

Funcref userdata represent funcref variables in Vim. Funcrefs that were defined with a "dict" attribute need to be obtained as a dictionary key in order to have "self" properly assigned to the dictionary (see examples below.) A funcref "f" has the following properties:

Properties

- "#f" is the name of the function referenced by "f"
- "f(...)" calls the function referenced by "f" (with arguments)

Examples:

```
:function I(x)
:  return a:x
:  endfunction
:let R = function('I')
:lua i1 = vim.funcref('I')
:lua i2 = vim.eval('R')
:lua print(#i1, #i2) -- both 'I'
:lua print(i1, i2, #i2(i1) == #i1(i2))
:function Mylen() dict
:  return len(self.data)
:  endfunction
:let mydict = {'data': [0, 1, 2, 3]}
:lua d = vim.eval('mydict'); d.len = vim.funcref('Mylen')
:echo mydict.len()
:lua l = d.len -- assign d as 'self'
:lua print(l())
```

==========

6. Buffer userdata lua-buffer

Buffer userdata represent vim buffers. A buffer userdata "b" has the following properties and methods:

Properties

- "b()" sets "b" as the current buffer.
- "#b" is the number of lines in buffer "b".
- "b[k]" represents line number k: "b[k] = newline" replaces line k with string "newline" and "b[k] = nil" deletes line k.
- "b.name" contains the short name of buffer "b" (read-only).
- "b.fname" contains the full name of buffer "b" (read-only).
- "b.number" contains the position of buffer "b" in the buffer list (read-only).

Methods

- "b:insert(newline[, pos])" inserts string "newline" at (optional) position "pos" in the buffer. The default value for "pos" is "#b + 1". If "pos == 0" then "newline" becomes the first line in the buffer.
- "b:next()" returns the buffer next to "b" in the buffer list.
- "b:previous()" returns the buffer previous to "b" in the buffer list.
- "b:isvalid()" returns 'true' (boolean) if buffer "b" corresponds to a "real" (not freed from memory) Vim buffer.

Examples:

```
:lua b = vim.buffer() -- current buffer
:lua print(b.name, b.number)
:lua b[1] = "first line"
:lua b:insert("FIRST!", 0)
:lua b[1] = nil -- delete top line
:lua for i=1,3 do b:insert(math.random()) end
:3,4lua for i=vim.lastline,vim.firstline,-1 do b[i] = nil end
:lua vim.open"myfile"() -- open buffer and set it as current

function! ListBuffers()
lua << EOF
local b = vim.buffer(true) -- first buffer in list
while b ~= nil do
        print(b.number, b.name, #b)
        b = b:next()
end
vim.beep()
EOF
endfunction
```

==
7. Window userdata   lua-window

Window objects represent vim windows. A window userdata "w" has the following properties and methods:

Properties

- "w()" sets "w" as the current window.
- "w.buffer" contains the buffer of window "w" (read-only).
- "w.line" represents the cursor line position in window "w".
- "w.col" represents the cursor column position in window "w".
- "w.width" represents the width of window "w".
- "w.height" represents the height of window "w".

Methods

- "w:next()" returns the window next to "w".
- "w:previous()" returns the window previous to "w".
- "w:isvalid()" returns 'true' (boolean) if window "w" corresponds to a "real" (not freed from memory) Vim window.

Examples:

```
:lua w = vim.window() -- current window
:lua print(w.buffer.name, w.line, w.col)
:lua w.width = w.width + math.random(10)
:lua w.height = 2 * math.random() * w.height
:lua n,w = 0,vim.window(true) while w~=nil do n,w = n + 1,w:next() end
:lua print("There are " .. n .. " windows")
```

==
8. The luaeval function   lua-luaeval lua-eval

The (dual) equivalent of "vim.eval" for passing Lua values to Vim is
"luaeval". "luaeval" takes an expression string and an optional argument and
returns the result of the expression. It is semantically equivalent in Lua to:

```
local chunkheader = "local _A = select(1, ...) return "
function luaeval (expstr, arg)
    local chunk = assert(loadstring(chunkheader .. expstr, "luaeval"))
    return chunk(arg) -- return typval
end
```

Note that "_A" receives the argument to "luaeval". Lua numbers, strings, and
list, dict, and funcref userdata are converted to their Vim respective types,
while Lua booleans are converted to numbers. An error is thrown if conversion
of any of the remaining Lua types, including userdata other than lists, dicts,
and funcrefs, is attempted.

Examples:

```
:echo luaeval('math.pi')
:lua a = vim.list():add('newlist')
:let a = luaeval('a')
:echo a[0] " 'newlist'
:function Rand(x,y) " random uniform between x and y
:  return luaeval('(_A.y-_A.x)*math.random()+_A.x', {'x':a:x,'y':a:y})
:  endfunction
:echo Rand(1,10)
```

==
9. Dynamic loading   lua-dynamic

On MS-Windows and Unix the Lua library can be loaded dynamically. The
:version output then includes +lua/dyn .

This means that Vim will search for the Lua DLL or shared library file only
when needed. When you don't use the Lua interface you don't need it, thus
you can use Vim without this file.

MS-Windows

To use the Lua interface the Lua DLL must be in your search path. In a
console window type "path" to see what directories are used. The 'luadll'
option can be also used to specify the Lua DLL. The version of the DLL must
match the Lua version Vim was compiled with.

Unix

The 'luadll' option can be used to specify the Lua shared library file instead
of DYNAMIC_LUA_DLL file what was specified at compile time. The version of

the shared library must match the Lua version Vim was compiled with.

==
 vim:tw=78:ts=8:noet:ft=help:norl:

if_mzsch.txt For Vim version 8.1. Last change: 2017 Oct 08

VIM REFERENCE MANUAL by Sergey Khorev

The MzScheme Interface to Vim mzscheme MzScheme

{Vi does not have any of these commands}

The MzScheme interface is available only if Vim was compiled with the
 +mzscheme feature.

Based on the work of Brent Fulgham.
Dynamic loading added by Sergey Khorev

MzScheme and PLT Scheme names have been rebranded as Racket. For more
information please check http://racket-lang.org

Futures and places of Racket version 5.x up to and including 5.3.1 do not
work correctly with processes created by Vim.
The simplest solution is to build Racket on your own with these features
disabled:
  ./configure --disable-futures --disable-places --prefix=your-install-prefix

To speed up the process, you might also want to use --disable-gracket and
--disable-docs

==
1. Commands mzscheme-commands

  :mzscheme :mz
:[range]mz[scheme] {stmt}
  Execute MzScheme statement {stmt}. {not in Vi}

:[range]mz[scheme] << {endmarker}
{script}
{endmarker}
  Execute inlined MzScheme script {script}.
  Note: This command doesn't work if the MzScheme
  feature wasn't compiled in. To avoid errors, see
   script-here .

  :mzfile :mzf
:[range]mzf[ile] {file} Execute the MzScheme script in {file}. {not in Vi}

All of these commands do essentially the same thing - they execute a piece of
MzScheme code, with the "current range" set to the given line
range.

In the case of :mzscheme, the code to execute is in the command-line.
In the case of :mzfile, the code to execute is the contents of the given file.

MzScheme interface defines exception exn:vim, derived from exn.
It is raised for various Vim errors.

During compilation, the MzScheme interface will remember the current MzScheme
collection path. If you want to specify additional paths use the
'current-library-collection-paths' parameter. E.g., to cons the user-local
MzScheme collection path:

```
    :mz << EOF
    (current-library-collection-paths
        (cons
            (build-path (find-system-path 'addon-dir) (version) "collects")
            (current-library-collection-paths)))
    EOF
```

All functionality is provided through module vimext.

The exn:vim is available without explicit import.

To avoid clashes with MzScheme, consider using prefix when requiring module,
e.g.:

```
        :mzscheme (require (prefix vim- vimext))
```

All the examples below assume this naming scheme.

mzscheme-sandbox

When executed in the sandbox, access to some filesystem and Vim interface
procedures is restricted.

==
2. Examples mzscheme-examples

```
        :mzscheme (display "Hello")
        :mz (display (string-append "Using MzScheme version " (version)))
        :mzscheme (require (prefix vim- vimext)) ; for MzScheme < 4.x
        :mzscheme (require (prefix-in vim- 'vimext)) ; MzScheme 4.x
        :mzscheme (vim-set-buff-line 10 "This is line #10")
```

To see what version of MzScheme you have:

```
        :mzscheme (display (version))
```

Inline script usage:

```
        function! <SID>SetFirstLine()
            :mz << EOF
            (display "!!!")
            (require (prefix vim- vimext))
```

```
            ; for newer versions (require (prefix-in vim- 'vimext))
            (vim-set-buff-line 1 "This is line #1")
            (vim-beep)
        EOF
        endfunction

        nmap <F9> :call <SID>SetFirstLine() <CR>
```

File execution:

```
        :mzfile supascript.scm
```

Vim exception handling:

```
        :mz << EOF
        (require (prefix vim- vimext))
        ; for newer versions (require (prefix-in vim- 'vimext))
        (with-handlers
          ([exn:vim? (lambda (e) (display (exn-message e)))])
          (vim-eval "nonsense-string"))
        EOF
```

Auto-instantiation of vimext module (can be placed in your vimrc):

```
    function! MzRequire()
        :redir => l:mzversion
        :mz (version)
        :redir END
        if strpart(l:mzversion, 1, 1) < "4"
            " MzScheme versions < 4.x:
            :mz (require (prefix vim- vimext))
        else
            " newer versions:
            :mz (require (prefix-in vim- 'vimext))
        endif
    endfunction

    if has("mzscheme")
        silent call MzRequire()
    endif
```

==

3. Threads mzscheme-threads

The MzScheme interface supports threads. They are independent from OS threads, thus scheduling is required. The option 'mzquantum' determines how often Vim should poll for available MzScheme threads.

NOTE
Thread scheduling in the console version of Vim is less reliable than in the GUI version.

==

4. Vim access from MzScheme mzscheme-vim

mzscheme-vimext

The 'vimext' module provides access to procedures defined in the MzScheme interface.

```
Common
------
    (command {command-string})      Perform the vim ":Ex" style command.
    (eval {expr-string})            Evaluate the vim expression into
                                    respective MzScheme object:  Lists  are
                                    represented as Scheme lists,
                                     Dictionaries  as hash tables,
                                     Funcref s as functions (see also
                                     mzscheme-funcref )
                                    NOTE the name clashes with MzScheme eval,
                                    use module qualifiers to overcome this.
    (range-start)                   Start/End of the range passed with
    (range-end)                     the Scheme command.
    (beep)                          beep
    (get-option {option-name} [buffer-or-window]) Get Vim option value (either
                                    local or global, see set-option).
    (set-option {string} [buffer-or-window])
                                    Set a Vim option. String must have option
                                    setting form (like optname=optval, or
                                    optname+=optval, etc.) When called with
                                    {buffer} or {window} the local option will
                                    be set. The symbol 'global can be passed
                                    as {buffer-or-window}. Then  :setglobal
                                    will be used.

Buffers                                                   mzscheme-buffer
-------
    (buff? {object})                Is object a buffer?
    (buff-valid? {object})          Is object a valid buffer? (i.e.
                                    corresponds to the real Vim buffer)
    (get-buff-line {linenr} [buffer])
                                    Get line from a buffer.
    (set-buff-line {linenr} {string} [buffer])
                                    Set a line in a buffer. If {string} is #f,
                                    the line gets deleted.  The [buffer]
                                    argument is optional. If omitted, the
                                    current buffer will be used.
    (get-buff-line-list {start} {end} [buffer])
                                    Get a list of lines in a buffer. {Start}
                                    and {end} are 1-based and inclusive.
    (set-buff-line-list {start} {end} {string-list} [buffer])
                                    Set a list of lines in a buffer. If
                                    string-list is #f or null, the lines get
                                    deleted. If a list is shorter than
                                    {end}-{start} the remaining lines will
                                    be deleted.
    (get-buff-name [buffer])        Get a buffer's text name.
    (get-buff-num [buffer])         Get a buffer's number.
    (get-buff-size [buffer])        Get buffer line count.
    (insert-buff-line-list {linenr} {string/string-list} [buffer])
                                    Insert a list of lines into a buffer after
                                    {linenr}. If {linenr} is 0, lines will be
                                    inserted at start.
```

```
    (curr-buff)                     Get the current buffer. Use other MzScheme
                                    interface procedures to change it.
    (buff-count)                    Get count of total buffers in the editor.
    (get-next-buff [buffer])        Get next buffer.
    (get-prev-buff [buffer])        Get previous buffer. Return #f when there
                                    are no more buffers.
    (open-buff {filename})          Open a new buffer (for file "name")
    (get-buff-by-name {buffername}) Get a buffer by its filename or #f
                                        if there is no such buffer.
    (get-buff-by-num {buffernum})   Get a buffer by its number (return #f if
                                    there is no buffer with this number).

Windows                                                     mzscheme-window
------
    (win? {object})                 Is object a window?
    (win-valid? {object})           Is object a valid window (i.e. corresponds
                                    to the real Vim window)?
    (curr-win)                      Get the current window.
    (win-count)                     Get count of windows.
    (get-win-num [window])          Get window number.
    (get-win-by-num {windownum})    Get window by its number.
    (get-win-buffer     [window])   Get the buffer for a given window.
    (get-win-height [window])
    (set-win-height {height} [window])  Get/Set height of window.
    (get-win-width [window])
    (set-win-width {width} [window])Get/Set width of window.
    (get-win-list [buffer])         Get list of windows for a buffer.
    (get-cursor [window])           Get cursor position in a window as
                                    a pair (linenr . column).
    (set-cursor (line . col) [window])  Set cursor position.

==============================================================================
5. mzeval() Vim function                                    mzscheme-mzeval

To facilitate bi-directional interface, you can use  mzeval()  function to
evaluate MzScheme expressions and pass their values to Vim script.

==============================================================================
6. Using Function references                                mzscheme-funcref

MzScheme interface allows use of  Funcref s so you can call Vim functions
directly from Scheme. For instance:
    function! MyAdd2(arg)
        return a:arg + 2
    endfunction
    mz (define f2 (vim-eval "function(\"MyAdd2\")"))
    mz (f2 7)
 or :
    :mz (define indent (vim-eval "function('indent')"))
    " return Vim indent for line 12
    :mz (indent 12)


==============================================================================
```

7. Dynamic loading mzscheme-dynamic E815

On MS-Windows the MzScheme libraries can be loaded dynamically. The :version output then includes +mzscheme/dyn .

This means that Vim will search for the MzScheme DLL files only when needed. When you don't use the MzScheme interface you don't need them, thus you can use Vim without these DLL files.
NOTE: Newer version of MzScheme (Racket) require earlier (trampolined) initialisation via scheme_main_setup. So Vim always loads the MzScheme DLL at startup if possible. This may make Vim startup slower.

To use the MzScheme interface the MzScheme DLLs must be in your search path. In a console window type "path" to see what directories are used.

On MS-Windows the options 'mzschemedll' and 'mzschemegcdll' are used for the name of the library to load. The initial value is specified at build time.

The version of the DLL must match the MzScheme version Vim was compiled with. For MzScheme version 209 they will be "libmzsch209_000.dll" and "libmzgc209_000.dll". To know for sure look at the output of the ":version" command, look for -DDYNAMIC_MZSCH_DLL="something" and -DDYNAMIC_MZGC_DLL="something" in the "Compilation" info.

For example, if MzScheme (Racket) is installed at C:\Racket63, you may need to set the environment variable as the following:

```
PATH=%PATH%;C:\Racket63\lib
PLTCOLLECTS=C:\Racket63\collects
PLTCONFIGDIR=C:\Racket63\etc
```

8. MzScheme setup mzscheme-setup E895

Vim requires "racket/base" module for if_mzsch core (fallback to "scheme/base" if it doesn't exist), "r5rs" module for test and "raco ctool" command for building Vim. If MzScheme did not have them, you can install them with MzScheme's raco command:

```
raco pkg install scheme-lib       # scheme/base module
raco pkg install r5rs-lib         # r5rs module
raco pkg install cext-lib         # raco ctool command
```

vim:tw=78:ts=8:noet:sts=4:ft=help:norl:

if_perl.txt For Vim version 8.1. Last change: 2017 Nov 24

VIM REFERENCE MANUAL by Sven Verdoolaege
and Matt Gerassimof

Perl and Vim perl Perl

{Vi does not have any of these commands}

The Perl interface only works when Vim was compiled with the +perl feature.

==========

1. Editing Perl files perl-editing

Vim syntax highlighting supports Perl and POD files. Vim assumes a file is Perl code if the filename has a .pl or .pm suffix. Vim also examines the first line of a file, regardless of the filename suffix, to check if a file is a Perl script (see scripts.vim in Vim's syntax directory). Vim assumes a file is POD text if the filename has a .POD suffix.

To use tags with Perl, you need a recent version of Exuberant ctags. Look here:
http://ctags.sourceforge.net

Alternatively, you can use the Perl script pltags.pl, which is shipped with Vim in the $VIMRUNTIME/tools directory. This script has currently more features than Exuberant ctags' Perl support.

==========

2. Compiling Vim with Perl interface perl-compiling

To compile Vim with Perl interface, you need Perl 5.004 (or later). Perl must be installed before you compile Vim. Vim's Perl interface does NOT work with the 5.003 version that has been officially released! It will probably work with Perl 5.003_05 and later.

The Perl patches for Vim were made by:
Sven Verdoolaege <skimo@breughel.ufsia.ac.be>
Matt Gerassimof

Perl for MS-Windows (and other platforms) can be found at:
http://www.perl.org/ The ActiveState one should work, Strawberry Perl is a good alternative.

==========

3. Using the Perl interface perl-using

:perl :pe

:pe[rl] {cmd}		Execute Perl command {cmd}. The current package
		is "main". Simple example to test if `:perl` is
		working:
			:perl VIM::Msg("Hello")

:pe[rl] << {endpattern}
{script}
{endpattern}
		Execute Perl script {script}.
		{endpattern} must NOT be preceded by any white space.
		If {endpattern} is omitted, it defaults to a dot '.'
		like for the :append and :insert commands. Using
		'.' helps when inside a function, because "$i;" looks
		like the start of an :insert command to Vim.
		This form of the :perl command is mainly useful for
		including perl code in vim scripts.
		Note: This command doesn't work when the Perl feature
		wasn't compiled in. To avoid errors, see
		 script-here .

Example vim script:

```
	function! WhitePearl()
	perl << EOF
		VIM::Msg("pearls are nice for necklaces");
		VIM::Msg("rubys for rings");
		VIM::Msg("pythons for bags");
		VIM::Msg("tcls????");
	EOF
	endfunction
```

To see what version of Perl you have:

```
	:perl print $^V
```

:perldo :perld

:[range]perld[o] {cmd}	Execute Perl command {cmd} for each line in the
		[range], with $_ being set to the text of each line in
		turn, without a trailing <EOL>. Setting $_ will change
		the text, but note that it is not possible to add or
		delete lines using this command.
		The default for [range] is the whole file: "1,$".

Here are some things you can try:

```
  :perl $a=1
  :perldo $_ = reverse($_);1
  :perl VIM::Msg("hello")
  :perl $line = $curbuf->Get(42)
```

E299

Executing Perl commands in the sandbox is limited. ":perldo" will not be
possible at all. ":perl" will be evaluated in the Safe environment, if

possible.

perl-overview

Here is an overview of the functions that are available to Perl:

```
:perl VIM::Msg("Text")               # displays a message
:perl VIM::Msg("Wrong!", "ErrorMsg")  # displays an error message
:perl VIM::Msg("remark", "Comment")   # displays a highlighted message
:perl VIM::SetOption("ai")            # sets a vim option
:perl $nbuf = VIM::Buffers()          # returns the number of buffers
:perl @buflist = VIM::Buffers()       # returns array of all buffers
:perl $mybuf = (VIM::Buffers('qq.c'))[0] # returns buffer object for 'qq.c'
:perl @winlist = VIM::Windows()       # returns array of all windows
:perl $nwin = VIM::Windows()          # returns the number of windows
:perl ($success, $v) = VIM::Eval('&path') # $v: option 'path', $success: 1
:perl ($success, $v) = VIM::Eval('&xyz')  # $v: '' and $success: 0
:perl $v = VIM::Eval('expand("<cfile>")') # expands <cfile>
:perl $curwin->SetHeight(10)          # sets the window height
:perl @pos = $curwin->Cursor()        # returns (row, col) array
:perl @pos = (10, 10)
:perl $curwin->Cursor(@pos)           # sets cursor to @pos
:perl $curwin->Cursor(10,10)          # sets cursor to row 10 col 10
:perl $mybuf = $curwin->Buffer()      # returns the buffer object for window
:perl $curbuf->Name()                 # returns buffer name
:perl $curbuf->Number()               # returns buffer number
:perl $curbuf->Count()                # returns the number of lines
:perl $l = $curbuf->Get(10)           # returns line 10
:perl @l = $curbuf->Get(1 .. 5)       # returns lines 1 through 5
:perl $curbuf->Delete(10)             # deletes line 10
:perl $curbuf->Delete(10, 20)         # delete lines 10 through 20
:perl $curbuf->Append(10, "Line")     # appends a line
:perl $curbuf->Append(10, "Line1", "Line2", "Line3") # appends 3 lines
:perl @l = ("L1", "L2", "L3")
:perl $curbuf->Append(10, @l)         # appends L1, L2 and L3
:perl $curbuf->Set(10, "Line")        # replaces line 10
:perl $curbuf->Set(10, "Line1", "Line2")      # replaces lines 10 and 11
:perl $curbuf->Set(10, @l)            # replaces 3 lines
```

perl-Msg

VIM::Msg({msg}, {group}?)
Displays the message {msg}. The optional {group} argument specifies a highlight group for Vim to use for the message.

perl-SetOption

VIM::SetOption({arg}) Sets a vim option. {arg} can be any argument that the ":set" command accepts. Note that this means that no spaces are allowed in the argument! See :set .

perl-Buffers

VIM::Buffers([{bn}...]) With no arguments, returns a list of all the buffers in an array context or returns the number of buffers in a scalar context. For a list of buffer names or

numbers {bn}, returns a list of the buffers matching {bn}, using the same rules as Vim's internal bufname() function.
WARNING: the list becomes invalid when :bwipe is used. Using it anyway may crash Vim.

perl-Windows
VIM::Windows([{wn}...]) With no arguments, returns a list of all the windows in an array context or returns the number of windows in a scalar context. For a list of window numbers {wn}, returns a list of the windows with those numbers.
WARNING: the list becomes invalid when a window is closed. Using it anyway may crash Vim.

perl-DoCommand
VIM::DoCommand({cmd}) Executes Ex command {cmd}.

perl-Eval
VIM::Eval({expr}) Evaluates {expr} and returns (success, value) in list context or just value in scalar context.
success=1 indicates that val contains the value of {expr}; success=0 indicates a failure to evaluate the expression. '@x' returns the contents of register x, '&x' returns the value of option x, 'x' returns the value of internal variables x, and '$x' is equivalent to perl's $ENV{x}. All functions accessible from the command-line are valid for {expr}.
A List is turned into a string by joining the items and inserting line breaks.

perl-SetHeight
Window->SetHeight({height})
Sets the Window height to {height}, within screen limits.

perl-GetCursor
Window->Cursor({row}?, {col}?)
With no arguments, returns a (row, col) array for the current cursor position in the Window. With {row} and {col} arguments, sets the Window's cursor position to {row} and {col}. Note that {col} is numbered from 0, Perl-fashion, and thus is one less than the value in Vim's ruler.

Window->Buffer() perl-Buffer
Returns the Buffer object corresponding to the given Window.

perl-Name
Buffer->Name() Returns the filename for the Buffer.

perl-Number
Buffer->Number() Returns the number of the Buffer.

perl-Count
Buffer->Count()		Returns the number of lines in the Buffer.

perl-Get
Buffer->Get({lnum}, {lnum}?, ...)
			Returns a text string of line {lnum} in the Buffer
			for each {lnum} specified. An array can be passed
			with a list of {lnum}'s specified.

perl-Delete
Buffer->Delete({lnum}, {lnum}?)
			Deletes line {lnum} in the Buffer. With the second
			{lnum}, deletes the range of lines from the first
			{lnum} to the second {lnum}.

perl-Append
Buffer->Append({lnum}, {line}, {line}?, ...)
			Appends each {line} string after Buffer line {lnum}.
			The list of {line}s can be an array.

perl-Set
Buffer->Set({lnum}, {line}, {line}?, ...)
			Replaces one or more Buffer lines with specified
			{lines}s, starting at Buffer line {lnum}. The list of
			{line}s can be an array. If the arguments are
			invalid, replacement does not occur.

$main::curwin
			The current window object.

$main::curbuf
			The current buffer object.

script-here
When using a script language in-line, you might want to skip this when the
language isn't supported. But this mechanism doesn't work:
>
   if has('perl')
     perl << EOF
       this will NOT work!
   EOF
   endif
<
Instead, put the Perl/Python/Ruby/etc. command in a function and call that
function:
>
    if has('perl')
      function DefPerl()
        perl << EOF
          this works
    EOF
      endfunction
      call DefPerl()
    endif
<
Note that "EOF" must be at the start of the line.

==
4. Dynamic loading   perl-dynamic

On MS-Windows and Unix the Perl library can be loaded dynamically. The
 :version output then includes +perl/dyn .

This means that Vim will search for the Perl DLL or shared library file only
when needed. When you don't use the Perl interface you don't need it, thus
you can use Vim without this file.

MS-Windows

You can download Perl from http://www.perl.org. The one from ActiveState was
used for building Vim.

To use the Perl interface the Perl DLL must be in your search path.
If Vim reports it cannot find the perl512.dll, make sure your $PATH includes
the directory where it is located. The Perl installer normally does that.
In a console window type "path" to see what directories are used. The
'perldll' option can be also used to specify the Perl DLL.

The name of the DLL must match the Perl version Vim was compiled with.
Currently the name is "perl512.dll". That is for Perl 5.12. To know for
sure edit "gvim.exe" and search for "perl\d*.dll\c".

Unix

The 'perldll' option can be used to specify the Perl shared library file
instead of DYNAMIC_PERL_DLL file what was specified at compile time. The
version of the shared library must match the Perl version Vim was compiled
with.

==
 vim:tw=78:ts=8:noet:ft=help:norl:

if_pyth.txt For Vim version 8.1. Last change: 2018 Jan 30

VIM REFERENCE MANUAL by Paul Moore

The Python Interface to Vim python Python

{Vi does not have any of these commands}

The Python 2.x interface is available only when Vim was compiled with the
+python feature.
The Python 3 interface is available only when Vim was compiled with the
+python3 feature.
Both can be available at the same time, but read python-2-and-3 .

==========
1. Commands python-commands

:python :py E263 E264 E887
:[range]py[thon] {stmt}
Execute Python statement {stmt}. A simple check if
the `:python` command is working:
:python print "Hello"

:[range]py[thon] << {endmarker}
{script}
{endmarker}
Execute Python script {script}.
Note: This command doesn't work when the Python
feature wasn't compiled in. To avoid errors, see
script-here .

{endmarker} must NOT be preceded by any white space. If {endmarker} is
omitted from after the "<<", a dot '.' must be used after {script}, like
for the :append and :insert commands.
This form of the :python command is mainly useful for including python code
in Vim scripts.

Example:
```
function! IcecreamInitialize()
```

```
        python << EOF
        class StrawberryIcecream:
                def __call__(self):
                        print 'EAT ME'
        EOF
        endfunction
```

To see what version of Python you have:

```
        :python import sys
        :python print(sys.version)
```

Note: Python is very sensitive to the indenting. Make sure the "class" line and "EOF" do not have any indent.

:[range]pydo {body} :pydo

Execute Python function "def _vim_pydo(line, linenr): {body}" for each line in the [range], with the function arguments being set to the text of each line in turn, without a trailing <EOL>, and the current line number. The function should return a string or None. If a string is returned, it becomes the text of the line in the current turn. The default for [range] is the whole file: "1,$". {not in Vi}

Examples:

```
        :pydo return "%s\t%d" % (line[::-1], len(line))
        :pydo if line: return "%4d: %s" % (linenr, line)
```

:[range]pyf[ile] {file} :pyfile :pyf

Execute the Python script in {file}. The whole argument is used as a single file name. {not in Vi}

Both of these commands do essentially the same thing - they execute a piece of Python code, with the "current range" python-range set to the given line range.

In the case of :python, the code to execute is in the command-line.
In the case of :pyfile, the code to execute is the contents of the given file.

Python commands cannot be used in the sandbox .

To pass arguments you need to set sys.argv[] explicitly. Example:

```
        :python import sys
        :python sys.argv = ["foo", "bar"]
        :pyfile myscript.py
```

Here are some examples python-examples

```
        :python from vim import *
        :python from string import upper
```

```
:python current.line = upper(current.line)
:python print "Hello"
:python str = current.buffer[42]
```

(Note that changes - like the imports - persist from one command to the next,
just like in the Python interpreter.)

==
2. The vim module   python-vim

Python code gets all of its access to vim (with one exception - see
python-output below) via the "vim" module. The vim module implements two
methods, three constants, and one error object. You need to import the vim
module before using it:

```
:python import vim
```

Overview

```
:py print "Hello"               # displays a message
:py vim.command(cmd)            # execute an Ex command
:py w = vim.windows[n]          # gets window "n"
:py cw = vim.current.window     # gets the current window
:py b = vim.buffers[n]          # gets buffer "n"
:py cb = vim.current.buffer     # gets the current buffer
:py w.height = lines            # sets the window height
:py w.cursor = (row, col)       # sets the window cursor position
:py pos = w.cursor              # gets a tuple (row, col)
:py name = b.name               # gets the buffer file name
:py line = b[n]                 # gets a line from the buffer
:py lines = b[n:m]              # gets a list of lines
:py num = len(b)                # gets the number of lines
:py b[n] = str                  # sets a line in the buffer
:py b[n:m] = [str1, str2, str3] # sets a number of lines at once
:py del b[n]                    # deletes a line
:py del b[n:m]                  # deletes a number of lines
```

Methods of the "vim" module

vim.command(str)   python-command

Executes the vim (ex-mode) command str. Returns None.
Examples:

```
:py vim.command("set tw=72")
:py vim.command("%s/aaa/bbb/g")
```

The following definition executes Normal mode commands:

```
def normal(str):
        vim.command("normal "+str)
# Note the use of single quotes to delimit a string containing
# double quotes
normal('"a2dd"aP')
```

E659

The ":python" command cannot be used recursively with Python 2.2 and
older. This only works with Python 2.3 and later:

```
:py vim.command("python print 'Hello again Python'")
```

```
vim.eval(str)                                                python-eval
        Evaluates the expression str using the vim internal expression
        evaluator (see  expression ).  Returns the expression result as:
        - a string if the Vim expression evaluates to a string or number
        - a list if the Vim expression evaluates to a Vim list
        - a dictionary if the Vim expression evaluates to a Vim dictionary
        Dictionaries and lists are recursively expanded.
        Examples:
            :py text_width = vim.eval("&tw")
            :py str = vim.eval("12+12")         # NB result is a string! Use
                                                # string.atoi() to convert to
                                                # a number.

            :py tagList = vim.eval('taglist("eval_expr")')
       The latter will return a python list of python dicts, for instance:
        [{'cmd': '/^eval_expr(arg, nextcmd)$/', 'static': 0, 'name':
        'eval_expr', 'kind': 'f', 'filename': './src/eval.c'}]

vim.bindeval(str)                                            python-bindeval
        Like  python-eval , but returns special objects described in
         python-bindeval-objects . These python objects let you modify ( List
        or  Dictionary ) or call ( Funcref ) vim objects.

vim.strwidth(str)                                            python-strwidth
        Like  strwidth() : returns number of display cells str occupies, tab
        is counted as one cell.

vim.foreach_rtp(callable)                                    python-foreach_rtp
        Call the given callable for each path in 'runtimepath' until either
        callable returns something but None, the exception is raised or there
        are no longer paths. If stopped in case callable returned non-None,
        vim.foreach_rtp function returns the value returned by callable.

vim.chdir(*args, **kwargs)                                   python-chdir
vim.fchdir(*args, **kwargs)                                  python-fchdir
        Run os.chdir or os.fchdir, then all appropriate vim stuff.
        Note: you should not use these functions directly, use os.chdir and
              os.fchdir instead. Behavior of vim.fchdir is undefined in case
              os.fchdir does not exist.

Error object of the "vim" module

vim.error                                                    python-error
        Upon encountering a Vim error, Python raises an exception of type
        vim.error.
        Example:
                try:
                        vim.command("put a")
                except vim.error:
                        # nothing in register a

Constants of the "vim" module

        Note that these are not actually constants - you could reassign them.
```

But this is silly, as you would then lose access to the vim objects to which the variables referred.

vim.buffers python-buffers

A mapping object providing access to the list of vim buffers. The object supports the following operations:

```
:py b = vim.buffers[i]      # Indexing (read-only)
:py b in vim.buffers        # Membership test
:py n = len(vim.buffers)    # Number of elements
:py for b in vim.buffers:   # Iterating over buffer list
```

vim.windows python-windows

A sequence object providing access to the list of vim windows. The object supports the following operations:

```
:py w = vim.windows[i]      # Indexing (read-only)
:py w in vim.windows        # Membership test
:py n = len(vim.windows)    # Number of elements
:py for w in vim.windows:   # Sequential access
```

Note: vim.windows object always accesses current tab page. python-tabpage .windows objects are bound to parent python-tabpage object and always use windows from that tab page (or throw vim.error in case tab page was deleted). You can keep a reference to both without keeping a reference to vim module object or python-tabpage , they will not lose their properties in this case.

vim.tabpages python-tabpages

A sequence object providing access to the list of vim tab pages. The object supports the following operations:

```
:py t = vim.tabpages[i]     # Indexing (read-only)
:py t in vim.tabpages       # Membership test
:py n = len(vim.tabpages)   # Number of elements
:py for t in vim.tabpages:  # Sequential access
```

vim.current python-current

An object providing access (via specific attributes) to various "current" objects available in vim:

vim.current.line	The current line (RW)	String
vim.current.buffer	The current buffer (RW)	Buffer
vim.current.window	The current window (RW)	Window
vim.current.tabpage	The current tab page (RW)	TabPage
vim.current.range	The current line range (RO)	Range

The last case deserves a little explanation. When the :python or :pyfile command specifies a range, this range of lines becomes the "current range". A range is a bit like a buffer, but with all access restricted to a subset of lines. See python-range for more details.

Note: When assigning to vim.current.{buffer,window,tabpage} it expects valid python-buffer , python-window or python-tabpage objects respectively. Assigning triggers normal (with autocommand s) switching to given buffer, window or tab page. It is the only way to switch UI objects in python: you can't assign to python-tabpage .window attribute. To switch without triggering autocommands use

```
            py << EOF
            saved_eventignore = vim.options['eventignore']
            vim.options['eventignore'] = 'all'
            try:
                vim.current.buffer = vim.buffers[2] # Switch to buffer 2
            finally:
                vim.options['eventignore'] = saved_eventignore
            EOF
```

vim.vars python-vars
vim.vvars python-vvars
Dictionary-like objects holding dictionaries with global (g:) and vim (v:) variables respectively. Identical to `vim.bindeval("g:")`, but faster.

vim.options python-options
Object partly supporting mapping protocol (supports setting and getting items) providing a read-write access to global options. Note: unlike :set this provides access only to global options. You cannot use this object to obtain or set local options' values or access local-only options in any fashion. Raises KeyError if no global option with such name exists (i.e. does not raise KeyError for global-local options and global only options, but does for window- and buffer-local ones). Use python-buffer objects to access to buffer-local options and python-window objects to access to window-local options.

Type of this object is available via "Options" attribute of vim module.

Output from Python python-output
Vim displays all Python code output in the Vim message area. Normal output appears as information messages, and error output appears as error messages.

In implementation terms, this means that all output to sys.stdout (including the output from print statements) appears as information messages, and all output to sys.stderr (including error tracebacks) appears as error messages.

python-input
Input (via sys.stdin, including input() and raw_input()) is not supported, and may cause the program to crash. This should probably be fixed.

python2-directory python3-directory pythonx-directory
Python 'runtimepath' handling python-special-path

In python vim.VIM_SPECIAL_PATH special directory is used as a replacement for the list of paths found in 'runtimepath': with this directory in sys.path and vim.path_hooks in sys.path_hooks python will try to load module from {rtp}/python2 (or python3) and {rtp}/pythonx (for both python versions) for each {rtp} found in 'runtimepath'.

Implementation is similar to the following, but written in C:

```
    from imp import find_module, load_module
    import vim
    import sys

    class VimModuleLoader(object):
        def __init__(self, module):
            self.module = module

        def load_module(self, fullname, path=None):
            return self.module

    def _find_module(fullname, oldtail, path):
        idx = oldtail.find('.')
        if idx > 0:
            name = oldtail[:idx]
            tail = oldtail[idx+1:]
            fmr = find_module(name, path)
            module = load_module(fullname[:-len(oldtail)] + name, *fmr)
            return _find_module(fullname, tail, module.__path__)
        else:
            fmr = find_module(fullname, path)
            return load_module(fullname, *fmr)

    # It uses vim module itself in place of VimPathFinder class: it does not
    # matter for python which object has find_module function attached to as
    # an attribute.
    class VimPathFinder(object):
        @classmethod
        def find_module(cls, fullname, path=None):
            try:
                return VimModuleLoader(_find_module(fullname, fullname, path or vim._get_pa
            except ImportError:
                return None

        @classmethod
        def load_module(cls, fullname, path=None):
            return _find_module(fullname, fullname, path or vim._get_paths())

    def hook(path):
        if path == vim.VIM_SPECIAL_PATH:
            return VimPathFinder
        else:
            raise ImportError

    sys.path_hooks.append(hook)
```

vim.VIM_SPECIAL_PATH   python-VIM_SPECIAL_PATH

String constant used in conjunction with vim path hook. If path hook installed by vim is requested to handle anything but path equal to vim.VIM_SPECIAL_PATH constant it raises ImportError. In the only other case it uses special loader.

Note: you must not use value of this constant directly, always use
vim.VIM_SPECIAL_PATH object.

vim.find_module(...) python-find_module
vim.path_hook(path) python-path_hook
Methods or objects used to implement path loading as described above.
You should not be using any of these directly except for vim.path_hook
in case you need to do something with sys.meta_path. It is not
guaranteed that any of the objects will exist in the future vim
versions.

vim._get_paths python-_get_paths
Methods returning a list of paths which will be searched for by path
hook. You should not rely on this method being present in future
versions, but can use it for debugging.

It returns a list of {rtp}/python2 (or {rtp}/python3) and
{rtp}/pythonx directories for each {rtp} in 'runtimepath'.

==
3. Buffer objects python-buffer

Buffer objects represent vim buffers. You can obtain them in a number of ways:
- via vim.current.buffer (python-current)
- from indexing vim.buffers (python-buffers)
- from the "buffer" attribute of a window (python-window)

Buffer objects have two read-only attributes - name - the full file name for
the buffer, and number - the buffer number. They also have three methods
(append, mark, and range; see below).

You can also treat buffer objects as sequence objects. In this context, they
act as if they were lists (yes, they are mutable) of strings, with each
element being a line of the buffer. All of the usual sequence operations,
including indexing, index assignment, slicing and slice assignment, work as
you would expect. Note that the result of indexing (slicing) a buffer is a
string (list of strings). This has one unusual consequence - b[:] is different
from b. In particular, "b[:] = None" deletes the whole of the buffer, whereas
"b = None" merely updates the variable b, with no effect on the buffer.

Buffer indexes start at zero, as is normal in Python. This differs from vim
line numbers, which start from 1. This is particularly relevant when dealing
with marks (see below) which use vim line numbers.

The buffer object attributes are:
b.vars Dictionary-like object used to access
buffer-variable s.
b.options Mapping object (supports item getting, setting and
deleting) that provides access to buffer-local options
and buffer-local values of global-local options. Use
python-window .options if option is window-local,
this object will raise KeyError. If option is
global-local and local value is missing getting it
will return None.

```
        b.name          String, RW. Contains buffer name (full path).
                        Note: when assigning to b.name  BufFilePre  and
                         BufFilePost  autocommands are launched.
        b.number        Buffer number. Can be used as  python-buffers  key.
                        Read-only.
        b.valid         True or False. Buffer object becomes invalid when
                        corresponding buffer is wiped out.

The buffer object methods are:
        b.append(str)   Append a line to the buffer
        b.append(str, nr)  Idem, below line "nr"
        b.append(list)  Append a list of lines to the buffer
                        Note that the option of supplying a list of strings to
                        the append method differs from the equivalent method
                        for Python's built-in list objects.
        b.append(list, nr)  Idem, below line "nr"
        b.mark(name)    Return a tuple (row,col) representing the position
                        of the named mark (can also get the []"<> marks)
        b.range(s,e)    Return a range object (see  python-range ) which
                        represents the part of the given buffer between line
                        numbers s and e  inclusive .

Note that when adding a line it must not contain a line break character '\n'.
A trailing '\n' is allowed and ignored, so that you can do:
        :py b.append(f.readlines())

Buffer object type is available using "Buffer" attribute of vim module.

Examples (assume b is the current buffer)
        :py print b.name                # write the buffer file name
        :py b[0] = "hello!!!"           # replace the top line
        :py b[:] = None                 # delete the whole buffer
        :py del b[:]                    # delete the whole buffer
        :py b[0:0] = [ "a line" ]       # add a line at the top
        :py del b[2]                    # delete a line (the third)
        :py b.append("bottom")          # add a line at the bottom
        :py n = len(b)                  # number of lines
        :py (row,col) = b.mark('a')     # named mark
        :py r = b.range(1,5)            # a sub-range of the buffer
        :py b.vars["foo"] = "bar"       # assign b:foo variable
        :py b.options["ff"] = "dos"     # set fileformat
        :py del b.options["ar"]         # same as :set autoread<

==============================================================================
4. Range objects                                              python-range

Range objects represent a part of a vim buffer.  You can obtain them in a
number of ways:
        - via vim.current.range ( python-current )
        - from a buffer's range() method ( python-buffer )

A range object is almost identical in operation to a buffer object.  However,
all operations are restricted to the lines within the range (this line range
can, of course, change as a result of slice assignments, line deletions, or
```

the range.append() method).

The range object attributes are:
```
        r.start         Index of first line into the buffer
        r.end           Index of last line into the buffer
```

The range object methods are:
```
        r.append(str)   Append a line to the range
        r.append(str, nr)  Idem, after line "nr"
        r.append(list)  Append a list of lines to the range
                        Note that the option of supplying a list of strings to
                        the append method differs from the equivalent method
                        for Python's built-in list objects.
        r.append(list, nr)  Idem, after line "nr"
```

Range object type is available using "Range" attribute of vim module.

Example (assume r is the current range):
```
        # Send all lines in a range to the default printer
        vim.command("%d,%dhardcopy!" % (r.start+1,r.end+1))
```

==
5. Window objects python-window

Window objects represent vim windows. You can obtain them in a number of ways:
- via vim.current.window (python-current)
- from indexing vim.windows (python-windows)
- from indexing "windows" attribute of a tab page (python-tabpage)
- from the "window" attribute of a tab page (python-tabpage)

You can manipulate window objects only through their attributes. They have no methods, and no sequence or other interface.

Window attributes are:

buffer (read-only)	The buffer displayed in this window
cursor (read-write)	The current cursor position in the window. This is a tuple, (row,col).
height (read-write)	The window height, in rows
width (read-write)	The window width, in columns
vars (read-only)	The window w: variables. Attribute is unassignable, but you can change window variables this way
options (read-only)	The window-local options. Attribute is unassignable, but you can change window options this way. Provides access only to window-local options, for buffer-local use python-buffer and for global ones use python-options . If option is global-local and local value is missing getting it will return None.
number (read-only)	Window number. The first window has number 1. This is zero in case it cannot be determined (e.g. when the window object belongs to other tab page).

```
        row, col (read-only)    On-screen window position in display cells.
                                First position is zero.
        tabpage (read-only)     Window tab page.
        valid (read-write)      True or False. Window object becomes invalid
                                when corresponding window is closed.

The height attribute is writable only if the screen is split horizontally.
The width attribute is writable only if the screen is split vertically.

Window object type is available using "Window" attribute of vim module.

==============================================================================
6. Tab page objects                                         python-tabpage

Tab page objects represent vim tab pages. You can obtain them in a number of
ways:
        - via vim.current.tabpage ( python-current )
        - from indexing vim.tabpages ( python-tabpages )

You can use this object to access tab page windows. They have no methods and
no sequence or other interfaces.

Tab page attributes are:
        number          The tab page number like the one returned by
                         tabpagenr() .
        windows         Like  python-windows , but for current tab page.
        vars            The tab page  t:  variables.
        window          Current tabpage window.
        valid           True or False. Tab page object becomes invalid when
                        corresponding tab page is closed.

TabPage object type is available using "TabPage" attribute of vim module.

==============================================================================
7. vim.bindeval objects                           python-bindeval-objects

vim.Dictionary object                             python-Dictionary
    Dictionary-like object providing access to vim  Dictionary  type.
    Attributes:
        Attribute  Description
        locked     One of                                 python-.locked
                    Value           Description
                    zero            Variable is not locked
                    vim.VAR_LOCKED  Variable is locked, but can be unlocked
                    vim.VAR_FIXED   Variable is locked and can't be unlocked
                   Read-write. You can unlock locked variable by assigning
                   `True` or `False` to this attribute. No recursive locking
                   is supported.
        scope      One of
                    Value              Description
                    zero               Dictionary is not a scope one
                    vim.VAR_DEF_SCOPE   g:  or  l:  dictionary
                    vim.VAR_SCOPE      Other scope dictionary,
                                       see  internal-variables
```

```
    Methods (note: methods do not support keyword arguments):
        Method      Description
        keys()      Returns a list with dictionary keys.
        values()    Returns a list with dictionary values.
        items()     Returns a list of 2-tuples with dictionary contents.
        update(iterable), update(dictionary), update(**kwargs)
                    Adds keys to dictionary.
        get(key[, default=None])
                    Obtain key from dictionary, returning the default if it is
                    not present.
        pop(key[, default])
                    Remove specified key from dictionary and return
                    corresponding value. If key is not found and default is
                    given returns the default, otherwise raises KeyError.
        popitem()
                    Remove random key from dictionary and return (key, value)
                    pair.
        has_key(key)
                    Check whether dictionary contains specified key, similar
                    to `key in dict`.

        __new__(), __new__(iterable), __new__(dictionary), __new__(update)
                    You can use `vim.Dictionary()` to create new vim
                    dictionaries. `d=vim.Dictionary(arg)` is the same as
                    `d=vim.bindeval('{}');d.update(arg)`. Without arguments
                    constructs empty dictionary.

    Examples:
        d = vim.Dictionary(food="bar")          # Constructor
        d['a'] = 'b'                            # Item assignment
        print d['a']                            # getting item
        d.update({'c': 'd'})                    # .update(dictionary)
        d.update(e='f')                         # .update(**kwargs)
        d.update((('g', 'h'), ('i', 'j')))      # .update(iterable)
        for key in d.keys():                    # .keys()
        for val in d.values():                  # .values()
        for key, val in d.items():              # .items()
        print isinstance(d, vim.Dictionary)     # True
        for key in d:                           # Iteration over keys
        class Dict(vim.Dictionary):             # Subclassing

    Note: when iterating over keys you should not modify dictionary.

vim.List object                                         python-List
    Sequence-like object providing access to vim  List  type.
    Supports `.locked` attribute, see  python-.locked . Also supports the
    following methods:
        Method          Description
        extend(item)    Add items to the list.

        __new__(), __new__(iterable)
                        You can use `vim.List()` to create new vim lists.
                        `l=vim.List(iterable)` is the same as
                        `l=vim.bindeval('[]');l.extend(iterable)`. Without
```

arguments constructs empty list.

Examples:

```
l = vim.List("abc")            # Constructor, result: ['a', 'b', 'c']
l.extend(['abc', 'def'])       # .extend() method
print l[1:]                    # slicing
l[:0] = ['ghi', 'jkl']         # slice assignment
print l[0]                     # getting item
l[0] = 'mno'                   # assignment
for i in l:                    # iteration
print isinstance(l, vim.List)  # True
class List(vim.List):          # Subclassing
```

vim.Function object python-Function

Function-like object, acting like vim Funcref object. Accepts special keyword argument `self`, see Dictionary-function . You can also use `vim.Function(name)` constructor, it is the same as `vim.bindeval('function(%s)'%json.dumps(name))`.

Attributes (read-only):

Attribute	Description
name	Function name.
args	`None` or a python-List object with arguments. Note that this is a copy of the arguments list, constructed each time you request this attribute. Modifications made to the list will be ignored (but not to the containers inside argument list: this is like copy() and not deepcopy()).
self	`None` or a python-Dictionary object with self dictionary. Note that explicit `self` keyword used when calling resulting object overrides this attribute.
auto_rebind	Boolean. True if partial created from this Python object and stored in the Vim script dictionary should be automatically rebound to the dictionary it is stored in when this dictionary is indexed. Exposes Vim internal difference between `dict.func` (auto_rebind=True) and `function(dict.func,dict)` (auto_rebind=False). This attribute makes no sense if `self` attribute is `None`.

Constructor additionally accepts `args`, `self` and `auto_rebind` keywords. If `args` and/or `self` argument is given then it constructs a partial, see function() . `auto_rebind` is only used when `self` argument is given, otherwise it is assumed to be `True` regardless of whether it was given or not. If `self` is given then it defaults to `False`.

Examples:

```
f = vim.Function('tr')                # Constructor
print f('abc', 'a', 'b')              # Calls tr('abc', 'a', 'b')
vim.command('''
    function DictFun() dict
        return self
    endfunction
''')
f = vim.bindeval('function("DictFun")')
```

```
        print f(self={})                         # Like call('DictFun', [], {})
        print isinstance(f, vim.Function)       # True

        p = vim.Function('DictFun', self={})
        print f()
        p = vim.Function('tr', args=['abc', 'a'])
        print f('b')
```

==
8. pyeval() and py3eval() Vim functions   python-pyeval

To facilitate bi-directional interface, you can use `pyeval()` and `py3eval()` functions to evaluate Python expressions and pass their values to Vim script. `pyxeval()` is also available.

The Python value "None" is converted to v:none.

==
9. Dynamic loading   python-dynamic

On MS-Windows and Unix the Python library can be loaded dynamically. The `:version` output then includes `+python/dyn` or `+python3/dyn` .

This means that Vim will search for the Python DLL or shared library file only when needed. When you don't use the Python interface you don't need it, thus you can use Vim without this file.

MS-Windows

To use the Python interface the Python DLL must be in your search path. In a console window type "path" to see what directories are used. The 'pythondll' or 'pythonthreedll' option can be also used to specify the Python DLL.

The name of the DLL should match the Python version Vim was compiled with. Currently the name for Python 2 is "python27.dll", that is for Python 2.7. That is the default value for 'pythondll'. For Python 3 it is python36.dll (Python 3.6). To know for sure edit "gvim.exe" and search for "python\d*.dll\c".

Unix

The 'pythondll' or 'pythonthreedll' option can be used to specify the Python shared library file instead of DYNAMIC_PYTHON_DLL or DYNAMIC_PYTHON3_DLL file what were specified at compile time. The version of the shared library must match the Python 2.x or Python 3 version Vim was compiled with.

==
10. Python 3   python3

                                                        :py3   :python3

The `:py3` and `:python3` commands work similar to `:python`. A simple check if the `:py3` command is working:

```
        :py3 print("Hello")

To see what version of Python you have:
        :py3 import sys
        :py3 print(sys.version)
                                                              :py3file
The `:py3file` command works similar to `:pyfile`.
                                                               :py3do
The `:py3do` command works similar to `:pydo`.


Vim can be built in four ways (:version output):
1. No Python support        (-python, -python3)
2. Python 2 support only    (+python or +python/dyn, -python3)
3. Python 3 support only    (-python, +python3 or +python3/dyn)
4. Python 2 and 3 support   (+python/dyn, +python3/dyn)

Some more details on the special case 4:   python-2-and-3

When Python 2 and Python 3 are both supported they must be loaded dynamically.

When doing this on Linux/Unix systems and importing global symbols, this leads
to a crash when the second Python version is used.  So either global symbols
are loaded but only one Python version is activated, or no global symbols are
loaded. The latter makes Python's "import" fail on libraries that expect the
symbols to be provided by Vim.
                                                          E836   E837
Vim's configuration script makes a guess for all libraries based on one
standard Python library (termios).  If importing this library succeeds for
both Python versions, then both will be made available in Vim at the same
time.  If not, only the version first used in a session will be enabled.
When trying to use the other one you will get the E836 or E837 error message.

Here Vim's behavior depends on the system in which it was configured.  In a
system where both versions of Python were configured with --enable-shared,
both versions of Python will be activated at the same time.  There will still
be problems with other third party libraries that were not linked to
libPython.

To work around such problems there are these options:
1. The problematic library is recompiled to link to the according
   libpython.so.
2. Vim is recompiled for only one Python version.
3. You undefine PY_NO_RTLD_GLOBAL in auto/config.h after configuration.  This
   may crash Vim though.

                                                              E880
Raising SystemExit exception in python isn't endorsed way to quit vim, use:
        :py vim.command("qall!")


                                                          has-python
You can test what Python version is available with:
        if has('python')
```

```
  echo 'there is Python 2.x'
endif
if has('python3')
  echo 'there is Python 3.x'
endif
```

Note however, that when Python 2 and 3 are both available and loaded
dynamically, these has() calls will try to load them. If only one can be
loaded at a time, just checking if Python 2 or 3 are available will prevent
the other one from being available.

To avoid loading the dynamic library, only check if Vim was compiled with
python support:

```
if has('python_compiled')
  echo 'compiled with Python 2.x support'
  if has('python_dynamic')
    echo 'Python 2.x dynamically loaded'
  endif
endif
if has('python3_compiled')
  echo 'compiled with Python 3.x support'
  if has('python3_dynamic')
    echo 'Python 3.x dynamically loaded'
  endif
endif
```

This also tells you whether Python is dynamically loaded, which will fail if
the runtime library cannot be found.

==
11. Python X   python_x pythonx

Because most python code can be written so that it works with python 2.6+ and
python 3 the pyx* functions and commands have been written. They work exactly
the same as the Python 2 and 3 variants, but select the Python version using
the 'pyxversion' setting.

You should set 'pyxversion' in your .vimrc to prefer Python 2 or Python 3
for Python commands. If you change this setting at runtime you may risk that
state of plugins (such as initialization) may be lost.

If you want to use a module, you can put it in the {rtp}/pythonx directory.
See pythonx-directory .

                                                              :pyx :pythonx
The `:pyx` and `:pythonx` commands work similar to `:python`. A simple check
if the `:pyx` command is working:

```
:pyx print("Hello")
```

To see what version of Python is being used:

```
:pyx import sys
:pyx print(sys.version)
```

                                              :pyxfile python_x-special-comments

The `:pyxfile` command works similar to `:pyfile`. However you can add one of these comments to force Vim using `:pyfile` or `:py3file`:

```
  #!/any string/python2         " Shebang. Must be the first line of the file.
  #!/any string/python3         " Shebang. Must be the first line of the file.
  # requires python 2.x         " Maximum lines depend on 'modelines'.
  # requires python 3.x         " Maximum lines depend on 'modelines'.
```

Unlike normal modelines, the bottom of the file is not checked.
If none of them are found, the 'pyxversion' setting is used.
W20 W21

If Vim does not support the selected Python version a silent message will be printed. Use `:messages` to read them.

:pyxdo

The `:pyxdo` command works similar to `:pydo`.

has-pythonx

You can test if pyx* commands are available with:

```
        if has('pythonx')
          echo 'pyx* commands are available. (Python ' . &pyx . ')'
        endif
```

When compiled with only one of +python or +python3 , the has() returns 1. When compiled with both +python and +python3 , the test depends on the 'pyxversion' setting. If 'pyxversion' is 0, it tests Python 3 first, and if it is not available then Python 2. If 'pyxversion' is 2 or 3, it tests only Python 2 or 3 respectively.

Note that for `has('pythonx')` to work it may try to dynamically load Python 3 or 2. This may have side effects, especially when Vim can only load one of the two.

If a user prefers Python 2 and want to fallback to Python 3, he needs to set 'pyxversion' explicitly in his .vimrc . E.g.:

```
        if has('python')
          set pyx=2
        elseif has('python3')
          set pyx=3
        endif
```

==
12. Building with Python support python-building

A few hints for building with Python 2 or 3 support.

UNIX

See src/Makefile for how to enable including the Python interface.

On Ubuntu you will want to install these packages for Python 2:

```
        python
        python-dev
```

For Python 3:

```
        python3
        python3-dev
```

```
For Python 3.6:
        python3.6
        python3.6-dev

If you have more than one version of Python 3, you need to link python3 to the
one you prefer, before running configure.

==============================================================================
 vim:tw=78:ts=8:noet:ft=help:norl:
```

if_sniff.txt For Vim version 8.1. Last change: 2016 Feb 27

VIM REFERENCE MANUAL
by Anton Leherbauer (toni@takefive.co.at)

The SNiFF+ support was removed at patch 7.4.1433. If you want to check it out sync to before that.

vim:tw=78:ts=8:noet:ft=help:norl:

if_tcl.txt For Vim version 8.1. Last change: 2016 Jan 01

VIM REFERENCE MANUAL by Ingo Wilken

The Tcl Interface to Vim tcl Tcl TCL

{Vi does not have any of these commands} E280

The Tcl interface only works when Vim was compiled with the +tcl feature.

WARNING: There are probably still some bugs. Please send bug reports,
comments, ideas etc to <Ingo.Wilken@informatik.uni-oldenburg.de>

==
1. Commands tcl-ex-commands E571 E572

:tcl :tc

:tc[l] {cmd} Execute Tcl command {cmd}. A simple check if `:tcl`
is working:

```
:tcl puts "Hello"
```

:[range]tc[l] << {endmarker}
{script}
{endmarker}

Execute Tcl script {script}.
Note: This command doesn't work when the Tcl feature
wasn't compiled in. To avoid errors, see
script-here .

{endmarker} must NOT be preceded by any white space. If {endmarker} is
omitted from after the "<<", a dot '.' must be used after {script}, like for
the :append and :insert commands.
This form of the :tcl command is mainly useful for including tcl code in Vim
scripts.

Example:

```
function! DefineDate()
    tcl << EOF
    proc date {} {
        return [clock format [clock seconds]]
    }
EOF
```

```
        endfunction

To see what version of Tcl you have:
        :tcl puts [info patchlevel]


                                                        :tcldo   :tcld
:[range]tcld[o] {cmd}   Execute Tcl command {cmd} for each line in [range]
                        with the variable "line" being set to the text of each
                        line in turn, and "lnum" to the line number.  Setting
                        "line" will change the text, but note that it is not
                        possible to add or delete lines using this command.
                        If {cmd} returns an error, the command is interrupted.
                        The default for [range] is the whole file: "1,$".
                        See  tcl-var-line  and  tcl-var-lnum .  {not in Vi}

                                                        :tclfile   :tclf
:tclf[ile] {file}       Execute the Tcl script in {file}.  This is the same as
                        ":tcl source {file}", but allows file name completion.
                        {not in Vi}


Note that Tcl objects (like variables) persist from one command to the next,
just as in the Tcl shell.

Executing Tcl commands is not possible in the  sandbox .

==============================================================================
2. Tcl commands                                         tcl-commands

Tcl code gets all of its access to vim via commands in the "::vim" namespace.
The following commands are implemented:

        ::vim::beep                     # Guess.
        ::vim::buffer {n}               # Create Tcl command for one buffer.
        ::vim::buffer list              # Create Tcl commands for all buffers.
        ::vim::command [-quiet] {cmd}   # Execute an Ex command.
        ::vim::expr {expr}              # Use Vim's expression evaluator.
        ::vim::option {opt}             # Get vim option.
        ::vim::option {opt} {val}       # Set vim option.
        ::vim::window list              # Create Tcl commands for all windows.

Commands:
        ::vim::beep                                     tcl-beep
        Honk.  Does not return a result.

        ::vim::buffer {n}                               tcl-buffer
        ::vim::buffer exists {n}
        ::vim::buffer list
        Provides access to vim buffers.  With an integer argument, creates a
        buffer command (see  tcl-buffer-cmds ) for the buffer with that
        number, and returns its name as the result.  Invalid buffer numbers
        result in a standard Tcl error.  To test for valid buffer numbers,
        vim's internal functions can be used:
```

```
        set nbufs [::vim::expr bufnr("$")]
        set isvalid [::vim::expr "bufexists($n)"]
```
The "list" option creates a buffer command for each valid buffer, and returns a list of the command names as the result.
Example:
```
        set bufs [::vim::buffer list]
        foreach b $bufs { $b append end "The End!" }
```
The "exists" option checks if a buffer with the given number exists.
Example:
```
        if { [::vim::buffer exists $n] } { ::vim::command ":e #$n" }
```
This command might be replaced by a variable in future versions.
See also tcl-var-current for the current buffer.

::vim::command {cmd} tcl-command
::vim::command -quiet {cmd}
Execute the vim (ex-mode) command {cmd}. Any Ex command that affects a buffer or window uses the current buffer/current window. Does not return a result other than a standard Tcl error code. After this command is completed, the "::vim::current" variable is updated.
The "-quiet" flag suppresses any error messages from vim.
Examples:
```
        ::vim::command "set ts=8"
        ::vim::command "%s/foo/bar/g"
```
To execute normal-mode commands, use "normal" (see :normal):
```
        set cmd "jj"
        ::vim::command "normal $cmd"
```
See also tcl-window-command and tcl-buffer-command .

::vim::expr {expr} tcl-expr
Evaluates the expression {expr} using vim's internal expression evaluator (see expression). Any expression that queries a buffer or window property uses the current buffer/current window. Returns the result as a string. A List is turned into a string by joining the items and inserting line breaks.
Examples:
```
        set perl_available [::vim::expr has("perl")]
```
See also tcl-window-expr and tcl-buffer-expr .

::vim::option {opt} tcl-option
::vim::option {opt} {value}
Without second argument, queries the value of a vim option. With this argument, sets the vim option to {value}, and returns the previous value as the result. Any options that are marked as 'local to buffer' or 'local to window' affect the current buffer/current window. The global value is not changed, use the ":set" command for that. For boolean options, {value} should be "0" or "1", or any of the keywords "on", "off" or "toggle". See option-summary for a list of options.
Example:
```
        ::vim::option ts 8
```
See also tcl-window-option and tcl-buffer-option .

::vim::window {option} tcl-window
Provides access to vim windows. Currently only the "list" option is implemented. This creates a window command (see tcl-window-cmds) for

each window, and returns a list of the command names as the result.
Example:

```
set wins [::vim::window list]
foreach w $wins { $w height 4 }
```

This command might be replaced by a variable in future versions.
See also tcl-var-current for the current window.

==
3. Tcl variables tcl-variables

The ::vim namespace contains a few variables. These are created when the Tcl interpreter is called from vim and set to current values.

```
::vim::current          # array containing "current" objects
::vim::lbase            # number of first line
::vim::range            # array containing current range numbers
line                    # current line as a string (:tcldo only)
lnum                    # current line number (:tcldo only)
```

Variables:

::vim::current tcl-var-current
This is an array providing access to various "current" objects available in vim. The contents of this array are updated after "::vim::command" is called, as this might change vim's current settings (e.g., by deleting the current buffer).
The "buffer" element contains the name of the buffer command for the current buffer. This can be used directly to invoke buffer commands (see tcl-buffer-cmds). This element is read-only.
Example:

```
$::vim::current(buffer) insert begin "Hello world"
```

The "window" element contains the name of the window command for the current window. This can be used directly to invoke window commands (see tcl-window-cmds). This element is read-only.
Example:

```
$::vim::current(window) height 10
```

::vim::lbase tcl-var-lbase
This variable controls how Tcl treats line numbers. If it is set to '1', then lines and columns start at 1. This way, line numbers from Tcl commands and vim expressions are compatible. If this variable is set to '0', then line numbers and columns start at 0 in Tcl. This is useful if you want to treat a buffer as a Tcl list or a line as a Tcl string and use standard Tcl commands that return an index ("lsort" or "string first", for example). The default value is '1'. Currently, any non-zero values is treated as '1', but your scripts should not rely on this. See also tcl-linenumbers .

::vim::range tcl-var-range
This is an array with three elements, "start", "begin" and "end". It contains the line numbers of the start and end row of the current range. "begin" is the same as "start". This variable is read-only.
See tcl-examples .

line tcl-var-line

lnum   tcl-var-lnum
These global variables are only available if the ":tcldo" Ex command
is being executed. They contain the text and line number of the
current line. When the Tcl command invoked by ":tcldo" is completed,
the current line is set to the contents of the "line" variable, unless
the variable was unset by the Tcl command. The "lnum" variable is
read-only. These variables are not in the "::vim" namespace so they
can be used in ":tcldo" without much typing (this might be changed in
future versions). See also tcl-linenumbers .

==
4. Tcl window commands   tcl-window-cmds

Window commands represent vim windows. They are created by several commands:
        ::vim::window list   tcl-window
        "windows" option of a buffer command   tcl-buffer-windows
The ::vim::current(window) variable contains the name of the window command
for the current window. A window command is automatically deleted when the
corresponding vim window is closed.

Let's assume the name of the window command is stored in the Tcl variable "win",
i.e. "$win" calls the command. The following options are available:

```
$win buffer             # Create Tcl command for window's buffer.
$win command {cmd}      # Execute Ex command in windows context.
$win cursor             # Get current cursor position.
$win cursor {var}       # Set cursor position from array variable.
$win cursor {row} {col} # Set cursor position.
$win delcmd {cmd}       # Call Tcl command when window is closed.
$win expr {expr}        # Evaluate vim expression in windows context.
$win height             # Report the window's height.
$win height {n}         # Set the window's height.
$win option {opt} [val] # Get/Set vim option in windows context.
```

Options:
        $win buffer   tcl-window-buffer
        Creates a Tcl command for the window's buffer, and returns its name as
        the result. The name should be stored in a variable:
                set buf [$win buffer]
       $buf is now a valid Tcl command. See tcl-buffer-cmds for the
        available options.

        $win cursor   tcl-window-cursor
        $win cursor {var}
        $win cursor {row} {col}
        Without argument, reports the current cursor position as a string.
        This can be converted to a Tcl array variable:
                array set here [$win cursor]
      "here(row)" and "here(column)" now contain the cursor position.
        With a single argument, the argument is interpreted as the name of a
        Tcl array variable, which must contain two elements "row" and "column".
        These are used to set the cursor to the new position:
                $win cursor here   ;# not $here !
      With two arguments, sets the cursor to the specified row and column:

```
        $win cursor $here(row) $here(column)
```
Invalid positions result in a standard Tcl error, which can be caught with "catch". The row and column values depend on the "::vim::lbase" variable. See tcl-var-lbase .

$win delcmd {cmd} tcl-window-delcmd

Registers the Tcl command {cmd} as a deletion callback for the window. This command is executed (in the global scope) just before the window is closed. Complex commands should be build with "list":

```
        $win delcmd [list puts vimerr "window deleted"]
```
See also tcl-buffer-delcmd .

$win height tcl-window-height
$win height {n}

Without argument, reports the window's current height. With an argument, tries to set the window's height to {n}, then reports the new height (which might be different from {n}).

$win command [-quiet] {cmd} tcl-window-command
$win expr {expr} tcl-window-expr
$win option {opt} [val] tcl-window-option

These are similar to "::vim::command" etc., except that everything is done in the context of the window represented by $win, instead of the current window. For example, setting an option that is marked 'local to window' affects the window $win. Anything that affects or queries a buffer uses the buffer displayed in this window (i.e. the buffer that is represented by "$win buffer"). See tcl-command , tcl-expr and tcl-option for more information.

Example:

```
        $win option number on
```

==

5. Tcl buffer commands tcl-buffer-cmds

Buffer commands represent vim buffers. They are created by several commands:

::vim::buffer {N}	tcl-buffer
::vim::buffer list	tcl-buffer
"buffer" option of a window command	tcl-window-buffer

The ::vim::current(buffer) variable contains the name of the buffer command for the current buffer. A buffer command is automatically deleted when the corresponding vim buffer is destroyed. Whenever the buffer's contents are changed, all marks in the buffer are automatically adjusted. Any changes to the buffer's contents made by Tcl commands can be undone with the "undo" vim command (see undo).

Let's assume the name of the buffer command is stored in the Tcl variable "buf", i.e. "$buf" calls the command. The following options are available:

```
        $buf append {n} {str}   # Append a line to buffer, after line {n}.
        $buf command {cmd}      # Execute Ex command in buffers context.
        $buf count              # Report number of lines in buffer.
        $buf delcmd {cmd}       # Call Tcl command when buffer is deleted.
        $buf delete {n}         # Delete a single line.
        $buf delete {n} {m}     # Delete several lines.
```

```
        $buf expr {expr}        # Evaluate vim expression in buffers context.
        $buf get {n}            # Get a single line as a string.
        $buf get {n} {m}        # Get several lines as a list.
        $buf insert {n} {str}   # Insert a line in buffer, as line {n}.
        $buf last               # Report line number of last line in buffer.
        $buf mark {mark}        # Report position of buffer mark.
        $buf name               # Report name of file in buffer.
        $buf number             # Report number of this buffer.
        $buf option {opt} [val] # Get/Set vim option in buffers context.
        $buf set {n} {text}     # Replace a single line.
        $buf set {n} {m} {list} # Replace several lines.
        $buf windows            # Create Tcl commands for buffer's windows.
```

tcl-linenumbers

Most buffer commands take line numbers as arguments. How Tcl treats these numbers depends on the "::vim::lbase" variable (see tcl-var-lbase). Instead of line numbers, several keywords can be also used: "top", "start", "begin", "first", "bottom", "end" and "last".

Options:

$buf append {n} {str} tcl-buffer-append
$buf insert {n} {str} tcl-buffer-insert

Add a line to the buffer. With the "insert" option, the string becomes the new line {n}, with "append" it is inserted after line {n}. Example:

```
        $buf insert top "This is the beginning."
        $buf append end "This is the end."
```

To add a list of lines to the buffer, use a loop:

```
        foreach line $list { $buf append $num $line ; incr num }
```

$buf count tcl-buffer-count

Reports the total number of lines in the buffer.

$buf delcmd {cmd} tcl-buffer-delcmd

Registers the Tcl command {cmd} as a deletion callback for the buffer. This command is executed (in the global scope) just before the buffer is deleted. Complex commands should be build with "list":

```
        $buf delcmd [list puts vimerr "buffer [$buf number] gone"]
```

See also tcl-window-delcmd .

$buf delete {n} tcl-buffer-delete
$buf delete {n} {m}

Deletes line {n} or lines {n} through {m} from the buffer. This example deletes everything except the last line:

```
        $buf delete first [expr [$buf last] - 1]
```

$buf get {n} tcl-buffer-get
$buf get {n} {m}

Gets one or more lines from the buffer. For a single line, the result is a string; for several lines, a list of strings. Example:

```
        set topline [$buf get top]
```

$buf last tcl-buffer-last

Reports the line number of the last line. This value depends on the
"::vim::lbase" variable. See tcl-var-lbase .

$buf mark {mark}   tcl-buffer-mark
Reports the position of the named mark as a string, similar to the
cursor position of the "cursor" option of a window command (see
 tcl-window-cursor). This can be converted to a Tcl array variable:
        array set mpos [$buf mark "a"]
"mpos(column)" and "mpos(row)" now contain the position of the mark.
If the mark is not set, a standard Tcl error results.

$buf name
Reports the name of the file in the buffer. For a buffer without a
file, this is an empty string.

$buf number
Reports the number of this buffer. See :buffers .
This example deletes a buffer from vim:
        ::vim::command "bdelete [$buf number]"

$buf set {n} {string}   tcl-buffer-set
$buf set {n} {m} {list}
Replace one or several lines in the buffer. If the list contains more
elements than there are lines to replace, they are inserted into the
buffer. If the list contains fewer elements, any unreplaced line is
deleted from the buffer.

$buf windows   tcl-buffer-windows
Creates a window command for each window that displays this buffer, and
returns a list of the command names as the result.
Example:
        set winlist [$buf windows]
        foreach win $winlist { $win height 4 }
See tcl-window-cmds for the available options.

$buf command [-quiet] {cmd}   tcl-buffer-command
$buf expr {expr}   tcl-buffer-expr
$buf option {opt} [val]   tcl-buffer-option
These are similar to "::vim::command" etc., except that everything is
done in the context of the buffer represented by $buf, instead of the
current buffer. For example, setting an option that is marked 'local
to buffer' affects the buffer $buf. Anything that affects or queries
a window uses the first window in vim's window list that displays this
buffer (i.e. the first entry in the list returned by "$buf windows").
See tcl-command , tcl-expr and tcl-option for more information.
Example:
        if { [$buf option modified] } { $buf command "w" }

==
6. Miscellaneous; Output from Tcl   tcl-misc   tcl-output

The standard Tcl commands "exit" and "catch" are replaced by custom versions.
"exit" terminates the current Tcl script and returns to vim, which deletes the
Tcl interpreter. Another call to ":tcl" then creates a new Tcl interpreter.

"exit" does NOT terminate vim! "catch" works as before, except that it does not prevent script termination from "exit". An exit code != 0 causes the ex command that invoked the Tcl script to return an error.

Two new I/O streams are available in Tcl, "vimout" and "vimerr". All output directed to them is displayed in the vim message area, as information messages and error messages, respectively. The standard Tcl output streams stdout and stderr are mapped to vimout and vimerr, so that a normal "puts" command can be used to display messages in vim.

==
7. Known bugs & problems   tcl-bugs

Calling one of the Tcl Ex commands from inside Tcl (via "::vim::command") may have unexpected side effects. The command creates a new interpreter, which has the same abilities as the standard interpreter - making "::vim::command" available in a safe child interpreter therefore makes the child unsafe. (It would be trivial to block nested :tcl* calls or ensure that such calls from a safe interpreter create only new safe interpreters, but quite pointless - depending on vim's configuration, "::vim::command" may execute arbitrary code in any number of other scripting languages.) A call to "exit" within this new interpreter does not affect the old interpreter; it only terminates the new interpreter, then script processing continues normally in the old interpreter.

Input from stdin is currently not supported.

==
8. Examples: tcl-examples

Here are a few small (and maybe useful) Tcl scripts.

This script sorts the lines of the entire buffer (assume it contains a list of names or something similar):

```
        set buf $::vim::current(buffer)
        set lines [$buf get top bottom]
        set lines [lsort -dictionary $lines]
        $buf set top bottom $lines
```

This script reverses the lines in the buffer. Note the use of "::vim::lbase" and "$buf last" to work with any line number setting.

```
        set buf $::vim::current(buffer)
        set t $::vim::lbase
        set b [$buf last]
        while { $t < $b } {
                set tl [$buf get $t]
                set bl [$buf get $b]
                $buf set $t $bl
                $buf set $b $tl
                incr t
                incr b -1
        }
```

This script adds a consecutive number to each line in the current range:

```
        set buf $::vim::current(buffer)
```

```
        set i $::vim::range(start)
        set n 1
        while { $i <= $::vim::range(end) } {
                set line [$buf get $i]
                $buf set $i "$n\t$line"
                incr i ; incr n
        }
```

The same can also be done quickly with two Ex commands, using ":tcldo":

```
        :tcl set n 1
        :[range]tcldo set line "$n\t$line" ; incr n
```

This procedure runs an Ex command on each buffer (idea stolen from Ron Aaron):

```
        proc eachbuf { cmd } {
                foreach b [::vim::buffer list] {
                        $b command $cmd
                }
        }
```

Use it like this:

```
        :tcl eachbuf %s/foo/bar/g
```

Be careful with Tcl's string and backslash substitution, tough. If in doubt, surround the Ex command with curly braces.

If you want to add some Tcl procedures permanently to vim, just place them in a file (e.g. "~/.vimrc.tcl" on Unix machines), and add these lines to your startup file (usually "~/.vimrc" on Unix):

```
        if has("tcl")
                tclfile ~/.vimrc.tcl
        endif
```

==

9. Dynamic loading tcl-dynamic

On MS-Windows and Unix the Tcl library can be loaded dynamically. The :version output then includes +tcl/dyn .

This means that Vim will search for the Tcl DLL or shared library file only when needed. When you don't use the Tcl interface you don't need it, thus you can use Vim without this file.

MS-Windows

To use the Tcl interface the Tcl DLL must be in your search path. In a console window type "path" to see what directories are used. The 'tcldll' option can be also used to specify the Tcl DLL.

The name of the DLL must match the Tcl version Vim was compiled with. Currently the name is "tcl86.dll". That is for Tcl 8.6. To know for sure edit "gvim.exe" and search for "tcl\d*.dll\c".

Unix

The 'tcldll' option can be used to specify the Tcl shared library file instead
of DYNAMIC_TCL_DLL file what was specified at compile time. The version of
the shared library must match the Tcl version Vim was compiled with.

==
 vim:tw=78:ts=8:noet:ft=help:norl:

if_ole.txt For Vim version 8.1. Last change: 2008 Aug 16

VIM REFERENCE MANUAL by Paul Moore

The OLE Interface to Vim ole-interface

{Vi does not have any of these commands}

OLE is only available when compiled with the +ole feature. See src/if_ole.INSTALL.
An alternative is using the client-server communication clientserver .

==========
1. Activation ole-activation

Vim acts as an OLE automation server, accessible from any automation client, for example, Visual Basic, Python, or Perl. The Vim application "name" (its "ProgID", in OLE terminology) is "Vim.Application".

Hence, in order to start a Vim instance (or connect to an already running instance), code similar to the following should be used:

[Visual Basic]
```
Dim Vim As Object
Set Vim = CreateObject("Vim.Application")
```

[Python]
```
from win32com.client.dynamic import Dispatch
vim = Dispatch('Vim.Application')
```

[Perl]
```
use Win32::OLE;
$vim = new Win32::OLE 'Vim.Application';
```

[C#]
```
// Add a reference to Vim in your project.
// Choose the COM tab.
// Select "Vim Ole Interface 1.1 Type Library"
Vim.Vim vimobj = new Vim.Vim();
```

Vim does not support acting as a "hidden" OLE server, like some other OLE Automation servers. When a client starts up an instance of Vim, that instance is immediately visible. Simply closing the OLE connection to the Vim instance is not enough to shut down the Vim instance - it is necessary to explicitly execute a quit command (for example, :qa!, :wqa).

==
2. Methods   ole-methods

Vim exposes four methods for use by clients.

                                                              ole-sendkeys
SendKeys(keys)   Execute a series of keys.

This method takes a single parameter, which is a string of keystrokes. These keystrokes are executed exactly as if they had been types in at the keyboard. Special keys can be given using their <..> names, as for the right hand side of a mapping. Note: Execution of the Ex "normal" command is not supported - see below ole-normal .

Examples (Visual Basic syntax)
        Vim.SendKeys "ihello<Esc>"
        Vim.SendKeys "ma1GV4jy`a"

These examples assume that Vim starts in Normal mode. To force Normal mode, start the key sequence with CTRL-\ CTRL-N as in

        Vim.SendKeys "<C-\><C-N>ihello<Esc>"

CTRL-\ CTRL-N returns Vim to Normal mode, when in Insert or Command-line mode. Note that this doesn't work halfway a Vim command

                                                              ole-eval
Eval(expr)   Evaluate an expression.

This method takes a single parameter, which is an expression in Vim's normal format (see expression). It returns a string, which is the result of evaluating the expression. A List is turned into a string by joining the items and inserting line breaks.

Examples (Visual Basic syntax)
        Line20 = Vim.Eval("getline(20)")
        Twelve = Vim.Eval("6 + 6")   ' Note this is a STRING
        Font = Vim.Eval("&guifont")

                                                              ole-setforeground
SetForeground()   Make the Vim window come to the foreground

This method takes no arguments. No value is returned.

Example (Visual Basic syntax)
        Vim.SetForeground

                                                              ole-gethwnd
GetHwnd()   Return the handle of the Vim window.

This method takes no arguments. It returns the hwnd of the main Vimwindow. You can use this if you are writing something which needs to manipulate the Vim window, or to track it in the z-order, etc.

Example (Visual Basic syntax)

```
Vim_Hwnd = Vim.GetHwnd
```

==

3. The "normal" command ole-normal

Due to the way Vim processes OLE Automation commands, combined with the method of implementation of the Ex command :normal, it is not possible to execute the :normal command via OLE automation. Any attempt to do so will fail, probably harmlessly, although possibly in unpredictable ways.

There is currently no practical way to trap this situation, and users must simply be aware of the limitation.

==

4. Registration ole-registration E243

Before Vim will act as an OLE server, it must be registered in the system registry. In order to do this, Vim should be run with a single parameter of "-register".

-register

```
gvim -register
```

If gvim with OLE support is run and notices that no Vim OLE server has been registered, it will present a dialog and offers you the choice to register by clicking "Yes".

In some situations registering is not possible. This happens when the registry is not writable. If you run into this problem you need to run gvim as "Administrator".

Once vim is registered, the application path is stored in the registry. Before moving, deleting, or upgrading Vim, the registry entries should be removed using the "-unregister" switch.

-unregister

```
gvim -unregister
```

The OLE mechanism will use the first registered Vim it finds. If a Vim is already running, this one will be used. If you want to have (several) Vim sessions open that should not react to OLE commands, use the non-OLE version, and put it in a different directory. The OLE version should then be put in a directory that is not in your normal path, so that typing "gvim" will start the non-OLE version.

-silent

To avoid the message box that pops up to report the result, prepend "-silent":

```
gvim -silent -register
gvim -silent -unregister
```

==

5. MS Visual Studio integration MSVisualStudio VisVim

The OLE version can be used to run Vim as the editor in Microsoft Visual
Studio. This is called "VisVim". It is included in the archive that contains
the OLE version. The documentation can be found in the runtime directory, the
README_VisVim.txt file.

Using Vim with Visual Studio .Net

With .Net you no longer really need VisVim, since .Net studio has support for
external editors. Follow these directions:

In .Net Studio choose from the menu Tools->External Tools...
Add
     Title   - Vim
     Command   - c:\vim\vim63\gvim.exe
     Arguments - --servername VS_NET --remote-silent "+call cursor($(CurLine), $(CurCol))"
     Init Dir - Empty

Now, when you open a file in .Net, you can choose from the .Net menu:
Tools->Vim

That will open the file in Vim.
You can then add this external command as an icon and place it anywhere you
like. You might also be able to set this as your default editor.

If you refine this further, please post back to the Vim maillist so we have a
record of it.

--servername VS_NET
This will create a new instance of vim called VS_NET. So if you open multiple
files from VS, they will use the same instance of Vim. This allows you to
have multiple copies of Vim running, but you can control which one has VS
files in it.

--remote-silent "+call cursor(10, 27)"
              - Places the cursor on line 10 column 27
In Vim
   :h --remote-silent for more details

[.Net remarks provided by Dave Fishburn and Brian Sturk]

==
 vim:tw=78:ts=8:noet:ft=help:norl:

if_ruby.txt For Vim version 8.1. Last change: 2018 Mar 15

VIM REFERENCE MANUAL by Shugo Maeda

The Ruby Interface to Vim ruby Ruby

{Vi does not have any of these commands}
E266 E267 E268 E269 E270 E271 E272 E273

The Ruby interface only works when Vim was compiled with the +ruby feature.

The home page for ruby is http://www.ruby-lang.org/. You can find links for downloading Ruby there.

==========

1. Commands ruby-commands

:ruby :rub

:rub[y] {cmd} Execute Ruby command {cmd}. A command to try it out:
:ruby print "Hello"

:rub[y] << {endpattern}
{script}
{endpattern}

Execute Ruby script {script}.
{endpattern} must NOT be preceded by any white space.
If {endpattern} is omitted, it defaults to a dot '.'
like for the :append and :insert commands. This
form of the :ruby command is mainly useful for
including ruby code in vim scripts.
Note: This command doesn't work when the Ruby feature
wasn't compiled in. To avoid errors, see
script-here .

Example Vim script:

```
function! RedGem()
ruby << EOF
class Garnet
        def initialize(s)
                @buffer = Vim::Buffer.current
                vimputs(s)
        end
        def vimputs(s)
                @buffer.append(@buffer.count,s)
```

```
            end
        end
        gem = Garnet.new("pretty")
        EOF
        endfunction
```

To see what version of Ruby you have:

```
        :ruby print RUBY_VERSION
```

:rubydo :rubyd E265

:[range]rubyd[o] {cmd} Evaluate Ruby command {cmd} for each line in the [range], with $_ being set to the text of each line in turn, without a trailing <EOL>. Setting $_ will change the text, but note that it is not possible to add or delete lines using this command. The default for [range] is the whole file: "1,$".

:rubyfile :rubyf

:rubyf[ile] {file} Execute the Ruby script in {file}. This is the same as `:ruby load 'file'`, but allows file name completion.

Executing Ruby commands is not possible in the sandbox .

==

2. The Vim module ruby-vim

Ruby code gets all of its access to vim via the "Vim" module.

Overview:

```
        print "Hello"                          # displays a message
        Vim.command(cmd)                      # execute an Ex command
        num = Vim::Window.count               # gets the number of windows
        w = Vim::Window[n]                    # gets window "n"
        cw = Vim::Window.current              # gets the current window
        num = Vim::Buffer.count               # gets the number of buffers
        b = Vim::Buffer[n]                    # gets buffer "n"
        cb = Vim::Buffer.current              # gets the current buffer
        w.height = lines                      # sets the window height
        w.cursor = [row, col]                 # sets the window cursor position
        pos = w.cursor                        # gets an array [row, col]
        name = b.name                         # gets the buffer file name
        line = b[n]                           # gets a line from the buffer
        num = b.count                         # gets the number of lines
        b[n] = str                            # sets a line in the buffer
        b.delete(n)                           # deletes a line
        b.append(n, str)                      # appends a line after n
        line = Vim::Buffer.current.line       # gets the current line
        num = Vim::Buffer.current.line_number # gets the current line number
        Vim::Buffer.current.line = "test"     # sets the current line number
```

Module Functions:

ruby-message
Vim::message({msg})
        Displays the message {msg}.

ruby-set_option
Vim::set_option({arg})
        Sets a vim option. {arg} can be any argument that the ":set" command
        accepts. Note that this means that no spaces are allowed in the
        argument! See :set .

ruby-command
Vim::command({cmd})
        Executes Ex command {cmd}.

ruby-evaluate
Vim::evaluate({expr})
        Evaluates {expr} using the vim internal expression evaluator (see
         expression). Returns the expression result as:
        - a Integer if the Vim expression evaluates to a number
        - a Float if the Vim expression evaluates to a float
        - a String if the Vim expression evaluates to a string
        - a Array if the Vim expression evaluates to a Vim list
        - a Hash if the Vim expression evaluates to a Vim dictionary
        Dictionaries and lists are recursively expanded.

==
3. Vim::Buffer objects   ruby-buffer

Vim::Buffer objects represent vim buffers.

Class Methods:

current   Returns the current buffer object.
count   Returns the number of buffers.
self[{n}]   Returns the buffer object for the number {n}. The first number
                is 0.

Methods:

name   Returns the full name of the buffer.
number   Returns the number of the buffer.
count   Returns the number of lines.
length   Returns the number of lines.
self[{n}]   Returns a line from the buffer. {n} is the line number.
self[{n}] = {str}
                Sets a line in the buffer. {n} is the line number.
delete({n})   Deletes a line from the buffer. {n} is the line number.
append({n}, {str})
                Appends a line after the line {n}.
line   Returns the current line of the buffer if the buffer is
                active.
line = {str}   Sets the current line of the buffer if the buffer is active.
line_number   Returns the number of the current line if the buffer is
                active.

```
==============================================================================
4. Vim::Window objects                                          ruby-window

Vim::Window objects represent vim windows.

Class Methods:

current         Returns the current window object.
count           Returns the number of windows.
self[{n}]       Returns the window object for the number {n}.  The first number
                is 0.

Methods:

buffer          Returns the buffer displayed in the window.
height          Returns the height of the window.
height = {n}    Sets the window height to {n}.
width           Returns the width of the window.
width = {n}     Sets the window width to {n}.
cursor          Returns a [row, col] array for the cursor position.
                First line number is 1 and first column number is 0.
cursor = [{row}, {col}]
                Sets the cursor position to {row} and {col}.

==============================================================================
5. Global variables                                             ruby-globals

There are two global variables.

$curwin         The current window object.
$curbuf         The current buffer object.

==============================================================================
6. Dynamic loading                                              ruby-dynamic

On MS-Windows and Unix the Ruby library can be loaded dynamically.  The
 :version  output then includes  +ruby/dyn .

This means that Vim will search for the Ruby DLL file or shared library only
when needed.  When you don't use the Ruby interface you don't need it, thus
you can use Vim even though this library file is not on your system.


MS-Windows

You need to install the right version of Ruby for this to work.  You can find
the package to download from:
http://rubyinstaller.org/downloads/
Currently that is rubyinstaller-2.2.5.exe

To use the Ruby interface the Ruby DLL must be in your search path.  In a
console window type "path" to see what directories are used.  The 'rubydll'
option can be also used to specify the Ruby DLL.
```

The name of the DLL must match the Ruby version Vim was compiled with.
Currently the name is "msvcrt-ruby220.dll". That is for Ruby 2.2.X. To know
for sure edit "gvim.exe" and search for "ruby\d*.dll\c".

If you want to build Vim with RubyInstaller 1.9 or 2.X using MSVC, you need
some tricks. See the src/INSTALLpc.txt for detail.

If Vim is built with RubyInstaller 2.4 or later, you may also need to add
"C:\Ruby<version>\bin\ruby_builtin_dlls" to the PATH environment variable.

Unix

The 'rubydll' option can be used to specify the Ruby shared library file
instead of DYNAMIC_RUBY_DLL file what was specified at compile time. The
version of the shared library must match the Ruby version Vim was compiled
with.

==
 vim:tw=78:ts=8:noet:ft=help:norl:

VIM REFERENCE MANUAL by Gordon Prieur

Debugger Support Features debugger-support

{Vi does not have any of these features}

==
1. Debugger Features debugger-features

The following features are available for an integration with a debugger or an Integrated Programming Environment (IPE) or Integrated Development Environment (IDE):

Alternate Command Input	alt-input
Debug Signs	debug-signs
Debug Source Highlight	debug-highlight
Message Footer	gui-footer
Balloon Evaluation	balloon-eval

These features were added specifically for use in the Motif version of gvim. However, the alt-input and debug-highlight were written to be usable in both vim and gvim. Some of the other features could be used in the non-GUI vim with slight modifications. However, I did not do this nor did I test the reliability of building for vim or non Motif GUI versions.

1.1 Alternate Command Input alt-input

For Vim to work with a debugger there must be at least an input connection with a debugger or external tool. In many cases there will also be an output connection but this isn't absolutely necessary.

The purpose of the input connection is to let the external debugger send commands to Vim. The commands sent by the debugger should give the debugger enough control to display the current debug environment and state.

The current implementation is based on the X Toolkit dispatch loop and the XtAddInput() function call.

1.2 Debug Signs debug-signs

Many debuggers mark specific lines by placing a small sign or color highlight on the line. The :sign command lets the debugger set this graphic mark. Some examples where this feature would be used would be a debugger showing an arrow representing the Program Counter (PC) of the program being debugged. Another

example would be a small stop sign for a line with a breakpoint. These visible highlights let the user keep track of certain parts of the state of the debugger.

This feature can be used with more than debuggers, too. An IPE can use a sign to highlight build errors, searched text, or other things. The sign feature can also work together with the `debug-highlight` to ensure the mark is highly visible.

Debug signs are defined and placed using the `:sign` command.

1.3 Debug Source Highlight `debug-highlight`

This feature allows a line to have a predominant highlight. The highlight is intended to make a specific line stand out. The highlight could be made to work for both vim and gvim, whereas the debug sign is, in most cases, limited to gvim. The one exception to this is Sun Microsystem's dtterm. The dtterm from Sun has a "sign gutter" for showing signs.

1.4 Message Footer `gui-footer`

The message footer can be used to display messages from a debugger or IPE. It can also be used to display menu and toolbar tips. The footer area is at the bottom of the GUI window, below the line used to display colon commands.

The display of the footer is controlled by the `'guioptions'` letter 'F'.

1.5 Balloon Evaluation `balloon-eval`

This feature allows a debugger, or other external tool, to display dynamic information based on where the mouse is pointing. The purpose of this feature was to allow Sun's Visual WorkShop debugger to display expression evaluations. However, the feature was implemented in as general a manner as possible and could be used for displaying other information as well.

The Balloon Evaluation has some settable parameters too. For Motif the font list and colors can be set via X resources (XmNballoonEvalFontList, XmNballoonEvalBackground, and XmNballoonEvalForeground).
The `'balloondelay'` option sets the delay before an attempt is made to show a balloon.
The `'ballooneval'` and/or the `'balloonevalterm'` option needs to be set to switch it on.

Balloon evaluation is only available in the GUI when compiled with the `+balloon_eval` feature. For the terminal the `+balloon_eval_term` feature matters.

The Balloon evaluation functions are also used to show a tooltip for the toolbar. The `'ballooneval'` option does not need to be set for this. But the other settings apply.

Another way to use the balloon is with the 'balloonexpr' option. This is
completely user definable.

==
2. Vim Compile Options   debugger-compilation

The debugger features were added explicitly for use with Sun's Visual
WorkShop Integrated Programming Environment (ipe). However, they were done
in as generic a manner as possible so that integration with other debuggers
could also use some or all of the tools used with Sun's ipe.

The following compile time preprocessor variables control the features:

    Alternate Command Input   ALT_X_INPUT
    Debug Glyphs   FEAT_SIGNS
    Debug Highlights   FEAT_SIGNS
    Message Footer   FEAT_FOOTER
    Balloon Evaluation   FEAT_BEVAL

The first integration with a full IPE/IDE was with Sun Visual WorkShop. To
compile a gvim which interfaces with VWS set the following flag, which sets
all the above flags:

    Sun Visual WorkShop   FEAT_SUN_WORKSHOP

==
3. Integrated Debuggers   debugger-integration

One fully integrated debugger/IPE/IDE is Sun's Visual WorkShop Integrated
Programming Environment.

For Sun NetBeans support see netbeans .

 vim:tw=78:sw=4:ts=8:noet:ft=help:norl:

workshop.txt For Vim version 8.1. Last change: 2013 Jul 06

VIM REFERENCE MANUAL by Gordon Prieur

Sun Visual WorkShop Features workshop workshop-support

{Vi does not have any of these features}
{only available when compiled with the |+sun_workshop| feature}

==========
1. Introduction workshop-intro

Sun Visual WorkShop has an "Editor of Choice" feature designed to let users debug using their favorite editors. For the 6.0 release we have added support for gvim. A workshop debug session will have a debugging window and an editor window (possibly others as well). The user can do many debugging operations from the editor window, minimizing the need to switch from window to window.

The version of vim shipped with Sun Visual WorkShop 6 (also called Forte Developer 6) is vim 5.3. The features in this release are much more reliable than the vim/gvim shipped with Visual WorkShop. VWS users wishing to use vim as their editor should compile these sources and install them in their workshop release tree.

==========
2. Commands workshop-commands

:ws :wsverb

:ws[verb] verb Pass the verb to the verb executor

Pass the verb to a workshop function which gathers some arguments and sends the verb and data to workshop over an IPC connection.

==========
3. Compiling vim/gvim for WorkShop workshop-compiling

Compiling vim with FEAT_SUN_WORKSHOP turns on all compile time flags necessary for building a vim to work with Visual WorkShop. The features required for VWS have been built and tested using the Sun compilers from the VWS release. They have not been built or tested using Gnu compilers. This does not mean the features won't build and run if compiled with gcc, just that nothing is guaranteed with gcc!

==========
4. Configuring gvim for a WorkShop release tree workshop-configure

There are several assumptions which must be met in order to compile a gvim for use with Sun Visual WorkShop 6.

- You should use the compiler in VWS rather than gcc. We have neither built nor tested with gcc and cannot guarantee it will build properly.

- You must supply your own XPM library. See workshop-xpm below for details on obtaining the latest version of XPM.

- Edit the Makefile in the src directory and uncomment the lines for Sun Visual WorkShop. You can easily find these by searching for the string FEAT_SUN_WORKSHOP

- We also suggest you use Motif for your gui. This will provide gvim with the same look-and-feel as the rest of Sun Visual WorkShop.

The following configuration line can be used to configure vim to build for use with Sun Visual WorkShop:

```
$ CC=cc configure --enable-workshop --enable-gui=motif \
    -prefix=<VWS-install-dir>/contrib/contrib6/<vim-version>
```

The VWS-install-dir should be the base directory where your Sun Visual WorkShop was installed. By default this is /opt/SUNWspro. It will normally require root permissions to install the vim release. You will also need to change the symlink <VWS-install-dir>/bin/gvim to point to the vim in your newly installed directory. The <vim-version> should be a unique version string. I use "vim" concatenated with the equivalent of version.h's VIM_VERSION_SHORT.

==
5. Obtaining the latest version of the XPM library workshop-xpm

The XPM library is required to show images within Vim with Motif or Athena. Without it the toolbar and signs will be disabled.

The XPM library is provided by Arnaud Le Hors of the French National Institute for Research in Computer Science and Control. It can be downloaded from http://cgit.freedesktop.org/xorg/lib/libXpm. The current release, as of this writing, is xpm-3.4k-solaris.tgz, which is a gzip'ed tar file. If you create the directory /usr/local/xpm and untar the file there you can use the uncommented lines in the Makefile without changing them. If you use another xpm directory you will need to change the XPM_DIR in src/Makefile.

vim:tw=78:ts=8:ft=help:norl:

netbeans.txt For Vim version 8.1. Last change: 2016 Jul 15

VIM REFERENCE MANUAL by Gordon Prieur et al.

netbeans netbeans-support

Vim NetBeans Protocol: a socket interface for Vim integration into an IDE.

{Vi does not have any of these features}
{only available when compiled with the |+netbeans_intg| feature}

==
1. Introduction netbeans-intro

The NetBeans interface was initially developed to integrate Vim into the NetBeans Java IDE, using the external editor plugin. This NetBeans plugin no longer exists for recent versions of NetBeans but the protocol was developed in such a way that any IDE can use it to integrate Vim.

The NetBeans protocol of Vim is a text based communication protocol, over a classical TCP socket. There is no dependency on Java or NetBeans. Any language or environment providing a socket interface can control Vim using this protocol. There are existing implementations in C, C++, Python and Java. The name NetBeans is kept today for historical reasons.

Current projects using the NetBeans protocol of Vim are:
- VimIntegration, description of various projects doing Vim Integration:
  http://www.freehackers.org/VimIntegration
- Agide, an IDE for the AAP project, written in Python:
  http://www.a-a-p.org
- Clewn, a gdb integration into Vim, written in C:
  http://clewn.sourceforge.net/
- Pyclewn, a gdb integration into Vim, written in Python:
  http://pyclewn.sourceforge.net/
- VimPlugin, integration of Vim inside Eclipse:
  http://vimplugin.sourceforge.net/wiki/pmwiki.php

- PIDA, IDE written in Python integrating Vim:
  http://pida.co.uk/
- VimWrapper, library to easy Vim integration into IDE:
  http://www.freehackers.org/VimWrapper

Check the specific project pages to see how to use Vim with these projects.

An alternative is to use a channel, see channel .

In the rest of this help page, we will use the term "Vim Controller" to
describe the program controlling Vim through the NetBeans socket interface.

About the NetBeans IDE

NetBeans is an open source Integrated Development Environment developed
jointly by Sun Microsystems, Inc. and the netbeans.org developer community.
Initially just a Java IDE, NetBeans has had C, C++, and Fortran support added
in recent releases.

For more information visit the main NetBeans web site http://www.netbeans.org.
The External Editor is now, unfortunately, declared obsolete. See
http://externaleditor.netbeans.org.

Sun Microsystems, Inc. also ships NetBeans under the name Sun ONE Studio.
Visit http://www.sun.com for more information regarding the Sun ONE Studio
product line.

Current releases of NetBeans provide full support for Java and limited support
for C, C++, and Fortran. Current releases of Sun ONE Studio provide full
support for Java, C, C++, and Fortran.

==
2. Integration features netbeans-integration

The NetBeans socket interface of Vim allows to get information from Vim or to
ask Vim to perform specific actions:
- get information about buffer: buffer name, cursor position, buffer content,
  etc.
- be notified when buffers are open or closed
- be notified of how the buffer content is modified
- load and save files
- modify the buffer content
- installing special key bindings
- raise the window, control the window geometry

For sending key strokes to Vim or for evaluating functions in Vim, you must
use the clientserver interface.

==
3. Configuring Vim for NetBeans netbeans-configure

For more help about installing Vim, please read usr_90.txt in the Vim User

Manual.

On Unix:

When running configure without arguments the NetBeans interface should be
included. That is, if the configure check to find out if your system supports
the required features succeeds.

In case you do not want the NetBeans interface you can disable it by
uncommenting a line with "--disable-netbeans" in the Makefile.

Currently the NetBeans interface is supported by Vim running in a terminal and
by gvim when it is run with one of the following GUIs: GTK, GNOME, Windows,
Athena and Motif.

If Motif support is required the user must supply XPM libraries. See
 workshop-xpm for details on obtaining the latest version of XPM.

On MS-Windows:

The Win32 support is now in beta stage.

To use XPM signs on Win32 (e.g. when using with NetBeans) you can compile
XPM by yourself or use precompiled libraries from http://iamphet.nm.ru/misc/
(for MS Visual C++) or http://gnuwin32.sourceforge.net (for MinGW).

Enable debugging:

To enable debugging of Vim and of the NetBeans protocol, the "NBDEBUG" macro
needs to be defined. Search in the Makefile of the platform you are using for
"NBDEBUG" to see what line needs to be uncommented. This effectively adds
"-DNBDEBUG" to the compile command. Also see netbeans-debugging

==
4. Error Messages   netbeans-messages

These error messages are specific to NetBeans socket protocol:

                                                                E463
Region is guarded, cannot modify
                The Vim Controller has defined guarded areas in the text,
                which you cannot change. Also sets the current buffer, if
                necessary.

                                                                E532
The defineAnnoType highlighting color name is too long
                The maximum length of the "fg" or "bg" color argument in the
                defineAnnoType command is 32 characters.
                New in version 2.5.

E656

Writes of unmodified buffers forbidden
		Writes of unmodified buffers that were opened from the
		Vim Controller are not possible.

E657

Partial writes disallowed
		Partial writes for buffers that were opened from the
		Vim Controller are not allowed.

E658

Connection lost for this buffer
		The Vim Controller has become confused about the state of
		this file. Rather than risk data corruption, it has severed
		the connection for this file. Vim will take over
		responsibility for saving changes to this file and the
		Vim Controller will no longer know of these changes.

E744

Read-only file
		Vim normally allows changes to a read-only file and only
		enforces the read-only rule if you try to write the file.
		However, NetBeans does not let you make changes to a file
		which is read-only and becomes confused if Vim does this.
		So Vim does not allow modifications to files when run
		in NetBeans mode.

==
5. Running Vim in NetBeans mode		netbeans-run

There are two different ways to run Vim in NetBeans mode:

	+ an IDE may start Vim with the -nb command line argument
	+ NetBeans can be started from within Vim with the :nbstart command

Vim uses a 3 second timeout on trying to make the connection.

netbeans-parameters

Three forms can be used to setup the NetBeans connection parameters.
When started from the command line, the -nb command line argument may be:

	-nb={fname}				from a file
	-nb:{hostname}:{addr}:{password}	directly
	-nb					from a file or environment

When started from within Vim, the :nbstart optional argument may be:

	={fname}				from a file
	:{hostname}:{addr}:{password}		directly
	<MISSING ARGUMENT>			from a file or environment

E660 E668

When NetBeans is started from the command line, for security reasons, the best

method is to write the information in a file readable only by the user. The name of the file can be passed with the "-nb={fname}" argument or, when "-nb" is used without a parameter, the environment variable "__NETBEANS_CONINFO". The file must contain these three lines, in any order:

```
host={hostname}
port={addr}
auth={password}
```

Other lines are ignored. The Vim Controller is responsible for deleting the file afterwards.

{hostname} is the name of the machine where Vim Controller is running. When omitted the environment variable "__NETBEANS_HOST" is used or the default "localhost".

{addr} is the port number for the NetBeans interface. When omitted the environment variable "__NETBEANS_SOCKET" is used or the default 3219.

{password} is the password for connecting to NetBeans. When omitted the environment variable "__NETBEANS_VIM_PASSWORD" is used or "changeme".

Vim will initiate a socket connection (client side) to the specified host and port upon startup. The password will be sent with the AUTH event when the connection has been established.

==
6. NetBeans protocol netbeans-protocol

The communication between the Vim Controller and Vim uses plain text messages. This protocol was first designed to work with the external editor module of NetBeans. Later it was extended to work with Agide (A-A-P GUI IDE, see http://www.a-a-p.org) and then with other IDE. The extensions are marked with "version 2.1".

Version 2.2 of the protocol has several minor changes which should only affect NetBeans users (ie, not Agide users). However, a bug was fixed which could cause confusion. The netbeans_saved() function sent a "save" protocol command. In protocol version 2.1 and earlier this was incorrectly interpreted as a notification that a write had taken place. In reality, it told NetBeans to save the file so multiple writes were being done. This caused various problems and has been fixed in 2.2. To decrease the likelihood of this confusion happening again, netbeans_saved() has been renamed to netbeans_save_buffer().

We are now at version 2.5. For the differences between 2.4 and 2.5 search for "2.5" below.

The messages are currently sent over a socket. Since the messages are in plain UTF-8 text this protocol could also be used with any other communication mechanism.

Netbeans messages are processed when Vim is idle, waiting for user input.

When Vim is run in non-interactive mode, for example when running an automated test case that sources a Vim script, the idle loop may not be called often enough. In that case, insert :sleep commands in the Vim script. The :sleep command does invoke Netbeans messages processing.

6.1 Kinds of messages nb-messages

There are four kinds of messages:

kind	direction	comment
Command	IDE -> editor	no reply necessary
Function	IDE -> editor	editor must send back a reply
Reply	editor -> IDE	only in response to a Function
Event	editor -> IDE	no reply necessary

The messages are sent as a single line with a terminating newline character. Arguments are separated by a single space. The first item of the message depends on the kind of message:

kind	first item	example
Command	bufID:name!seqno	11:showBalloon!123 "text"
Function	bufID:name/seqno	11:getLength/123
Reply	seqno	123 5000
Event	bufID:name=seqno	11:keyCommand=123 "S-F2"

6.2 Terms nb-terms

bufID Buffer number. A message may be either for a specific buffer or generic. Generic messages use a bufID of zero. NOTE: this buffer ID is assigned by the IDE, it is not Vim's buffer number. The bufID must be a sequentially rising number, starting at one. When the 'switchbuf' option is set to "usetab" and the "bufID" buffer is not found in the current tab page, the netbeans commands and functions that set this buffer as the current buffer will jump to the first open window that contains this buffer in other tab pages instead of replacing the buffer in the current window.

seqno The IDE uses a sequence number for Commands and Functions. A Reply must use the sequence number of the Function that it is associated with. A zero sequence number can be used for Events (the seqno of the last received Command or Function can also be used).

string		Argument in double quotes. Text is in UTF-8 encoding. This
		means ASCII is passed as-is. Special characters are
		represented with a backslash:
			\"	double quote
			\n	newline
			\r	carriage-return
			\t	tab (optional, also works literally)
			\\	backslash
		NUL bytes are not allowed!

boolean		Argument with two possible values:
			T	true
			F	false

number		Argument with a decimal number.

color		Argument with either a decimal number, "none" (without the
		quotes) or the name of a color (without the quotes) defined
		both in the color list in highlight-ctermfg and in the color
		list in gui-colors .
		New in version 2.5.

offset		A number argument that indicates a byte position in a buffer.
		The first byte has offset zero. Line breaks are counted for
		how they appear in the file (CR/LF counts for two bytes).
		Note that a multi-byte character is counted for the number of
		bytes it takes.

lnum/col	Argument with a line number and column number position. The
		line number starts with one, the column is the byte position,
		starting with zero. Note that a multi-byte character counts
		for several columns.

pathname	String argument: file name with full path.

6.3 Commands   nb-commands

actionMenuItem Not implemented.

actionSensitivity
		Not implemented.

addAnno serNum typeNum off len
		Place an annotation in this buffer.
		Arguments:
		   serNum	number	serial number of this placed
					annotation, used to be able to remove
					it
		   typeNum	number	sequence number of the annotation
					defined with defineAnnoType for this
					buffer
		   off		number	offset where annotation is to be placed

```
                   len          number  not used
                In version 2.1 "lnum/col" can be used instead of "off".

balloonResult text
                Not implemented.

close           Close the buffer.  This leaves us without current buffer, very
                dangerous to use!

create          Creates a buffer without a name.  Replaces the current buffer
                (it's hidden when it was changed).
                The Vim Controller should use this as the first command for a
                file that is being opened.  The sequence of commands could be:
                        create
                        setCaretListener        (ignored)
                        setModified             (no effect)
                        setContentType          (ignored)
                        startDocumentListen
                        setTitle
                        setFullName

defineAnnoType typeNum typeName tooltip glyphFile fg bg
                Define a type of annotation for this buffer.
                Arguments:
                   typeNum      number  sequence number (not really used)
                   typeName     string  name that identifies this annotation
                   tooltip      string  not used
                   glyphFile    string  name of icon file
                   fg           color   foreground color for line highlighting
                   bg           color   background color for line highlighting
                Vim will define a sign for the annotation.
                When color is a number, this is the "#rrggbb" Red, Green and
                Blue values of the color (see  gui-colors ) and the
                highlighting is only defined for gVim.
                When color is a name, this color is defined both for Vim
                running in a color terminal and for gVim.
                When both "fg" and "bg" are "none" no line highlighting is
                used (new in version 2.1).
                When "glyphFile" is empty, no text sign is used (new in
                version 2.1).
                When "glyphFile" is one or two characters long, a text sign is
                defined (new in version 2.1).
                Note: the annotations will be defined in sequence, and the
                sequence number is later used with addAnno.

editFile pathname
                Set the name for the buffer and edit the file "pathname", a
                string argument.
                Normal way for the IDE to tell the editor to edit a file.

                You must set a bufId different of 0 with this command to
                assign a bufId to the buffer. It will trigger an event
                fileOpened with a bufId of 0 but the buffer has been assigned.
```

```
                If the IDE is going to pass the file text to the editor use
                these commands instead:
                        setFullName
                        insert
                        initDone
                New in version 2.1.

enableBalloonEval
                Not implemented.

endAtomic       End an atomic operation.  The changes between "startAtomic"
                and "endAtomic" can be undone as one operation.  But it's not
                implemented yet.  Redraw when necessary.

guard off len
                Mark an area in the buffer as guarded.  This means it cannot
                be edited.  "off" and "len" are numbers and specify the text
                to be guarded.

initDone        Mark the buffer as ready for use.  Implicitly makes the buffer
                the current buffer.  Fires the BufReadPost autocommand event.

insertDone
                Sent by Vim Controller to tell Vim an initial file insert is
                done.  This triggers a read message being printed.  Prior to
                version 2.3, no read messages were displayed after opening a
                file.  New in version 2.3.

moveAnnoToFront serNum
                Not implemented.

netbeansBuffer isNetbeansBuffer
                If "isNetbeansBuffer" is "T" then this buffer is "owned" by
                NetBeans.
                New in version 2.2.

putBufferNumber pathname
                Associate a buffer number with the Vim buffer by the name
                "pathname", a string argument.  To be used when the editor
                reported editing another file to the IDE and the IDE needs to
                tell the editor what buffer number it will use for this file.
                Also marks the buffer as initialized.
                New in version 2.1.

raise           Bring the editor to the foreground.
                Only when Vim is run with a GUI.
                New in version 2.1.

removeAnno serNum
                Remove a previously placed annotation for this buffer.
                "serNum" is the same number used in addAnno.

save            Save the buffer when it was modified.  The other side of the
                interface is expected to write the buffer and invoke
```

"setModified" to reset the "changed" flag of the buffer.
The writing is skipped when one of these conditions is true:
- 'write' is not set
- the buffer is read-only
- the buffer does not have a file name
- 'buftype' disallows writing
New in version 2.2.

saveDone
Sent by Vim Controller to tell Vim a save is done. This triggers a save message being printed. Prior to version 2.3, no save messages were displayed after a save.
New in version 2.3.

setAsUser Not implemented.

setBufferNumber pathname
Associate a buffer number with Vim buffer by the name "pathname". To be used when the editor reported editing another file to the IDE and the IDE needs to tell the editor what buffer number it will use for this file.
Has the side effect of making the buffer the current buffer.
See "putBufferNumber" for a more useful command.

setContentType
Not implemented.

setDot off Make the buffer the current buffer and set the cursor at the specified position. If the buffer is open in another window than make that window the current window.
If there are folds they are opened to make the cursor line visible.
In version 2.1 "lnum/col" can be used instead of "off".

setExitDelay seconds
Set the delay for exiting to "seconds", a number.
This delay is used to give the IDE a chance to handle things before really exiting. The default delay is two seconds.
New in version 2.1.
Obsolete in version 2.3.

setFullName pathname
Set the file name to be used for a buffer to "pathname", a string argument.
Used when the IDE wants to edit a file under control of the IDE. This makes the buffer the current buffer, but does not read the file. "insert" commands will be used next to set the contents.

setLocAndSize Not implemented.

setMark Not implemented.

setModified modified

When the boolean argument "modified" is "T" mark the buffer as
modified, when it is "F" mark it as unmodified.

setModtime time
Update a buffers modification time after the file has been
saved directly by the Vim Controller.
New in version 2.3.

setReadOnly
Set a file as readonly
Implemented in version 2.3.

setStyle Not implemented.

setTitle name
Set the title for the buffer to "name", a string argument.
The title is only used for the Vim Controller functions, not
by Vim.

setVisible visible
When the boolean argument "visible" is "T", goto the buffer.
The "F" argument does nothing.

showBalloon text
Show a balloon (popup window) at the mouse pointer position,
containing "text", a string argument. The balloon should
disappear when the mouse is moved more than a few pixels.
Only when Vim is run with a GUI.
New in version 2.1.

specialKeys
Map a set of keys (mostly function keys) to be passed back
to the Vim Controller for processing. This lets regular IDE
hotkeys be used from Vim.
Implemented in version 2.3.

startAtomic Begin an atomic operation. The screen will not be updated
until "endAtomic" is given.

startCaretListen
Not implemented.

startDocumentListen
Mark the buffer to report changes to the IDE with the
"insert" and "remove" events. The default is to report
changes.

stopCaretListen
Not implemented.

stopDocumentListen
Mark the buffer to stop reporting changes to the IDE.
Opposite of startDocumentListen.
NOTE: if "netbeansBuffer" was used to mark this buffer as a

NetBeans buffer, then the buffer is deleted in Vim. This is
for compatibility with Sun Studio 10.

unguard off len
Opposite of "guard", remove guarding for a text area.
Also sets the current buffer, if necessary.

version Not implemented.

6.4 Functions and Replies nb-functions

getDot Not implemented.

getCursor Return the current buffer and cursor position.
The reply is:
seqno bufID lnum col off
seqno = sequence number of the function
bufID = buffer ID of the current buffer (if this is unknown -1
is used)
lnum = line number of the cursor (first line is one)
col = column number of the cursor (in bytes, zero based)
off = offset of the cursor in the buffer (in bytes)
New in version 2.1.

getLength Return the length of the buffer in bytes.
Reply example for a buffer with 5000 bytes:
123 5000
TODO: explain use of partial line.

getMark Not implemented.

getAnno serNum
Return the line number of the annotation in the buffer.
Argument:
serNum serial number of this placed annotation
The reply is:
123 lnum line number of the annotation
123 0 invalid annotation serial number
New in version 2.4.

getModified When a buffer is specified: Return zero if the buffer does not
have changes, one if it does have changes.
When no buffer is specified (buffer number zero): Return the
number of buffers with changes. When the result is zero it's
safe to tell Vim to exit.
New in version 2.1.

getText Return the contents of the buffer as a string.
Reply example for a buffer with two lines
123 "first line\nsecond line\n"
NOTE: docs indicate an offset and length argument, but this is
not implemented.

```
insert off text
                Insert "text" before position "off".  "text" is a string
                argument, "off" a number.
                "text" should have a "\n" (newline) at the end of each line.
                Or "\r\n" when 'fileformat' is "dos".  When using "insert" in
                an empty buffer Vim will set 'fileformat' accordingly.
                When "off" points to the start of a line the text is inserted
                above this line.  Thus when "off" is zero lines are inserted
                before the first line.
                When "off" points after the start of a line, possibly on the
                NUL at the end of a line, the first line of text is appended
                to this line.  Further lines come below it.
                Possible replies:
                        123             no problem
                        123 !message    failed
                Note that the message in the reply is not quoted.
                Also sets the current buffer, if necessary.
                Does not move the cursor to the changed text.
                Resets undo information.

remove off length
                Delete "length" bytes of text at position "off".  Both
                arguments are numbers.
                Possible replies:
                        123             no problem
                        123 !message    failed
                Note that the message in the reply is not quoted.
                Also sets the current buffer, if necessary.

saveAndExit     Perform the equivalent of closing Vim: ":confirm qall".
                If there are no changed files or the user does not cancel the
                operation Vim exits and no result is sent back.  The IDE can
                consider closing the connection as a successful result.
                If the user cancels the operation the number of modified
                buffers that remains is returned and Vim does not exit.
                New in version 2.1.


6.5 Events                                                  nb-events

balloonEval off len type
                The mouse pointer rests on text for a short while.  When "len"
                is zero, there is no selection and the pointer is at position
                "off".  When "len" is non-zero the text from position "off" to
                "off" + "len" is selected.
                Only sent after "enableBalloonEval" was used for this buffer.
                "type" is not yet defined.
                Not implemented yet.

balloonText text
                Used when 'balooneval' is set and the mouse pointer rests on
                some text for a moment.  "text" is a string, the text under
                the mouse pointer.
                Only when Vim is run with a GUI.
```

New in version 2.1.

buttonRelease button lnum col
Report which button was pressed and the location of the cursor at the time of the release. Only for buffers that are owned by the Vim Controller. This event is not sent if the button was released while the mouse was in the status line or in a separator line. If col is less than 1 the button release was in the sign area.
New in version 2.2.

disconnect
Tell the Vim Controller that Vim is exiting and not to try and read or write more commands.
New in version 2.3.

fileClosed Not implemented.

fileModified Not implemented.

fileOpened pathname open modified
A file was opened by the user.
Arguments:

pathname	string	name of the file
open	boolean	always "T"
modified	boolean	always "F"

geometry cols rows x y
Report the size and position of the editor window.
Arguments:

cols	number	number of text columns
rows	number	number of text rows
x	number	pixel position on screen
y	number	pixel position on screen

Only works for Motif.

insert off text
Text "text" has been inserted in Vim at position "off".
Only fired when enabled, see "startDocumentListen".

invokeAction Not implemented.

keyCommand keyName
Reports a special key being pressed with name "keyName", which is a string.
Supported key names:

F1	function key 1
F2	function key 2
...	
F12	function key 12
' '	space (without the quotes)
!	exclamation mark
...	any other ASCII printable character

```
                        ~               tilde

                        X               any unrecognized key

                The key may be prepended by "C", "S" and/or "M" for Control,
                Shift and Meta (Alt) modifiers.  If there is a modifier a dash
                is used to separate it from the key name.  For example:
                "C-F2".
                ASCII characters are new in version 2.1.

keyAtPos keyName lnum/col
                Like "keyCommand" and also report the line number and column
                of the cursor.
                New in version 2.1.

killed          A file was deleted or wiped out by the user and the buffer
                annotations have been removed.  The bufID number for this
                buffer has become invalid.  Only for files that have been
                assigned a bufID number by the IDE.

newDotAndMark off off
                Reports the position of the cursor being at "off" bytes into
                the buffer.  Only sent just before a "keyCommand" event.

quit            Not implemented.

remove off len
                Text was deleted in Vim at position "off" with byte length
                "len".
                Only fired when enabled, see "startDocumentListen".

revert          Not implemented.

save            The buffer has been saved and is now unmodified.
                Only fired when enabled, see "startDocumentListen".

startupDone     The editor has finished its startup work and is ready for
                editing files.
                New in version 2.1.

unmodified      The buffer is now unmodified.
                Only fired when enabled, see "startDocumentListen".

version vers    Report the version of the interface implementation.  Vim
                reports "2.4" (including the quotes).


6.6 Special messages                                    nb-special

These messages do not follow the style of the messages above.  They are
terminated by a newline character.

ACCEPT          Not used.
```

AUTH password editor -> IDE: First message that the editor sends to the IDE.
               Must contain the password for the socket server, as specified
               with the -nb argument. No quotes are used!

DISCONNECT   IDE -> editor: break the connection. The editor will exit.
               The IDE must only send this message when there are no unsaved
               changes!

DETACH   IDE -> editor: break the connection without exiting the
               editor. Used when the IDE exits without bringing down the
               editor as well.
               New in version 2.1.

REJECT   Not used.

6.7 Protocol errors nb-protocol_errors

These errors occur when a message violates the protocol:
E627 E628 E629 E632 E633 E634 E635 E636
E637 E638 E639 E640 E641 E642 E643 E644 E645 E646
E647 E648 E649 E650 E651 E652

7. NetBeans commands netbeans-commands

:nbstart E511 E838
:nbs[tart] {connection} Start a new Netbeans session with {connection} as the
                         socket connection parameters. The format of
                         {connection} is described in netbeans-parameters .
                         At any time, one may check if the netbeans socket is
                         connected by running the command:
                         ':echo has("netbeans_enabled")'

:nbclose
:nbc[lose]   Close the current NetBeans session. Remove all placed
                         signs.

:nbkey
:nb[key] {key}   Pass the {key} to the Vim Controller for processing.
                         When a hot-key has been installed with the specialKeys
                         command, this command can be used to generate a hotkey
                         message to the Vim Controller.
                         This command can also be used to pass any text to the
                         Vim Controller. It is used by Pyclewn, for example,
                         to build the complete set of gdb commands as Vim user
                         commands.
                         The events newDotAndMark, keyCommand and keyAtPos are
                         generated (in this order).

8. Known problems netbeans-problems

NUL bytes are not possible. For editor -> IDE they will appear as NL
characters. For IDE -> editor they cannot be inserted.

A NetBeans session may be initiated with Vim running in a terminal, and
continued later in a GUI environment after running the :gui command. In this
case, the highlighting defined for the NetBeans annotations may be cleared
when the ":gui" command sources .gvimrc and this file loads a colorscheme
that runs the command ":highlight clear".
New in version 2.5.

==
9. Debugging NetBeans protocol   netbeans-debugging

To debug the Vim protocol, you must first compile Vim with debugging support
and NetBeans debugging support. See netbeans-configure for instructions
about Vim compiling and how to enable debug support.

When running Vim, set the following environment variables:

```
export SPRO_GVIM_DEBUG=netbeans.log
export SPRO_GVIM_DLEVEL=0xffffffff
```

Vim will then log all the incoming and outgoing messages of the NetBeans
protocol to the file netbeans.log .

The content of netbeans.log after a session looks like this:

```
Tue May 20 17:19:27 2008
EVT: 0:startupDone=0
CMD 1: (1) create
CMD 2: (1) setTitle "testfile1.txt"
CMD 3: (1) setFullName "testfile1.txt"
EVT(suppressed): 1:remove=3 0 -1
EVT: 1:fileOpened=0 "d:\\work\\vimWrapper\\vimWrapper2\\pyvimwrapper\\tests\\testfile1.txt"
CMD 4: (1) initDone
FUN 5: (0) getCursor
REP 5: 1 1 0 0
CMD 6: (2) create
CMD 7: (2) setTitle "testfile2.txt"
CMD 8: (2) setFullName "testfile2.txt"
EVT(suppressed): 2:remove=8 0 -1
EVT: 2:fileOpened=0 "d:\\work\\vimWrapper\\vimWrapper2\\pyvimwrapper\\tests\\testfile2.txt"
CMD 9: (2) initDone
```

==
10. NetBeans External Editor

NOTE: This information is obsolete! Only relevant if you are using an old
version of NetBeans.

10.1. Downloading NetBeans   netbeans-download

The NetBeans IDE is available for download from netbeans.org. You can download a released version, download sources, or use CVS to download the current source tree. If you choose to download sources, follow directions from netbeans.org on building NetBeans.

Depending on the version of NetBeans you download, you may need to do further work to get the required External Editor module. This is the module which lets NetBeans work with gvim (or xemacs :-). See http://externaleditor.netbeans.org for details on downloading this module if your NetBeans release does not have it.

For C, C++, and Fortran support you will also need the cpp module. See http://cpp.netbeans.org for information regarding this module.

You can also download Sun ONE Studio from Sun Microsystems, Inc for a 30 day free trial. See http://www.sun.com for further details.

10.2. NetBeans Key Bindings netbeans-keybindings

Vim understands a number of key bindings that execute NetBeans commands. These are typically all the Function key combinations. To execute a NetBeans command, the user must press the Pause key followed by a NetBeans key binding. For example, in order to compile a Java file, the NetBeans key binding is "F9". So, while in vim, press "Pause F9" to compile a java file. To toggle a breakpoint at the current line, press "Pause Shift F8".

The Pause key is Function key 21. If you don't have a working Pause key and want to use F8 instead, use:

```
:map <F8> <F21>
```

The External Editor module dynamically reads the NetBeans key bindings so vim should always have the latest key bindings, even when NetBeans changes them.

10.3. Preparing NetBeans for Vim netbeans-preparation

In order for NetBeans to work with vim, the NetBeans External Editor module must be loaded and enabled. If you have a Sun ONE Studio Enterprise Edition then this module should be loaded and enabled. If you have a NetBeans release you may need to find another way of obtaining this open source module.

You can check if you have this module by opening the Tools->Options dialog and drilling down to the "Modules" list (IDE Configuration->System->Modules). If your Modules list has an entry for "External Editor" you must make sure it is enabled (the "Enabled" property should have the value "True"). If your Modules list has no External Editor see the next section on obtaining-exted .

10.4. Obtaining the External Editor Module obtaining-exted

There are 2 ways of obtaining the External Editor module. The easiest way

is to use the NetBeans Update Center to download and install the module. Unfortunately, some versions do not have this module in their update center. If you cannot download via the update center you will need to download sources and build the module. I will try and get the module available from the NetBeans Update Center so building will be unnecessary. Also check http://externaleditor.netbeans.org for other availability options.

To download the External Editor sources via CVS and build your own module, see http://externaleditor.netbeans.org and http://www.netbeans.org. Unfortunately, this is not a trivial procedure.

10.5. Setting up NetBeans to run with Vim netbeans-setup

Assuming you have loaded and enabled the NetBeans External Editor module as described in netbeans-preparation all you need to do is verify that the gvim command line is properly configured for your environment.

Open the Tools->Options dialog and open the Editing category. Select the External Editor. The right hand pane should contain a Properties tab and an Expert tab. In the Properties tab make sure the "Editor Type" is set to "Vim". In the Expert tab make sure the "Vim Command" is correct.

You should be careful if you change the "Vim Command". There are command line options there which must be there for the connection to be properly set up. You can change the command name but that's about it. If your gvim can be found by your $PATH then the Vim Command can start with "gvim". If you don't want gvim searched from your $PATH then hard code in the full Unix path name. At this point you should get a gvim for any source file you open in NetBeans.

If some files come up in gvim and others (with different file suffixes) come up in the default NetBeans editor you should verify the MIME type in the Expert tab MIME Type property. NetBeans is MIME oriented and the External Editor will only open MIME types specified in this property.

sign.txt For Vim version 8.1. Last change: 2016 Aug 17

VIM REFERENCE MANUAL by Gordon Prieur
and Bram Moolenaar

Sign Support Features sign-support

{Vi does not have any of these features}
{only available when compiled with the |+signs| feature}

==========
1. Introduction sign-intro signs

When a debugger or other IDE tool is driving an editor it needs to be able to give specific highlights which quickly tell the user useful information about the file. One example of this would be a debugger which had an icon in the left-hand column denoting a breakpoint. Another example might be an arrow representing the Program Counter (PC). The sign features allow both placement of a sign, or icon, in the left-hand side of the window and definition of a highlight which will be applied to that line. Displaying the sign as an image is most likely only feasible in gvim (although Sun Microsystem's dtterm does support this it's the only terminal emulator I know of which does). A text sign and the highlight should be feasible in any color terminal emulator.

Signs and highlights are not useful just for debuggers. Sun's Visual WorkShop uses signs and highlights to mark build errors and SourceBrowser hits. Additionally, the debugger supports 8 to 10 different signs and highlight colors. workshop Same for Netbeans netbeans .

There are two steps in using signs:

1. Define the sign. This specifies the image, text and highlighting. For example, you can define a "break" sign with an image of a stop roadsign and text "!!".

2. Place the sign. This specifies the file and line number where the sign is displayed. A defined sign can be placed several times in different lines and files.

When signs are defined for a file, Vim will automatically add a column of two characters to display them in. When the last sign is unplaced the column disappears again. This behavior can be changed with the 'signcolumn' option.

The color of the column is set with the SignColumn group hl-SignColumn .
Example to set the color:

```
:highlight SignColumn guibg=darkgrey
```

Here is an example that places a sign "piet", displayed with the text ">>", in
line 23 of the current file:
```
:sign define piet text=>> texthl=Search
:exe ":sign place 2 line=23 name=piet file=" . expand("%:p")
```

And here is the command to delete it again:
```
:sign unplace 2
```

Note that the ":sign" command cannot be followed by another command or a
comment. If you do need that, use the :execute command.

DEFINING A SIGN. :sign-define E255 E160 E612

:sign define {name} {argument}...
Define a new sign or set attributes for an existing sign.
The {name} can either be a number (all digits) or a name
starting with a non-digit. Leading digits are ignored, thus
"0012", "012" and "12" are considered the same name.
About 120 different signs can be defined.

Accepted arguments:

icon={bitmap}
Define the file name where the bitmap can be found. Should be
a full path. The bitmap should fit in the place of two
characters. This is not checked. If the bitmap is too big it
will cause redraw problems. Only GTK 2 can scale the bitmap
to fit the space available.

toolkit	supports
GTK 1	pixmap (.xpm)
GTK 2	many
Motif	pixmap (.xpm)
Win32	.bmp, .ico, .cur
	pixmap (.xpm) +xpm_w32

linehl={group}
Highlighting group used for the whole line the sign is placed
in. Most useful is defining a background color.

text={text} E239
Define the text that is displayed when there is no icon or the
GUI is not being used. Only printable characters are allowed
and they must occupy one or two display cells.

texthl={group}
Highlighting group used for the text item.

DELETING A SIGN :sign-undefine E155

:sign undefine {name}
Deletes a previously defined sign. If signs with this {name} are still placed this will cause trouble.

LISTING SIGNS :sign-list E156

:sign list Lists all defined signs and their attributes.

:sign list {name}
Lists one defined sign and its attributes.

PLACING SIGNS :sign-place E158

:sign place {id} line={lnum} name={name} file={fname}
Place sign defined as {name} at line {lnum} in file {fname}.
:sign-fname
The file {fname} must already be loaded in a buffer. The exact file name must be used, wildcards, $ENV and ~ are not expanded, white space must not be escaped. Trailing white space is ignored.

The sign is remembered under {id}, this can be used for further manipulation. {id} must be a number.
It's up to the user to make sure the {id} is used only once in each file (if it's used several times unplacing will also have to be done several times and making changes may not work as expected).

:sign place {id} line={lnum} name={name} buffer={nr}
Same, but use buffer {nr}.

E885
:sign place {id} name={name} file={fname}
Change the placed sign {id} in file {fname} to use the defined sign {name}. See remark above about {fname} :sign-fname .
This can be used to change the displayed sign without moving it (e.g., when the debugger has stopped at a breakpoint).

:sign place {id} name={name} buffer={nr}
Same, but use buffer {nr}.

REMOVING SIGNS :sign-unplace E159

:sign unplace {id} file={fname}
Remove the previously placed sign {id} from file {fname}.
See remark above about {fname} :sign-fname .

:sign unplace * file={fname}
Remove all placed signs in file {fname}.

:sign unplace {id} buffer={nr}

Remove the previously placed sign {id} from buffer {nr}.

:sign unplace * buffer={nr}
Remove all placed signs in buffer {nr}.

:sign unplace {id}
Remove the previously placed sign {id} from all files it appears in.

:sign unplace *
Remove all placed signs.

:sign unplace
Remove the placed sign at the cursor position.

LISTING PLACED SIGNS :sign-place-list

:sign place file={fname}
List signs placed in file {fname}.
See remark above about {fname} :sign-fname .

:sign place buffer={nr}
List signs placed in buffer {nr}.

:sign place List placed signs in all files.

JUMPING TO A SIGN :sign-jump E157

:sign jump {id} file={fname}
Open the file {fname} or jump to the window that contains {fname} and position the cursor at sign {id}.
See remark above about {fname} :sign-fname .
If the file isn't displayed in window and the current file can not be abandon ed this fails.

:sign jump {id} buffer={nr} E934
Same, but use buffer {nr}. This fails if buffer {nr} does not have a name.

vim:tw=78:ts=8:noet:ft=help:norl:

vi_diff.txt For Vim version 8.1. Last change: 2016 Aug 16

VIM REFERENCE MANUAL by Bram Moolenaar

Differences between Vim and Vi vi-differences

Throughout the help files differences between Vim and Vi/Ex are given in curly braces, like "{not in Vi}". This file only lists what has not been mentioned in other files and gives an overview.

Vim is mostly POSIX 1003.2-1 compliant. The only command known to be missing is ":open". There are probably a lot of small differences (either because Vim is missing something or because Posix is beside the mark).

==
1. Simulated command simulated-command

This command is in Vi, but Vim only simulates it:

  :o :op :open
:[range]o[pen] Works like :visual : end Ex mode.
  {Vi: start editing in open mode}

:[range]o[pen] /pattern/ As above, additionally move the cursor to the column where "pattern" matches in the cursor line.

Vim does not support open mode, since it's not really useful. For those situations where ":open" would start open mode Vim will leave Ex mode, which allows executing the same commands, but updates the whole screen instead of only one line.

==
2. Missing options missing-options

These options are in the Unix Vi, but not in Vim. If you try to set one of them you won't get an error message, but the value is not used and cannot be printed.

autoprint (ap)	boolean (default on)	'autoprint' 'ap'
beautify (bf)	boolean (default off)	'beautify' 'bf'
flash (fl)	boolean (default ??)	'flash' 'fl'
graphic (gr)	boolean (default off)	'graphic' 'gr'
hardtabs (ht)	number (default 8)	'hardtabs' 'ht'

```
        number of spaces that a <Tab> moves on the display
mesg                    boolean (default on)            'mesg'
novice                  boolean (default off)           'novice'
open                    boolean (default on)            'open'
optimize (op)           boolean (default off)           'optimize'   'op'
redraw                  boolean (default off)           'redraw'
slowopen (slow)         boolean (default off)           'slowopen'   'slow'
sourceany               boolean (default off)           'sourceany'
w300                    number  (default 23)            'w300'
w1200                   number  (default 23)            'w1200'
w9600                   number  (default 23)            'w9600'

==============================================================================
3. Limits                                                       limits

Vim has only a few limits for the files that can be edited {Vi: can not handle
<Nul> characters and characters above 128, has limited line length, many other
limits}.
                                                                E340
Maximum line length         On machines with 16-bit ints (Amiga and MS-DOS real
                            mode): 32767, otherwise 2147483647 characters.
                            Longer lines are split.
Maximum number of lines     2147483647 lines.
Maximum file size           2147483647 bytes (2 Gbyte) when a long integer is
                            32 bits.  Much more for 64 bit longs.  Also limited
                            by available disk space for the  swap-file .
                                                                E75
Length of a file path       Unix and Win32: 1024 characters, otherwise 256
                            characters (or as much as the system supports).
Length of an expanded string option
                            Unix and Win32: 1024 characters, otherwise 256
                            characters
Maximum display width       Unix and Win32: 1024 characters, otherwise 255
                            characters
Maximum lhs of a mapping    50 characters.
Number of different highlighting types: over 30000
Range of a Number variable:  -2147483648 to 2147483647 (might be more on 64
                            bit systems)
Maximum length of a line in a tags file: 512 bytes.

Information for undo and text in registers is kept in memory, thus when making
(big) changes the amount of (virtual) memory available limits the number of
undo levels and the text that can be kept in registers.  Other things are also
kept in memory:  Command-line history, error messages for Quickfix mode, etc.

Memory usage limits
-------------------

The option 'maxmem' ('mm') is used to set the maximum memory used for one
buffer (in kilobytes).  'maxmemtot' is used to set the maximum memory used for
all buffers (in kilobytes).  The defaults depend on the system used.  For the
Amiga and MS-DOS, 'maxmemtot' is set depending on the amount of memory
available.
These are not hard limits, but tell Vim when to move text into a swap file.
```

If you don't like Vim to swap to a file, set 'maxmem' and 'maxmemtot' to a very large value. The swap file will then only be used for recovery. If you don't want a swap file at all, set 'updatecount' to 0, or use the "-n" argument when starting Vim.

==
4. The most interesting additions   vim-additions

Vi compatibility.   'compatible'
	Although Vim is 99% Vi compatible, some things in Vi can be considered to be a bug, or at least need improvement. But still, Vim starts in a mode which behaves like the "real" Vi as much as possible. To make Vim behave a little bit better, try resetting the 'compatible' option:
		:set nocompatible
	Or start Vim with the "-N" argument:
		vim -N
	Vim starts with 'nocompatible' automatically if you have a .vimrc file. See startup .
	The 'cpoptions' option can be used to set Vi compatibility on/off for a number of specific items.

Support for different systems.
	Vim can be used on:
	- All Unix systems (it works on all systems it was tested on, although the GUI and Perl interface may not work everywhere).
	- Amiga (500, 1000, 1200, 2000, 3000, 4000, ...).
	- MS-DOS in real-mode (no additional drivers required).
	- In protected mode on Windows 3.1 and MS-DOS (DPMI driver required).
	- Windows 95 and Windows NT, with support for long file names.
	- OS/2 (needs emx.dll)
	- Atari MiNT
	- VMS
	- BeOS
	- Macintosh
	- Risc OS
	- IBM OS/390
	Note that on some systems features need to be disabled to reduce resource usage, esp. on MS-DOS. For some outdated systems you need to use an older Vim version.

Multi level persistent undo.   undo
	'u' goes backward in time, 'CTRL-R' goes forward again. Set option 'undolevels' to the number of changes to be remembered (default 1000). Set 'undolevels' to 0 for a Vi-compatible one level undo. Set it to -1 for no undo at all.
	When all changes in a buffer have been undone, the buffer is not considered changed anymore. You can exit it with :q, without <!>.
	When undoing a few changes and then making a new change Vim will create a branch in the undo tree. This means you can go back to any state of the text, there is no risk of a change causing text to be lost forever. undo-tree
	The undo information is stored in a file when the 'undofile' option is set. This means you can exit Vim, start Vim on a previously edited

file and undo changes that were made before exiting Vim.

Graphical User Interface (GUI). gui
Included support for GUI: menu's, mouse, scrollbars, etc. You can define your own menus. Better support for CTRL/SHIFT/ALT keys in combination with special keys and mouse. Supported for various platforms, such as X11 (with Motif and Athena interfaces), GTK, Win32 (Windows 95 and later), BeOS, Amiga and Macintosh.

Multiple windows and buffers. windows.txt
Vim can split the screen into several windows, each editing a different buffer or the same buffer at a different location. Buffers can still be loaded (and changed) but not displayed in a window. This is called a hidden buffer. Many commands and options have been added for this facility.
Vim can also use multiple tab pages, each with one or more windows. A line with tab labels can be used to quickly switch between these pages. tab-page

Syntax highlighting. :syntax
Vim can highlight keywords, patterns and other things. This is defined by a number of :syntax commands, and can be made to highlight most languages and file types. A number of files are included for highlighting the most common languages, like C, C++, Java, Pascal, Makefiles, shell scripts, etc. The colors used for highlighting can be defined for ordinary terminals, color terminals and the GUI with the :highlight command. A convenient way to do this is using a :colorscheme command.
The highlighted text can be exported as HTML. convert-to-HTML
Other items that can be highlighted are matches with the search string 'hlsearch' , matching parens matchparen and the cursor line and column 'cursorline' 'cursorcolumn' .

Spell checking. spell
When the 'spell' option is set Vim will highlight spelling mistakes. About 50 languages are currently supported, selected with the 'spelllang' option. In source code only comments and strings are checked for spelling.

Folding. folding
A range of lines can be shown as one "folded" line. This allows overviewing a file and moving blocks of text around quickly.
Folds can be created manually, from the syntax of the file, by indent, etc.

Diff mode. diff
Vim can show two versions of a file with the differences highlighted. Parts of the text that are equal are folded away. Commands can be used to move text from one version to the other.

Plugins. add-plugin
The functionality can be extended by dropping a plugin file in the right directory. That's an easy way to start using Vim scripts written by others. Plugins can be for all kind of files, or

specifically for a filetype.
Packages make this even easier. packages

Asynchronous communication and timers. channel job timer
Vim can exchange messages with other processes in the background.
This makes it possible to have servers do work and send back the
results to Vim. channel
Vim can start a job, communicate with it and stop it. job
Timers can fire once or repeatedly and invoke a function to do any
work. timer

Repeat a series of commands. q
"q{c}" starts recording typed characters into named register {c}.
A subsequent "q" stops recording. The register can then be executed
with the "@{c}" command. This is very useful to repeat a complex
action.

Flexible insert mode. ins-special-special
The arrow keys can be used in insert mode to move around in the file.
This breaks the insert in two parts as far as undo and redo is
concerned.

CTRL-O can be used to execute a single Normal mode command. This is
almost the same as hitting <Esc>, typing the command and doing a .

Visual mode. Visual-mode
Visual mode can be used to first highlight a piece of text and then
give a command to do something with it. This is an (easy to use)
alternative to first giving the operator and then moving to the end of
the text to be operated upon.
 v and V are used to start Visual mode. v works on characters
and V on lines. Move the cursor to extend the Visual area. It is
shown highlighted on the screen. By typing "o" the other end of the
Visual area can be moved. The Visual area can be affected by an
operator:
        d   delete
        c   change
        y   yank
        > or < insert or delete indent
        !   filter through external program
        =   filter through indent
        :   start : command for the Visual lines.
        gq   format text to 'textwidth' columns
        J   join lines
        ~   swap case
        u   make lowercase
        U   make uppercase

Block operators. visual-block
With Visual mode a rectangular block of text can be selected. Start
Visual mode with CTRL-V. The block can be deleted ("d"), yanked ("y")
or its case can be changed ("~", "u" and "U"). A deleted or yanked
block can be put into the text with the "p" and "P" commands.

```
Help system.                                                    :help
        Help is displayed in a window.  The usual commands can be used to
        move around, search for a string, etc.  Tags can be used to jump
        around in the help files, just like hypertext links.  The  :help
        command takes an argument to quickly jump to the info on a subject.
        <F1> is the quick access to the help system.  The name of the help
        index file can be set with the 'helpfile' option.

Command-line editing and history.                       cmdline-editing
        You can insert or delete at any place in the command-line using the
        cursor keys.  The right/left cursor keys can be used to move
        forward/backward one character.  The shifted right/left cursor keys
        can be used to move forward/backward one word.  CTRL-B/CTRL-E can be
        used to go to the begin/end of the command-line.
                                                        cmdline-history
        The command-lines are remembered.  The up/down cursor keys can be used
        to recall previous command-lines.  The 'history' option can be set to
        the number of lines that will be remembered.  There is a separate
        history for commands and for search patterns.

Command-line completion.                                cmdline-completion
        While entering a command-line (on the bottom line of the screen)
        <Tab> can be typed to complete
           what         example
        - command       :e<Tab>
        - tag           :ta scr<Tab>
        - option        :set sc<Tab>
        - option value  :set hf=<Tab>
        - file name     :e ve<Tab>
        - etc.

        If there are multiple matches, CTRL-N (next) and CTRL-P (previous)
        will walk through the matches.  <Tab> works like CTRL-N, but wraps
        around to the first match.

        The 'wildchar' option can be set to the character for command-line
        completion, <Tab> is the default.  CTRL-D can be typed after an
        (incomplete) wildcard; all matches will be listed.  CTRL-A will insert
        all matches.  CTRL-L will insert the longest common part of the
        matches.

Insert-mode completion.                                 ins-completion
        In Insert mode the CTRL-N and CTRL-P keys can be used to complete a
        word that appears elsewhere.     i_CTRL-N
        With CTRL-X another mode is entered, through which completion can be
        done for:
         i_CTRL-X_CTRL-F        file names
         i_CTRL-X_CTRL-K        words from 'dictionary' files
         i_CTRL-X_CTRL-T        words from 'thesaurus' files
         i_CTRL-X_CTRL-I        words from included files
         i_CTRL-X_CTRL-L        whole lines
         i_CTRL-X_CTRL-]        words from the tags file
         i_CTRL-X_CTRL-D        definitions or macros
         i_CTRL-X_CTRL-O        Omni completion: clever completion
```

specifically for a file type
etc.

Long line support. 'wrap' 'linebreak'
If the 'wrap' option is off, long lines will not wrap and only part of them will be shown. When the cursor is moved to a part that is not shown, the screen will scroll horizontally. The minimum number of columns to scroll can be set with the 'sidescroll' option. The zh and zl commands can be used to scroll sideways.
Alternatively, long lines are broken in between words when the 'linebreak' option is set. This allows editing a single-line paragraph conveniently (e.g. when the text is later read into a DTP program). Move the cursor up/down with the gk and gj commands.

Text formatting. formatting
The 'textwidth' option can be used to automatically limit the line length. This supplements the 'wrapmargin' option of Vi, which was not very useful. The gq operator can be used to format a piece of text (for example, gqap formats the current paragraph). Commands for text alignment: :center , :left and :right .

Extended search patterns. pattern
There are many extra items to match various text items. Examples:
A "\n" can be used in a search pattern to match a line break.
"x\{2,4}" matches "x" 2 to 4 times.
"\s" matches a white space character.

Directory, remote and archive browsing. netrw
Vim can browse the file system. Simply edit a directory. Move around in the list with the usual commands and press <Enter> to go to the directory or file under the cursor.
This also works for remote files over ftp, http, ssh, etc.
Zip and tar archives can also be browsed. tar zip

Edit-compile-edit speedup. quickfix
The :make command can be used to run the compilation and jump to the first error. A file with compiler error messages is interpreted. Vim jumps to the first error.

Each line in the error file is scanned for the name of a file, line number and error message. The 'errorformat' option can be set to a list of scanf-like strings to handle output from many compilers.

The :cn command can be used to jump to the next error.
:cl lists all the error messages. Other commands are available.
The 'makeef' option has the name of the file with error messages.
The 'makeprg' option contains the name of the program to be executed with the :make command.
The 'shellpipe' option contains the string to be used to put the output of the compiler into the errorfile.

Finding matches in files. :vimgrep
Vim can search for a pattern in multiple files. This uses the advanced Vim regexp pattern, works on all systems and also works to

search in compressed files.

Improved indenting for programs. 'cindent'
When the 'cindent' option is on the indent of each line is automatically adjusted. C syntax is mostly recognized. The indent for various styles can be set with 'cinoptions'. The keys to trigger indenting can be set with 'cinkeys'.

Comments can be automatically formatted. The 'comments' option can be set to the characters that start and end a comment. This works best for C code, but also works for e-mail (">" at start of the line) and other types of text. The = operator can be used to re-indent lines.

For many other languages an indent plugin is present to support automatic indenting. 30.3

Searching for words in included files. include-search
The [i command can be used to search for a match of the word under the cursor in the current and included files. The 'include' option can be set to a pattern that describes a command to include a file (the default is for C programs).
The [I command lists all matches, the [_CTRL-I command jumps to a match.
The [d , [D and [_CTRL-D commands do the same, but only for lines where the pattern given with the 'define' option matches.

Automatic commands. autocommand
Commands can be automatically executed when reading a file, writing a file, jumping to another buffer, etc., depending on the file name. This is useful to set options and mappings for C programs, documentation, plain text, e-mail, etc. This also makes it possible to edit compressed files.

Scripts and Expressions. expression
Commands have been added to form up a powerful script language.
:if Conditional execution, which can be used for example to set options depending on the value of $TERM.
:while Repeat a number of commands.
:for Loop over a list.
:echo Print the result of an expression.
:let Assign a value to an internal variable, option, etc. Variable types are Number, String, List and Dictionary.
:execute Execute a command formed by an expression.
:try Catch exceptions.
etc., etc. See eval .
Debugging and profiling are supported. debug-scripts profile
If this is not enough, an interface is provided to Python , Ruby , Tcl , Lua , Perl and MzScheme .

Viminfo. viminfo-file
The command-line history, marks and registers can be stored in a file that is read on startup. This can be used to repeat a search command or command-line command after exiting and restarting Vim. It is also

possible to jump right back to where the last edit stopped with '0 .
The 'viminfo' option can be set to select which items to store in the
.viminfo file. This is off by default.

Printing. printing
The :hardcopy command sends text to the printer. This can include
syntax highlighting.

Mouse support. mouse-using
The mouse is supported in the GUI version, in an xterm for Unix, for
BSDs with sysmouse, for Linux with gpm, for MS-DOS, and Win32. It
can be used to position the cursor, select the visual area, paste a
register, etc.

Usage of key names. <> key-notation
Special keys now all have a name like <Up>, <End>, etc.
This name can be used in mappings, to make it easy to edit them.

Editing binary files. edit-binary
Vim can edit binary files. You can change a few characters in an
executable file, without corrupting it. Vim doesn't remove NUL
characters (they are represented as <NL> internally).
-b command-line argument to start editing a binary file
'binary' Option set by -b . Prevents adding an <EOL> for the
last line in the file.

Multi-language support. multi-lang
Files in double-byte or multi-byte encodings can be edited. There is
UTF-8 support to be able to edit various languages at the same time,
without switching fonts. UTF-8
Messages and menus are available in different languages.

Move cursor beyond lines.
When the 'virtualedit' option is set the cursor can move all over the
screen, also where there is no text. This is useful to edit tables
and figures easily.

==
5. Other vim features other-features

A random collection of nice extra features.

When Vim is started with "-s scriptfile", the characters read from
"scriptfile" are treated as if you typed them. If end of file is reached
before the editor exits, further characters are read from the console.

The "-w" option can be used to record all typed characters in a script file.
This file can then be used to redo the editing, possibly on another file or
after changing some commands in the script file.

The "-o" option opens a window for each argument. "-o4" opens four windows.

Vi requires several termcap entries to be able to work full-screen. Vim only

requires the "cm" entry (cursor motion).

In command mode:

When the 'showcmd' option is set, the command characters are shown in the last
line of the screen. They are removed when the command is finished.

If the 'ruler' option is set, the current cursor position is shown in the
last line of the screen.

"U" still works after having moved off the last changed line and after "u".

Characters with the 8th bit set are displayed. The characters between '~' and
0xa0 are displayed as "~?", "~@", "~A", etc., unless they are included in the
'isprint' option.

"][" goes to the next ending of a C function ('}' in column 1).
"[]" goes to the previous ending of a C function ('}' in column 1).

"]f", "[f" and "gf" start editing the file whose name is under the cursor.
CTRL-W f splits the window and starts editing the file whose name is under
the cursor.

"*" searches forward for the identifier under the cursor, "#" backward.
"K" runs the program defined by the 'keywordprg' option, with the identifier
under the cursor as argument.

"%" can be preceded with a count. The cursor jumps to the line that
percentage down in the file. The normal "%" function to jump to the matching
brace skips braces inside quotes.

With the CTRL-] command, the cursor may be in the middle of the identifier.

The used tags are remembered. Commands that can be used with the tag stack
are CTRL-T, ":pop" and ":tag". ":tags" lists the tag stack.

The 'tags' option can be set to a list of tag file names. Thus multiple
tag files can be used. For file names that start with "./", the "./" is
replaced with the path of the current file. This makes it possible to use a
tags file in the same directory as the file being edited.

Previously used file names are remembered in the alternate file name list.
CTRL-^ accepts a count, which is an index in this list.
":files" command shows the list of alternate file names.
"#<N>" is replaced with the <N>th alternate file name in the list.
"#<" is replaced with the current file name without extension.

Search patterns have more features. The <NL> character is seen as part of the
search pattern and the substitute string of ":s". Vi sees it as the end of
the command.

Searches can put the cursor on the end of a match and may include a character
offset.

Count added to "~", ":next", ":Next", "n" and "N".

The command ":next!" with 'autowrite' set does not write the file. In vi the file was written, but this is considered to be a bug, because one does not expect it and the file is not written with ":rewind!".

In Vi when entering a <CR> in replace mode deletes a character only when 'ai' is set (but does not show it until you hit <Esc>). Vim always deletes a character (and shows it immediately).

Added :wnext command. Same as ":write" followed by ":next".

The ":w!" command always writes, also when the file is write protected. In Vi you would have to do ":!chmod +w %:S" and ":set noro".

When 'tildeop' has been set, "~" is an operator (must be followed by a movement command).

With the "J" (join) command you can reset the 'joinspaces' option to have only one space after a period (Vi inserts two spaces).

"cw" can be used to change white space formed by several characters (Vi is confusing: "cw" only changes one space, while "dw" deletes all white space).

"o" and "O" accept a count for repeating the insert (Vi clears a part of display).

Flags after Ex commands not supported (no plans to include it).

On non-UNIX systems ":cd" command shows current directory instead of going to the home directory (there isn't one). ":pwd" prints the current directory on all systems.

After a ":cd" command the file names (in the argument list, opened files) still point to the same files. In Vi ":cd" is not allowed in a changed file; otherwise the meaning of file names change.

":source!" command reads Vi commands from a file.

":mkexrc" command writes current modified options and mappings to a ".exrc" file. ":mkvimrc" writes to a ".vimrc" file.

No check for "tail recursion" with mappings. This allows things like ":map! foo ^]foo".

When a mapping starts with number, vi loses the count typed before it (e.g. when using the mapping ":map g 4G" the command "7g" goes to line 4). This is considered a vi bug. Vim concatenates the counts (in the example it becomes "74G"), as most people would expect.

The :put! command inserts the contents of a register above the current line.

The "p" and "P" commands of vi cannot be repeated with "." when the putted

text is less than a line. In Vim they can always be repeated.

":noremap" command can be used to enter a mapping that will not be remapped.
This is useful to exchange the meaning of two keys. ":cmap", ":cunmap" and
":cnoremap" can be used for mapping in command-line editing only. ":imap",
":iunmap" and ":inoremap" can be used for mapping in insert mode only.
Similar commands exist for abbreviations: ":noreabbrev", ":iabbrev"
":cabbrev", ":iunabbrev", ":cunabbrev", ":inoreabbrev", ":cnoreabbrev".

In Vi the command ":map foo bar" would remove a previous mapping
":map bug foo". This is considered a bug, so it is not included in Vim.
":unmap! foo" does remove ":map! bug foo", because unmapping would be very
difficult otherwise (this is vi compatible).

The ':' register contains the last command-line.
The '%' register contains the current file name.
The '.' register contains the last inserted text.

":dis" command shows the contents of the yank registers.

CTRL-O/CTRL-I can be used to jump to older/newer positions. These are the
same positions as used with the '' command, but may be in another file. The
":jumps" command lists the older positions.

If the 'shiftround' option is set, an indent is rounded to a multiple of
'shiftwidth' with ">" and "<" commands.

The 'scrolljump' option can be set to the minimum number of lines to scroll
when the cursor gets off the screen. Use this when scrolling is slow.

The 'scrolloff' option can be set to the minimum number of lines to keep
above and below the cursor. This gives some context to where you are
editing. When set to a large number the cursor line is always in the middle
of the window.

Uppercase marks can be used to jump between files. The ":marks" command lists
all currently set marks. The commands "']" and "`]" jump to the end of the
previous operator or end of the text inserted with the put command. "'[" and
"`[" do jump to the start.

The 'shelltype' option can be set to reflect the type of shell used on the
Amiga.

The 'highlight' option can be set for the highlight mode to be used for
several commands.

The CTRL-A (add) and CTRL-X (subtract) commands are new. The count to the
command (default 1) is added to/subtracted from the number at or after the
cursor. That number may be decimal, octal (starts with a '0') or hexadecimal
(starts with '0x'). Very useful in macros.

With the :set command the prefix "inv" can be used to invert boolean options.

In both Vi and Vim you can create a line break with the ":substitute" command

by using a CTRL-M. For Vi this means you cannot insert a real CTRL-M in the text. With Vim you can put a real CTRL-M in the text by preceding it with a CTRL-V.

In Insert mode:

If the 'revins' option is set, insert happens backwards. This is for typing Hebrew. When inserting normal characters the cursor will not be shifted and the text moves rightwards. Backspace, CTRL-W and CTRL-U will also work in the opposite direction. CTRL-B toggles the 'revins' option. In replace mode 'revins' has no effect. Only when enabled at compile time.

The backspace key can be used just like CTRL-D to remove auto-indents.

You can backspace, CTRL-U and CTRL-W over line breaks if the 'backspace' (bs) option includes "eol". You can backspace over the start of insert if the 'backspace' option includes "start".

When the 'paste' option is set, a few options are reset and mapping in insert mode and abbreviation are disabled. This allows for pasting text in windowing systems without unexpected results. When the 'paste' option is reset, the old option values are restored.

CTRL-T/CTRL-D always insert/delete an indent in the current line, no matter what column the cursor is in.

CTRL-@ (insert previously inserted text) works always (Vi: only when typed as first character).

CTRL-A works like CTRL-@ but does not leave insert mode.

CTRL-R {0-9a-z..} can be used to insert the contents of a register.

When the 'smartindent' option is set, C programs will be better auto-indented. With 'cindent' even more.

CTRL-Y and CTRL-E can be used to copy a character from above/below the current cursor position.

After CTRL-V you can enter a three digit decimal number. This byte value is inserted in the text as a single character. Useful for international characters that are not on your keyboard.

When the 'expandtab' (et) option is set, a <Tab> is expanded to the appropriate number of spaces.

The window always reflects the contents of the buffer (Vi does not do this when changing text and in some other cases).

If Vim is compiled with DIGRAPHS defined, digraphs are supported. A set of normal digraphs is included. They are shown with the ":digraph" command. More can be added with ":digraph {char1}{char2} {number}". A digraph is entered with "CTRL-K {char1} {char2}" or "{char1} BS {char2}" (only when

'digraph' option is set).

When repeating an insert, e.g. "10atest <Esc>" vi would only handle wrapmargin for the first insert. Vim does it for all.

A count to the "i" or "a" command is used for all the text. Vi uses the count only for one line. "3iabc<NL>def<Esc>" would insert "abcabcabc<NL>def" in Vi but "abc<NL>defabc<NL>defabc<NL>def" in Vim.

In Command-line mode:

<Esc> terminates the command-line without executing it. In vi the command line would be executed, which is not what most people expect (hitting <Esc> should always get you back to command mode). To avoid problems with some obscure macros, an <Esc> in a macro will execute the command. If you want a typed <Esc> to execute the command like vi does you can fix this with
	":cmap ^V<Esc> ^V<CR>"

General:

The 'ttimeout' option is like 'timeout', but only works for cursor and function keys, not for ordinary mapped characters. The 'timeoutlen' option gives the number of milliseconds that is waited for. If the 'esckeys' option is not set, cursor and function keys that start with <Esc> are not recognized in insert mode.

There is an option for each terminal string. Can be used when termcap is not supported or to change individual strings.

The 'fileformat' option can be set to select the <EOL>: "dos" <CR><NL>, "unix" <NL> or "mac" <CR>.
When the 'fileformats' option is not empty, Vim tries to detect the type of <EOL> automatically. The 'fileformat' option is set accordingly.

On systems that have no job control (older Unix systems and non-Unix systems) the CTRL-Z, ":stop" or ":suspend" command starts a new shell.

If Vim is started on the Amiga without an interactive window for output, a window is opened (and :sh still works). You can give a device to use for editing with the -d argument, e.g. "-d con:20/20/600/150".

The 'columns' and 'lines' options are used to set or get the width and height of the display.

Option settings are read from the first and last few lines of the file. Option 'modelines' determines how many lines are tried (default is 5). Note that this is different from the Vi versions that can execute any Ex command in a modeline (a major security problem). trojan-horse

If the 'insertmode' option is set (e.g. in .exrc), Vim starts in insert mode. And it comes back there, when pressing <Esc>.

Undo information is kept in memory. Available memory limits the number and

size of change that can be undone. This may be a problem with MS-DOS, is hardly a problem on the Amiga and almost never with Unix and Win32.

If the 'backup' or 'writebackup' option is set: Before a file is overwritten, a backup file (.bak) is made. If the "backup" option is set it is left behind.

Vim creates a file ending in ".swp" to store parts of the file that have been changed or that do not fit in memory. This file can be used to recover from an aborted editing session with "vim -r file". Using the swap file can be switched off by setting the 'updatecount' option to 0 or starting Vim with the "-n" option. Use the 'directory' option for placing the .swp file somewhere else.

Vim is able to work correctly on filesystems with 8.3 file names, also when using messydos or crossdos filesystems on the Amiga, or any 8.3 mounted filesystem under Unix. See 'shortname' .

Error messages are shown at least one second (Vi overwrites error messages).

If Vim gives the hit-enter prompt, you can hit any key. Characters other than <CR>, <NL> and <Space> are interpreted as the (start of) a command. (Vi only accepts a command starting with ':').

The contents of the numbered and unnamed registers is remembered when changing files.

The "No lines in buffer" message is a normal message instead of an error message, since that may cause a mapping to be aborted.

The AUX: device of the Amiga is supported.

==
6. Command-line arguments cmdline-arguments

Different versions of Vi have different command-line arguments. This can be confusing. To help you, this section gives an overview of the differences.

Five variants of Vi will be considered here:

Elvis	Elvis version 2.1b
Nvi	Nvi version 1.79
Posix	Posix 1003.2
Vi	Vi version 3.7 (for Sun 4.1.x)
Vile	Vile version 7.4 (incomplete)
Vim	Vim version 5.2

Only Vim is able to accept options in between and after the file names.

+{command}	Elvis, Nvi, Posix, Vi, Vim: Same as "-c {command}".
-	Nvi, Posix, Vi: Run Ex in batch mode. Vim: Read file from stdin (use -s for batch mode).
--	Vim: End of options, only file names are following.

```
--cmd {command} Vim: execute {command} before sourcing vimrc files.

--echo-wid      Vim: GTK+ echoes the Window ID on stdout

--help          Vim: show help message and exit.

--literal       Vim: take file names literally, don't expand wildcards.

--nofork        Vim: same as  -f

--noplugin[s]   Vim: Skip loading plugins.

--remote        Vim: edit the files in another Vim server

--remote-expr {expr}    Vim: evaluate {expr} in another Vim server

--remote-send {keys}    Vim: send {keys} to a Vim server and exit

--remote-silent {file}  Vim: edit the files in another Vim server if possible

--remote-wait   Vim: edit the files in another Vim server and wait for it

--remote-wait-silent    Vim: like --remote-wait, no complaints if not possible

--role {role}   Vim: GTK+ 2: set role of main window

--serverlist    Vim: Output a list of Vim servers and exit

--servername {name}     Vim: Specify Vim server name

--socketid {id}         Vim: GTK window socket to run Vim in

--windowid {id}         Vim: Win32 window ID to run Vim in

--version       Vim: show version message and exit.

-?              Vile: print usage summary and exit.

-a              Elvis: Load all specified file names into a window (use -o for
                Vim).

-A              Vim: Start in Arabic mode (when compiled with Arabic).

-b {blksize}    Elvis: Use {blksize} blocksize for the session file.
-b              Vim: set 'binary' mode.

-C              Vim: Compatible mode.

-c {command}    Elvis, Nvi, Posix, Vim: run {command} as an Ex command after
                loading the edit buffer.
                Vim: allow up to 10 "-c" arguments

-d {device}     Vim: Use {device} for I/O (Amiga only). {only when compiled
```

```
                without the  +diff  feature}
-d              Vim: start with 'diff' set.  vimdiff

-dev {device}   Vim: Use {device} for I/O (Amiga only).

-D              Vim: debug mode.

-e              Elvis, Nvi, Vim: Start in Ex mode, as if the executable is
                called "ex".

-E              Vim: Start in improved Ex mode  gQ , like "exim".

-f              Vim: Run GUI in foreground (Amiga: don't open new window).
-f {session}    Elvis: Use {session} as the session file.

-F              Vim: Start in Farsi mode (when compiled with Farsi).
                Nvi: Fast start, don't read the entire file when editing
                starts.

-G {gui}        Elvis: Use the {gui} as user interface.

-g              Vim: Start GUI.
-g N            Vile: start editing at line N

-h              Vim: Give help message.
                Vile: edit the help file

-H              Vim: start Hebrew mode (when compiled with it).

-i              Elvis: Start each window in Insert mode.
-i {viminfo}    Vim: Use {viminfo} for viminfo file.

-L              Vim: Same as "-r" (also in some versions of Vi).

-l              Nvi, Vi, Vim: Set 'lisp' and 'showmatch' options.

-m              Vim: Modifications not allowed to be written, resets 'write'
                option.

-M              Vim: Modifications not allowed, resets 'modifiable' and the
                'write' option.

-N              Vim: No-compatible mode.

-n              Vim: No swap file used.

-nb[args]       Vim: open a NetBeans interface connection

-O[N]           Vim: Like -o, but use vertically split windows.

-o[N]           Vim: Open [N] windows, or one for each file.

-p[N]           Vim: Open [N] tab pages, or one for each file.
```

```
-P {parent-title} Win32 Vim: open Vim inside a parent application window

-q {name}        Vim: Use {name} for quickfix error file.
-q{name}         Vim: Idem.

-R               Elvis, Nvi, Posix, Vile, Vim: Set the 'readonly' option.

-r               Elvis, Nvi, Posix, Vi, Vim: Recovery mode.

-S               Nvi: Set 'secure' option.
-S {script}      Vim: source script after starting up.

-s               Nvi, Posix, Vim: Same as "-" (silent mode), when in Ex mode.
                 Elvis: Sets the 'safer' option.
-s {scriptin}    Vim: Read from script file {scriptin}; only when not in Ex
                 mode.
-s {pattern}     Vile: search for {pattern}

-t {tag}         Elvis, Nvi, Posix, Vi, Vim: Edit the file containing {tag}.
-t{tag}          Vim: Idem.

-T {term}        Vim: Set terminal name to {term}.

-u {vimrc}       Vim: Read initializations from {vimrc} file.

-U {gvimrc}      Vim: Read GUI initializations from {gvimrc} file.

-v               Nvi, Posix, Vi, Vim: Begin in Normal mode (visual mode, in Vi
                 terms).
                 Vile: View mode, no changes possible.

-V               Elvis, Vim: Verbose mode.
-V{nr}           Vim: Verbose mode with specified level.

-w {size}        Elvis, Posix, Nvi, Vi, Vim: Set value of 'window' to {size}.
-w{size}         Nvi, Vi: Same as "-w {size}".
-w {name}        Vim: Write to script file {name} (must start with non-digit).

-W {name}        Vim: Append to script file {name}.

-x               Vi, Vim: Ask for encryption key.  See  encryption .

-X               Vim: Don't connect to the X server.

-y               Vim: Start in easy mode, like  evim .

-Z               Vim: restricted mode

@{cmdfile}       Vile: use {cmdfile} as startup file.

==============================================================================
7. POSIX compliance                                    posix   posix-compliance

In 2005 the POSIX test suite was run to check the compatibility of Vim.  Most
```

of the test was executed properly. There are the few things where Vim
is not POSIX compliant, even when run in Vi compatibility mode.
                                                        $VIM_POSIX
Set the $VIM_POSIX environment variable to have 'cpoptions' include the POSIX
flags when Vim starts up. This makes Vim run as POSIX as it can. That's
a bit different from being Vi compatible.

This is where Vim does not behave as POSIX specifies and why:

                                                        posix-screen-size
        The $COLUMNS and $LINES environment variables are ignored by Vim if
        the size can be obtained from the terminal in a more reliable way.
        Add the '|' flag to 'cpoptions' to have $COLUMNS and $LINES overrule
        sizes obtained in another way.

        The "{" and "}" commands don't stop at a "{" in the original Vi, but
        POSIX specifies it does. Add the '{' flag to 'cpoptions' if you want
        it the POSIX way.

        The "D", "o" and "O" commands accept a count. Also when repeated.
        Add the '#' flag to 'cpoptions' if you want to ignore the count.

        The ":cd" command fails if the current buffer is modified when the '.'
        flag is present in 'cpoptions'.

        There is no ATTENTION message, the "A" flag is added to 'shortmess'.

These are remarks about running the POSIX test suite:
- vi test 33 sometimes fails for unknown reasons
- vi test 250 fails; behavior will be changed in a new revision
    http://www.opengroup.org/austin/mailarchives/ag-review/msg01710.html
    (link no longer works, perhaps it's now:
    https://www.opengroup.org/sophocles/show_mail.tpl?CALLER=show_archive.tpl&source=L&list
- vi test 310 fails; exit code non-zero when any error occurred?
- ex test 24 fails because test is wrong. Changed between SUSv2 and SUSv3.
- ex tests 47, 48, 49, 72, 73 fail because .exrc file isn't read in silent
  mode and $EXINIT isn't used.
- ex tests 76, 78 fail because echo is used instead of printf. (fixed)
    Also: problem with \s not changed to space.
- ex test 355 fails because 'window' isn't used for "30z".
- ex test 368 fails because shell command isn't echoed in silent mode.
- ex test 394 fails because "=" command output isn't visible in silent mode.
- ex test 411 fails because test file is wrong, contains stray ':'.
- ex test 475 and 476 fail because reprint output isn't visible in silent mode.
- ex test 480 and 481 fail because the tags file has spaces instead of a tab.
- ex test 502 fails because .exrc isn't read in silent mode.
- ex test 509 fails because .exrc isn't read in silent mode. and exit code is
  1 instead of 2.
- ex test 534 fails because .exrc isn't read in silent mode.

 vim:tw=78:ts=8:ft=help:norl:

version4.txt For Vim version 8.1. Last change: 2006 Apr 24

VIM REFERENCE MANUAL by Bram Moolenaar

This document lists the incompatible differences between Vim 3.0 and Vim 4.0.
Although 4.0 is mentioned here, this is also for version 4.1, 4.2, etc..

This file is important for everybody upgrading from Vim 3.0. Read it
carefully to avoid unexpected problems.

'backup' option default changed backup-changed

The default value for 'backup' used to be on. This resulted in a backup file
being made when the original file was overwritten.

Now the default for 'backup' is off. As soon as the writing of the file has
successfully finished, the backup file is deleted. If you want to keep the
backup file, set 'backup' on in your vimrc. The reason for this change is
that many people complained that leaving a backup file behind is not
Vi-compatible. 'backup'

Extension for backup file changed backup-extension

The extension for the backup file used to be ".bak". Since other programs
also use this extension and some users make copies with this extension, it was
changed to the less obvious "~". Another advantage is that this takes less
space, which is useful when working on a system with short file names. For
example, on MS-DOS the backup files for "longfile.c" and "longfile.h" would
both become "longfile.bak"; now they will be "longfile.c~" and "longfile.h~".

If you prefer to use ".bak", you can set the 'backupext' option:

```
        :set bex=.bak
```

Structure of swap file changed   swapfile-changed

The contents of the swap file were extended with several parameters. Vim
stores the user name and other information about the edited file to make
recovery more easy and to be able to know where the swap file comes from. The
first part of the swap file can now be understood on a machine with a
different byte order or sizeof(int). When you try to recover a file on such a
machine, you will get an error message that this is not possible.

Because of this change, swap files cannot be exchanged between 3.0 and 4.0.
If you have a swap file from a crashed session with 3.0, use Vim 3.0 to
recover the file---don't use 4.0.   swap-file

"-w scriptout" argument changed   scriptout-changed

"vim -w scriptout" used to append to the scriptout file. Since this was
illogical, it now creates a new file. An existing file is not overwritten
(to avoid destroying an existing file for those who rely on the appending).
[This was removed again later]   -w

Backspace and Delete keys   backspace-delete

In 3.0 both the delete key and the backspace key worked as a backspace in
insert mode; they deleted the character to the left of the cursor. In 4.0 the
delete key has a new function: it deletes the character under the cursor, just
like it does on the command-line. If the cursor is after the end of the line
and 'bs' is set, two lines are joined.   <Del>   i_<Del>

In 3.0 the backspace key was always defined as CTRL-H and delete as CTRL-?.
In 4.0 the code for the backspace and delete key is obtained from termcap or
termlib, and adjusted for the "stty erase" value on Unix. This helps people
who define the erase character according to the keyboard they are working on.
                                                          <BS>   i_<BS>

If you prefer backspace and delete in Insert mode to have the old behavior,
put this line in your vimrc:

```
        inoremap ^? ^H
```

And you may also want to add these, to fix the values for <BS> and <Del>:

```
        set t_kb=^H
        set t_kD=^?
```

(Enter ^H with CTRL-V CTRL-H and ^? with CTRL-V CTRL-? or <Del>.)

If the value for t_kb is correct, but the t_kD value is not, use the ":fixdel" command. It will set t_kD according to the value of t_kb. This is useful if you are using several different terminals. :fixdel

When ^H is not recognized as <BS> or <Del>, it is used like a backspace.

Escape for | changed escape-bar

When the 'b' flag is present in 'cpoptions', the backslash cannot be used to escape '|' in mapping and abbreviate commands, only CTRL-V can. This is Vi-compatible. If you work in Vi-compatible mode and had used "\|" to include a bar in a mapping, this needs to be replaced by "^V|". See :bar .

Key codes changed key-codes-changed

The internal representation of key codes has changed dramatically. In 3.0 a one-byte code was used to represent a key. This caused problems with different characters sets that also used these codes. In 4.0 a three-byte code is used that cannot be confused with a character. key-notation

If you have used the single-byte key codes in your vimrc for mappings, you will have to replace them with the 4.0 codes. Instead of using the three-byte code directly, you should use the symbolic representation for this in <>. See the table below. The table also lists the old name, as it was used in the 3.0 documentation.

The key names in <> can be used in mappings directly. This makes it possible to copy/paste examples or type them literally. The <> notation has been introduced for this <> . The 'B' and '<' flags must not be present in 'cpoptions' to enable this to work 'cpoptions' .

old name	new name	old code		old MS-DOS code	
		hex	dec	hex	dec
<ESC>	<Esc>				
<TAB>	<Tab>				
<LF>	<NL> <NewLine> <LineFeed>				
<SPACE>	<Space>				
<NUL>	<Nul>				
<BELL>	<Bell>				
<BS>	<BS> <BackSpace>				
<INSERT>	<Insert>				
<DEL>	<Del> <Delete>				
<HOME>	<Home>				
<END>	<End>				
<PAGE_UP>	<PageUp>				
<PAGE_DOWN>	<PageDown>				
<C_UP>	<Up>	0x80	128	0xb0	176
<C_DOWN>	<Down>	0x81	129	0xb1	177
<C_LEFT>	<Left>	0x82	130	0xb2	178

<C_RIGHT>	<Right>	0x83	131	0xb3	179
<SC_UP>	<S-Up>	0x84	132	0xb4	180
<SC_DOWN>	<S-Down>	0x85	133	0xb5	181
<SC_LEFT>	<S-Left>	0x86	134	0xb6	182
<SC_RIGHT>	<S-Right>	0x87	135	0xb7	183
<F1>	<F1>	0x88	136	0xb8	184
<F2>	<F2>	0x89	137	0xb9	185
<F3>	<F3>	0x8a	138	0xba	186
<F4>	<F4>	0x8b	139	0xbb	187
<F5>	<F5>	0x8c	140	0xbc	188
<F6>	<F6>	0x8d	141	0xbd	189
<F7>	<F7>	0x8e	142	0xbe	190
<F8>	<F8>	0x8f	143	0xbf	191
<F9>	<F9>	0x90	144	0xc0	192
<F10>	<F10>	0x91	145	0xc1	193
<SF1>	<S-F1>	0x92	146	0xc2	194
<SF2>	<S-F2>	0x93	147	0xc3	195
<SF3>	<S-F3>	0x94	148	0xc4	196
<SF4>	<S-F4>	0x95	149	0xc5	197
<SF5>	<S-F5>	0x96	150	0xc6	198
<SF6>	<S-F6>	0x97	151	0xc7	199
<SF7>	<S-F7>	0x98	152	0xc8	200
<SF8>	<S-F8>	0x99	153	0xc9	201
<SF9>	<S-F9>	0x9a	154	0xca	202
<SF10>	<S-F10>	0x9b	155	0xcb	203
<HELP>	<Help>	0x9c	156	0xcc	204
<UNDO>	<Undo>	0x9d	157	0xcd	205
	(not used)	0x9e	158	0xce	206
	(not used)	0x9f	159	0xcf	207

Terminal options changed termcap-changed

The names of the terminal options have been changed to match the termcap names of these options. All terminal options now have the name t_xx, where xx is the termcap name. Normally these options are not used, unless you have a termcap entry that is wrong or incomplete, or you have set the highlight options to a different value. terminal-options

Note that for some keys there is no termcap name. Use the <> type of name instead, which is a good idea anyway.

Note that "t_ti" has become "t_mr" (invert/reverse output) and "t_ts" has become "t_ti" (init terminal mode). Be careful when you use "t_ti"!

old name	new name	meaning	
t_cdl	t_DL	delete number of lines	t_cdl
t_ci	t_vi	cursor invisible	t_ci
t_cil	t_AL	insert number of lines	t_cil

t_cm		t_cm	move cursor	
t_cri		t_RI	cursor number of chars right	t_cri
t_cv		t_ve	cursor visible	t_cv
t_cvv		t_vs	cursor very visible	t_cvv
t_dl		t_dl	delete line	
t_cs		t_cs	scroll region	
t_ed		t_cl	clear display	t_ed
t_el		t_ce	clear line	t_el
t_il		t_al	insert line	t_il
		t_da	display may be retained above the screen	
		t_db	display may be retained below the screen	
t_ke		t_ke	put terminal out of keypad transmit mode	
t_ks		t_ks	put terminal in keypad transmit mode	
t_ms		t_ms	save to move cursor in highlight mode	
t_se		t_se	normal mode (undo t_so)	
t_so		t_so	shift out (standout) mode	
t_ti		t_mr	reverse highlight	
t_tb		t_md	bold mode	t_tb
t_tp		t_me	highlight end	t_tp
t_sr		t_sr	scroll reverse	
t_te		t_te	out of termcap mode	
t_ts		t_ti	into termcap mode	t_ts_old
t_vb		t_vb	visual bell	
t_csc		t_CS	cursor is relative to scroll region	t_csc

t_ku	t_ku	<Up>	arrow up	
t_kd	t_kd	<Down>	arrow down	
t_kr	t_kr	<Right>	arrow right	
t_kl	t_kl	<Left>	arrow left	
t_sku		<S-Up>	shifted arrow up	t_sku
t_skd		<S-Down>	shifted arrow down	t_skd
t_skr	t_%i	<S-Right>	shifted arrow right	t_skr
t_skl	t_#4	<S-Left>	shifted arrow left	t_skl
t_f1	t_k1	<F1>	function key 1	t_f1
t_f2	t_k2	<F2>	function key 2	t_f2
t_f3	t_k3	<F3>	function key 3	t_f3
t_f4	t_k4	<F4>	function key 4	t_f4
t_f5	t_k5	<F5>	function key 5	t_f5
t_f6	t_k6	<F6>	function key 6	t_f6
t_f7	t_k7	<F7>	function key 7	t_f7
t_f8	t_k8	<F8>	function key 8	t_f8
t_f9	t_k9	<F9>	function key 9	t_f9
t_f10	t_k;	<F10>	function key 10	t_f10
t_sf1		<S-F1>	shifted function key 1	t_sf1
t_sf2		<S-F2>	shifted function key 2	t_sf2
t_sf3		<S-F3>	shifted function key 3	t_sf3
t_sf4		<S-F4>	shifted function key 4	t_sf4
t_sf5		<S-F5>	shifted function key 5	t_sf5
t_sf6		<S-F6>	shifted function key 6	t_sf6
t_sf7		<S-F7>	shifted function key 7	t_sf7
t_sf8		<S-F8>	shifted function key 8	t_sf8
t_sf9		<S-F9>	shifted function key 9	t_sf9
t_sf10		<S-F10>	shifted function key 10	t_sf10
t_help	t_%1	<Help>	help key	t_help

t_undo t_&8   <Undo>   undo key   t_undo

'errorformat' option changed   errorformat-changed

'errorformat' can now contain several formats, separated by commas. The first
format that matches is used. The default values have been adjusted to catch
the most common formats.   errorformat

If you have a format that contains a comma, it needs to be preceded with a
backslash. Type two backslashes, because the ":set" command will eat one.

'graphic' option gone   graphic-option-gone

The 'graphic' option was used to make the characters between <~> and 0xa0
display directly on the screen. Now the 'isprint' option takes care of this
with many more possibilities. The default setting is the same; you only need
to look into this if you previously set the 'graphic' option in your vimrc.
                                                                'isprint'

'yankendofline' option gone   ye-option-gone

The 'yankendofline' option has been removed. Instead you can just use
        :map Y y$

'icon' and 'title' default value changed   icon-changed

The 'title' option is now only set by default if the original title can be
restored. Avoids "Thanks for flying Vim" titles. If you want them anyway,
put ":set title" in your vimrc.   'title'

The default for 'icon' now depends on the possibility of restoring the
original value, just like 'title'. If you don't like your icon titles to be
changed, add this line to your vimrc: 'icon'
        :set noicon

'highlight' option changed   highlight-changed

The 'i' flag now means italic highlighting, instead of invert. The 'r' flag
is used for reverse highlighting, which is what 'i' used to be. Normally you
won't see the difference, because italic mode is not supported on most
terminals and reverse mode is used as a fallback.   'highlight'

When an occasion is not present in 'highlight', use the mode from the default
value for 'highlight', instead of reverse mode.

'tildeop' and 'weirdinvert' short names changed short-name-changed
---

Renamed 'to' (abbreviation for 'tildeop') to 'top'. 'tildeop'
Renamed 'wi' (abbreviation for 'weirdinvert') to 'wiv'. 'weirdinvert'

This was done because Vi uses 'wi' as the short name for 'window' and 'to' as
the short name for 'timeout'. This means that if you try setting these
options, you won't get an error message, but the effect will be different.

Use of "v", "V" and "CTRL-V" in Visual mode use-visual-cmds

In Visual mode, "v", "V", and "CTRL-V" used to end Visual mode. Now this
happens only if the Visual mode was in the corresponding type. Otherwise the
type of Visual mode is changed. Now only ESC can be used in all circumstances
to end Visual mode without doing anything. v_V

CTRL-B in Insert mode removed toggle-revins

CTRL-B in Insert mode used to toggle the 'revins' option. If you don't know
this and accidentally hit CTRL-B, it is very difficult to find out how to undo
it. Since hardly anybody uses this feature, it is disabled by default. If
you want to use it, define RIGHTLEFT in feature.h before compiling. 'revins'

 vim:tw=78:ts=8:ft=help:norl:

version5.txt For Vim version 8.1. Last change: 2016 Feb 27

VIM REFERENCE MANUAL by Bram Moolenaar

Welcome to Vim Version 5.0!

This document lists the differences between Vim 4.x and Vim 5.0.
Although 5.0 is mentioned here, this is also for version 5.1, 5.2, etc.
See vi_diff.txt for an overview of differences between Vi and Vim 5.0.
See version4.txt for differences between Vim 3.0 and Vim 4.0.

Fixed   fixed-5.1

VERSION 5.2   version-5.2
Long lines editable   long-lines
File browser added   file-browser-5.2
Dialogs added   dialogs-added
Popup menu added   popup-menu-added
Select mode added   new-Select-mode
Session files added   new-session-files
User defined functions and commands   new-user-defined
New interfaces   interfaces-5.2
New ports   ports-5.2
Multi-byte support   new-multi-byte
New functions   new-functions-5.2
New options   new-options-5.2
New Ex commands   new-ex-commands-5.2
Changed   changed-5.2
Added   added-5.2
Fixed   fixed-5.2

VERSION 5.3   version-5.3
Changed   changed-5.3
Added   added-5.3
Fixed   fixed-5.3

VERSION 5.4   version-5.4
Runtime directory introduced   new-runtime-dir
Filetype introduced   new-filetype-5.4
Vim script line continuation   new-line-continuation
Improved session files   improved-sessions
Autocommands improved   improved-autocmds-5.4
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Changed   changed-5.4
Added   added-5.4
Fixed   fixed-5.4

VERSION 5.5   version-5.5
Changed   changed-5.5
Added   added-5.5
Fixed   fixed-5.5

VERSION 5.6   version-5.6
Changed   changed-5.6
Added   added-5.6
Fixed   fixed-5.6

VERSION 5.7   version-5.7
Changed   changed-5.7
Added   added-5.7
Fixed   fixed-5.7

VERSION 5.8   version-5.8
Changed   changed-5.8
Added   added-5.8
Fixed   fixed-5.8

==
                                INCOMPATIBLE   incompatible-5

Default value for 'compatible' changed   cp-default

Vim version 5.0 tries to be more Vi compatible. This helps people who use Vim
as a drop-in replacement for Vi, but causes some things to be incompatible
with version 4.x.

In version 4.x the default value for the 'compatible' option was off. Now the
default is on. The first thing you will notice is that the "u" command undoes
itself. Other side effects will be that mappings may work differently or not
work at all.

Since a lot of people switching from Vim 4.x to 5.0 will find this annoying,
the 'compatible' option is switched off if Vim finds a vimrc file. This is a
bit of magic to make sure that 90% of the Vim users will not be bitten by
this change.

What does this mean?
- If you prefer to run in 'compatible' mode and don't have a vimrc file, you
  don't have to do anything.
- If you prefer to run in 'nocompatible' mode and do have a vimrc file, you
  don't have to do anything.
- If you prefer to run in 'compatible' mode and do have a vimrc file, you
  should put this line first in your vimrc file:
        :set compatible
- If you prefer to run in 'nocompatible' mode and don't have a vimrc file,
  you can do one of the following:
    - Create an empty vimrc file (e.g.: "~/.vimrc" for Unix).
    - Put this command in your .exrc file or $EXINIT:
                :set nocompatible
   - Start Vim with the "-N" argument.

If you are new to Vi and Vim, using 'nocompatible' is strongly recommended,
because Vi has a lot of unexpected side effects, which are avoided by this
setting. See 'compatible'.

If you like some things from 'compatible' and some not, you can tune the
compatibility with 'cpoptions'.

When you invoke Vim as "ex" or "gex", Vim always starts in compatible mode.

Text formatting command "Q" changed Q-command-changed

The "Q" command formerly formatted lines to the width the 'textwidth' option specifies. The command for this is now "gq" (see gq for more info). The reason for this change is that "Q" is the standard Vi command to enter "Ex" mode, and Vim now does in fact have an "Ex" mode (see Q for more info).

If you still want to use "Q" for formatting, use this mapping:
```
:noremap Q gq
```
And if you also want to use the functionality of "Q":
```
:noremap gQ Q
```

Command-line arguments changed cmdline-changed

Command-line file-arguments and option-arguments can now be mixed. You can give options after the file names. Example:
```
vim main.c -g
```

This is not possible when editing a file that starts with a '-'. Use the "--" argument then --- :
```
vim -g -- -main.c
```

"-v" now means to start Ex in Vi mode, use "-R" for read-only mode.
old: "vim -v file" -v
new: "vim -R file" -R

"-e" now means to start Vi in Ex mode, use "-q" for quickfix.
old: "vim -e errorfile" -e
new: "vim -q errorfile" -q

"-s" in Ex mode now means to run in silent (batch) mode. -s-ex

"-x" reserved for crypt, use "-f" to avoid starting a new CLI (Amiga).
old: "vim -x file" -x
new: "vim -f file" -f

Vim allows up to ten "+cmd" and "-c cmd" arguments. Previously Vim executed only the last one.

"-n" now overrides any setting for 'updatecount' in a vimrc file, but not in a gvimrc file.

Autocommands are kept autocmds-kept

Before version 5.0, autocommands with the same event, file name pattern, and command could appear only once. This was fine for simple autocommands (like setting option values), but for more complicated autocommands, where the same

command might appear twice, this restriction caused problems. Therefore
Vim stores all autocommands and keeps them in the order that they are defined.

The most obvious side effect of this change is that when you source a vimrc
file twice, the autocommands in it will be defined twice. To avoid this, do
one of these:

- Remove any autocommands that might already be defined before defining
  them. Example:
```
:au! * *.ext
:au BufEnter *.ext ...
```

- Put the autocommands inside an ":if" command. Example:
```
if !exists("did_ext_autocmds")
  let did_ext_autocmds = 1
  autocmd BufEnter *.ext ...
endif
```

- Put your autocommands in a different autocommand group so you can remove
  them before defining them :augroup :
```
augroup uncompress
  au!
  au BufReadPost *.gz ...
augroup END
```

Use of 'hidden' changed   hidden-changed

In version 4.x, only some commands used the 'hidden' option. Now all commands
uses it whenever a buffer disappears from a window.

Previously you could do ":buf xxx" in a changed buffer and that buffer would
then become hidden. Now you must set the 'hidden' option for this to work.

The new behavior is simpler: whether Vim hides buffers no longer depends on
the specific command that you use.
- with 'hidden' not set, you never get hidden buffers. Exceptions are the
  ":hide" and ":close!" commands and, in rare cases, where you would otherwise
  lose changes to the buffer.
- With 'hidden' set, you almost never unload a buffer. Exceptions are the
  ":bunload" or ":bdel" commands.

":buffer" now supports a "!": abandon changes in current buffer. So do
":bnext", ":brewind", etc.

Text object commands changed   text-objects-changed

Text object commands have new names. This allows more text objects and makes
characters available for other Visual mode commands. Since no more single
characters were available, text objects names now require two characters.
The first one is always 'i' or 'a'.

OLD	NEW		
a	aw	a word	v_aw
A	aW	a WORD	v_aW
s	as	a sentence	v_as
p	ap	a paragraph	v_ap
S	ab	a () block	v_ab
P	aB	a {} block	v_aB

There is another set of text objects that starts with "i", for "inner". These select the same objects, but exclude white space.

X-Windows Resources removed x-resources

Vim no longer supports the following X resources:
- boldColor
- italicColor
- underlineColor
- cursorColor

Vim now uses highlight groups to set colors. This avoids the confusion of using a bold Font, which would imply a certain color. See :highlight and gui-resources .

Use of $VIM $VIM-use

Vim now uses the VIM environment variable to find all Vim system files. This includes the global vimrc, gvimrc, and menu.vim files and all on-line help and syntax files. See $VIM . Starting with version 5.4, $VIMRUNTIME can also be used.
For Unix, Vim sets a default value for $VIM when doing "make install".
When $VIM is not set, its default value is the directory from 'helpfile', excluding "/doc/help.txt".

Use of $HOME for MS-DOS and Win32 $HOME-use

The MS-DOS and Win32 versions of Vim now first check $HOME when searching for a vimrc or exrc file and for reading/storing the viminfo file. Previously Vim used $VIM for these systems, but this causes trouble on a system with several users. Now Vim uses $VIM only when $HOME is not set or the file is not found in $HOME. See _vimrc .

Tags file format changed tags-file-changed

Only tabs are allowed to separate fields in a tags file. This allows for spaces in a file name and is still Vi compatible. In previous versions of Vim, any white space was allowed to separate the fields. If you have a file

which doesn't use a single tab between fields, edit the tags file and execute this command:

```
:%s/\(\S*\)\s\+\(\S*\)\s\+\(.*\)/\1\t\2\t\3/
```

Options changed options-changed

The default value of 'errorfile' has changed from "errors.vim" to "errors.err". The reason is that only Vim scripts should have the ".vim" extensions.

The ":make" command no longer uses the 'errorfile' option. This prevents the output of the ":make" command from overwriting a manually saved error file. ":make" uses the 'makeef' option instead. This also allows for generating a unique name, to prevent concurrently running ":make" commands from overwriting each other's files.

With 'insertmode' set, a few more things change:
- <Esc> in Normal mode goes to Insert mode.
- <Esc> in Insert mode doesn't leave Insert mode.
- When doing ":set im", go to Insert mode immediately.

Vim considers a buffer to be changed when the 'fileformat' (formerly the 'textmode' option) is different from the buffer's initial format.

CTRL-B in Insert mode gone i_CTRL-B-gone

When Vim was compiled with the +rightleft feature, you could use CTRL-B to toggle the 'revins' option. Unfortunately, some people hit the 'B' key accidentally when trying to type CTRL-V or CTRL-N and then didn't know how to undo this. Since toggling the 'revins' option can easily be done with the mapping below, this use of the CTRL-B key is disabled. You can still use the CTRL-_ key for this i_CTRL-_ .

```
:imap <C-B> <C-O>:set revins!<CR>
```

==========

NEW FEATURES *new-5*

Syntax highlighting new-highlighting

Vim now has a very flexible way to highlighting just about any type of file. See syntax . Summary:

```
:syntax on
```

Colors and attributes can be set for the syntax highlighting, and also for other highlighted items with the ':' flag in the 'highlight' option. All highlighted items are assigned a highlight group which specifies their highlighting. See :highlight . The default colors have been improved.

You can use the "Normal" group to set the default fore/background colors for a color terminal. For the GUI, you can use this group to specify the font, too.

The "2html.vim" script can be used to convert any file that has syntax
highlighting to HTML. The colors will be exactly the same as how you see them
in Vim. With a HTML viewer you can also print the file with colors.

Built-in script language   new-script

A few extra commands and an expression evaluator enable you to write simple
but powerful scripts. Commands include ":if" and ":while". Expressions can
manipulate numbers and strings. You can use the '=' register to insert
directly the result of an expression. See expression .

Perl and Python support   new-perl-python

Vim can call Perl commands with ":perldo", ":perl", etc. See perl .
Patches made by Sven Verdoolaege and Matt Gerassimoff.

Vim can call Python commands with ":python" and ":pyfile". See python .

Both of these are only available when enabled at compile time.

Win32 GUI version   added-win32-GUI

The GUI has been ported to MS Windows 95 and NT. All the features of the X11
GUI are available to Windows users now.   gui-w32
This also fixes problems with running the Win32 console version under Windows
95, where console support has always been bad.
There is also a version that supports OLE automation interface.   if_ole.txt
Vim can be integrated with Microsoft Developer Studio using the VisVim DLL.
It is possible to produce a DLL version of gvim with Borland C++ (Aaron).

VMS version   added-VMS

Vim can now also be used on VMS systems. Port done by Henk Elbers.
This has not been tested much, but it should work.
Sorry, no documentation!

BeOS version   added-BeOS

Vim can be used on BeOS systems (including the BeBox). (Olaf Seibert)
See os_beos.txt .

Macintosh GUI version   added-Mac

Vim can now be used on the Macintosh. (Dany St-Amant)
It has not been tested much yet, be careful!
See os_mac.txt .

More Vi compatible more-compatible

There is now a real Ex mode. Started with the "Q" command, or by calling the
executable "ex" or "gex". Ex-mode

Always allow multi-level undo, also in Vi compatible mode. When the 'u' flag
in 'cpoptions' is included, CTRL-R is used for repeating the undo or redo
(like "." in Nvi).

Read input from stdin read-stdin

When using the "-" command-line argument, Vim reads its text input from stdin.
This can be used for putting Vim at the end of a pipe:
```
   grep "^a.*" *.c | vim -
```
See -- .

Regular expression patterns added-regexp

Added specifying a range for the number of matches of an atom: "\{a,b}". /\{
Added the "shortest match" regexp "\{-}" (Webb).
Added "\s", matches a white character. Can replace "[\t]". /\s
Added "\S", matches a non-white character. Can replace "[^ \t]". /\S

Overloaded tags tag-overloaded

When using a language like C++, there can be several tags for the same
tagname. Commands have been added to be able to jump to any of these
overloaded tags:
```
 :tselect       List matching tags, and jump to one of them.
 :stselect      Idem, and split window.
 g_CTRL-]       Do ":tselect" with the word under the cursor.

        After ":ta {tagname}" with multiple matches:
 :tnext         Go to next matching tag.
 :tprevious     Go to previous matching tag.
 :trewind       Go to first matching tag.
 :tlast         Go to last matching tag.
```

The ":tag" command now also accepts wildcards. When doing command-line
completion on tags, case-insensitive matching is also available (at the end).

New commands new-commands

:amenu	Define menus for all modes, inserting a CTRL-O for Insert mode, ESC for Visual and CTRL-C for Cmdline mode. "amenu" is used for the default menus and the Syntax menu.
:augroup	Set group to be used for following autocommands. Allows the grouping of autocommands to enable deletion of a specific group.
:crewind	Go to first error.
:clast	Go to last error.
:doautoall	Execute autocommands for all loaded buffers.
:echo	Echo its argument, which is an expression. Can be used to display messages which include variables.
:execute	Execute its argument, which is an expression. Can be used to built up an Ex command with anything.
:hide	Works like ":close".
:if	Conditional execution, for built-in script language.
:intro	Show introductory message. This is always executed when Vim is started without file arguments.
:let	Assign a value to an internal variable.
:omap	Map only in operator-pending mode. Makes it possible to map text-object commands.
:redir	Redirect output of messages to a file.
:update	Write when buffer has changed.
:while	While-loop for built-in script language.

Visual mode:

v_O	"O" in Visual block mode, moves the cursor to the other corner horizontally.
v_D	"D" in Visual block mode deletes till end of line.

Insert mode:

i_CTRL-]	Triggers abbreviation, without inserting any character.

New options added-options

'background'	Used for selecting highlight color defaults. Also used in
		"syntax.vim" for selecting the syntax colors. Often set
		automatically, depending on the terminal used.

'complete'	Specifies how Insert mode completion works.

'eventignore'	Makes it possible to ignore autocommands temporarily.

'fileformat'	Current file format. Replaces 'textmode'.
'fileformats'	Possible file formats. Replaces 'textauto'.
		New is that this also supports Macintosh format: A single <CR>
		separates lines.
		The default for 'fileformats' for MS-DOS, Win32 and OS/2 is
		"dos,unix", also when 'compatible' set. Unix type files
		didn't work anyway when 'fileformats' was empty.

'guicursor'	Set the cursor shape and blinking in various modes.
		Default is to adjust the cursor for Insert and Replace mode,
		and when an operator is pending. Blinking is default on.

'fkmap'		Farsi key mapping.

'hlsearch'	Highlight all matches with the last used search pattern.

'hkmapp'	Phonetic Hebrew mapping. (Ilya Dogolazky)

'iconstring'	Define the name of the icon, when not empty. (Version 5.2: the
		string is used literally, a newline can be used to make two
		lines.)

'lazyredraw'	Don't redraw the screen while executing macros, registers or
		other not typed commands.

'makeef'	Errorfile to be used for ":make". "##" is replaced with a
		unique number. Avoids that two Vim sessions overwrite each
		others errorfile. The Unix default is "/tmp/vim##.err"; for
		Amiga "t:vim##.Err, for others "vim##.err".

'matchtime'	1/10s of a second to show a matching paren, when 'showmatch'
		is set. Like Nvi.

'mousehide'	Hide mouse pointer in GUI when typing text.

'nrformats'	Defines what bases Vim will consider for numbers when using
		the CTRL-A and CTRL-X commands. Default: "hex,octal".

'shellxquote'	Add extra quotes around the whole shell command, including
		redirection.

'softtabstop'	Make typing behave like tabstop is set at this value, without
		changing the value of 'tabstop'. Makes it more easy to keep
		'ts' at 8, while still getting four spaces for a <Tab>.

'titlestring'	String for the window title, when not empty. (Version 5.2:

this string is used literally, a newline can be used to make
two lines.)

'verbose'	Level of verbosity. Makes it possible to show which .vimrc,
.exrc, .viminfo files etc. are used for initializing. Also
to show autocommands that are being executed. Can also be set
by using the "-V" command-line argument.

New command-line arguments	added-cmdline-args

-U	Set the gvimrc file to be used. Like "-u" for the vimrc.

-V	Set the 'verbose' option. E.g. "vim -V10".

-N	Start in non-compatible mode.

-C	Start in compatible mode.

-Z	Start in restricted mode, disallow shell commands. Can also
be done by calling the executable "rvim".

-h	Show usage information and exit.

Various additions	added-various

Added support for SNiFF+ connection (submitted by Toni Leherbauer). Vim can
be used as an editor for SNiFF. No documentation available...

For producing a bug report, the bugreport.vim script has been included.
Can be used with ":so $VIMRUNTIME/bugreport.vim", which creates the file
"bugreport.txt" in the current directory. bugs

Added range to ":normal" command. Now you can repeat the same command for
each line in the range. :normal-range

Included support for the Farsi language (Shiran). Only when enabled at
compile time. See farsi .

==========

IMPROVEMENTS	improvements-5

Performance:
- When 'showcmd' was set, mappings would execute much more slowly because the
  output would be flushed very often. Helps a lot when executing the "life"
  macros with 'showcmd' set.
- Included patches for binary searching in tags file (David O'Neill).
  Can be disabled by resetting the 'tagbsearch' option.
- Don't update the ruler when repeating insert (slowed it down a lot).
- For Unix, file name expansion is now done internally instead of starting a
  shell for it.

- Expand environment variables with expand_env(), instead of calling the
  shell. Makes ":so $VIMRUNTIME/syntax/syntax.vim" a LOT faster.
- Reduced output for cursor positioning: Use CR-LF for moving to first few
  columns in next few lines; Don't output CR twice when using termios.
- Optimized cursor positioning. Use CR, BS and NL when it's shorter than
  absolute cursor positioning.
- Disable redrawing while repeating insert "1000ii<Esc>".
- Made "d$" or "D" for long lines a lot faster (delete all characters at once,
  instead of one by one).
- Access option table by first letter, instead of searching from start.
- Made setting special highlighting attributes a lot faster by using
  highlight_attr[], instead of searching in the 'highlight' string.
- Don't show the mode when redrawing is disabled.
- When setting an option, only redraw the screen when required.
- Improved performance of Ex commands by using a lookup table for the first
  character.

Options:
'cinoptions'   Added 'g' flag, for C++ scope declarations.
'cpoptions'   Added 'E' flag: Disallow yanking, deleting, etc. empty text
                area. Default is to allow empty yanks. When 'E' is included,
                "y$" in an empty line now is handled as an error (Vi
                compatible).
                Added 'j' flag: Only add two spaces for a join after a '.',
                not after a '?' or '!'.
                Added 'A' flag: don't give ATTENTION message.
                Added 'L' flag: When not included, and 'list' is set,
                'textwidth' formatting works like 'list' is not set.
                Added 'W' flag: Let ":w!" behave like Vi: don't overwrite
                readonly files, or a file owned by someone else.
'highlight'   Added '@' flag, for '@' characters after the last line on the
                screen, and '$' at the end of the line when 'list' is set.
                Added 'i' flag: Set highlighting for 'incsearch'. Default
                uses "IncSearch" highlight group, which is linked to "Visual".
                Disallow 'h' flag in 'highlight' (wasn't used anymore since
                3.0).
'guifont'   Win32 GUI only: When set to "*" brings up a font requester.
'guipty'   Default on, because so many people need it.
'path'   Can contain wildcards, and "**" for searching a whole tree.
'shortmess'   Added 'I' flag to avoid the intro message.
'viminfo'   Added '%' flag: Store buffer list in viminfo file.

- Increased defaults for 'maxmem' and 'maxmemtot' for Unix and Win32. Most
  machines have much more RAM now that prices have dropped.
- Implemented ":set all&", set all options to their default value. :set

Swap file:
- Don't create a swap file for a readonly file. Then create one on the first
  change. Also create a swapfile when the amount of memory used is getting
  too high. swap-file
- Make swap file "hidden", if possible. On Unix this is done by prepending a
  dot to the swap file name. When long file names are used, the DJGPP and
  Win32 versions also prepend a dot, in case a file on a mounted Unix file
  system is edited. :swapname On MSDOS the hidden file attribute is NOT

  set, because this causes problems with share.exe.
- 'updatecount' always defaults to non-zero, also for Vi compatible mode.
  This means there is a swap file, which can be used for recovery.

Tags:
- Included ctags 2.0 (Darren Hiebert). The syntax for static tags changed
  from
        {tag}:{fname}   {fname} {command}
  to
        {tag}   {fname} {command};"   file:
  Which is both faster to parse, shorter and Vi compatible. The old format is
  also still accepted, unless disabled in src/feature.h (see OLD_STATIC_TAGS).
   tags-file-format
- Completion of tags now also includes static tags for other files, at the
  end.
- Included "shtags" from Stephen Riehm.
- When finding a matching tag, but the file doesn't exist, continue searching
  for another match. Helps when using the same tags file (with links) for
  different versions of source code.
- Give a tag with a global match in the current file a higher priority than a
  global match in another file.

Included xxd version V1.8 (Juergen Weigert).

Autocommands:
- VimLeave autocommands are executed after writing the viminfo file, instead
  of before.   VimLeave
- Allow changing autocommands while executing them. This allows for
  self-modifying autocommands. (idea from Goldberg)
- When using autocommands with two or more patterns, could not split
  ":if/:endif" over two lines. Now all matching autocommands are executed in
  one do_cmdline().
- Autocommands no longer change the command repeated with ".".
- Search patterns are restored after executing autocommands. This avoids
  that the 'hlsearch' highlighting is messed up by autocommands.
- When trying to execute an autocommand, also try matching the pattern with
  the short file name. Helps when short file name is different from full
  file name (expanded symbolic links). autocmd-patterns
- Made the output of ":autocmd" shorter and look better.
- Expand <sfile> in an ":autocmd" when it is defined.   <sfile>
- Added "nested" flag to ":autocmd", allows nesting.   autocmd-nested
- Added [group] argument to ":autocmd". Overrides the currently set group.
   autocmd-groups
- new events:
   BufUnload   before a buffer is unloaded
   BufDelete   before a buffer is deleted from the buffer list
   FileChangedShell   when a file's modification time has changed after
                        executing a shell command
   User   user-defined autocommand
- When 'modified' was set by a BufRead* autocommand, it was reset again
  afterwards. Now the ":set modified" is remembered.

GUI:
- Improved GUI scrollbar handling when redrawing is slower than the scrollbar

  events are generated.
- "vim -u NONE" now also stops loading the .gvimrc and other GUI inits. -u
  Use "-U" to use another gvimrc file. -U
- Handle CTRL-C for external command, also for systems where "setsid()" is
  supported.
- When starting the GUI, restrict the window size to the screen size.
- The default menus are read from $VIMRUNTIME/menu.vim. This allows for a
  customized default menu. menu.vim
- Improved the default menus. Added File/Print, a Window menu, Syntax menu,
  etc.
- Added priority to the ":menu" command. Now each menu can be put in a place
  where you want it, independent of the order in which the menus are defined.
   menu-priority

Give a warning in the intro screen when running the Win32 console version on
Windows 95 because there are problems using this version under Windows 95.
 win32-problems

Added 'e' flag for ":substitute" command: Don't complain when not finding a
match (Campbell). :s

When using search commands in a mapping, only the last one is kept in the
history. Avoids that the history is trashed by long mappings.

Ignore characters after "ex", "view" and "gvim" when checking startup mode.
Allows the use of "gvim5" et. al. gvim "gview" starts the GUI in readonly
mode. gview

When resizing windows, the cursor is kept in the same relative position, if
possible. (Webb)

":all" and ":ball" no longer close and then open a window for the same buffer.
Avoids losing options, jumplist, and other info.

"-f" command-line argument is now ignored if Vim was compiled without GUI.
 -f

In Visual block mode, the right mouse button picks up the nearest corner.

Changed default mappings for DOS et al. Removed the DOS-specific mappings,
only use the Windows ones. Added Shift-Insert, Ctrl-Insert, Ctrl-Del and
Shift-Del.

Changed the numbers in the output of ":jumps", so you can see where {count}
CTRL-O takes you. :jumps

Using "~" for $HOME now works for all systems. $HOME

Unix: Besides using CTRL-C, also use the INTR character from the tty settings.
Somebody has INTR set to DEL.

Allow a <LF> in a ":help" command argument to end the help command, so another
command can follow.

Doing "%" on a line that starts with "	#if" didn't jump to matching "#else".
Don't recognize "#if", "#else" etc. for '%' when 'cpo' contains the '%' flag.
 %

Insert mode expansion with "CTRL-N", "CTRL-P" and "CTRL-X" improved
 ins-completion :
- 'complete' option added.
- When 'nowrapscan' is set, and no match found, report the searched direction
  in the error message.
- Repeating CTRL-X commands adds following words/lines after the match.
- When adding-expansions, accept single character matches.
- Made repeated CTRL-X CTRL-N not break undo, and "." repeats the whole
  insertion. Also fixes not being able to backspace over a word that has been
  inserted with CTRL-N.

When copying characters in Insert mode from previous/next line, with CTRL-E or
CTRL-Y, 'textwidth' is no longer used.	i_CTRL-E

Commands that move in the arglist, like ":n" and ":rew", keep the old cursor
position of the file (this is mostly Vi compatible).

Vim now remembers the '< and '> marks for each buffer. This fixes a problem
that a line-delete in one buffer invalidated the '< and '> marks in another
buffer.	'<

For MSDOS, Unix and OS/2: When $VIM not set, use the path from the executable.
When using the executable path for $VIM, remove "src/" when present. Should
make Vim find the docs and syntax files when it is run directly after
compiling.	$VIM

When quitting Visual mode with <Esc>, the cursor is put at start of the Visual
area (like after executing an operator).

Win32 and Unix version: Removed 1100 character limit on external commands.

Added possibility to include a space in a ":edit +command" argument, by
putting a backslash before it.	+cmd

After recovery, BufReadPost autocommands are applied.	:recover

Added color support for "os2ansi", OS/2 console. (Slootman)

Allow "%:p:h" when % is empty.	:_%

Included "<sfile>": file name from the ":source" command.	<sfile>

Added "<Bslash>" special character. Helps for avoiding multiple backslashes
in mappings and menus.

In a help window, a double-click jumps to the tag under the cursor (like
CTRL-]).

<C-Left> and <C-Right> now work like <S-Left> and <S-Right>, move a word
forward/backward (Windows compatible). <C-Left>

Removed the requirement for a ":version" command in a .vimrc file. It wasn't
used for anything. You can use ":if" to handle differences between versions.
 :version

For MS-DOS, Win32 and OS/2: When comparing file names for autocommands, don't
make a difference between '/' and '\' for path separator.

New termcap options:
"mb": blink. Can only be used by assigning it to one of the other highlight
      options.   t_mb
"bc": backspace character.   t_bc
"nd": Used for moving the cursor right in the GUI, to avoid removing one line
      of pixels from the last bold character.   t_nd
"xs": highlighting not erased by overwriting, for hpterm. Combined with
      'weirdinvert'. Visual mode works on hpterm now.   t_xs

Unix: Set time of patch and backup file same as original file. (Hiebert).

Amiga: In QuickFix mode no longer opens another window. Shell commands can be
used now.

Added decmouse patches from David Binette. Can now use Dec and Netterm mouse.
But only when enabled at compile time.

Added '#' register: Alternate file name quote# . Display '#' register with
":dis" command. :display

Removed ':' from 'isfname' default for Unix. Check for "://" in a file name
anyway. Also check for ":\\", for MS-DOS.

Added count to "K"eyword command, when 'keywordprg' is "man", is inserted in
the man command. "2K" results in "!man 2 <cword>".   K

When using "gf" on a relative path name, remove "../" from the file name, like
it's done for file names in the tags file. gf

When finishing recording, don't make the recorded register the default put
register.

When using "!!", don't put ":5,5!" on the command-line, but ":.!". And some
other enhancements to replace the line number with "." or "$" when possible.

MSDOS et al.: Renamed $VIM/viminfo to $VIM/_viminfo. It's more consistent:
.vimrc/_vimrc and .viminfo/_viminfo

For systems where case doesn't matter in file names (MSDOS, Amiga), ignore
case while sorting file names. For buffer names too.

When reading from stdin doesn't work, read from stderr (helps for "foo | xargs
vim").

32 bit MS-DOS version: Replaced csdpmi3 by csdpmi4.

Changed <C-Left> and <C-Right> to skip a WORD instead of a word.

Warning for changed modified time when overwriting a file now also works on
other systems than Unix.

Unix: Changed the defaults for configure to be the same as the defaults for
Makefile: include GUI, Perl, and Python.

Some versions of Motif require "-lXpm". Added check for this in configure.

Don't add "-L/usr/lib" to the link line, causes problems on a few systems.

==
                            COMPILE TIME CHANGES   compile-changes-5

When compiling, allow a choice for minimal, normal or maximal features in an
easy way, by changing a single line in src/feature.h.
The DOS16 version has been compiled with minimal features to avoid running
out of memory too quickly.
The Win32, DJGPP, and OS/2 versions use maximal features, because they have
enough memory.
The Amiga version is available with normal and maximal features.

Added "make test" to Unix version Makefile. Allows for a quick check if most
"normal" commands work properly. Also tests a few specific commands.

Added setlocale() with codepage support for DJGPP version.

autoconf:
- Added autoconf check for -lXdmcp.
- Included check for -lXmu, no longer needed to edit the Makefile for this.
- Switched to autoconf 2.12.
- Added configure check for <poll.h>. Seems to be needed when including
  Perl on Linux?
- termlib is now checked before termcap.
- Added configure check for strncasecmp(), stricmp() and strnicmp(). Added
  vim_stricmp() for when there's no library function for stricmp().
- Use "datadir" in configure, instead of our own check for HELPDIR.

Removed "make proto" from Makefile.manx. Could not make it work without a lot
of #ifdefs.

Removed "proto/" from paths in proto.h. Needed for the Mac port.

Drastically changed Makefile.mint. Now it includes the Unix Makefile.

Added support for Dos16 in Makefile.b32 (renamed Makefile.b32 to Makefile.bor)

All source files are now edited with a tabstop of 8 instead of 4, which is
better when debugging and using other tools. 'softtabstop' is set to 4, to
make editing easier.

Unix: Added "link.sh" script, which removes a few unnecessary libraries from
the link command.

Don't use HPUX digraphs by default, but only when HPUX_DIGRAPHS is defined.
 digraphs-default

==
BUG FIXES bug-fixes-5

Note: Some of these fixes may only apply to test versions which were created after version 4.6, but before 5.0.

When doing ":bdel", try going to the next loaded buffer. Don't rewind to the start of the buffer list.

mch_isdir() for Unix returned TRUE for "" on some systems.

Win32: 'shell' set to "mksnt/sh.exe" breaks ":!" commands. Don't use backslashes in the temp file names.

On linux, with a FAT file system, could get spurious "file xxx changed since editing started" messages, because the time is rounded off to two seconds unexpectedly.

Crash in GUI, when selecting a word (double click) and then extend until an empty line.

For systems where isdigit() can't handle characters > 255, get_number() caused a crash when moving the mouse during the prompt for recovery.

In Insert mode, "CTRL-O P" left the cursor on the last inserted character. Now the cursor is left after the last putted character.

When quickfix found an error type other than 'e' or 'w', it was never printed.

A setting for 'errorfile' in a .vimrc overruled the "-q errorfile" argument.

Some systems create a file when generating a temp file name. Filtering would then create a backup file for this, which was never deleted. Now no backup file is made when filtering.

simplify_filename() could remove a ".." after a link, resulting in the wrong file name. Made simplify_filename also work for MSDOS. Don't use it for Amiga, since it doesn't have "../".

otherfile() was unreliable when using links. Could think that reading/writing was for a different file, when it was the same.

Pasting with mouse in Replace mode didn't replace anything.

Window height computed wrong when resizing a window with an autocommand (could cause a crash).

":s!foo!bar!" wasn't possible (Vi compatible).

do_bang() freed memory twice when called recursively, because of autocommands (test11). Thanks to Electric Fence!

"v$d" on an empty line didn't remove the "-- VISUAL --" mode message from the command-line, and inverted the cursor.

":mkexrc" didn't check for failure to open the file, causing a crash. (Felderhoff).

Win32 mch_write() wrote past fixed buffer, causing terminal keys no longer to be recognized. Both console and GUI version.

Athena GUI: Crash when removing a menu item. Now Vim doesn't crash, but the reversing of the menu item is still wrong.

Always reset 'list' option for the help window.

When 'scrolloff' is non-zero, a 'showmatch' could cause the shown match to be in the wrong line and the window to be scrolled (Acevedo).

After ":set all&", 'lines' and 'ttytype' were still non-default, because the defaults never got set. Now the defaults for 'lines' and 'columns' are set after detecting the window size. 'term' and 'ttytype' defaults are set when detecting the terminal type.

For (most) non-Unix systems, don't add file names with illegal characters when expanding. Fixes "cannot open swapfile" error when doing ":e *.burp", when there is no match.

In X11 GUI, drawing part of the cursor obscured the text. Now the text is drawn over the cursor, like when it fills the block. (Seibert)

when started with "-c cmd -q errfile", the cursor would be left in line 1. Now a ":cc" is done after executing "cmd".

":ilist" never ignored case, even when 'ignorecase' set.

"vim -r file" for a readonly file, then making a change, got ATTENTION message in insert mode, display mixed up until <Esc> typed. Also don't give ATTENTION message after recovering a file.

The abbreviation ":ab #i #include" could not be removed.

CTRL-L completion (longest common match) on command-line didn't work properly for case-insensitive systems (MS-DOS, Windows, etc.). (suggested by Richard Kilgore).

For terminals that can hide the cursor ("vi" termcap entry), resizing the window caused the cursor to disappear.

Using an invalid mark in an Ex address didn't abort the command.

When 'smarttab' set, would use 'shiftround' when inserting a TAB after a space. Now it always rounds to a tabstop.

Set '[and '] marks for ":copy", ":move", ":append", ":insert", ":substitute"
and ":change". (Acevedo).

"d$" in an empty line still caused an error, even when 'E' is not in
'cpoptions'.

Help files were stored in the viminfo buffer list without a path.

GUI: Displaying cursor was not synchronized with other displaying. Caused
several display errors. For example, when the last two lines in the file
start with spaces, "dd" on the last line copied text to the (then) last line.

Win32: Needed to type CTRL-SHIFT-- to get CTRL-_.

GUI: Moving the cursor forwards over bold text would remove one column of bold
pixels.

X11 GUI: When a bold character in the last column was scrolled up or down, one
column of pixels would not be copied.

Using <BS> to move the cursor left can sometimes erase a character. Now use
"le" termcap entry for this.

Keyword completion with regexp didn't work. e.g., for "b.*crat".

Fixed: With CTRL-O that jumps to another file, cursor could end up just after
the line.

Amiga: '$' was missing from character recognized as wildcards, causing $VIM
sometimes not to be expanded.

":change" didn't adjust marks for deleted lines.

":help [range]" didn't work. Also for [pattern], [count] and [quotex].

For 'cindent'ing, typing "class::method" doesn't align like a label when the
second ':' is typed.
When inserting a CR with 'cindent' set (and a bunch of other conditions) the
cursor went to a wrong location.
'cindent' was wrong for a line that ends in '}'.
'cindent' was wrong after "else {".

While editing the cmdline in the GUI, could not use the mouse to select text
from the command-line itself.

When deleting lines, marks in tag stack were only adjusted for the current
window, not for other windows on the same buffer.

Tag guessing could find a function "some_func" instead of the "func" we were
looking for.

Tags file name relative to the current file didn't work.

":g/pat2/s//pat2/g", causing the number of subs to be reported, used to cause a scroll up. Now you no longer have to hit <CR>.

X11 GUI: Selecting text could cause a crash.

32 bit DOS version: CTRL-C in external command killed Vim. When SHELL is set to "sh.exe", external commands didn't work. Removed using of command.com, no longer need to set 'shellquote'.

Fixed crash when using ":g/pat/i".

Fixed (potential) crash for X11 GUI, when using an X selection. Was giving a pointer on the stack to a callback function, now it's static.

Using "#" and "*" with an operator didn't work. E.g. "c#".

Command-line expansion didn't work properly after ":*". (Acevedo)

Setting 'weirdinvert' caused highlighting to be wrong in the GUI.

":e +4 #" didn't work, because the "4" was in unallocated memory (could cause a crash).

Cursor position was wrong for ":e #", after ":e #" failed, because of changes to the buffer.

When doing ":buf N", going to a buffer that was edited with ":view", the readonly flag was reset. Now make a difference between ":e file" and ":buf file": Only set/reset 'ro' for the first one.

Avoid hit-enter prompt when not able to write viminfo on exit.

When giving error messages in the terminal where the GUI was started, GUI escape codes would be written to the terminal. In an xterm this could be seen as a '$' after the message.

Mouse would not work directly after ":gui", because full_screen isn't set, which causes starttermcap() not to do its work.

'incsearch' did not scroll the window in the same way as the actual search. When 'nowrap' set, incsearch didn't show a match when it was off the side of the screen. Now it also shows the whole match, instead of just the cursor position (if possible).

":unmap", ":unab" and ":unmenu" did not accept a double quote, it was seen as the start of a comment. Now it's Vi compatible.

Using <Up><Left><Left><Up> in the command-line, when there is no previous cmdline in the history, inserted a NUL on the command-line.

"i<Esc>" when on a <Tab> in column 0 left the cursor in the wrong place.

GUI Motif: When adding a lot of menu items, the menu bar goes into two rows. Deleting menu items, reducing the number of rows, now also works.

With ":g/pat/s//foo/c", a match in the first line was scrolled off of the screen, so you could not see it.
When using ":s//c", with 'nowrap' set, a match could be off the side of the screen, so you could not see it.

When 'helpfile' was set to a fixed, non-absolute path in feature.h, Vim would crash. mch_Fullname can now handle file names in read-only memory. (Lottem)

When using CTRL-A or CTRL-@ in Insert mode, there could be strange effects when using CTRL-D next. Also, when repeating inserted text that included "0 CTRL-D" or "^ CTRL-D" this didn't work. (Acevedo)
Using CTRL-D after using CTRL-E or CTRL-Y in Insert mode that inserted a '0' or '^', removed the '0' or '^' and more indent.

The command "2".p" caused the last inserted text to be executed as commands. (Acevedo)

Repeating the insert of "CTRL-V 048" resulted in "^@" to be inserted.

Repeating Insert completion could fail if there are special characters in the text. (Acevedo)

":normal /string<CR>" caused the window to scroll. Now all ":normal" commands are executed without scrolling messages.

Redo of CTRL-E or CTRL-Y in Insert mode interpreted special characters as commands.

Line wrapping for 'tw' was done one character off for insert expansion inserts.

buffer_exists() function didn't work properly for buffer names with a symbolic link in them (e.g. when using buffer_exists(#)).

Removed the "MOTIF_COMMENT" construction from Makefile. It now works with FreeBSD make, and probably with NeXT make too.

Matching the 'define' and 'include' arguments now honor the settings for 'ignorecase'. (Acevedo)

When one file shown in two windows, Visual selection mixed up cursor position in current window and other window.

When doing ":e file" from a help file, the 'isk' option wasn't reset properly, because of a modeline in the help file.

When doing ":e!", a cursor in another window on the same buffer could become invalid, leading to "ml_get: invalid lnum" errors.

Matching buffer name for when expanded name has a different path from not expanded name (Brugnara).

Normal mappings didn't work after an operator. For example, with ":map Q gq",

"QQ" didn't work.

When ":make" resulted in zero errors, a "No Errors" error message was given
(which breaks mappings).

When ":sourcing" a file, line length was limited to 1024 characters. CTRL-V
before <EOL> was not handled Vi compatible. (Acevedo)

Unexpected exit for X11 GUI, caused by SAVE_YOURSELF event. (Heimann)

CTRL-X CTRL-I only found one match per line. (Acevedo)
When using an illegal CTRL-X key in Insert mode, the CTRL-X mode message
was stuck.

Finally managed to ignore the "Quit" menu entry of the Window manager! Now
Vim only exists when there are no changed buffers.

Trying to start the GUI when $DISPLAY is not set resulted in a crash.
When $DISPLAY is not set and gvim starts vim, title was restored to "Thanks
for flying Vim".
When $DISPLAY not set, starting "gvim" (dropping back to vim) and then
selecting text with the mouse caused a crash.

"J", with 'joinspaces' set, on a line ending in ". ", caused one space too
many to be added. (Acevedo)

In insert mode, a CTRL-R {regname} which didn't insert anything left the '"'
on the screen.

":z10" didn't work. (Clapp)

"Help "*" didn't work.

Renamed a lot of functions, to avoid clashes with POSIX name space.

When adding characters to a line, making it wrap, the following lines were
sometimes not shifted down (e.g. after a tag jump).

CTRL-E, with 'so' set and cursor on last line, now does not move cursor as
long as the last line is on the screen.

When there are two windows, doing "^W+^W-" in the bottom window could cause
the status line to be doubled (not redrawn correctly).

This command would hang: ":n `cat`". Now connect stdin of the external
command to /dev/null, when expanding.

Fixed lalloc(0,) error for ":echo %:e:r". (Acevedo)

The "+command" argument to ":split" didn't work when there was no file name.

When selecting text in the GUI, which is the output of a command-line command
or an external command, the inversion would sometimes remain.

GUI: "-mh 70" argument was broken. Now, when menuheight is specified, it is not changed anymore.

GUI: When using the scrollbar or mouse while executing an external command, this caused garbage characters.

Showmatch sometimes jumped to the wrong position. Was caused by a call to findmatch() when redrawing the display (when syntax highlighting is on).

Search pattern "\(a *\)\{3} did not work correctly, also matched "a a". Problem with brace_count not being decremented.

Wildcard expansion added too many non-matching file names.

When 'iskeyword' contains characters like '~', "*" and "#" didn't work properly. (Acevedo)

On Linux, on a FAT file system, modification time can change by one second. Avoid a "file has changed" warning for a one second difference.

When using the page-switching in an xterm, Vim would position the cursor on the last line of the window on exit. Also removed the cursor positioning for ":!" commands.

":g/pat/p" command (partly) overwrote the command. Now the output is on a separate line.

With 'ic' and 'scs' set, a search for "Keyword", ignore-case matches were highlighted too.

"^" on a line with only white space, put cursor beyond the end of the line.

When deleting characters before where insertion started ('bs' == 2), could not use abbreviations.

CTRL-E at end of file puts cursor below the file, in Visual mode, when 'so' is non-zero. CTRL-E didn't work when 'so' is big and the line below the window wraps. CTRL-E, when 'so' is non-zero, at end of the file, caused jumping up-down.

":retab" didn't work well when 'list' is set.

Amiga: When inserting characters at the last line on the screen, causing it to wrap, messed up the display. It appears that a '\n' on the last line doesn't always cause a scroll up.

In Insert mode "0<C-D><C-D>" deleted an extra character, because Vim thought that the "0" was still there. (Acevedo)

"z{count}l" ignored the count. Also for "zh" et. al. (Acevedo)

"S" when 'autoindent' is off didn't delete leading white space.

"/<Tab>" landed on the wrong character when 'incsearch' is set.

Asking a yes/no question could cause a hit-enter prompt.

When the file consists of one long line (>4100 characters), making changes caused various errors and a crash.

DJGPP version could not save long lines (>64000) for undo.

"yw" on the last char in the file didn't work. Also fixed "6x" at the end of the line. "6X" at the start of a line fails, but does not break a mapping. In general, a movement for an operator doesn't beep or flush a mapping, but when there is nothing to operate on it beeps (this is Vi compatible).

"m'" and "m`" now set the '' mark at the cursor position.

Unix: Resetting of signals for external program didn't work, because SIG_DFL and NULL are the same! For "!!yes|dd count=1|, the yes command kept on running.

Partly fixed: Unix GUI: Typeahead while executing an external command was lost. Now it's not lost while the command is producing output.

Typing <S-Tab> in Insert mode, when it isn't mapped, inserted "<S-Tab>". Now it works like a normal <Tab>, just like <C-Tab> and <M-Tab>.

Redrawing ruler didn't check for old value correctly (caused UMR warnings in Purify).

Negative array index in finish_viminfo_history().

":g/^/d|mo $" deleted all the lines. The ":move" command now removes the :global mark from the moved lines.

Using "vG" while the last line in the window is a "@" line, didn't update correctly. Just the "v" showed "~" lines.

"daw" on the last char of the file, when it's a space, moved the cursor beyond the end of the line.

When 'hlsearch' was set or reset, only the current buffer was redrawn, while this affects all windows.

CTRL-^, positioning the cursor somewhere from 1/2 to 1 1/2 screen down the file, put the cursor at the bottom of the window, instead of halfway.

When scrolling up for ":append" command, not all windows were updated correctly.

When 'hlsearch' is set, and an auto-indent is highlighted, pressing <Esc> didn't remove the highlighting, although the indent was deleted.

When 'ru' set and 'nosc', using "$j" showed a wrong ruler.

Under Xfree 3.2, Shift-Tab didn't work (wrong keysym is used).

Mapping <S-Tab> didn't work. Changed the key translations to use the shortest key code possible. This makes the termcode translations and mappings more consistent. Now all modifiers work in all combinations, not only with <Tab>, but also with <Space>, <CR>, etc.

For Unix, restore three more signals. And Vim catches SIGINT now, so CTRL-C in Ex mode doesn't make Vim exit.

""a5Y" yanked 25 lines instead of 5.

"vrxxx<Esc>" in an empty line could not be undone.

A CTRL-C that breaks ":make" caused the errorfile not to be read (annoying when you want to handle what ":make" produced so far).

":0;/pat" didn't find "pat" in line 1.

Search for "/test/s+1" at first char of file gave bottom-top message, or didn't work at all with 'nowrapscan'.

Bug in viminfo history. Could cause a crash on exit.

":print" didn't put cursor on first non-blank in line.

":0r !cat </dev/null" left cursor in line zero, with very strange effects.

With 'showcmd' set and 'timeoutlen' set to a few seconds, trick to position the cursor leftwards didn't work.

AIX stty settings were restored to cs5 instead of cs8 (Winn).

File name completion didn't work for "zsh" versions that put spaces between file names, instead of NULs.

Changed "XawChain*" to "XtChain*", should work for more systems.

Included quite a few fixes for rightleft mode (Lottem).

Didn't ask to hit-enter when GUI is started and error messages are printed.

When trying to edit a file in a non-existent directory, ended up with editing "No file".

"gqap" to format a paragraph did too much redrawing.

When 'hlsearch' set, only the current window was updated for a new search pattern.

Sometimes error messages on startup didn't cause a hit-enter prompt, because of autocommands containing an empty line.

Was possible to select part of the window in the border, below the command line.

'< and '> marks were not at the correct position after linewise Visual
selection.

When translating a help argument to "CTRL-x", prepend or append a '_', when
applicable.

Blockwise visual mode wasn't correct when moving vertically over a special
character (displayed as two screen characters).

Renamed "struct option" to "struct vimoption" to avoid name clash with GNU
getopt().

":abclear" didn't work (but ":iabclear" and ":cabclear" did work).

When 'nowrap' used, screen wasn't always updated correctly.

"vim -c split file" displayed extra lines.

After starting the GUI, searched the termcap for a "gui" term.

When 'hls' used, search for "^$" caused a hang.
When 'hls' was set, an error in the last regexp caused trouble.

Unix: Only output an extra <EOL> on exit when outputted something in the
alternate screen, or when there is a message that needs to be cleared.

"/a\{" did strange things, depending on previous search.

"c}" only redrew one line (with -u NONE).

For mappings, CTRL-META-A was shown as <M-^A> instead of <MC-A>, while :map
only accepts <MC-A>. Now <M-C-A> is shown.

Unix: When using full path name in a tags file, which contains a link, and
'hidden' set and jumping to a tag in the current file, would get bogus
ATTENTION message. Solved by always expanding file names, even when starting
with '/'.

'hlsearch' highlighting of special characters (e.g., a TAB) didn't highlight
the whole thing.

"r<CR>" didn't work correctly on the last char of a line.

Sometimes a window resize or other signal caused an endless loop, involving
set_winsize().

"vim -r" didn't work, it would just hang (using tgetent() while 'term' is
empty).

"gk" while 'nowrap' set moved two lines up.

When windows are split, a message that causes a scroll-up messed up one of the
windows, which required a CTRL-L to be typed.

Possible endless loop when using shell command in the GUI.

Menus defined in the .vimrc were removed when GUI started.

Crash when pasting with the mouse in insert mode.

Crash with ":unmenu *" in .gvimrc for Athena.

"5>>" shifted 5 lines 5 times, instead of 1 time.

CTRL-C when getting a prompt in ":global" didn't interrupt.

When 'so' is non-zero, and moving the scrollbar completely to the bottom,
there was a lot of flashing.

GUI: Scrollbar ident must be long for DEC Alpha.

Some functions called vim_regcomp() without setting reg_magic, which could
lead to unpredictable magicness.

Crash when clicking around the status line, could get a selection with a
backwards range.

When deleting more than one line characterwise, the last character wasn't
deleted.

GUI: Status line could be overwritten when moving the scrollbar quickly (or
when 'wd' is non-zero).

An ESC at the end of a ":normal" command caused a wait for a terminal code to
finish. Now, a terminal code is not recognized when its start comes from a
mapping or ":normal" command.

Included patches from Robert Webb for GUI. Layout of the windows is now done
inside Vim, instead of letting the layout manager do this. Makes Vim work
with Lesstif!

UMR warning in set_expand_context().

Memory leak: b_winlnum list was never freed.

Removed TIOCLSET/TIOCLGET code from os_unix.c. Was changing some of the
terminal settings, and looked like it wasn't doing anything good. (suggested
by Juergen Weigert).

Ruler overwrote "is a directory" message. When starting up, and 'cmdheight'
set to > 1, first message could still be in the last line.

Removed prototype for putenv() from proto.h, it's already in osdef2.h.in.

In replace mode, when moving the cursor and then backspacing, wrong characters
were inserted.

Win32 GUI was checking for a CTRL-C too often, making it slow.

Removed mappings for MS-DOS that were already covered by commands.

When visually selecting all lines in a file, cursor at last line, then "J".
Gave ml_get errors. Was a problem with scrolling down during redrawing.

When doing a linewise operator, and then an operator with a mouse click, it
was also linewise, instead of characterwise.

When 'list' is set, the column of the ruler was wrong.

Spurious error message for "/\(b\+\)*".

When visually selected many lines, message from ":w file" disappeared when
redrawing the screen.

":set <M-b>=^[b", then insert "^[b", waited for another character. And then
inserted "<M-b>" instead of the real <M-b> character. Was trying to insert
K_SPECIAL x NUL.

CTRL-W] didn't use count to set window height.

GUI: "-font" command-line argument didn't override 'guifont' setting from
.gvimrc. (Acevedo)

GUI: clipboard wasn't used for "*y". And some more Win32/X11 differences
fixed for the clipboard (Webb).

Jumping from one help file to another help file, with 'compatible' set,
removed the 'help' flag from the buffer.

File-writable bit could be reset when using ":w!" for a readonly file.

There was a wait for CTRL-O n in Insert mode, because the search pattern was
shown.
Reduced wait, to allow reading a message, from 10 to 3 seconds. It seemed
nothing was happening.

":recover" found same swap file twice.

GUI: "*yy only worked the second time (when pasting to an xterm)."

DJGPP version (dos32): The system flags were cleared.

Dos32 version: Underscores were sometimes replaced with y-umlaut (Levin).

Version 4.1 of ncurses can't handle tputs("", ..). Avoid calling tputs() with
an empty string.

<S-Tab> in the command-line worked like CTRL-P when no completion started yet.
Now it does completion, last match first.

Unix: Could get annoying "can't write viminfo" message after doing "su". Now

the viminfo file is overwritten, and the user set back to the original one.

":set term=builtin_gui" started the GUI in a wrong way. Now it's not
allowed anymore. But "vim -T gui" does start the GUI correctly now.

GUI: Triple click after a line only put last char in selection, when it is a
single character word.

When the window is bigger than the screen, the scrolling up of messages was
wrong (e.g. ":vers", ":hi"). Also when the bottom part of the window was
obscured by another window.

When using a wrong option only an error message is printed, to avoid that the
usage information makes it scroll off the screen.

When exiting because of not being able to read from stdin, didn't preserve the
swap files properly.

Visual selecting all chars in more than one line, then hit "x" didn't leave an
empty line. For one line it did leave an empty line.

Message for which autocommand is executing messed up file write message (for
FileWritePost event).

"vim -h" included "-U" even when GUI is not available, and "-l" when lisp is
not available.

Crash for ":he <C-A>" (command-line longer than screen).

":s/this/that/gc", type "y" two times, then undo, did reset the modified
option, even though the file is still modified.

Empty lines in a tags file caused a ":tag" to be aborted.

When hitting 'q' at the more prompt for ":menu", still scrolled a few lines.

In an xterm that uses the bold trick a single row of characters could remain
after an erased bold character. Now erase one extra char after the bold char,
like for the GUI.

":pop!" didn't work.

When the reading a buffer was interrupted, ":w" should not be able to
overwrite the file, ":w!" is required.

":cf%" caused a crash.

":gui longfilename", when forking is enabled, could leave part of the
longfilename at the shell prompt.

==
VERSION 5.1   version-5.1

Improvements made between version 5.0 and 5.1.

This was mostly a bug-fix release, not many new features.

Changed changed-5.1

The expand() function now separates file names with <NL> instead of a space.
This avoids problems for file names with embedded spaces. To get the old
result, use substitute(expand(foo), "\n", " ", "g").

For Insert-expanding dictionaries allow a backslash to be used for
wildchars. Allows expanding "ze\kra", when 'isk' includes a backslash.

New icon for the Win32 GUI.

":tag", ":tselect" etc. only use the argument as a regexp when it starts
with '/'. Avoids that ":tag xx~" gives an error message: "No previous sub.
regexp". Also, when the :tag argument contained wildcard characters, it was
not Vi compatible.
When using '/', the argument is taken literally too, with a higher priority,
so it's found before wildcard matches.
Only when the '/' is used are matches with different case found, even though
'ignorecase' isn't set.
Changed "g^]" to only do ":tselect" when there is more than on matching tag.

Changed some of the default colors, because they were not very readable on a
dark background.

A character offset to a search pattern can move the cursor to the next or
previous line. Also fixes that "/pattern/e+2" got stuck on "pattern" at the
end of a line.

Double-clicks in the status line do no longer start Visual mode. Dragging a
status line no longer stops Visual mode.

Perl interface: Buffers() and Windows() now use more logical arguments, like
they are used in the rest of Vim (Moore).

Init '" mark to the first character of the first line. Makes it possible to
use '" in an autocommand without getting an error message.

Added added-5.1

"shell_error" internal variable: result of last shell command.

":echohl" command: Set highlighting for ":echo".

'S' flag in 'highlight' and StatusLineNC highlight group: highlighting for
status line of not-current window. Default is to use bold for current
window.

Added buffer_name() and buffer_number() functions (Aaron).
Added flags argument "g" to substitute() function (Aaron).
Added winheight() function.

Win32: When an external command starts with "start ", no console is opened
for it (Aaron).

Win32 console: Use termcap codes for bold/reverse based on the current
console attributes.

Configure check for "strip". (Napier)

CTRL-R CTRL-R x in Insert mode: Insert the contents of a register literally,
instead of as typed.

Made a few "No match" error messages more informative by adding the pattern
that didn't match.

"make install" now also copies the macro files.

tools/tcltags, a shell script to generate a tags file from a TCL file.

"--with-tlib" setting for configure. Easy way to use termlib: "./configure
--with-tlib=termlib".

'u' flag in 'cino' for setting the indent for contained () parts.

When Win32 OLE version can't load the registered type library, ask the user
if he wants to register Vim now. (Erhardt)
Win32 with OLE: When registered automatically, exit Vim.
Included VisVim 1.1b, with a few enhancements and the new icon (Heiko
Erhardt).

Added patch from Vince Negri for Win32s support. Needs to be compiled with
VC 4.1!

Perl interface: Added $curbuf. Rationalized Buffers() and Windows().
(Moore) Added "group" argument to Msg().

Included Perl files in DOS source archive. Changed Makefile.bor and
Makefile.w32 to support building a Win32 version with Perl included.

Included new Makefile.w32 from Ken Scott. Now it's able to make all Win32
versions, including OLE, Perl and Python.

Added CTRL-W g] and CTRL-W g ^]: split window and do g] or g^].

Added "g]" to always do ":tselect" for the ident under the cursor.
Added ":tjump" and ":stjump" commands.
Improved listing of ":tselect" when tag names are a bit long.

Included patches for the Macintosh version. Also for Python interface.
(St-Amant)

":buf foo" now also restores cursor column, when the buffer was used before.

Adjusted the Makefile for different final destinations for the syntax files
and scripts (for Debian Linux).

Amiga: $VIM can be used everywhere. When $VIM is not defined, "VIM:" is
used. This fixes that "VIM:" had to be assigned for the help files, and
$VIM set for the syntax files. Now either of these work.

Some xterms send vt100 compatible function keys F1-F4. Since it's not
possible to detect this, recognize both type of keys and translate them to
<F1> - <F4>.

Added "VimEnter" autocommand. Executed after loading all the startup stuff.

BeOS version now also runs on Intel CPUs (Seibert).

Fixed   fixed-5.1

":ts" changed position in the tag stack when cancelled with <CR>.
":ts" changed the cursor position for CTRL-T when cancelled with <CR>.
":tn" would always jump to the second match.   Was using the wrong entry in
the tag stack.
Doing "tag foo", then ":tselect", overwrote the original cursor position in
the tag stack.

"make install" changed the vim.1 manpage in a wrong way, causing "doc/doc"
to appear for the documentation files.

When compiled with MAX_FEAT, xterm mouse handling failed. Was caused by DEC
mouse handling interfering.

Was leaking memory when using selection in X11.

CTRL-D halfway a command-line left some characters behind the first line(s)
of the listing.

When expanding directories for ":set path=", put two extra backslashes
before a space in a directory name.

When 'lisp' set, first line of a function would be indented. Now its indent
is set to zero. And use the indent of the first previous line that is at
the same () level. Added test33.

"so<Esc>u" in an empty file didn't work.

DOS: "seek error in swap file write" errors, when using DOS 6.2 share.exe,
because the swap file was made hidden. It's no longer hidden.

":global" command would sometimes not execute on a matching line. Happened
when a data block is full in ml_replace().

For AIX use a tgetent buffer of 2048 bytes, instead of 1024.

Win32 gvim now only sets the console size for external commands to 25x80
on Windows 95, not on NT.

Win32 console: Dead key could cause a crash, because of a missing "WINAPI"
(Deshpande).

The right mouse button started Visual mode, even when 'mouse' is empty, and
in the command-line, a left click moved the cursor when 'mouse' is empty.
In Visual mode, 'n' in 'mouse' would be used instead of 'v'.

A blinking cursor or focus change cleared a non-Visual selection.

CTRL-Home and CTRL-End didn't work for MS-DOS versions.

Could include NUL in 'iskeyword', causing a crash when doing insert mode
completion.

Use _dos_commit() to flush the swap file to disk for MSDOS 16 bit version.

In mappings, CTRL-H was replaced by the backspace key code. This caused
problems when it was used as text, e.g. ":map _U :%s/.^H//g<CR>".

":set t_Co=0" was not handled like a normal term. Now it's translated into
":set t_Co=", which works.

For ":syntax keyword" the "transparent" option did work, although not
mentioned in the help. But synID() returned wrong name.

"gqG" in a file with one-word-per-line (e.g. a dictionary) was very slow and
not interruptible.

"gq" operator inserted screen lines in the wrong situation. Now screen
lines are inserted or deleted when this speeds up displaying.

cindent was wrong when an "if" contained "((".

'r' flag in 'viminfo' was not used for '%'. Could get files in the buffer
list from removable media.

Win32 GUI with OLE: if_ole_vc.mak could not be converted into a project.
Hand-edited to fix this...

With 'nosol' set, doing "$kdw" below an empty line positioned the cursor at
the end of the line.

Dos32 version changed "\dir\file" into "/dir/file", to work around a DJGPP
bug. That bug appears to have been fixed, therefore this translation has
been removed.

"/^*" didn't work (find '*' in first column).

"<afile>" was not always set for autocommands. E.g., for ":au BufEnter *

let &tags = expand("<afile>:p:h") . "/tags".

In an xterm, the window may be a child of the outer xterm window. Use the parent window when getting the title and icon names. (Smith)

When starting with "gvim -bg black -fg white", the value of 'background' is only set after reading the .gvimrc file. This causes a ":syntax on" to use the wrong colors. Now allow using ":gui" to open the GUI window and set the colors. Previously ":gui" in a gvimrc crashed Vim.

tempname() returned the same name all the time, unless the file was actually created. Now there are at least 26 different names.

File name used for <afile> was sometimes full path, sometimes file name relative to current directory.

When 'background' was set after the GUI window was opened, it could change colors that were set by the user in the .gvimrc file. Now it only changes colors that have not been set by the user.

Ignore special characters after a CSI in the GUI version. These could be interpreted as special characters in a wrong way. (St-Amant)

Memory leak in farsi code, when using search or ":s" command.
Farsi string reversing for a mapping was only done for new mappings. Now it also works for replacing a mapping.

Crash in Win32 when using a file name longer than _MAX_PATH. (Aaron)

When BufDelete autocommands were executed, some things for the buffer were already deleted (esp. Perl stuff).

Perl interface: Buffer specific items were deleted too soon; fixes "screen no longer exists" messages. (Moore)

The Perl functions didn't set the 'modified' flag.

link.sh did not return an error on exit, which may cause Vim to start installing, even though there is no executable to install. (Riehm)

Vi incompatibility: In Vi "." redoes the "y" command. Added the 'y' flag to 'cpoptions'. Only for 'compatible' mode.

":echohl" defined a new group, when the argument was not an existing group.

"syn on" and ":syn off" could move the cursor, if there is a hidden buffer that is shorter that the current cursor position.

The " mark was not set when doing ":b file".

When a "nextgroup" is used with "skipwhite" in syntax highlighting, space at the end of the line made the nextgroup also be found in the next line.

":he g<CTRL-D>", then ":" and backspace to the start didn't redraw.

X11 GUI: "gvim -rv" reversed the colors twice on Sun. Now Vim checks if the
result is really reverse video (background darker than foreground).

"cat link.sh | vim -" didn't set syntax highlighting.

Win32: Expanding "file.sw?" matched ".file.swp". This is an error of
FindnextFile() that we need to work around. (Kilgore)

"gqgq" gave an "Invalid lnum" error on the last line.
Formatting with "gq" didn't format the first line after a change of comment
leader.

There was no check for out-of-memory in win_alloc().

"vim -h" didn't mention "-register" and "-unregister" for the OLE version.

Could not increase 'cmdheight' when the last window is only one line. Now
other windows are also made smaller, when necessary.

Added a few {} to avoid "suggest braces around" warnings from gcc 2.8.x.
Changed return type of main() from void to int. (Nam)

Using '~' twice in a substitute pattern caused a crash.

"syn on" and ":syn off" could scroll the window, if there is a hidden buffer
that is shorter that the current cursor position.

":if 0 | if 1 | endif | endif" didn't work. Same for ":while" and "elseif".

With two windows on modified files, with 'autowrite' set, cursor in second
window, ":qa" gave a warning for the file in the first window, but then
auto-wrote the file in the second window. (Webb)

Win32 GUI scrollbar could only handle 32767 lines. Also makes the
intellimouse wheel use the configurable number of scrolls. (Robinson)

When using 'patchmode', and the backup file is on another partition, the file
copying messed up the write-file message.

GUI X11: Alt-Backspace and Alt-Delete didn't work.

"`0" could put the cursor after the last character in the line, causing
trouble for other commands, like "i".

When completing tags in insert mode with ^X^], some matches were skipped,
because the compare with other tags was wrong. E.g., when "mnuFileSave" was
already there, "mnuFile" would be skipped. (Negri)

When scrolling up/down, a syntax item with "keepend" didn't work properly.
Now the flags are also stored for the syntax state at the start of each line.

When 'ic' was changed while 'hlsearch' is on, there was no redraw to show the
effect.

Win32 GUI: Don't display "No write since last chance" in a message box, but in the Vim window.

==
VERSION 5.2 version-5.2

Improvements made between version 5.1 and 5.2.

Long lines editable long-lines

A single long line that doesn't fit in the window doesn't show a line of @@@ anymore. Redrawing starts at a character further on in the line, such that the text around the cursor can be seen. This makes it possible to edit these long lines when wrapping is on.

File browser added file-browser-5.2

The Win32, Athena and Motif GUI bring up a file requester if the user asks to ":browse" for the ":e", ":w", ":r", ":so", ":redirect" and ":mkexrc/vimrc/vsess" commands. ":browse e /foo/bar" opens the requester in the /foo/bar directory, so you can have nice mapping rhs's like ":browse so $vim/macros". If no initial dir specified for ":browse e", can be compiled to either begin in the current directory, or that of the current buffer. (Negri and Kahn)
Added the 'browsedir' option, with value "current", "last" or "buffer". Tells whether a browse dialog starts in last used dir, dir of current buffer, or current dir. ":browse w" is unaffected.
The default menus have been changed to use the ":browse" command.

Dialogs added dialogs-added

Added the ":confirm" command. Works on ":e", ":q", ":w", ":cl". Win32, Athena and Motif GUI uses a window-dialog. All other platforms can use prompt in command-line. ":confirm qa" offers a choice to save all modified files.

confirm() function: allows user access to the confirm engine.

Added 'v' flag to 'guioptions'. When included, a vertical button layout is always used for the Win32 GUI dialog. Otherwise, a horizontal layout is preferred.

Win32 GUI: ":promptfind" and ":promptrepl" pop up a dialog to find/replace. To be used from a menu entry. (Negri)

Popup menu added popup-menu-added

When the 'mousemodel' option is set to "popup", the right mouse button displays the top level menu headed with "PopUp" as pop-up context menu. The "PopUp" menu is not displayed in the normal menu bar. This currently only works for Win32 and Athena GUI.

Select mode added new-Select-mode

A new mode has been added: "Select mode". It is like Visual mode, but typing a printable character replaces the selection.
- CTRL-G can be used to toggle between Visual mode and Select mode.
- CTRL-O can be used to switch from Select mode to Visual mode for one command.
- Added 'selectmode' option: tells when to start Select mode instead of Visual mode.
- Added 'mousemodel' option: Change use of mouse buttons.
- Added 'keymodel' option: tells to use shifted special keys to start a Visual or Select mode selection.
- Added ":behave". Can be used to quickly set 'selectmode', 'mousemodel' and 'keymodel' for MS-Windows and xterm behavior.
- The xterm-like selection is now called modeless selection.
- Visual mode mappings and menus are used in Select mode. They automatically switch to Visual mode first. Afterwards, reselect the area, unless it was deleted. The "gV" command can be used in a mapping to skip the reselection.
- Added the "gh", "gH" and "g^H" commands: start Select (highlight) mode.
- Backspace in Select mode deletes the selected area.

"mswin.vim" script. Sets behavior mostly like MS-Windows.

Session files added new-session-files

":mks[ession]" acts like "mkvimrc", but also writes the full filenames of the currently loaded buffers and current directory, so that :so'ing the file re-loads those files and cd's to that directory. Also stores and restores windows. File names are made relative to session file.
The 'sessionoptions' option sets behavior of ":mksession". (Negri)

User defined functions and commands new-user-defined

Added user defined functions. Defined with ":function" until ":endfunction". Called with "Func()". Allows the use of a variable number of arguments. Included support for local variables "l:name". Return a value with ":return". See :function .
Call a function with ":call". When using a range, the function is called for each line in the range. :call
"macros/justify.vim" is an example of using user defined functions.
User functions do not change the last used search pattern or the command to be redone with ".".

'maxfuncdepth' option. Restricts the depth of function calls. Avoids trouble
(crash because of out-of-memory) when a function uses endless recursion.

User definable Ex commands: ":command", ":delcommand" and ":comclear".
(Moore) See user-commands .

New interfaces interfaces-5.2

Tcl interface. (Wilken) See tcl .
Uses the ":tcl", ":tcldo" and "tclfile" commands.

Cscope support. (Kahn) (Sekera) See cscope .
Uses the ":cscope" and ":cstag" commands. Uses the options 'cscopeprg',
'cscopetag', 'cscopetagorder' and 'cscopeverbose'.

New ports ports-5.2

Amiga GUI port. (Nielsen) Not tested much yet!

RISC OS version. (Thomas Leonard) See riscos .
This version can run either with a GUI or in text mode, depending upon where
it is invoked.
Deleted the "os_archie" files, they were not working anyway.

Multi-byte support new-multi-byte

MultiByte support for Win32 GUI. (Baek)
The 'fileencoding' option decides how the text in the file is encoded.
":ascii" works for multi-byte characters. Multi-byte characters work on
Windows 95, even when using the US version. (Aaron)
Needs to be enabled in feature.h.
This has not been tested much yet!

New functions new-functions-5.2

browse()	puts up a file requester when available. (Negri)
escape()	escapes characters in a string with a backslash.
fnamemodify()	modifies a file name.
input()	asks the user to enter a line. (Aaron) There is a separate history for lines typed for the input() function.
argc()	
argv()	can be used to access the argument list.
winbufnr()	buffer number of a window. (Aaron)
winnr()	window number. (Aaron)
matchstr()	Return matched string.
setline()	Set a line to a string value.

New options   new-options-5.2

'allowrevins'   Enable the CTRL-_ command in Insert and Command-line mode.
'browsedir'   Tells in which directory a browse dialog starts.
'confirm'   when set, :q :w and :e commands always act as if ":confirm"
                 is used. (Negri)
'cscopeprg'
'cscopetag'
'cscopetagorder'
'cscopeverbose' Set the cscope behavior.
'filetype'   RISC-OS specific type of file.
'grepformat'
'grepprg'   For the :grep command.
'keymodel'   Tells to use shifted special keys to start a Visual or Select
                 mode selection.
'listchars'   Set character to show in 'list' mode for end-of-line, tabs and
                 trailing spaces. (partly by Smith) Also sets character to
                 display if a line doesn't fit when 'nowrap' is set.
'matchpairs'   Allows matching '<' with '>', and other single character
                 pairs.
'mousefocus'   Window focus follows mouse (partly by Terhaar). Changing the
                 focus with a keyboard command moves the pointer to that
                 window. Also move the pointer when changing the window layout
                 (split window, change window height, etc.).
'mousemodel'   Change use of mouse buttons.
'selection'   When set to "inclusive" or "exclusive", the cursor can go one
                 character past the end of the line in Visual or Select mode.
                 When set to "old" the old behavior is used. When
                 "inclusive", the character under the cursor is included in the
                 operation. When using "exclusive", the new "ve" entry of
                 'guicursor' is used. The default is a vertical bar.
'selectmode'   Tells when to start Select mode instead of Visual mode.
'sessionoptions' Sets behavior of ":mksession". (Negri)
'showfulltag'   When completing a tag in Insert mode, show the tag search
                 pattern (tidied up) as a choice as well (if there is one).
'swapfile'   Whether to use a swap file for a buffer.
'syntax'   When it is set, the syntax by that name is loaded. Allows for
                 setting a specific syntax from a modeline.
'ttymouse'   Allows using xterm mouse codes for terminals which name
                 doesn't start with "xterm".
'wildignore'   List of patterns for files that should not be completed at
                 all.
'wildmode'   Can be used to set the type of expansion for 'wildchar'.
                 Replaces the CTRL-T command for command line completion.
                 Don't beep when listing all matches.
'winaltkeys'   Win32 and Motif GUI. When "yes", ALT keys are handled
                 entirely by the window system. When "no", ALT keys are never
                 used by the window system. When "menu" it depends on whether
                 a key is a menu shortcut.
'winminheight'   Minimal height for each window. Default is 1. Set to 0 if
                 you want zero-line windows. Scrollbar is removed for

zero-height windows. (Negri)

New Ex commands new-ex-commands-5.2

:badd	Add file name to buffer list without side effects. (Negri)
:behave	Quickly set MS-Windows or xterm behavior.
:browse	Use file selection dialog.
:call	Call a function, optionally with a range.
:cnewer	
:colder	To access a stack of quickfix error lists.
:comclear	Clear all user-defined commands.
:command	Define a user command.
:continue	Go back to ":while".
:confirm	Ask confirmation if something unexpected happens.
:cscope	Execute cscope command.
:cstag	Use cscope to jump to a tag.
:delcommand	Delete a user-defined command.
:delfunction	Delete a user-defined function.
:endfunction	End of user-defined function.
:function	Define a user function.
:grep	Works similar to ":make". (Negri)
:mksession	Create a session file.
:nohlsearch	Stop 'hlsearch' highlighting for a moment.
:Print	This is Vi compatible. Does the same as ":print".
:promptfind	Search dialog (Win32 GUI).
:promptrepl	Search/replace dialog (Win32 GUI).
:return	Return from a user-defined function.
:simalt	Win32 GUI: Simulate alt-key pressed. (Negri)
:smagic	Like ":substitute", but always use 'magic'.
:snomagic	Like ":substitute", but always use 'nomagic'.
:tcl	Execute TCL command.
:tcldo	Execute TCL command for a range of lines.
:tclfile	Execute a TCL script file.
:tearoff	Tear-off a menu (Win32 GUI).
:tmenu	
:tunmenu	Win32 GUI: menu tooltips. (Negri)
:star :*	Execute a register.

Changed changed-5.2

Renamed functions:

```
buffer_exists()    -> bufexists()
buffer_name()      -> bufname()
buffer_number()    -> bufnr()
file_readable()    -> filereadable()
highlight_exists() -> hlexists()
highlightID()      -> hlID()
last_buffer_nr()   -> bufnr("$")
```

The old ones are still there, for backwards compatibility.

The CTRL-_ command in Insert and Command-line mode is only available when the new 'allowrevins' option is set. Avoids that people who want to type SHIFT-_ accidentally enter reverse Insert mode, and don't know how to get out.

When a file name path in ":tselect" listing is too long, remove a part in the middle and put "..." there.

Win32 GUI: Made font selector appear inside Vim window, not just any odd place. (Negri)

":bn" skips help buffers, unless currently in a help buffer. (Negri)

When there is a status line and only one window, don't show '^' in the status line of the current window.

":*" used to be used for "'<,'>", the Visual area. But in Vi it's used as an alternative for ":@". When 'cpoptions' includes '*' this is Vi compatible.

When 'insertmode' is set, using CTRL-O to execute a mapping will work like 'insertmode' was not set. This allows "normal" mappings to be used even when 'insertmode' is set.

When 'mouse' was set already (e.g., in the .vimrc file), don't automatically set 'mouse' when the GUI starts.

Removed the 'N', 'I' and 'A' flags from the 'mouse' option.

Renamed "toggle option" to "boolean option". Some people thought that ":set xyz" would toggle 'xyz' on/off each time.

The internal variable "shell_error" contains the error code from the shell, instead of just 0 or 1.

When inserting or replacing, typing CTRL-V CTRL-<CR> used to insert "<C-CR>". That is not very useful. Now the CTRL key is ignored and a <CR> is inserted. Same for all other "normal" keys with modifiers. Mapping these modified key combinations is still possible.
In Insert mode, <C-CR> and <S-Space> can be inserted by using CTRL-K and then the special character.

Moved "quotes" file to doc/quotes.txt, and "todo" file to doc/todo.txt. They are now installed like other documentation files.

winheight() function returns -1 for a non-existing window. It used to be zero, but that is a valid height now.

The default for 'selection' is "inclusive", which makes a difference when using "$" or the mouse to move the cursor in Visual mode.

":q!" does not exit when there are changed buffers which are hidden. Use ":qa!" to exit anyway.

Disabled the Perl/Python/Tcl interfaces by default. Not many people use them

and they make the executable a lot bigger. The internal scripting language is
now powerful enough for most tasks.

The strings from the 'titlestring' and 'iconstring' options are used
untranslated for the Window title and icon. This allows for including a <CR>.
Previously a <CR> would be shown as "^M" (two characters).

When a mapping is started in Visual or Select mode which was started from
Insert mode (the mode shows "(insert) Visual"), don't return to Insert mode
until the mapping has ended. Makes it possible to use a mapping in Visual
mode that also works when the Visual mode was started from Select mode.

Menus in $VIMRUNTIME/menu.vim no longer overrule existing menus. This helps
when defining menus in the .vimrc file, or when sourcing mswin.vim.

Unix: Use /var/tmp for .swp files, if it exists. Files there survive a
reboot (at least on Linux).

Added   added-5.2

--with-motif-lib configure argument. Allows for using a static Motif library.

Support for mapping numeric keypad +,-,*,/ keys. (Negri)
When not mapped, they produce the normal character.

Win32 GUI: When directory dropped on gVim, cd there and edit new buffer.
(Negri)

Win32 GUI: Made CTRL-Break work as interrupt, so that CTRL-C can be
used for mappings.

In the output of ":map", highlight the "*" to make clear it's not part of the
rhs. (Roemer)

When showing the Visual area, the cursor is not switched off, so that it can
be located. The Visual area is now highlighted with a grey background in the
GUI. This makes the cursor visible when it's also reversed.

Win32: When started with single full pathname (e.g. via double-clicked file),
cd to that file's directory. (Negri)

Win32 GUI: Tear-off menus, with ":tearoff <menu-name>" command. (Negri)
't' option to 'guioptions': Add tearoff menu items for Win32 GUI and Motif.
It's included by default.
Win32 GUI: tearoff menu with submenus is indicated with a ">>". (Negri)

Added ^Kaa and ^KAA digraphs.
Added "euro" symbol to digraph.c. (Corry)

Support for Motif menu shortcut keys, using '&' like MS-Windows (Ollis).
Other GUIs ignore '&' in a menu name.

DJGPP: Faster screen updating (John Lange).

Clustering of syntax groups ":syntax cluster" (Bigham).
Including syntax files: ":syntax include" (Bigham).

Keep column when switching buffers, when 'nosol' is set (Radics).

Number function for Perl interface.

Support for Intellimouse in Athena GUI. (Jensen)

":sleep" also accepts an argument in milliseconds, when "m" is used.

Added 'p' flag in 'guioptions': Install callbacks for enter/leave window
events. Makes cursor blinking work for Terhaar, breaks it for me.

"--help" and "--version" command-line arguments.

Non-text in ":list" output is highlighted with NonText.

Added text objects: "i(" and "i)" as synonym for "ib". "i{" and "i}" as
synonym for "iB". New: "i<" and "i>", to select <thing>. All this also for
"a" objects.

'O' flag in 'shortmess': message for reading a file overwrites any previous
message. (Negri)

Win32 GUI: 'T' flag in 'guioptions': switch toolbar on/off.
Included a list with self-made toolbar bitmaps. (Negri)

Added menu priority for sub-menus. Implemented for Win32 and Motif GUI.
Display menu priority with ":menu" command.
Default and Syntax menus now include priority for items. Allows inserting
menu items in between the default ones.

When the 'number' option is on, highlight line numbers with the LineNr group.

"Ignore" highlight group: Text highlighted with this is made blank. It is
used to hide special characters in the help text.

Included Exuberant Ctags version 2.3, with C++ support, Java support and
recurse into directories. (Hiebert)

When a tags file is not sorted, and this is detected (in a simplistic way), an
error message is given.

":unlet" accepts a "!", to ignore non-existing variables, and accepts more
than one argument. (Roemer)
Completion of variable names for ":unlet". (Roemer)

When there is an error in a function which is called by another function, show
the call stack in the error message.

New file name modifiers:

":.": reduce file name to be relative to current dir.
":~": reduce file name to be relative to home dir.
":s?pat?sub?": substitute "pat" with "sub" once.
":gs?pat?sub?": substitute "pat" with "sub" globally.

New configure arguments: --enable-min-features and --enable-max-features.
Easy way to switch to minimum or maximum features.

New compile-time feature: modify_fname. For file name modifiers, e.g,
"%:p:h". Can be disabled to save some code (16 bit DOS).

When using whole-line completion in Insert mode, and 'cindent' is set, indent
the line properly.

MSDOS and Win32 console: 'guicursor' sets cursor thickness. (Negri)

Included new set of Farsi fonts. (Shiran)

Accelerator text now also works in Motif. All menus can be defined with & for
mnemonic and TAB for accelerator text. They are ignored on systems that don't
support them.
When removing or replacing a menu, compare the menu name only up to the <Tab>
before the mnemonic.

'i' and 'I' flags after ":substitute": ignore case or not.

"make install" complains if the runtime files are missing.

Unix: When finding an existing swap file that can't be opened, mention the
owner of the file in the ATTENTION message.

The 'i', 't' and 'k' options in 'complete' now also print the place where they
are looking for matches. (Acevedo)

"gJ" command: Join lines without inserting a space.

Setting 'keywordprg' to "man -s" is handled specifically. The "-s" is removed
when no count given, the count is added otherwise. Configure checks if "man
-s 2 read" works, and sets the default for 'keywordprg' accordingly.

If you do a ":bd" and there is only one window open, Vim tries to move to a
buffer of the same type (i.e. non-help to non-help, help to help), for
consistent behavior to :bnext/:bprev. (Negri)

Allow "<Nop>" to be used as the rhs of a mapping. ":map xx <Nop>", maps "xx"
to nothing at all.

In a ":menu" command, "<Tab>" can be used instead of a real tab, in the menu
path. This makes it more easy to type, no backslash needed.

POSIX compatible character classes for regexp patterns: [:alnum:], [:alpha:],
[:blank:], [:cntrl:], [:digit:], [:graph:], [:lower:], [:print:], [:punct:],
[:space:], [:upper:] and [:xdigit:]. (Briscoe)

```
regexp character classes (for fast syntax highlight matching):
        digits:     \d [0-9]            \D  not digit (Roemer)
        hex:        \x [0-9a-fA-F]      \X  not hex
        octal:      \o [0-7]            \O  not octal
        word:       \w [a-zA-Z0-9_]     \W  not word
        head:       \h [a-zA-Z_]        \H  not head
        alphabetic: \a [a-zA-Z]         \A  not alphabetic
        lowercase:  \l [a-z]            \L  not lowercase
        uppercase:  \u [A-Z]            \U  not uppercase

":set" now accepts "+=", |^=" and "-=": add or remove parts of a string
option, add or subtract a number from a number option.  A comma is
automagically inserted or deleted for options that are a comma separated list.

Filetype feature, for autocommands.  Uses a file type instead of a pattern to
match a file.  Currently only used for RISC OS.  (Leonard)

In a pattern for an autocommand, environment variables can be used.  They are
expanded when the autocommand is defined.

"BufFilePre" and "BufFilePost" autocommand evens: Before and after applying
the ":file" command to change the name of a buffer.
"VimLeavePre" autocommand event: before writing the .viminfo file.

For autocommands argument: <abuf> is buffer number, like <afile>.

Made syntax highlighting a bit faster when scrolling backwards, by keeping
more syncing context.

Win32 GUI: Made scrolling faster by avoiding a redraw when deleting or
inserting screen lines.

GUI: Made scrolling faster by not redrawing the scrollbar when the thumb moved
less than a pixel.

Included ":highlight" in bugreport.vim.

Created install.exe program, for simplistic installation on DOS and
MS-Windows.

New register: '_', the black hole.  When writing to it, nothing happens.  When
reading from it, it's always empty.  Can be used to avoid a delete or change
command to modify the registers, or reduce memory use for big changes.

CTRL-V xff enters character by hex number.  CTRL-V o123 enters character by
octal number. (Aaron)

Improved performance of syntax highlighting by skipping check for "keepend"
when there isn't any.

Moved the mode message ("-- INSERT --") to the last line of the screen.  When
'cmdheight' is more than one, messages will remain readable.

When listing matching files, they are also sorted on 'suffixes', such that
```

they are listed in the same order as CTRL-N retrieves them.

synIDattr() takes a third argument (optionally), which tells for which
terminal type to get the attributes for. This makes it possible to run
2html.vim outside of gvim (using color names instead of #RRGGBB).

Memory profiling, only for debugging. Prints at exit, and with "g^A" command.
(Kahn)

DOS: When using a file in the current drive, remove the drive name:
"A:\dir\file" -> "\dir\file". This helps when moving a session file on a
floppy from "A:\dir" to "B:\dir".

Increased number of remembered jumps from 30 to 50 per window.

Command to temporarily disable 'hls' highlighting until the next search:
":nohlsearch".

"gp" and "gP" commands: like "p" and "P", but leave the cursor just after the
inserted text. Used for the CTRL-V command in MS-Windows mode.

Fixed   fixed-5.2

Win32 GUI: Could draw text twice in one place, for fake-bold text. Removed
this, Windows will handle the bold text anyway. (Negri)

patch 5.1.1: Win32s GUI: pasting caused a crash (Negri)

patch 5.1.2: When entering another window, where characters before the cursor
have been deleted, could have a cursor beyond the end of the line.

patch 5.1.3: Win32s GUI: Didn't wait for external command to finish. (Negri)

patch 5.1.4: Makefile.w32 can now also be used to generate the OLE version
(Scott).

patch 5.1.5: Crashed when using syntax highlighting: cursor on a line that
doesn't fit in the window, and splitting that line in two.

patch 5.1.6: Visual highlighting bug: After ":set nowrap", go to end of line
(so that the window scrolls horizontally), ":set wrap". Following Visual
selection was wrong.

patch 5.1.7: When 'tagbsearch' off, and 'ignorecase' off, still could do
binary searching.

patch 5.1.8: Win32 GUI: dragging the scrollbar didn't update the ruler.

patch 5.1.9: Using ":gui" in .vimrc, caused xterm cursor to disappear.

patch 5.1.10: A CTRL-N in Insert mode could cause a crash, when a buffer
without a name exists.

patch 5.1.11: "make test" didn't work in the shadow directory. Also adjusted "make shadow" for the links in the ctags directory.

patch 5.1.12: "buf 123foo" used "123" as a count, instead as the start of a buffer name.

patch 5.1.13: When completing file names on the command-line, reallocating the command-line may go wrong.

patch 5.1.14: ":[nvci]unmenu" removed menu for all modes, when full menu patch specified.

Graceful handling of NULLs in drag-dropped file list. Handle passing NULL to Fullname_save(). (Negri)

Win32: ":!start" to invoke a program without opening a console, swapping screens, or waiting for completion in either console or gui version, e.g. you can type ":!start winfile". ALSO fixes "can't delete swapfile after spawning a shell" bug. (enhancement of Aaron patch) (Negri)

Win32 GUI: Fix CTRL-X default keymapping to be more Windows-like. (Negri)

Shorten filenames on startup. If in /foo/bar, entering "vim ../bar/bang.c" displays "bang.c" in status bar, not "/foo/bar/bang.c" (Negri)

Win32 GUI: No copy to Windows clipboard when it's not desired.

Win32s: Fix pasting from clipboard - made an assumption not valid under Win32s. (Negri)

Win32 GUI: Speed up calls to gui_mch_draw_string() and cursor drawing functions. (Negri)

Win32 GUI: Middle mouse button emulation now works in GUI! (Negri)

Could skip messages when combining commands in one line, e.g.:
":echo "hello" | write".

Perl interpreter was disabled before executing VimLeave autocommands. Could not use ":perl" in them. (Aaron)

Included patch for the Intellimouse (Aaron/Robinson).

Could not set 'ls' to one, when last window has only one line. (Mitterand)

Fixed a memory leak when removing menus.

After ":only" the ruler could overwrite a message.

Dos32: removed changing of __system_flags. It appears to work better when it's left at the default value.

p_aleph was an int instead of along, caused trouble on systems where

sizeof(int) != sizeof(long). (Schmidt)

Fixed enum problems for Ultrix. (Seibert)

Small redraw problem: "dd" on last line in file cleared wrong line.

Didn't interpret "cmd | endif" when "cmd" starts with a range. E.g. "if 0 |
.d | endif".

Command "+|" on the last line of the file caused ml_get errors.

Memory underrun in eval_vars(). (Aaron)

Don't rename files in a difficult way, except on Windows 95 (was also done on
Windows NT).

Win32 GUI: An external command that produces an error code put the error
message in a dialog box. had to close the window and close the dialog. Now
the error code is displayed in the console. (Negri)

"comctl32.lib" was missing from the GUI libraries in Makefile.w32. (Battle)

In Insert mode, when entering a window in Insert mode, allow the cursor to be
one char beyond the text.

Renamed machine dependent rename() to mch_rename(). Define mch_rename() to
rename() when it works properly.

Rename vim_chdir() to mch_chdir(), because it's machine dependent.

When using an arglist, and editing file 5 of 4, ":q" could cause "-1 more
files to edit" error.

In if_python.c, VimCommand() caused an assertion when a do_cmdline() failed.
Moved the Python_Release_Vim() to before the VimErrorCheck(). (Harkins)

Give an error message for an unknown argument after "--". E.g. for "vim
--xyz".

The FileChangedShell autocommand didn't set <afile> to the name of the changed
file.

When doing ":e file", causing the attention message, there sometimes was no
hit-enter prompt. Caused by empty line or "endif" at end of sourced file.

A large number of patches for the VMS version. (Hunsaker)

When CTRL-L completion (find longest match) results in a shorter string, no
completion is done (happens with ":help").

Crash in Win32 GUI version, when using an Ex "@" command, because
LinePointers[] was used while not initialized.

Win32 GUI: allow mapping of Alt-Space.

Output from "vim -h" was sent to stderr. Sending it to stdout is better, so one can use "vim -h | more".

In command-line mode, ":vi[!]" should reload the file, just like ":e[!]".
In Ex mode, ":vi" stops Ex mode, but doesn't reload the file. This is Vi compatible.

When using a ":set ls=1" in the .gvimrc file, would get a status line for a single window. (Robinson)

Didn't give an error message for ":set ai,xx". (Roemer)
Didn't give an error message for ":set ai?xx", ":set ai&xx", ":set ai!xx".

Non-Unix systems: That a file exists but is unreadable is recognized as "new file". Now check for existence when file can't be opened (like Unix).

Unix: osdef.sh didn't handle declarations where the function name is at the first column of the line.

DJGPP: Shortening of file names didn't work properly, because get_cwd() returned a path with backslashes. (Negri)

When using a 'comments' part where a space is required after the middle part, always insert a space when starting a new line. Helps for C comments, below a line with "/****".

Replacing path of home directory with "~/" could be wrong for file names with embedded spaces or commas.

A few fixes for the Sniff interface. (Leherbauer)

When asking to hit 'y' or 'n' (e.g. for ":3,1d"), using the mouse caused trouble. Same for ":s/x/y/c" prompt.

With 'nowrap' and 'list', a Tab halfway on the screen was displayed as blanks, instead of the characters specified with 'listchars'. Also for other characters that take more than one screen character.

When setting 'guifont' to an unknown font name, the previous font was lost and a default font would be used. (Steed)

DOS: Filenames in the root directory didn't get shortened properly. (Negri)

DJGPP: making a full path name out of a file name didn't work properly when there is no _fullpath() function. (Negri)

Win32 console: ":sh" caused a crash. (Negri)

Win32 console: Setting 'lines' and/or 'columns' in the _vimrc failed miserably (could hang Windows 95). (Negri)

Win32: The change-drive function was not correct, went to the wrong drive. (Tsindlekht)

GUI: When editing a command line in Ex mode, Tabs were sometimes not
backspaced properly, and unprintable characters were displayed directly.
non-GUI can still be wrong, because a system function is called for this.

":set" didn't stop after an error. For example ":set no ai" gave an error for
"no", but still set "ai". Now ":set" stops after the first error.

When running configure for ctags, $LDFLAGS wasn't passed to it, causing
trouble for IRIX.

"@%" and "@#" when file name not set gave an error message. Now they just
return an empty string. (Steed)

CTRL-X and CTRL-A didn't work correctly with negative hex and octal numbers.
(Steed)

":echo" always started with a blank.

Updating GUI cursor shape didn't always work (e.g., when blinking is off).

In silent Ex mode ("ex -s" or "ex <file") ":s///p" didn't print a line. Also
a few other commands that explicitly print a text line didn't work. Made this
Vi compatible.

Win32 version of _chdrive() didn't return correct value. (Tsindlekht)

When using 't' in 'complete' option, no longer give an error message for a
missing tags file.

Unix: tgoto() can return NULL, which was not handled correctly in configure.

When doing ":help" from a buffer where 'binary' is set, also edited the help
file in binary mode. Caused extra ^Ms for DOS systems.

Cursor position in a file was reset to 1 when closing a window.

":!ls" in Ex mode switched off echo.

When doing a double click in window A, while currently in window B, first
click would reset double click time, had to click three times to select a
word.

When using <F11> in mappings, ":mkexrc" produced an exrc file that can't be
used in Vi compatible mode. Added setting of 'cpo' to avoid this. Also, add
a CTRL-V in front of a '<', to avoid a normal string to be interpreted as a
special key name.

Gave confusing error message for ":set guifont=-*-lucida-*": first "font is
not fixed width", then "Unknown font".

Some options were still completely left out, instead of included as hidden
options.

While running the X11 GUI, ignore SIGHUP signals. Avoids a crash after executing an external command (in rare cases).

In os_unixx.h, signal() was defined to sigset(), while it already was.

Memory leak when executing autocommands (was reported as a memory leak in syntax highlighting).

Didn't print source of error sometimes, because pointers were the same, although names were different.

Avoid a number of UMR errors from Purify (third argument to open()).

A swap file could still be created just after setting 'updatecount' to zero, when there is an empty buffer and doing ":e file". (Kutschera)

Test 35 failed on 64 bit machines. (Schild)

With "p" and "P" commands, redrawing was slow.

Awk script for html documentation didn't work correctly with AIX awk.
Replaced "[,.);\]   ]" with "[] ,.);   ]". (Briscoe)
The makehtml.awk script had a small problem, causing extra lines to be inserted. (Briscoe)

"gqgq" could not be repeated. Repeating for "gugu" and "gUgU" worked in a wrong way. Also made "gqq" work to be consistent with "guu".

C indent was wrong after "case ':':".

":au BufReadPre *.c put": Line from put text was deleted, because the buffer was still assumed to be empty.

Text pasted with the Edit/Paste menu was subject to 'textwidth' and 'autoindent'. That was inconsistent with using the mouse to paste. Now "*p is used.

When using CTRL-W CTRL-] on a word that's not a tag, and then CTRL-] on a tag, window was split.

":ts" got stuck on a tags line that has two extra fields.

In Insert mode, with 'showmode' on, <C-O><C-G> message was directly overwritten by mode message, if preceded with search command warning message.

When putting the result of an expression with "=<expr>p, newlines were inserted like ^@ (NUL in the file). Now the string is split up in lines at the newline.

putenv() was declared with "const char *" in pty.c, but with "char *" in osdef2.h.in. Made the last one also "const char *".

":help {word}", where +{word} is a feature, jumped to the feature list instead of where the command was explained. E.g., ":help browse", ":help autocmd".

Using the "\<xx>" form in an expression only got one byte, even when using a
special character that uses several bytes (e.g., "\<F9>").
Changed "\<BS>" to produce CTRL-H instead of the special key code for the
backspace key. "\<Del>" produces 0x7f.

":mkvimrc" didn't write a command to set 'compatible' or 'nocompatible'.

The shell syntax didn't contain a "syn sync maxlines" setting. In a long file
without recognizable items, syncing took so long it looked like Vim hangs.
Added a maxlines setting, and made syncing interruptible.

The "gs" command didn't flush output before waiting.

Memory leaks for:
    ":if 0 | let a = b . c | endif"
    "let a = b[c]"
    ":so {file}" where {file} contains a ":while"

GUI: allocated fonts were never released. (Leonard)

Makefile.bor:
- Changed $(DEFINES) into a list of "-D" options, so that it can also be used
  for the resource compiler. (not tested!)
- "bcc.cfg" was used for all configurations. When building for another
  configuration, the settings for the previous one would be used. Moved
  "bcc.cfg" to the object directory. (Geddes)
- Included targets for vimrun, install, ctags and xxd. Changed the default to
  use the Borland DLL Runtime Library, makes Vim.exe a log smaller. (Aaron)

"2*" search for the word under the cursor with "2" prepended. (Leonard)

When deleting into a specific register, would still overwrite the non-Win32
GUI selection. Now ""x"*P works.

When deleting into the "" register, would write to the last used register.
Now ""x always writes to the unnamed register.

GUI Athena: A submenu with a '.' in it didn't work. E.g.,
":amenu Syntax.XY\.Z.foo lll".

When first doing ":tag foo" and then ":tnext" and/or ":tselect" the order of
matching tags could change, because the current file is different. Now the
existing matches are kept in the same order, newly found matches are added
after them, not matter what the current file is.

":ta" didn't find the second entry in a tags file, if the second entry was
longer than the first one.

When using ":set si tw=7" inserting "foo {^P}" made the "}" inserted at the
wrong position. can_si was still TRUE when the cursor is not in the indent of
the line.

Running an external command in Win32 version had the problem that Vim exits

when the X on the console is hit (and confirmed). Now use the "vimrun"
command to start the external command indirectly. (Negri)

Win32 GUI: When running an external filter, do it in a minimized DOS box.
(Negri)

":let" listed variables without translation into printable characters.

Win32 console: When resizing the window, switching back to the old size
(when exiting or executing an external command) sometimes failed. (Negri)
This appears to also fix a "non fixable" problem:
Win32 console in NT 4.0: When running Vim in a cmd window with a scrollbar,
the scrollbar disappeared and was not restored when Vim exits. This does work
under NT 3.51, it appears not to be a Vim problem.

When executing BufDelete and BufUnload autocommands for a buffer without a
name, the name of the current buffer was used for <afile>.

When jumping to a tag it reported "tag 1 of >2", while in fact there could be
only two matches. Changed to "tag 1 of 2 or more".

":tjump tag" did a linear search in the tags file, which can be slow.

Configure didn't find "LibXm.so.2.0", a Xm library with a version number.

Win32 GUI: When using a shifted key with ALT, the shift modifier would remain
set, even when it was already used by changing the used key. E.g., "<M-S-9>"
resulted in "<M-S-(>", but it should be "<M-(>". (Negri)

A call to ga_init() was often followed by setting growsize and itemsize.
Created ga_init2() for this, which looks better. (Aaron)

Function filereadable() could call fopen() with an empty string, which might
be illegal.

X Windows GUI: When executing an external command that outputs text, could
write one character beyond the end of a buffer, which caused a crash. (Kohan)

When using "*" or "#" on a string that includes '/' or '?' (when these are
included in 'isk'), they were not escaped. (Parmelan)

When adding a ToolBar menu in the Motif GUI, the submenu_id field was not
cleared, causing random problems.

When adding a menu, the check if this menu (or submenu) name already exists
didn't compare with the simplified version (no mnemonic or accelerator) of the
new menu. Could get two menus with the same name, e.g., "File" and "&File".

Breaking a line because of 'textwidth' at the last line in the window caused a
redraw of the whole window instead of a scroll. Speeds up normal typing with
'textwidth' a lot for slow terminals.

An invalid line number produced an "invalid range" error, even when it wasn't
to be executed (inside "if 0").

When the unnamed, first buffer is re-used, the "BufDelete" autocommand was
not called. It would stick in a buffer list menu.

When doing "%" on the NUL after the line, a "{" or "}" in the last character
of the line was not found.

The Insert mode menu was not used for the "s" command, the Operator-pending
menu was used instead.

With 'compatible' set, some syntax highlighting was not correct, because of
using "[\t]" for a search pattern. Now use the regexps for syntax
highlighting like the 'cpoptions' option is empty (as was documented already).

When using "map <M-Space> ms" or "map <Space> sss" the output of ":map" didn't
show any lhs for the mapping (if 'isprint' includes 160). Now always use
<Space> and <M-Space>, even when they are printable.

Adjusted the Syntax menu, so that the lowest entry fits on a small screen (for
Athena, where menus don't wrap).

When using CTRL-E or CTRL-Y in Insert mode for characters like 'o', 'x' and
digits, repeating the insert didn't work.

The file "tools/ccfilter.README.txt" could not be unpacked when using short
file names, because of the two dots. Renamed it to
"tools/ccfilter_README.txt".

For a dark 'background', using Blue for Directory and SpecialKey highlight
groups is not very readable. Use Cyan instead.

In the function uc_scan_attr() in ex_docmd.c there was a goto that jumped into
a block with a local variable. That's illegal for some compilers.

Win32 GUI: There was a row of pixels at the bottom of the window which was not
drawn. (Aaron)

Under DOS, editing "filename/" created a swap file of "filename/.swp". Should
be "filename/_swp".

Win32 GUI: pointer was hidden when executing an external command.

When 'so' is 999, "J" near the end of the file didn't redisplay correctly.

":0a" inserted after the first line, instead of before the first line.

Unix: Wildcard expansion didn't handle single quotes and {} patterns. Now
":file 'window.c'" removes the quotes and ":e 'main*.c'" works (literal '*').
":file {o}{n}{e}" now results in file name "one".

Memory leak when setting a string option back to its default value.

==
VERSION 5.3   version-5.3

Version 5.3 was a bug-fix version of 5.2. There are not many changes.
Improvements made between version 5.2 and 5.3:

Changed   changed-5.3

Renamed "IDE" menu to "Tools" menu.

Added   added-5.3

Win32 GUI: Give a warning when Vim is activated, and one of the files changed
since editing started. (Negri)

Fixed   fixed-5.3

5.2.1: Win32 GUI: space for external command was not properly allocated, could
cause a crash. (Aaron) This was the reason to bring out 5.3 quickly after
5.2.

5.2.2: Some commands didn't complain when used without an argument, although
they need one: ":badd", ":browse", ":call", ":confirm", ":behave",
":delfunction", ":delcommand" and ":tearoff".
":endfunction" outside of a function gave wrong error message: "Command not
implemented". Should be ":endfunction not inside a function".

5.2.3: Win32 GUI: When gvim was installed in "Program files", or another path
with a space in it, executing external commands with vimrun didn't work.

5.2.4: Pasting with the mouse in Insert mode left the cursor on the last
pasted character, instead of behind it.

5.2.5: In Insert mode, cursor after the end of the line, a shift-cursor-left
didn't include the last character in the selection.

5.2.6: When deleting text from Insert mode (with "<C-O>D" or the mouse), which
includes the last character in the line, the cursor could be left on the last
character in the line, instead of just after it.

5.2.7: Win32 GUI: scrollbar was one pixel too big.

5.2.8: Completion of "PopUp" menu showed the derivatives "PopUpc", "PopUPi",
etc. ":menu" also showed these.

5.2.9: When using two input() functions on a row, the prompt would not be
drawn in column 0.

5.2.10: A loop with input() could not be broken with CTRL-C.

5.2.11: ":call asdf" and ":call asdf(" didn't give an error message.

5.2.12: Recursively using ":normal" crashes Vim after a while. E.g.:
":map gq :normal gq<CR>"

5.2.13: Syntax highlighting used 'iskeyword' from wrong buffer. When using
":help", then "/\k*" in another window with 'hlsearch' set.

5.2.14: When using ":source" from a function, global variables would not be
available unless "g:" was used.

5.2.15: XPM files can have the extension ".pm", which is the same as for Perl
modules. Added "syntax/pmfile.vim" to handle this.

5.2.16: On Win32 and Amiga, "echo expand("%:p:h")" removed one dirname in an
empty buffer. mch_Fullname() didn't append a slash at the end of a directory
name.

Should include the character under the cursor in the Visual area when using
'selection' "exclusive". This wasn't done for "%", "e", "E", "t" and "f".

""p would always put register 0, instead of the unnamed (last used) register.
Reverse the change that ""x doesn't write in the unnamed (last used) register.
It would always write in register 0, which isn't very useful. Use "-x for the
paste mappings in Visual mode.

When there is one long line on the screen, and 'showcmd' is off, "0$" didn't
redraw the screen.

Win32 GUI: When using 'mousehide', the pointer would flicker when the cursor
shape is changed. (Negri)

When cancelling Visual mode, and the cursor moves to the start, the wanted
column wasn't set, "k" or "j" moved to the wrong column.

When using ":browse" or ":confirm", was checking for a comment and separating
bar, which can break some commands.

Included fixes for Macintosh. (Kielhorn)

==
VERSION 5.4   version-5.4

Version 5.4 adds new features, useful changes and a lot of bug fixes.

Runtime directory introduced   new-runtime-dir

The distributed runtime files are now in $VIMRUNTIME, the user files in $VIM.
You normally don't set $VIMRUNTIME but let Vim find it, by using
$VIM/vim{version}, or use $VIM when that doesn't exist. This allows for
separating the user files from the distributed files and makes it more easy to
upgrade to another version. It also makes it possible to keep two versions of
Vim around, each with their own runtime files.

In the Unix distribution the runtime files have been moved to the "runtime"
directory. This makes it possible to copy all the runtime files at once,
without the need to know what needs to be copied.

The archives for DOS, Windows, Amiga and OS/2 now have an extra top-level
"vim" directory. This is to make clear that user-modified files should be put
here. The directory that contains the executables doesn't have '-' or '.'
characters. This avoids strange extensions.

The $VIM and $VIMRUNTIME variables are set when they are first used. This
allows them to be used by Perl, for example.

The runtime files are also found in a directory called "$VIM/runtime". This
helps when running Vim after just unpacking the runtime archive. When using
an executable in the "src" directory, Vim checks if "vim54" or "runtime" can
be added after removing it. This make the runtime files be found just after
compiling.

A default for $VIMRUNTIME can be given in the Unix Makefile. This is useful
if $VIM doesn't point to above the runtime directory but to e.g., "/etc/".

Filetype introduced   new-filetype-5.4

Syntax files are now loaded with the new FileType autocommand. Old
"mysyntaxfile" files will no longer work. filetypes

The scripts for loading syntax highlighting have been changed to use the
new Syntax autocommand event.

This combination of Filetype and Syntax events allows tuning the syntax
highlighting a bit more, also when selected from the Syntax menu. The
FileType autocommand can also be used to set options and mappings specifically
for that type of file.

The "$VIMRUNTIME/filetype.vim" file is not loaded automatically. The
":filetype on" command has been added for this. ":syntax on" also loads it.

The 'filetype' option has been added. It is used to trigger the FileType
autocommand event, like the 'syntax' option does for the Syntax event.

":set syntax=OFF" and ":set syntax=ON" can be used (in a modeline) to switch
syntax highlighting on/off for the current file.

The Syntax menu commands have been moved to $VIMRUNTIME/menu.vim. The Syntax
menu is included both when ":filetype on" and when ":syntax manual" is used.

Renamed the old 'filetype' option to 'osfiletype'. It was only used for
RISCOS. 'filetype' is now used for the common file type.

Added the ":syntax manual" command. Allows manual selection of the syntax to
be used, e.g., from a modeline.

Vim script line continuation   new-line-continuation

When an Ex line starts with a backslash, it is concatenated to the previous
line. This avoids the need for long lines. line-continuation (Roemer)
Example:

```
        if   has("dialog_con") ||
           \ has("dialog_gui")
            :let result = confirm("Enter your choice",
                                  \ "&Yes\n&No\n&Maybe",
                                  \ 2)
        endif
```

Improved session files   improved-sessions

New words for 'sessionoptions':
- "help"   Restore the help window.
- "blank"   Restore empty windows.
- "winpos"   Restore the Vim window position. Uses the new ":winpos"
                command
- "buffers"   Restore hidden and unloaded buffers. Without it only the
                buffers in windows are restored.
- "slash"   Replace backward by forward slashes in file names.
- "globals"   Store global variables.
- "unix"   Use unix file format (<NL> instead of <CR><NL>)

The ":mksession" and 'sessionoptions' are now in the +mksession feature.

The top line of the window is also restored when using a session file.

":mksession" and ":mkvimrc" don't store 'fileformat', it should be detected
when loading a file.

(Most of this was done by Vince Negri and Robert Webb)

Autocommands improved   improved-autocmds-5.4

New events:
 FileType   When the file type has been detected.
 FocusGained   When Vim got input focus. (Negri)
 FocusLost   When Vim lost input focus. (Negri)
 BufCreate   Called just after a new buffer has been created or has been
                renamed. (Madsen)
 CursorHold   Triggered when no key has been typed for 'updatetime'. Can be
                used to do something with the word under the cursor. (Negri)
                Implemented CursorHold autocommand event for Unix. (Zellner)
                Also for Amiga and MS-DOS.
 GUIEnter   Can be used to do something with the GUI window after it has

```
                been created (e.g., a ":winpos 100 50").
 BufHidden      When a buffer becomes hidden.  Used to delete the
                option-window when it becomes hidden.
```

Also trigger BufDelete just before a buffer is going to be renamed. (Madsen)

The "<amatch>" pattern can be used like "<afile>" for autocommands, except that it is the matching value for the FileType and Syntax events.

When ":let @/ = <string>" is used in an autocommand, this last search pattern will be used after the autocommand finishes.

Made loading autocommands a bit faster. Avoid doing strlen() on each exiting pattern for each new pattern by remembering the length.

Encryption new-encryption

Files can be encrypted when writing and decrypted when reading. Added the 'key' option, "-x" command line argument and ":X" command. encryption (based on patch from Mohsin Ahmed)

When reading a file, there is an automatic detection whether it has been crypted. Vim will then prompt for the key.

Note that the encryption method is not compatible with Vi. The encryption is not unbreakable. This allows it to be exported from the US.

GTK GUI port new-GTK-GUI

New GUI port for GTK+. Includes a toolbar, menu tearoffs, etc. gui-gtk Added the :helpfind command. (Kahn and Dalecki)

Menu changes menu-changes-5.4

Menus can now also be used in the console. It is enabled by the new 'wildmenu' option. This shows matches for command-line completion like a menu. This works as a minimal file browser.

The new :emenu command can be used to execute a menu item.

Uses the last status line to list items, or inserts a line just above the command line. (Negri)

The 'wildcharx' option can be used to trigger 'wildmenu' completion from a mapping.

When compiled without menus, this can be detected with has("menu"). Also show this in the ":version" output. Allow compiling GUI versions without menu

support. Only include toolbar support when there is menu support.

Moved the "Window" menu all the way to the right (priority 70). Looks more
familiar for people working with MS-Windows, shouldn't matter for others.

Included "Buffers" menu. Works with existing autocommands and functions. It
can be disabled by setting the "no_buffers_menu" variable. (Aaron and Madsen)

Win32 supports separators in a menu: "-.*-". (Geddes)
Menu separators for Motif now work too.

Made Popup menu for Motif GUI work. (Madsen)

'M' flag in 'guioptions': Don't source the system menu.

All the menu code has been moved from gui.c to menu.c.

Viminfo improved   improved-viminfo

New flags for 'viminfo':
'!'   Store global variables in the viminfo file if they are in uppercase
        letters. (Negri)
'h'   Do ":nohlsearch" when loading a viminfo file.

Store search patterns in the viminfo file with their offset, magic, etc. Also
store the flag whether 'hlsearch' highlighting is on or off (which is not used
if the 'h' flag is in 'viminfo').

Give an error message when setting 'viminfo' without commas.

Various new commands   new-commands-5.4

Operator g? : rot13 encoding. (Negri)

 zH and zL commands: Horizontal scrolling by half a page.
 gm move cursor to middle of screen line. (Ideas by Campbell)

Operations on Visual blocks: v_b_I , v_b_A , v_b_c , v_b_C , v_b_r ,
 v_b_< and v_b_> . (Kelly)

New command: CTRL-\ CTRL-N, which does nothing in Normal mode, and goes to
Normal mode when in Insert or Command-line mode. Can be used by VisVim or
other OLE programs to make sure Vim is in Normal mode, without causing a beep.
 CTRL-_CTRL-N

":cscope kill" command to use the connection filename. :cscope (Kahn)

 :startinsert command: Start Insert mode next.

 :history command, to show all four types of histories. (Roemer)

[m , [M ,]m and]M commands, for jumping backward/forward to start/end of method in a (Java) class.

":@*" executes the * register. :@ (Acevedo)

go and :goto commands: Jump to byte offset in the file.

gR and gr command: Virtual Replace mode. Replace characters without changing the layout. (Webb)

":cd -" changes to the directory from before the previous ":cd" command. :cd- (Webb)

Tag preview commands :ptag . Shows the result of a ":tag" in a dedicated window. Can be used to see the context of the tag (e.g., function arguments). (Negri)
:pclose command, and CTRL-W CTRL-Z: Close preview window. (Moore)
'previewheight' option, height for the preview window.
Also :ppop , :ptnext , :ptprevious , :ptNext , :ptrewind , :ptlast .

:find and :sfind commands: Find a file in 'path', (split window) and edit it.

The :options command opens an option window that shows the current option values. Or use ":browse set" to open it. Options are grouped by function. Offers short help on each option. Hit <CR> to jump to more help. Edit the option value and hit <CR> on a "set" line to set a new value.

Various new options new-options-5.4

Scroll-binding: 'scrollbind' and 'scrollopt' options. Added :syncbind command. Makes windows scroll the same amount (horizontally and/or vertically). (Ralston)

'conskey' option for MS-DOS. Use direct console I/O. This should work with telnet (untested!).

'statusline' option: Configurable contents of the status line. Also allows showing the byte offset in the file. Highlighting with %1* to %9*, using the new highlight groups User1 to User9. (Madsen)

'rulerformat' option: Configurable contents of the ruler, like 'statusline'. (Madsen)

'write' option: When off, writing files is not allowed. Avoids overwriting a file even with ":w!". The -m command line option resets 'write'.

'clipboard' option: How the clipboard is used. Value "unnamed": Use unnamed register like "*. (Cortopassi) Value "autoselect": Like what 'a' in 'guioptions' does but works in the terminal.

'guifontset' option: Specify fonts for the +fontset feature, for the X11 GUI versions. Allows using normal fonts when vim is compiled with this feature. (Nam)

'guiheadroom' option: How much room to allow above/below the GUI window. Used for Motif, Athena and GTK.

Implemented 'tagstack' option: When off, pushing tags onto the stack is disabled (Vi compatible). Useful for mappings.

'shellslash' option. Only for systems that use a backslash as a file separator. This option will use a forward slash in file names when expanding it. Useful when 'shell' is sh or csh.

'pastetoggle' option: Key sequence that toggles 'paste'. Works around the problem that mappings don't work in Insert mode when 'paste' is set.

'display' option: When set to "lastline", the last line fills the window, instead of being replaced with "@" lines. Only the last three characters are replaced with "@@@", to indicate that the line has not finished yet.

'switchbuf' option: Allows re-using existing windows on a buffer that is being jumped to, or split the window to open a new buffer. (Roemer)

'titleold' option. Replaces the fixed string "Thanks for flying Vim", which is used to set the title when exiting. (Schild)

Vim scripts   new-script-5.4

The exists() function can also check for existence of a function. (Roemer)
An internal function is now found with a binary search, should be a bit faster. (Roemer)

New functions:
- getwinposx() and getwinposy() : get Vim window position. (Webb)
- histnr() , histadd() , histget() and histdel() : Make history available. (Roemer)
- maparg() : Returns rhs of a mapping. Based on a patch from Vikas.
- mapcheck() : Check if a map name matches with an existing one.
- visualmode() : Return type of last Visual mode. (Webb)
- libcall() : Call a function in a library. Currently only for Win32. (Negri)
- bufwinnr() : find window that contains the specified buffer. (Roemer)
- bufloaded() : Whether a buffer exists and is loaded.
- localtime() and getftime() : wall clock time and last modification time of a file (Webb)
- glob() : expand file name wildcards only.
- system() : get the raw output of an external command. (based on a patch from Aaron).
- strtrans() : Translate String into printable characters. Used for 2html.vim script.
- append() : easy way to append a line of text in a buffer.

Changed functions:
- Optional argument to strftime() to give the time in seconds. (Webb)
- expand() now also returns names for files that don't exist.

Allow numbers in the name of a user command. (Webb)

Use "v:" for internal Vim variables: "v:errmsg", "v:shell_error", etc. The ones from version 5.3 can be used without "v:" too, for backwards compatibility.

New variables:
"v:warningmsg" and "v:statusmsg" internal variables. Contain the last given warning and status message. v:warningmsg v:statusmsg (Madsen)
"v:count1" variable: like "v:count", but defaults to one when no count is used. v:count1

When compiling without expression evaluation, "if 1" can be used around the not supported commands to avoid it being executed. Works like in Vim 4.x. Some of the runtime scripts gave errors when used with a Vim that was compiled with minimal features. Now "if 1" is used around code that is not always supported.

When evaluating an expression with && and ||, skip the parts that will not influence the outcome. This makes it faster and avoids error messages. (Webb)
Also optimized the skipping of expressions inside an "if 0".

Avoid hit-enter prompt avoid-hit-enter

Added 'T' flag to 'shortmess': Truncate all messages that would cause the hit-enter prompt (unless that would happen anyway).
The 'O' flag in 'shortmess' now also applies to quickfix messages, e.g., from the ":cn" command.

The default for 'shortmess' is now "filnxtToO", to make most messages fit on the command line, and not cause the hit-enter prompt.

Previous messages can be viewed with the new :messages command.

Some messages are shown fully, even when 'shortmess' tells to shorten messages, because the user is expected to want to see them in full: CTRL-G and some quickfix commands.

Improved quickfix improved-quickfix

Parse change-directory lines for gmake: "make[1]: Entering directory 'name'".
Uses "%D" and "%X" in 'errorformat'.
Also parse "Making {target} in {dir}" messages from make. Helps when not using GNU make. (Schandl)

Use 'isfname' for "%f" in 'errorformat'.

Parsing of multi-line messages. errorformat-multi-line

Allow a range for the :clist command. (Roemer)

Support for "global" file names, for error formats that output the file name
once for several errors. (Roemer)

 :cnfile jumps to first error in next file.

"$*" in 'makeprg' is replaced by arguments to ":make". (Roemer)

Regular expressions   regexp-changes-5.4

In a regexp, a '$' before "\)" is also considered to be an end-of-line. /$
In patterns "^" after "\|" or "\(" is a start-of-line. /^ (Robinson)

In a regexp, in front of "\)" and "\|" both "$" and "\$" were considered
end-of-line. Now use "$" as end-of-line and "\$" for a literal dollar. Same
for '^' after "\(" and "\|". /\$ /\^

Some search patterns can be extremely slow, even though they are not really
illegal. For example: "\([^a-z]\+\)\+Q". Allow interrupting any regexp
search with CTRL-C.

Register "/: last search string (read-only). (Kohan) Changed to use last used
search pattern (like what 'hlsearch' uses). Can set the search pattern with
":let @/ = {expr}".

Added character classes to search patterns, to avoid the need for removing the
'l' flag from 'cpoptions': [:tab:] , [:return:] , [:backspace:] and
 [:escape:] .

By adding a '?' after a comparative operator in an expression, the comparison
is done by ignoring case. expr-==?

Other improvements made between version 5.3 and 5.4

Changed   changed-5.4

Unix: Use $TMPDIR for temporary files, if it is set and exists.

Removed "Empty buffer" message. It isn't useful and can cause a hit-enter
prompt. (Negri)

"ex -" now reads commands from stdin and works in silent mode. This is to be
compatible with the original "ex" command that is used for scripts.

Default range for ":tcldo" is the whole file.

Cancelling Visual mode with ESC moved the cursor. There appears to be no reason for this. Now leave the cursor where it is.

The ":grep" and ":make" commands see " as part of the arguments, instead of the start of a comment.

In expressions the "=~" and "!~" operators no longer are affected by 'ignorecase'.

Renamed vimrc_example to vimrc_example.vim and gvimrc_example to gvimrc_example.vim. Makes them being recognized as vim scripts.

"gd" no longer starts searching at the end of the previous function, but at the first blank line above the start of the current function. Avoids that using "gd" in the first function finds global a variable.

Default for 'complete' changed from ".,b" to ".,w,b,u,t,i". Many more matches will be found, at the cost of time (the search can be interrupted).

It is no longer possible to set 'shell*' options from a modeline. Previously only a warning message was given. This reduces security risks.

The ordering of the index of documentation files was changed to make it more easy to find a subject.

On MS-DOS and win32, when $VIM was not set, $HOME was used. This caused trouble if $HOME was set to e.g., "C:\" for some other tool, the runtime files would not be found. Now use $HOME only for _vimrc, _gvimrc, etc., not to find the runtime file.

When 'tags' is "./{fname}" and there is no file name for the current buffer, just use it. Previously it was skipped, causing "vim -t {tag}" not to find many tags.

When trying to select text in the 'scrolloff' area by mouse dragging, the resulting scrolling made this difficult. Now 'scrolloff' is temporarily set to 0 or 1 to avoid this. But still allow scrolling in the top line to extend to above the displayed text.

Default for 'comments' now includes "sl:/*,mb: *,ex:*/", to make javadoc comments work. Also helps for C comments that start with "/*******".

CTRL-X CTRL-] Insert mode tag expansion tried to expand to all tags when used after a non-ID character, which can take a very long time. Now limit this to 200 matches. Also used for command-line tag completion.

The OS/2 distribution has been split in two files. It was too big to fit on a floppy. The same runtime archive as for the PC is now used.

In the documentation, items like <a-z> have been replaced with {a-z} for non-optional arguments. This avoids confusion with key names: <C-Z> is a CTRL-Z, not a character between C and Z, that is {C-Z}.

Added   added-5.4

Color support for the iris-ansi builtin termcap entry. (Tubman)

Included VisVim version 1.3a. (Erhardt)

Win32 port for SNiFF+ interface. (Leherbauer)
Documentation file for sniff interface: if_sniff.txt. (Leherbauer)

Included the "SendToVim" and "OpenWithVim" programs in the OleVim directory.
To be used with the OLE version of gvim under MS-Windows. (Schaller)

Included Exuberant Ctags version 3.2.4 with Eiffel support. (Hiebert)

When a file that is being edited is deleted, give a warning (like when the
time stamp changed).

Included newer versions of the HTML-generating Awk and Perl scripts. (Colombo)

Linux console mouse support through "gpm". (Tsindlekht)

Security fix: Disallow changing 'secure' and 'exrc' from a modeline. When
'secure' is set, give a warning for changing options that contain a program
name.

Made the Perl interface work with Perl 5.005 and threads. (Verdoolaege)

When giving an error message for an ambiguous mapping, include the offending
mapping. (Roemer)

Command line editing:
- Command line completion of mappings. (Roemer)
- Command line completion for ":function", ":delfunction", ":let", ":call",
  ":if", etc. (Roemer)
- When using CTRL-D completion for user commands that have
  "-complete=tag_listfiles" also list the file names. (Madsen)
- Complete the arguments of the ":command" command. (Webb)
- CTRL-R . in command line inserts last inserted text. CTRL-F, CTRL-P, CTRL-W
  and CTRL-A after CTRL-R are used to insert an object from under the cursor.
  (Madsen)

Made the text in uganda.txt about copying Vim a bit more clear.

Updated the Vim tutor. Added the "vimtutor" command, which copies the tutor
and starts Vim on it. "make install" now also copies the tutor.

In the output of ":clist" the current entry is highlighted, with the 'i'
highlighting (same as used for 'incsearch').

For the ":clist" command, you can scroll backwards with "b" (one screenful),
"u" (half a screenful) and "k" (one line).

Multi-byte support:
- X-input method for multi-byte characters. And various fixes for multi-byte
  support. (Nam)
- Hangul input method feature: hangul . (Nam)
- Cleaned up configuration of multi-byte support, XIM, fontset and Hangul
  input. Each is now configurable separately.
- Changed check for GTK_KEYBOARD to HANGUL_KEYBOARD_TYPE. (Nam)
- Added doc/hangulin.txt: Documentation for the Hangul input code. (Nam)
- XIM support for GTK+. (Nam)
- First attempt to include support for SJIS encoding. (Nagano)
- When a double-byte character doesn't fit at the end of the line, put a "~"
  there and print it on the next line.
- Optimize output of multi-byte text. (Park)
- Win32 IME: preedit style is like over-the-spot. (Nagano)
- Win32 IME: IME mode change now done with ImmSetOpenStatus. (Nagano)
- GUI Athena: file selection dialog can display multi-byte characters.
  (Nagano)
- Selection reply for XA_TEXT as XA_STRING. (Nagano)

"runtime/macros/diffwin.vim". Mappings to make a diff window. (Campbell)

Added ".obj" to the 'suffixes' option.

Reduced size of syntax/synload.vim by using the ":SynAu" user command.
Automated numbering of Syntax menu entries in menu.vim.
In the Syntax menu, insert separators between syntax names that start with
a different letter. (Geddes)

Xterm:
- Clipboard support when using the mouse in an xterm. (Madsen)
- When using the xterm mouse, track dragging of the mouse. Use xterm escape
  sequences when possible. It is more precise than other methods, but
  requires a fairly recent xterm version. It is enabled with "xterm2" in
  'ttymouse'. (Madsen)
- Check xterm patch level, to set the value of 'ttymouse'. Has only been
  added to xterm recently (patch level > 95). Uses the new 't_RV' termcap
  option. Set 'ttymouse' to "xterm2" when a correct response is recognized.
  Will make xterm mouse dragging work better.
- Support for shifted function keys on xterm. Changed codes for shifted
  cursor keys to what the xterm actually produces. Added codes for shifted
  <End> and <Home>.
- Added 't_WP' to set the window position in pixels and 't_WS' to set the
  window size in characters. Xterm can now move (used for ":winpos") and
  resize (use for ":set lines=" and ":set columns=").

X11:
- When in Visual mode but not owning the selection, display the Visual area
  with the VisualNOS group to show this. (Madsen)
- Support for requesting the type of clipboard support. Used for AIX and
  dtterm. (Wittig)
- Support compound_text selection (even when compiled without multi-byte).

Swap file:
- New variation for naming swap files: Replace path separators into %, place

  all swap files in one directory. Used when a name in 'dir' ends in two path
  separators. (Madsen)
- When a swap file is found, show whether it contains modifications or not in
  the informative message. (Madsen)
- When dialogs are supported, use a dialog to ask the user what to do when a
  swapfile already exists.

"popup_setpos" in 'mousemodel' option. Allows for moving the cursor when
using the right mouse button.

When a buffer is deleted, the selection for which buffer to display instead
now uses the most recent entry from the jump list. (Madsen)

When using CTRL-O/CTRL-I, skip deleted buffers.

A percentage is shown in the ruler, when there is room.

Used autoconf 1.13 to generate configure.

Included get_lisp_indent() from Dirk van Deun. Does better Lisp indenting
when 'p' flag in 'cpoptions' is not included.

Made the 2html.vim script quite a bit faster. (based on ideas from Geddes)

Unix:
- Included the name of the user that compiled Vim and the system name it was
  compiled on in the version message.
- "make install" now also installs the "tools" directory. Makes them
  available for everybody.
- "make check" now does the same as "make test". "make test" checks for
  Visual block mode shift, insert, replace and change.
- Speed up comparing a file name with existing buffers by storing the
  device/inode number with the buffer.
- Added configure arguments "--disable-gtk", "--disable-motif" and
  "--disable-athena", to be able to disable a specific GUI (when it doesn't
  work).
- Renamed the configure arguments for disabling the check for specific GUIs.
  Should be clearer now. (Kahn)
- On a Digital Unix system ("OSF1") check for the curses library before
  termlib and termcap. (Schild)
- "make uninstall_runtime" will only delete the version-specific files. Can
  be used to delete the runtime files of a previous version.

Macintosh: (St-Amant)
- Dragging the scrollbar, like it's done for the Win32 GUI. Moved common code
  from gui_w32.c to gui.c
- Added dialogs and file browsing.
- Resource fork preserved, warning when it will be lost.
- Copy original file attributes to newly written file.
- Set title/notitle bug solved.
- Filename completion improved.
- Grow box limit resize to a char by char size.
- Use of rgb.txt for more colors (but give back bad color).
- Apple menu works (beside the about...).

- Internal border now vim compliant.
- Removing a menu doesn't crash anymore.
- Weak-linking of Python 1.5.1 (only on PPC). Python is supported when the
  library is available.
- If an error is encountered when sourcing the users .vimrc, the alert box now
  shows right away with the OK button defaulted. There's no more "Delete"-key
  sign at the start of each line
- Better management of environment variables. Now $VIM is calculated only
  once, not regenerated every time it is used.
- No more CPU hog when in background.
- In a sourced Vim script the Mac file format can be recognized, just like DOS
  file format is.

When both "unix" and "mac" are present in 'fileformats', prefer "mac" format
when there are more CR than NL characters.
When using "mac" fileformat, use CR instead of a NL, because NL is used for
NUL. Will preserve all characters in a file. (Madsen)

The DOS install.exe now contains checks for an existing installation. It
avoids setting $VIM and $PATH again.
The install program for Dos/Windows can now install Vim in the popup menu, by
adding two registry keys.

Port to EGCS/mingw32. New Makefile.ming. (Aaron)

DOS 16 bit: Don't include cursor shape stuff. Save some bytes.

TCL support to Makefile.w32. (Duperval)

OS/2: Use argv[0] to find runtime files.

When using "gf" to go to a buffer that has already been used, jump to the
line where the cursor last was.

Colored the output of ":tselect" a bit more. Different highlighting between
tag name and file name. Highlight field name ("struct:") separately from
argument.

Backtick expansion for non-Unix systems. Based on a patch from Aaron.
Allows the use of things like ":n `grep -l test *.c`" and
"echo expand('`ls m*`')".

Check for the 'complete' option when it is set. (Acevedo)
'd' flag in 'complete' searches for defined names or macros.
While searching for Insert mode completions in include files and tags files,
check for typeahead, so that you can use matches early. (Webb)
The '.' flag in 'complete' now scans the current buffer completely, ignoring
'nowrapscan'. (Webb)

Added '~' flag to 'whichwrap'. (Acevedo)

When ending the Visual mode (e.g., with ESC) don't grab ownership of the
selection.

In a color terminal, "fg" and "bg" can be used as color names. They stand for
the "Normal" colors.

A few cscope cleanups. (Kahn)

Included changed vimspell.sh from Schemenauer.

Concatenation of strings in an expression with "." is a bit faster. (Roemer)

The ":redir" command can now redirect to a register: ":redir @r". (Roemer)

Made the output of ":marks" and ":jumps" look similar. When the mark is in
the current file, show the text at the mark. Also for ":tags".

When configure finds ftello() and fseeko(), they are used in tag.c (for when
you have extremely big tags files).

Configure check for "-FOlimit,2000" argument for the compiler. (Borsenkow)

GUI:
- When using ":gui" in a non-GUI Vim, give a clear error message.
- "gvim -v" doesn't start the GUI (if console support is present).
- When in Ex mode, use non-Visual selection for the whole screen.
- When starting with "gvim -f" and using ":gui" in the .gvimrc file, Vim
  forked anyway. Now the "-f" flag is remembered for ":gui". Added "gui -b"
  to run gvim in the background anyway.

Motif GUI:
- Check for "-lXp" library in configure (but it doesn't work yet...).
- Let configure check for Lesstif in "/usr/local/Lesstif/Motif*". Changed the
  order to let a local Motif version override a system standard version.

Win32 GUI:
- When using "-register" or "-unregister" in the non-OLE version, give an
  error message.
- Use GTK toolbar icons. Make window border look better. Use sizing handles
  on the lower left&right corners of the window. (Negri)
- When starting an external command with ":!start" and the command can not be
  executed, give an error message. (Webb)
- Use sizing handles for the grey rectangles below the scrollbars. Can draw
  toolbar in flat mode now, looks better. (Negri)
- Preparations for MS-Windows 3.1 addition. Mostly changing WIN32 to MSWIN
  and USE_GUI_WIN32 to USE_GUI_MSWIN. (Negri)

Avoid allocating the same string four times in buflist_findpat(). (Williams)

Set title and icon text with termcap options 't_ts', 't_fs', 't_IS' and
't_IE'. Allows doing this on any terminal that supports setting the title
and/or icon text. (Schild)

New 'x' flag in 'comments': Automatically insert the end part when its last
character is typed. Helps to close a /* */ comment in C. (Webb)

When expand() has a second argument which is non-zero, don't use 'suffixes'

and 'wildignore', return all matches.

'O' flag in 'cpoptions' When not included, Vim will not overwrite a file, if it didn't exist when editing started but it does exist when the buffer is written to the file. The file must have been created outside of Vim, possibly without the user knowing it. When this is detected after a shell command, give a warning message.

When editing a new file, CTRL-G will show [New file]. When there were errors while reading the file, CTRL-G will show [Read errors].

":wall" can now use a dialog and file-browsing when needed.

Grouped functionality into new features, mainly to reduce the size of the minimal version:

+linebreak:	'showbreak', 'breakat' and 'linebreak'
+visualextra:	"I"nsert and "A"ppend in Visual block mode, "c"hange all lines in a block, ">" and "<": Shifting a block, "r": Replacing a Visual area with one character.
+comments:	'comments'
+cmdline_info:	'ruler' and 'showcmd'. Replaces +showcmd.
"+title"	Don't add code to set title or icon for MSDOS, this was not possible anyway.
+cmdline_compl	Disable commandline completion at compile time, except for files, directories and help items.

Moved features from a list of function calls into an array. Should save a bit of space.

While entering the body of a function, adjust indent according to "if" and "while" commands.

VMS: Adjusted os_vms.mms a bit according to suggestions from Arpadffy.

The flags in the 'comments' option can now include an offset. This makes it possible to align "/*****", "/*   xxx" and "/*" comments with the same 'comments' setting. The default value for 'comments' uses this.
Added 'O' flag: Don't use this part for the "O" command. Useful for "set com=sO:*\ -,mO:*\ \ ,exO:*/"

FileType autocommands recognize ".bak", ".orig" and "~" extensions and remove them to find the relevant extension.

The tutorial for writing a Vim script file has been extended.

Some more highlighting in help files, for items that are not typed literally.

Can use "CTRL-W CTRL-G" like "CTRL-W g".

"make test" for OS/2.

Adjusted configure to automatically use the GUI for BeOS.

Fixed fixed-5.4

5.3.1: When using an autocommand for BufWritePre that changes the name of the buffer, freed memory would be used. (Geddes)

Mac: Compiler didn't understand start of skip_class_name().

Win32 GUI:
- When cancelling the font requester, don't give an error message.
- When a tearoff-menu is open and its menu is deleted, Vim could crash. (Negri)
- There was a problem on Windows 95 with (un)maximizing the window. (Williams)
- when 'mousehide' is set, the mouse would stay hidden when a menu is dropped with the keyboard. (Ralston)
- The tempname() function already created the file. Caused problems when using ":w". Now the file is deleted.
- Cursor disappeared when ending up in the top-left character on the screen after scrolling. (Webb)
- When adding a submenu for a torn-off menu, it was not updated.
- Menu tooltip was using the toolbar tooltip. (Negri)
- Setting 'notitle' didn't remove the title. (Steed)
- Using ":!start cmd" scrolled the screen one line up, and didn't wait for return when the command wasn't found.

Cscope interface: Sorting of matches was wrong. Starting the interface could fail. (Kahn)

Motif GUI: Could not compile with Motif 1.1, because some tear-off functionality was not in #ifdefs.

Configure could sometimes not compile or link the test program for sizeof(int) properly. This caused alignment problems for the undo structure allocations. Added a safety check that SIZEOF_INT is not zero.

Added configure check to test if strings.h can be included after string.h. Some systems can't handle it.
Some systems need both string.h and strings.h included. Adjusted vim.h for that. Removed including string.h from os_unixx.h, since it's already in vim.h. (Savage)
AIX: defining _NO_PROTO in os_unix.h causes a conflict between string.h and strings.h, but after the configure check said it was OK. Also define _NO_PROTO for AIX in the configure check. (Winn)

When closing a window with CTRL-W c, the value of 'hidden' was not taken into account, the buffer was always unloaded. (Negri)

Unix Makefile: "make install" always tried to rename an older executable and remove it. This caused an error message when it didn't exit. Added a check for the existence of an old executable.
The command line for "make install" could get too long, because of the many syntax files. Now first do a "cd" to reduce the length.

On RISCOS and MSDOS, reading a file could fail, because the short filename was used, which can be wrong after a ":!cd".

In the DOS versions, the wrong install.exe was included (required Windows). Now the install.exe version is included that is the same as the Vim version. This also supports long file names where possible.

When recording, and stopping while in Insert mode with CTRL-O q, the CTRL-O would also be recorded.

32bit DOS version: "vim \file", while in a subdirectory, resulted in "new file" for "file" in the local directory, while "\file" did exist. When "file" in the current directory existed, this didn't happen.

MSDOS: Mouse could not go beyond 80 columns in 132 columns mode. (Young)

"make test" failed in the RedHat RPM, because compatible is off by default.

In Insert mode <C-O><C-W><C-W> changes to other window, but the status bars were not updated until another character was typed.

MSDOS: environment options in lowercase didn't work, although they did in the Win32 versions. (Negri)

After ":nohlsearch", a tag command switched highlighting back on.

When using "append" command as the last line in an autocommand, Vim would crash.

RISCOS: The scroll bumpers (?) were not working properly. (Leonard)

"zl" and "zh" could move the cursor, but this didn't set the column in which e.g., "k" would move the cursor.

When doing ":set all&" the value of 'scroll' was not set correctly. This caused an error message when later setting any other number option.

When 'hlsearch' highlighting has been disabled with ":nohlsearch", incremental searching would switch it back on too early.

When listing tags for ":tselect", and using a non-search command, and the last character was equal to the first (e.g., "99"), the last char would not be shown.

When searching for tags with ":tag" Vim would assume that all matches had been found when there were still more (e.g. from another tags file).

Win32: Didn't recognize "c:\" (e.g., in tags file) as absolute path when upper/lowercase was different.

Some xterms (Debian) send <Esc>OH for HOME and <Esc>OF for END. Added these to the builtin-xterm.

In ex mode, any CR was seen as the end of the line. Only a NL should be

handled that way. broke ":s/foo/some^Mtext/".

In menu.vim, a vmenu was used to override an amenu. That didn't work, because the system menu file doesn't overwrite existing menus. Added explicit vunmenu to solve this.

Configure check for terminal library could find a library that doesn't work at runtime (Solaris: shared library not found). Added a check that a program with tgoto() can run correctly.

Unix: "echo -n" in the Makefile doesn't work on all systems, causing errors compiling pathdef.c. Replaced it with "tr".

Perl: DO_JOIN was redefined by Perl. Undefined it in the perl files.

Various XIM and multi-byte fixes:
- Fix user cannot see his language while he is typing his language with off-the-spot method. (Nagano)
- Fix preedit position using text/edit area (using gui.wid). (Nagano)
- remove 'fix dead key' codes. It was needed since XNFocusWindow was "x11_window", XNFocusWindow is now gui.wid. (Nagano)
- Remove some compile warnings and fix typos. (Namsh)
- For status area, check the gtk+ version while Vim runs. I believe it is better than compile time check. (Namsh)
- Remove one FIXME for gtk+-xim. (Namsh)
- XIM: Dead keys didn't work for Czech. (Vyskovsky)
- Multibyte: If user input only 3byte such as mb1_mb2_eng or eng_mb1_mb2 VIM could convert it to special character. (Nam)
- Athena/Motif with XIM: fix preedit area. (Nam)
- XIM: Composed strings were sometimes ignored. Vim crashed when compose string was longer than 256 bytes. IM's geometry control is fixed. (Nam, Nagano)
- Win32 multi-byte: hollowed cursor width on a double byte char was wrong. (Nagano)
- When there is no GUI, selecting XIM caused compilation problems. Automatically disable XIM when there is no GUI in configure.
- Motif and Athena: When compiled with XIM, but the input method was not enabled, there would still be a status line. Now the status line is gone if the input method doesn't work. (Nam)

Win32: tooltip was not removed when selecting a parent menu (it was when selecting a menu entry). (Negri)

Unix with X: Some systems crash on exit, because of the XtCloseDisplay() call. Removed it, it should not be necessary when exiting.

Win32: Crash on keypress when compiled with Borland C++. (Aaron)

When checking for Motif library files, prefer the same location as the include files (with "include" replaced with "lib") above another entry.

Athena GUI: Changed "XtOffset()" in gui_at_fs.c to "XtOffsetOf()", like it's used in gui_x11.c.

Win32: When testing for a timestamp of a file on floppy, would get a dialog box when the floppy has been removed. Now return with an error. (Negri)

Win32 OLE: When forced to come to the foreground, a minimized window was still minimized, now it's restored. (Zivkov)

There was no check for a positive 'shiftwidth'. A negative value could cause a hangup, a zero value a crash.

Athena GUI: horizontal scrollbar wasn't updated correctly when clicking right or left of the thumb.

When making a Visual-block selection in one window, and trying to scroll another, could cause errors for accessing non-existent line numbers.

When 'matchpairs' contains "`:'", jumping from the ` to the ' didn't work properly.

Changed '\"' to '"' to make it compatible with old C compilers.

The command line expansion for mappings caused a script with a TAB between lhs and rhs of a map command to fail. Assume the TAB is to separate lhs and rhs when there are no mappings to expand.

When editing a file with very long lines with 'scrolloff' set, "j" would sometimes end up in a line which wasn't displayed.

When editing a read-only file, it was completely read into memory, even when it would not fit. Now create a swap file for a read-only file when running out of memory while reading the file.

When using ":set cino={s,e-s", a line after "} else {" was not indented properly. Also added a check for this in test3.in.

The Hebrew mapping for the command line was remembered for the next command line. That isn't very useful, a command is not Hebrew. (Kol)

When completing file names with embedded spaces, like "Program\ files", this didn't work. Also for user commands. Moved backslash_halve() down to mch_expandpath().

When using "set mouse=a" in Ex mode, mouse events were handled like typed text. Then typing "quit" screwed up the mouse behavior of the xterm.

When repeating an insert with "." that contains a CTRL-Y, a number 5 was inserted as "053".

Yanking a Visual area, with the cursor past the line, didn't move the cursor back onto the line. Same for "~", "u", "U" and "g?"

Win32: Default for 'grepprg' could be "findstr /n" even though there is no findstr.exe (Windows 95). Check if it exists, and fall back to "grep -n" if it doesn't.

Because gui_mouse_moved() inserted a leftmouse click in the input buffer,
remapping a leftmouse click caused strange effects. Now Insert another code
in the input buffer. Also insert a leftmouse release, to avoid the problem
with ":map <LeftMouse> l" that the next release is seen as the release for the
focus click.

With 'wrap' on, when using a line that doesn't fit on the screen, if the start
of the Visual area is before the start of the screen, there was no
highlighting. Also, 'showbreak' doesn't work properly.

DOS, Win32: A pattern "[0-9]\+" didn't work in autocommands.

When creating a swap file for a buffer which isn't the current buffer, could
get a mixup of short file name, resulting in a long file name when a short
file name was required. makeswapname() was calling modname() instead of
buf_modname().

When a function caused an error, and the error message was very long because
of recursiveness, this would cause a crash.

'suffixes' were always compared with matching case. For MS-DOS, Win32 and
OS/2 case is now ignored.

The use of CHARBITS in regexp.c didn't work on some Linux. Don't use it.

When generating a script file, 'cpo' was made empty. This caused backslashes
to disappear from mappings. Set it to "B" to avoid that.

Lots of typos in the documentation. (Campbell)

When editing an existing (hidden) buffer, jump to the last used cursor
position. (Madsen)

On a Sun the xterm screen was not restored properly when suspending. (Madsen)

When $VIMINIT is processed, 'nocompatible' was only set after processing it.

Unix: Polling for a character wasn't done for GPM, Sniff and Xterm clipboard
all together. Cleaned up the code for using select() too.

When executing external commands from the GUI, some typeahead was lost. Added
some code to regain as much typeahead as possible.

When the window height is 5 lines or fewer, <PageDown> didn't use a one-line
overlap, while <PageUp> does. Made sure that <PageUp> uses the same overlap
as <PageDown>, so that using them both always displays the same lines.

Removed a few unused functions and variables (found with lint).

Dictionary completion didn't use 'infercase'. (Raul)

Configure tests failed when the Perl library was not in LD_LIBRARY_PATH.
Don't use the Perl library for configure tests, add it to the linker line only
when linking Vim.

When using ncurses/terminfo, could get a 't_Sf' and 't_Sb' termcap entry that has "%d" instead of "%p1%d". The light background colors didn't work then.

GTK GUI with ncurses: Crashed when starting up in tputs(). Don't use tputs() when the GUI is active.

Could use the ":let" command to set the "count", "shell_error" and "version" variables, but that didn't work. Give an error message when trying to set them.

On FreeBSD 3.0, tclsh is called tclsh8.0. Adjusted configure.in to find it.

When Vim is linked with -lncurses, but python uses -ltermcap, this causes trouble: "OOPS". Configure now removes the -ltermcap.

:@" and :*" didn't work properly, because the " was recognized as the start of a comment.

Win32s GUI: Minimizing the console where a filter command runs in caused trouble for detecting that the filter command has finished. (Negri)

After executing a filter command from an xterm, the mouse would be disabled. It would work again after changing the mode.

Mac GUI: Crashed in newenv(). (St-Amant)

The menus and mappings in mswin.vim didn't handle text ending in a NL correctly. (Acevedo)

The ":k" command didn't check if it had a valid argument or extra characters. Now give a meaningful error message. (Webb)

On SGI, the signal function doesn't always have three arguments. Check for struct sigcontext to find out. Might still be wrong...

Could crash when using 'hlsearch' and search pattern is "^".

When search patterns were saved and restored, status of no_hlsearch was not also saved and restored (from ":nohlsearch" command).

When using setline() to make a line shorter, the cursor position was not adjusted.

MS-DOS and Win95: When trying to edit a file and accidentally adding a slash or backslash at the end, the file was deleted. Probably when trying to create the swap file. Explicitly check for a trailing slash or backslash before trying to read a file.

X11 GUI: When starting the GUI failed and received a deadly signal while setting the title, would lock up when trying to exit, because the title is reset again. Avoid using mch_settitle() recursively.

X11 GUI: When starting the GUI fails, and then trying it again, would crash,

because argv[] has been freed and x11_display was reset to NULL.

Win32: When $HOME was set, would put "~user" in the swap file, which would never compare with a file name, and never cause the attention message. Put the full path in the swap file instead.

Win32 console: There were funny characters at the end of the "vim -r" swap files message (direct output of CR CR LF).

DOS 32 bit: "vim -r" put the text at the top of the window.

GUI: With 'mousefocus' set, got mouse codes as text with "!sleep 100" or "Q".

Motif and Win32 GUI: When changing 'guifont' to a font of the same size the screen wasn't redrawn.

Unix: When using ":make", jumping to a file b.c, which is already open as a symbolic link a.c, opened a new buffer instead of using the existing one.

Inserting text in the current buffer while sourcing the .vimrc file would cause a crash or hang. The memfile for the current buffer was never allocated. Now it's allocated as soon as something is written in the buffer.

DOS 32 bit: "lightblue" background worked for text, but not drawn parts were black.

DOS: Colors of console were not restored upon exiting.

When recording, with 'cmdheight' set to 2 and typing Esc> in Insert mode caused the "recording" message to be doubled.

Spurious "file changed" messages could happen on Windows. Now tolerate a one second difference, like for Linux.

GUI: When returning from Ex mode, scrollbars were not updated.

Win32: Copying text to the clipboard containing a <CR>, pasting it would replace it with a <NL> and drop the next character.

Entering a double byte character didn't work if the second byte is in [xXoO]. (Eric Lee)

vim_realloc was both defined and had a prototype in proto/misc2.pro. Caused conflicts on Solaris.

A pattern in an autocommand was treated differently on DOS et al. than on Unix. Now it's the same, also when using backslashes.

When using <Tab> twice for command line completion, without a match, the <Tab> would be inserted. (Negri)

Bug in MS-Visual C++ 6.0 when compiling ex_docmd.c with optimization. (Negri)

Testing the result of mktemp() for failure was wrong. Could cause a crash.

(Peters)

GUI: When checking for a ".gvimrc" file in the current directory, didn't check for a "_gvimrc" file too.

Motif GUI: When using the popup menu and then adding an item to the menu bar, the menu bar would get very high.

Mouse clicks and special keys (e.g. cursor keys) quit the more prompt and dialogs. Now they are ignored.

When at the more-prompt, xterm selection didn't work. Now use the 'r' flag in 'mouse' also for the more-prompt.

When selecting a Visual area of more than 1023 lines, with 'guioptions' set to "a", could mess up the display because of a message in free_yank(). Removed that message, except for the Amiga.

Moved auto-selection from ui_write() to the screen update functions. Avoids unexpected behavior from a low-level function. Also makes the different feedback of owning the selection possible.

Vi incompatibility: Using "i<CR>" in an indent, with 'ai' set, used the original indent instead of truncating it at the cursor. (Webb)

":echo x" didn't stop at "q" for the more prompt.

Various fixes for Macintosh. (St-Amant)

When using 'selectmode' set to "exclusive", selecting a word and then using CTRL-] included the character under the cursor.

Using ":let a:name" in a function caused a crash. (Webb)

When using ":append", an empty line didn't scroll up.

DOS etc.: A file name starting with '!' didn't work. Added '!' to default for 'isfname'.

BeOS: Compilation problem with prototype of skip_class_name(). (Price)

When deleting more than one line, e.g., with "de", could still use "U" command, which didn't work properly then.

Amiga: Could not compile ex_docmd.c, it was getting too big. Moved some functions to ex_cmds.c.

The expand() function would add a trailing slash for directories.

Didn't give an error message when trying to assign a value to an argument of a function. (Webb)

Moved including sys/ptem.h to after termios.h. Needed for Sinix.

OLE interface: Don't delete the object in CVimCF::Release() when the reference count becomes zero. (Cordell)
VisVim could still crash on exit. (Erhardt)

"case a: case b:" (two case statements in one line) aligned with the second case. Now it uses one 'sw' for indent. (Webb)

Font initialisation wasn't right for Athena/Motif GUI. Moved the call to highlight_gui_started() gui_mch_init() to gui_mch_open(). (Nam)

In Replace mode, backspacing over a TAB before where the replace mode started while 'sts' is different from 'ts', would delete the TAB.

Win32 console: When executing external commands and switching between the two console screens, Vim would copy the text between the buffers. That caused the screen to be messed up for backtick expansion.

":winpos -1" then ":winpos" gave wrong error message.

Windows commander creates files called c:\tmp\$wc\abc.txt. Don't remove the backslash before the $. Environment variables were not expanded anyway, because of the backslash before the dollar.

Using "-=" with ":set" could remove half a part when it contains a "\,".
E.g., ":set path+=a\\,b" and then "set path-=b" removed ",b".

When Visually selecting lines, with 'selection' set to "inclusive", including the last char of the line, "<<" moved an extra line. Also for other operators that always work on lines.

link.sh changed "-lnsl_s" to "_s" when looking for "nsl" to be removed.
Now it only remove whole words.

When jumped to a mark or using "fz", and there is an error, the current column was lost. E.g. when using "$fzj".

The "g CTRL-G" command could not be interrupted, even though it can take a long time.

Some terminals do have <F4> and <xF4>. <xF4> was always interpreted as <F4>.
Now map <xF4> to <F4>, so that the user can override this.

When compiling os_win32.c with MIN_FEAT the apply_autocmds() should not be used. (Aaron)

This autocommand looped forever: ":au FileChangedShell * nested e <afile>"
Now FileChangeShell never nests. (Roemer)

When evaluating an ":elseif" that was not going to matter anyway, ignore errors. (Roemer)

GUI Lesstif: Tearoff bar was the last item, instead of the first.

GUI Motif: Colors of tear-off widgets was wrong when 't' flag added to

'guioptions' afterwards. When 't' flag in 'guioptions' is excluded, would still get a tearoff item in a new menu.

An inode number can be "long long". Use ino_t instead of long. Added configure check for ino_t.

Binary search for tags was using a file offset "long" instead of "off_t".

Insert mode completion of tags was not using 'ignorecase' properly.

In Insert mode, the <xFn> keys were not properly mapped to <Fn> for the default mappings. Also caused errors for ":mkvimrc" and ":mksession".

When jumping to another window while in Insert mode, would get the "warning: changing readonly file" even when not making a change.

A '(' or '{' inside a trailing "//" comment would disturb C-indenting.
When using two labels below each other, the second one was not indented properly. Comments could mess up C-indenting in many places. (Roemer)

Could delete or redefine a function while it was being used. Could cause a crash.
In a function it's logical to prepend "g:" to a system variable, but this didn't work. (Roemer)

Hangul input: Buffer would overflow when user inputs invalid key sequence. (Nam)

When BufLoad or BufEnter autocommands change the topline of the buffer in the window, it was overruled and the cursor put halfway the window. Now only put the cursor halfway if the autocommands didn't change the topline.

Calling exists("&option") always returned 1. (Roemer)

Win32: Didn't take actually available memory into account. (Williams)

White space after an automatically inserted comment leader was not removed when 'ai' is not set and <CR> hit just after inserting it. (Webb)

A few menus had duplicated accelerators. (Roemer)

Spelling errors in documentation, quite a few "the the". (Roemer)

Missing prototypes for Macintosh. (Kielhorn)

Win32: When using 'shellquote' or 'shellxquote', the "!start cmd" wasn't executed in a disconnected process.

When resizing the window, causing a line before the cursor to wrap or unwrap, the cursor was displayed in the wrong position.

There was quite a bit of dead code when compiling with minimal features.

When doing a ":%s///" command that makes lines shorter, such that lines above

the final cursor position no longer wrap, the cursor position was not updated.

get_id_list() could allocate an array one too small, when a "contains=" item
has a wildcard that matches a group name that is added just after it. E.g.:
"contains=a.*b,axb". Give an error message for it.

When yanking a Visual area and using the middle mouse button -> crash. When
clipboard doesn't work, now make "* always use "".

Win32: Using ":buf a\ b\file" didn't work, it was interpreted as "ab\file".

Using ":ts ident", then hit <CR>, with 'cmdheight' set to 2: command line was
not cleared, the tselect prompt was on the last but one line.

mksession didn't restore the cursor column properly when it was after a tab.
Could not get all windows back when using a smaller terminal screen. Didn't
restore all windows when "winsize" was not in 'sessionoptions'. (Webb)

Command line completion for ":buffer" depended on 'ignorecase' for Unix, but
not for DOS et al. Now don't use 'ignorecase', but let it depend on whether
file names are case sensitive or not (like when expanding file names).

Win32 GUI: (Negri)
- Redrawing the background caused flicker when resizing the window. Removed
  _OnEraseBG(). Removed CS_HREDRAW and CS_VREDRAW flags from the
  sndclass.style.
- Some parts of the window were drawn in grey, instead of using the color from
  the user color scheme.
- Dropping a file on gvim didn't activate the window.
- When there is no menu ('guioptions' excludes 'm'), never use the ALT key for
  it.

GUI: When resizing the window, would make the window height a bit smaller.
Now round off to the nearest char cell size. (Negri)

In Vi the ")" and "(" commands don't stop at a single space after a dot.
Added 'J' flag in 'cpoptions' to make this behave Vi compatible. (Roemer)

When saving a session without any buffers loaded, there would be a ":normal"
command without arguments in it. (Webb)

Memory leaks fixed: (Madsen)
- eval.c: forgot to release func structure when func deleted
- ex_docmd.c: forgot to release string after "<sfile>"
- misc1.c: leak when completion pattern had no matches.
- os_unix.c: forgot to release regexp after file completions

Could crash when using a buffer without a name. (Madsen)
Could crash when doing file name completion, because of backslash_halve().
(Madsen)

":@a" would do mappings on register a, which is not Vi compatible. (Roemer)

":g/foo.*()/s/foobar/_&/gc" worked fine, but then "n" searched for "foobar"

and displayed "/foo.*()". (Roemer)

OS/2: get_cmd_output() was not included. Didn't check for $VIM/.vimrc file.

Command line completion of options didn't work after "+=" and "-=".

Unix configure: Test for memmove()/bcopy()/memcpy() tried redefining these functions, which could fail if they are defined already. Use mch_memmove() to redefine.

Unix: ":let a = expand("`xterm`&")" started an xterm asynchronously, but ":let a = expand("`xterm&`")" generated an error message, because the redirection was put after the '&'.

Win32 GUI: Dialog buttons could not be selected properly with cursor keys, when the default is not the first button. (Webb)

The "File has changed since editing started" (when regaining focus) could not always be seen. (Webb)

When starting with "ex filename", the file message was overwritten with the "entering Ex mode" message.

Output of ":tselect" listed name of file directly from the tags file. Now it is corrected for the position of the tags file.

When 'backspace' is 0, could backspace over autoindent. Now it is no longer allowed (Vi compatible).

In Replace mode, when 'noexpandtab' and 'smarttab' were set, and inserting Tabs, backspacing didn't work correctly for Tabs inserted at the start of the line (unless 'sts' was set too). Also, when replacing the first non-blank after which is a space, rounding the indent was done on the first non-blank instead of on the character under the cursor.

When 'sw' at 4, 'ts' at 8 and 'smarttab' set: When a tab was appended after four spaces (they are replaced with a tab) couldn't backspace over the tab.

In Insert mode, with 'bs' set to 0, couldn't backspace to before autoindent, even when it was removed with CTRL-D.

When repeating an insert command where a <BS>, <Left> or other key causes an error, would flush buffers and remain in Insert mode. No longer flush buffers, only beep and continue with the insert command.

Dos and Win32 console: Setting t_me didn't work to get another color. Made this works backwards compatible.

For Turkish (LANG = "tr") uppercase 'i' is not an 'I'. Use ASCII uppercase translation in vim_strup() to avoid language problems. (Komur)

Unix: Use usleep() or nanosleep() for mch_delay() when available. Hopefully this avoids a hangup in select(0, ..) for Solaris 2.6.

Vim would crash when using a script file with 'let &sp = "| tee"', starting
vim with "vim -u test", then doing ":set sp=". The P_WAS_SET flag wasn't set
for a string option, could cause problems with any string option.

When using "cmd | vim -", stdin is not a terminal. This gave problems with
GPM (Linux console mouse) and when executing external commands. Now close
stdin and re-open it as a copy of stderr.

Syntax highlighting: A "nextgroup" item was not properly stored in the state
list. This caused missing of next groups when not redrawing from start to
end, but starting halfway.

Didn't check for valid values of 'ttymouse'.

When executing an external command from the GUI, waiting for the child to
terminate might not work, causing a hang. (Parmelan)

"make uninstall" didn't delete the vimrc_example.vim and gvimrc_example.vim
files and the vimtutor.

Win32: "expand("%:p:h")" with no buffer name removed the directory name.
"fnamemodify("", ":p")" did not add a trailing slash, fname_case() removed it.

Fixed: When 'hlsearch' was set and the 'c' flag was not in 'cpoptions':
highlighting was not correct. Now overlapping matches are handled correctly.

Athena, Motif and GTK GUI: When started without focus, cursor was shown as if
with focus.

Don't include 'shellpipe' when compiled without quickfix, it's not used.
Don't include 'dictionary' option when compiled without the +insert_expand
feature.
Only include the 'shelltype' option for the Amiga.

When making a change to a line, with 'hlsearch' on, causing it to wrap, while
executing a register, the screen would not be updated correctly. This was a
generic problem in update_screenline() being called while must_redraw is
VALID.

Using ":bdelete" in a BufUnload autocommand could cause a crash. The window
height was added to another window twice in close_window().

Win32 GUI: When removing a menu item, the tearoff wasn't updated. (Negri)

Some performance bottlenecks removed. Allocating memory was not efficient.
For Win32 checking for available memory was slow, don't check it every time
now. On NT obtaining the user name takes a long time, cache the result (for
all systems).

fnamemodify() with an argument ":~:." or ":.:~" didn't work properly.

When editing a new file and exiting, the marks for the buffer were not saved
in the viminfo file.

":confirm only" didn't put up a dialog.

These text objects didn't work when 'selection' was "exclusive": va(vi(va{ vi{ va< vi< vi[va[.

The dialog for writing a readonly file didn't have a valid default. (Negri)

The line number used for error messages when sourcing a file was reset when modelines were inspected. It was wrong when executing a function.

The file name and line number for an error message wasn't displayed when it was the same as for the last error, even when this was long ago. Now reset the name/lnum after a hit-enter prompt.

In a session file, a "%" in a file name caused trouble, because fprintf() was used to write it to the file.

When skipping statements, a mark in an address wasn't skipped correctly: "ka|if 0 'ad|else|echo endif". (Roemer)

":wall" could overwrite a not-edited file without asking.

GUI: When $DISPLAY was not set or starting the GUI failed in another way, the console mode then started with wrong colors and skipped initializations. Now do an early check if the GUI can be started. Don't source the menu.vim or gvimrc when it will not. Also do normal terminal initializations if the GUI might not start.

When using a BufEnter autocommand to position the cursor and scroll the window, the cursor was always put at the last used line and halfway the window anyhow.

When 'wildmode' was set to "longest,list:full", ":e *.c<Tab><Tab>" didn't list the matches. Also avoid that listing after a "longest" lists the wrong matches when the first expansion changed the string in front of the cursor.

When using ":insert", ":append" or ":change" inside a while loop, was not able to break out of it with a CTRL-C.

Win32: ":e ." took an awful long time before an error message when used in "C:\". Was caused by adding another backslash and then trying to get the full name for "C:\\".

":winpos -10 100" was working like ":winpos -10 -10", because a pointer was not advanced past the '-' sign.

When obtaining the value of a hidden option, would give an error message. Now just use a zero value.

OS/2: Was using argv[0], even though it was not a useful name. It could be just "vim", found in the search path.

Xterm: ":set columns=78" didn't redraw properly (when lines wrap/unwrap) until after a delay of 'updatetime'. Didn't check for the size-changed signal.

'scrollbind' didn't work in Insert mode.
Horizontal scrollbinding didn't always work for "0" and "$" commands (e.g., when 'showcmd' was off).

When compiled with minimal features but with GUI, switching on the mouse in an xterm caused garbage, because the mouse codes were not recognized. Don't enable the mouse when it can't be recognized. In the GUI it also didn't work, the arguments to the mouse code were not interpreted.

When 'showbreak' used, in Insert mode, when the cursor is just after the last character in the line, which is also the in the rightmost column, the cursor position would be like the 'showbreak' string is shown, but it wasn't.

Autocommands could move the cursor in a new file, so that CTRL-W i didn't show the right line. Same for when using a filemark to jump to another file.

When redefining the argument list, the title used for other windows could be showing the wrong info about the position in the argument list. Also update this for a ":split" command without arguments.

When editing file 97 of 13, ":Next" didn't work. Now it goes to the last file in the argument list.

Insert mode completion (for dictionaries or included files) could not be interrupted by typing an <Esc>. Could get hit-enter prompt after line completion, or whenever the informative message would get too long.

When using the ":edit" command to re-edit the same file, an autocommand to jump to the last cursor position caused the cursor to move. Now set the last used cursor position to avoid this.

When 'comments' has a part that starts with white space, formatting the comment didn't work.

At the ":tselect" prompt Normal mode mappings were used. That has been disabled.

When 'selection' is not "old", some commands still didn't allow the cursor past the end-of-line in Visual mode.

Athena: When a menu was deleted, it would appear again (but not functional) when adding another menu. Now they don't reappear anymore (although they are not really deleted either).

Borland C++ 4.x had an optimizer problem in fill_breakat_flags(). (Negri)

"ze" didn't work when 'number' was on. (Davis)

Win32 GUI: Intellimouse code didn't work properly on Windows 98. (Robinson)

A few files were including proto.h a second time, after vim.h had already done that, which could cause problems with the vim_realloc() macro.

Win32 console: <M-x> or ALT-x was not recognized. Also keypad '+', '-' and '*'. (Negri)
MS-DOS: <M-x> didn't work, produced a two-byte code. Now the alphabetic and number keys work. (Negri)

When finding a lot of matches for a tag completion, the check for avoiding double matches could take a lot of time. Add a line_breakcheck() to be able to interrupt this. (Deshpande)

When the command line was getting longer than the screen, the more-prompt would be given regularly, and the cursor position would be wrong. Now only show the part of the command line that fits on the screen and force the cursor to be positioned on the visible part. There can be text after the cursor which isn't editable.

At the more prompt and with the console dialog, a cursor key was interpreted as <Esc> and OA. Now recognize special keys in get_keystroke(). Ignore mouse and scrollbar events.

When typing a BS after inserting a middle comment leader, typing the last char of the end comment leader still changed it into the end comment leader. (Webb)

When a file system is full, writing to a swap file failed. Now first try to write one block to the file. Try next entry in 'dir' if it fails.

When "~" is in 'whichwrap', doing "~" on last char of a line didn't update the display.

Unix: Expanding wildcards for ":file {\\}" didn't work, because "\}" was translated to "}" before the shell got it. Now don't remove backslashes when wildcards are going to be expanded.

Unix: ":e /tmp/$uid" didn't work. When expanding environment variables in a file name doesn't work, use the shell to expand the file name. ":e /tmp/$tty" still doesn't work though.

"make test" didn't always work on DOS/Windows for test30, because it depended on the external "echo" command.

The link.sh script used "make" instead of $MAKE from the Makefile. Caused problems for generating pathdef.c when "make" doesn't work properly.

On versions that can do console and GUI: In the console a typed CSI code could cause trouble.

The patterns in expression evaluation didn't ignore the 'l' flag in 'cpoptions'. This broke the working of <CR> in the options window.

When 'hls' off and 'ai' on, "O<Esc>" did remove the indent, but it was still highlighted red for trailing space.

Win32 GUI: Dropping an encrypted file on a running gvim didn't work right. Vim would loop while outputting "*" characters. vgetc() was called recursively, thus it returns NUL. Added safe_vgetc(), which reads input directly from the

user in this situation.

While reading text from stdin, only an empty screen was shown. Now show that
Vim is reading from stdin.

The cursor shape wasn't set properly when returning to Insert mode, after
using a CTRL-O /asdf command which fails. It would be OK after a few seconds.
Now it's OK right away.

The 'isfname' default for DOS/Windows didn't include the '@' character. File
names that contained "dir\@file" could not be edited.

Win32 console: <C-S-Left> could cause a crash when compiled with Borland or
egcs. (Aaron)

Unix and VMS: "#if HAVE_DIRENT_H" caused problems for some compilers. Use
"#ifdef HAVE_DIRENT_H" instead. (Jones)

When a matching tag is in the current file but has a search pattern that
doesn't match, the cursor would jump to the first line.

Unix: Dependencies for pty.c were not included in Makefile. Dependency of
ctags/config.h was not included (only matters for parallel make).

Removed a few Uninitialized Memory Reads (potential crashes). In do_call()
calling clear_var() when not evaluating. In win32_expandpath() and
dos_expandpath() calling backslash_halve() past the end of a file name.

Removed memory leaks: Set_vim_var_string() never freed the value. The
next_list for a syntax keyword was never freed.

On non-Unix systems, using a file name with wildcards without a match would
silently fail. E.g., ":e *.sh". Now give a "No match" error message.

The life/life.mac, urm/urm.mac and hanoi/hanoi.mac files were not recognized
as Vim scripts. Renamed them to *.vim.

[Note: some numbered patches are not relevant when upgrading from version 5.3,
they have been removed]

Patch 5.4m.1
Problem: When editing a file with a long name, would get the hit-enter
            prompt, even though all settings are such that the name should be
            truncated to avoid that. filemess() was printing the file name
            without truncating it.
Solution: Truncate the message in filemess(). Use the same code as for
            msg_trunc_attr(), which is moved to the new function
            msg_may_trunc().
Files: src/message.c, src/proto/message.pro, src/fileio.c

Patch 5.4m.3
Problem: The Motif libraries were not found by configure for Digital Unix.
Solution: Add "/usr/shlib" to the search path. (Andy Kahn)
Files: src/configure.in, src/configure

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Patch 5.4m.5
Problem:    Win32 GUI: When using the Save-As menu entry and selecting an
            existing file in the file browser, would get a dialog to confirm
            overwriting twice.  (Ed Krall)
Solution:   Removed the dialog from the file browser.  It would be nicer to
            set the "forceit" flag and skip Vim's ":confirm" dialog, but it
            requires quite a few changes to do that.
Files:      src/gui_w32.c

Patch 5.4m.6
Problem:    Win32 GUI: When reading text from stdin, e.g., "cat foo | gvim -",
            a message box would pop up with "-stdin-" (when exiting). (Michael
            Schaap)
Solution:   Don't switch off termcap mode for versions that are GUI-only.
            They use another terminal to read from stdin.
Files:      src/main.c, src/fileio.c

Patch 5.4m.7
Problem:    Unix: running configure with --enable-gtk-check,
            --enable-motif-check, --enable-athena-check or --enable-gtktest
            had the reverse effect. (Thomas Koehler)
Solution:   Use $enable_gtk_check variable correctly in AC_ARG_ENABLE().
Files:      src/configure.in, src/configure

Patch 5.4m.9
Problem:    Multi-byte: With wrapping lines, the cursor was sometimes 2
            characters to the left.  Syntax highlighting was wrong when a
            double-byte character was split for a wrapping line.  When
            'showbreak' was on the splitting also didn't work.
Solution:   Adjust getvcol() and win_line(). (Chong-Dae Park)
Files:      src/charset.c, src/screen.c

Patch 5.4m.11
Problem:    The ":call" command didn't check for illegal trailing characters.
            (Stefan Roemer)
Solution:   Add the check in do_call().
Files:      src/eval.c

Patch 5.4m.13
Problem:    With the ":s" command:
            1. When performing a substitute command, the mouse would be
               disabled and enabled for every substitution.
            2. The cursor position could be beyond the end of the line.
               Calling line_breakcheck() could try to position the cursor,
               which causes a crash in the Win32 GUI.
            3. When using ":s" in a ":g" command, the cursor was not put on
               the first non-white in the line.
            4. There was a hit-enter prompt when confirming the substitution
               and the replacement was a bit longer.
Solution:   1. Only disable/enable the mouse when asking for confirmation.
            2. Always put the cursor on the first character, it is going to be
               moved to the first non-blank anyway.
               Don't use the cursor position in gui_mch_draw_hollow_cursor(),
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              get the character from the screen buffer.
           3. Added global_need_beginline flag to call beginline() after ":g"
              has finished all substitutions.
           4. Clear the need_wait_return flag after prompting the user.
Files:     src/ex_cmds.c, src/gui_w32.c

Patch 5.4m.14
Problem:   When doing "vim xxx", ":opt", ":only" and then ":e xxx" we end
           up with two swapfiles for "xxx".  That is caused by the ":bdel"
           command which is executed when unloading the option-window.
           Also, there was no check if closing a buffer made the new one
           invalid, this could cause a crash.
Solution:  When closing a buffer causes the current buffer to be deleted,
           use the new buffer to replace it.  Also detect that the new buffer
           has become invalid as a side effect of closing the current one.
           Make autocommand that calls ":bdel" in optwin.vim nested, so that
           the buffer loading it triggers also executes autocommands.
           Also added a test for this in test13.
Files:     runtime/optwin.vim, src/buffer.c, src/ex_cmds.c, src/globals.h
           src/testdir/test13.in, src/testdir/test13.ok

Patch 5.4m.15
Problem:   When using a BufEnter autocommand to reload the syntax file,
           conversion to HTML caused a crash. (Sung-Hyun Nam)
Solution:  When using ":syntax clear" the current stack of syntax items was
           not cleared.  This will cause memory to be used that has already
           been freed.  Added call to invalidate_current_state() in
           syntax_clear().
Files:     src/syntax.c

Patch 5.4m.17
Problem:   When omitting a ')' in an expression it would not be seen as a
           failure.
           When detecting an error inside (), there would be an error message
           for a missing ')' too.
           When using ":echo 1+|echo 2" there was no error message. (Roemer)
           When using ":exe 1+" there was no error message.
           When using ":return 1+" there was no error message.
Solution:  Fix do_echo(), do_execute() and do_return() to give an error
           message when eval1() returns FAIL.
           Fix eval6() to handle trailing ')' correctly and return FAIL when
           it's missing.
Files:     src/eval.c

Patch 5.4m.18
Problem:   When using input() from inside an expression entered with
           "CTRL-R =" on the command line, there could be a crash.  And the
           resulting command line was wrong.
Solution:  Added getcmdline_prompt(), which handles recursive use of
           getcmdline() correctly.  It also sets the command line prompt.
           Removed cmdline_prompt().  Also use getcmdline_prompt() for
           getting the crypt key in get_crypt_key().
Files:     src/proto/ex_getln.pro, src/ex_getln.c, src/eval.c, src/misc2.c
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Patch 5.4m.21
Problem:    When starting up, the screen structures were first allocated at
            the minimal size, then initializations were done with Rows
            possibly different from screen_Rows.  Caused a crash in rare
            situations (GTK with XIM and fontset).
Solution:   Call screenalloc() in main() only after calling ui_get_winsize().
            Also avoids a potential delay because of calling screenclear()
            while "starting" is non-zero.
Files:      src/main.c

Patch 5.4m.22
Problem:    In the GUI it was possible that the screen was resized and the
            screen structures re-allocated while redrawing the screen.  This
            could cause a crash (hard to reproduce).  The call sequence goes
            through update_screen() .. syntax_start() .. ui_breakcheck() ..
            gui_resize_window() .. screenalloc().
Solution:   Set updating_screen while redrawing.  If the window is resized
            remember the new size and handle it only after redrawing is
            finished.
            This also fixes that resizing the screen while still redrawing
            (slow syntax highlighting) would not work properly.
            Also disable display_hint, it was never used.
Files:      src/globals.h, src/gui.c, src/screen.c, src/proto/gui.pro

Patch 5.4m.23
Problem:    When using expand("<cword>") when there was no word under the
            cursor, would get an error message.  Same for <cWORD> and <cfile>.
Solution:   Don't give an error message, return an empty string.
Files:      src/eval.c

Patch 5.4m.24
Problem:    ":help \|" didn't find anything.  It was translated to "/\\|".
Solution:   Translate "\|" into "\\bar".  First check the table for specific
            translations before checking for "\x".
Files:      src/ex_cmds.c

Patch 5.4m.25
Problem:    Unix: When using command line completion on files that contain
            ''', '"' or '|' the file name could not be used.
            Adding this file name to the Buffers menu caused an error message.
Solution:   Insert a backslash before these three characters.
            Adjust Mungename() function to insert a backslash before '|'.
Files:      src/ex_getln.c, runtime/menu.vim

Patch 5.4m.26
Problem:    When using a mapping of two function keys, e.g., <F1><F1>, and
            only the first char of the second key has been read, the mapping
            would not be recognized.  Noticed on some Unix systems with xterm.
Solution:   Add 'K' flag to 'cpoptions' to wait for the whole key code, even
            when halfway a mapping.
Files:      src/option.h, src/term.c

Patch 5.4m.27
Problem:    When making test33 without the lisp feature it hangs. Interrupting
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            the execution of the script then might cause a crash.
Solution:   In inchar(), after closing a script, don't use buf[] anymore.
            closescript() has freed typebuf[] and buf[] might be pointing
            inside typebuf[].
            Avoid that test33 hangs when the lisp feature is missing.
Files:      src/getchar.c src/testdir/test33.in

"os2" was missing from the feature list.  Useful for has("os2").

BeOS:
- Included patches from Richard Offer for BeOS R4.5.
- menu code didn't work right.  Crashed in the Buffers menu.  The window title
  wasn't set. (Offer)

Patch 5.4n.3
Problem:    C-indenting was wrong after "  } else".  The white space was not
            skipped.  Visible when 'cino' has "+10".
Solution:   Skip white space before calling cin_iselse(). (Norbert Zeh)
Files:      src/misc1.c

Patch 5.4n.4
Problem:    When the 't' flag in 'cpoptions' is included, after a
            ":nohlsearch" the search highlighting would not be enabled again
            after a tag search. (Norbert Zeh)
Solution:   When setting the new search pattern in jumpto_tag(), don't restore
            no_hlsearch.
Files:      src/tag.c

Patch 5.4n.5
Problem:    When using ":normal" from a CursorHold autocommand Vim hangs.  The
            autocommand is executed down from vgetc().  Calling vgetc()
            recursively to execute the command doesn't work then.
Solution:   Forbid the use of ":normal" when vgetc_busy is set.  Give an error
            message when this happens.
Files:      src/ex_docmd.c, runtime/doc/autocmd.txt

Patch 5.4n.6
Problem:    "gv" could reselect a Visual that starts and/or ends past the end
            of a line. (Robert Webb)
Solution:   Check that the start and end of the Visual area are on a valid
            character by calling adjust_cursor().
Files:      src/normal.c

Patch 5.4n.8
Problem:    When a mark was on a non existing line (e.g., when the .viminfo
            was edited), jumping to it caused ml_get errors. (Alexey
            Marinichev).
Solution:   Added check_cursor_lnum() in nv_gomark().
Files:      src/normal.c

Patch 5.4n.9
Problem:    ":-2" moved the cursor to a negative line number. (Ralf Schandl)
Solution:   Give an error message for a negative line number.
Files:      src/ex_docmd.c
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Patch 5.4n.10
Problem: Win32 GUI: At the hit-enter prompt, it was possible to scroll the
            text. This erased the prompt and made Vim look like it is in
            Normal mode, while it is actually still waiting for a <CR>.
Solution: Disallow scrolling at the hit-enter prompt for systems that use
            on the fly scrolling.
Files: src/message.c

Patch 5.4n.14
Problem: Win32 GUI: When using ":winsize 80 46" and the height is more than
            what fits on the screen, the window size was made smaller than
            asked for (that's OK) and Vim crashed (that's not OK)>
Solution: Call check_winsize() from gui_set_winsize() to resize the windows.
Files: src/gui.c

Patch 5.4n.16
Problem: Win32 GUI: The <F10> key both selected the menu and was handled as
            a key hit.
Solution: Apply 'winaltkeys' to <F10>, like it is used for Alt keys.
Files: src/gui_w32.c

Patch 5.4n.17
Problem: Local buffer variables were freed when the buffer is unloaded.
            That's not logical, since options are not freed. (Ron Aaron)
Solution: Free local buffer variables only when deleting the buffer.
Files: src/buffer.c

Patch 5.4n.19
Problem: Doing ":e" (without argument) in an option-window causes trouble.
            The mappings for <CR> and <Space> are not removed. When there is
            another buffer loaded, the swap file for it gets mixed up.
            (Steve Mueller)
Solution: Also remove the mappings at the BufUnload event, if they are still
            present.
            When re-editing the same file causes the current buffer to be
            deleted, don't try editing it.
            Also added a test for this situation.
Files: runtime/optwin.vim, src/ex_cmds.c, src/testdir/test13.in,
            src/testdir/test13.ok

Patch 5.4n.24
Problem: BeOS: configure never enabled the GUI, because $with_x was "no".
            Unix prototypes caused problems, because Display and Widget are
            undefined.
            Freeing fonts on exit caused a crash.
Solution: Only disable the GUI when $with_x is "no" and $BEOS is not "yes".
            Add dummy defines for Display and Widget in proto.h.
            Don't free the fonts in gui_exit() for BeOS.
Files: src/configure.in, src/configure, src/proto.h, src/gui.c.

The runtime/vim48x48.xpm icon didn't have a transparent background. (Schild)

Some versions of the mingw32/egcs compiler didn't have WINBASEAPI defined.
(Aaron)

VMS:
- mch_setenv() had two arguments instead of three.
- The system vimrc and gvimrc files were called ".vimrc" and ".gvimrc".
  Removed the dot.
- call to RealWaitForChar() had one argument too many. (Campbell)
- WaitForChar() is static, removed the prototype from proto/os_vms.pro.
- Many file accesses failed, because Unix style file names were used.
  Translate file names to VMS style by using vim_fopen().
- Filtering didn't work, because the temporary file name was generated wrong.
- There was an extra newline every 9192 characters when writing a file. Work
  around it by writing line by line. (Campbell)
- os_vms.c contained "# typedef int DESC". Should be "typedef int DESC;".
  Only mattered for generating prototypes.
- Added file name translation to many places. Made easy by defining macros
  mch_access(), mch_fopen(), mch_fstat(), mch_lstat() and mch_stat().
- Set default for 'tagbsearch' to off, because binary tag searching apparently
  doesn't work for VMS.
- make mch_get_host_name() work with /dec and /standard=vaxc. (Campbell)

Patch 5.4o.2
Problem: Crash when using "gf" on "file.c://comment here". (Scott Graham)
Solution: Fix wrong use of pointers in get_file_name_in_path().
Files: src/window.c

Patch 5.4o.3
Problem: The horizontal scrollbar was not sized correctly when 'number' is
            set and 'wrap' not set.
            Athena: Horizontal scrollbar wasn't updated when the cursor was
            positioned with a mouse click just after dragging.
Solution: Subtract 8 from the size when 'number' set and 'wrap' not set.
            Reset gui.dragged_sb when a mouse click is received.
Files: src/gui.c

Patch 5.4o.4
Problem: When running in an xterm and $WINDOWID is set to an illegal value,
            Vim would exit with "Vim: Got X error".
Solution: When using the display which was opened for the xterm clipboard,
            check if x11_window is valid by trying to obtain the window title.
            Also add a check in setup_xterm_clip(), for when using X calls to
            get the pointer position in an xterm.
Files: src/os_unix.c

Patch 5.4o.5
Problem: Motif version with Lesstif: When removing the menubar and then
            using a menu shortcut key, Vim would crash. (raf)
Solution: Disable the menu mnemonics when the menu bar is removed.
Files: src/gui_motif.c

Patch 5.4o.9
Problem: The DOS install.exe program used the "move" program. That doesn't

```
            work on Windows NT, where "move" is internal to cmd.exe.
Solution:   Don't use an external program for moving the executables.  Use C
            functions to copy the file and delete the original.
Files:      src/dosinst.c

Motif and Athena obtained the status area height differently from GTK.  Moved
status_area_enabled from global.h to gui_x11.c and call
xim_get_status_area_height() to get the status area height.

Patch 5.4p.1
Problem:    When using auto-select, and the "gv" command is used, would not
            always obtain ownership of the selection.  Caused by the Visual
            area still being the same, but ownership taken away by another
            program.
Solution:   Reset the clipboard Visual mode to force updating the selection.
Files:      src/normal.c

Patch 5.4p.2
Problem:    Motif and Athena with XIM: Typing 3-byte
            <multibyte><multibyte><space> doesn't work correctly with Ami XIM.
Solution:   Avoid using key_sym XK_VoidSymbol. (Nam)
Files:      src/multbyte.c, src/gui_x11.c

Patch 5.4p.4
Problem:    Win32 GUI: The scrollbar values were reduced for a file with more
            than 32767 lines.  But this info was kept global for all
            scrollbars, causing a mixup between the windows.
            Using the down arrow of a scrollbar in a large file didn't work.
            Because of round-off errors there is no scroll at all.
Solution:   Give each scrollbar its own scroll_shift field.  When the down
            arrow is used, scroll several lines.
Files:      src/gui.h, src/gui_w32.c

Patch 5.4p.5
Problem:    When changing buffers in a BufDelete autocommand, there could be
            ml_line errors and/or a crash. (Schandl)  Was caused by deleting
            the current buffer.
Solution:   When the buffer to be deleted unexpectedly becomes the current
            buffer, don't delete it.
            Also added a check for this in test13.
Files:      src/buffer.c, src/testdir/test13.in, src/testdir/test13.ok

Patch 5.4p.7
Problem:    Win32 GUI: When using 'mousemodel' set to "popup_setpos" and
            clicking the right mouse button outside of the selected area, the
            selected area wasn't removed until the popup menu has gone.
            (Aaron)
Solution:   Set the cursor and update the display before showing the popup
            menu.
Files:      src/normal.c

Patch 5.4p.8
Problem:    The generated bugreport didn't contain information about
            $VIMRUNTIME and whether runtime files actually exist.
```

Solution: Added a few checks to the bugreport script.
Files: runtime/bugreport.vim

Patch 5.4p.9
Problem: The windows install.exe created a wrong entry in the popup menu.
            The "%1" was "". The full directory was included, even when the
            executable had been moved elsewhere. (Ott)
Solution: Double the '%' to get one from printf. Only include the path to
            gvim.exe when it wasn't moved and it's not in $PATH.
Files: src/dosinst.c

Patch 5.4p.10
Problem: Win32: On top of 5.4p.9: The "Edit with Vim" entry sometimes used
            a short file name for a directory.
Solution: Change the "%1" to "%L" in the registry entry.
Files: src/dosinst.c

Patch 5.4p.11
Problem: Motif, Athena and GTK: When closing the GUI window when there is a
            changed buffer, there was only an error message and Vim would not
            exit.
Solution: Put up a dialog, like for ":confirm qa". Uses the code that was
            already used for MS-Windows.
Files: src/gui.c, src/gui_w32.c

Patch 5.4p.12
Problem: Win32: Trying to expand a string that is longer than 256
            characters could cause a crash. (Steed)
Solution: For the buffer in win32_expandpath() don't use a fixed size array,
            allocate it.
Files: src/os_win32.c

MSDOS: Added "-Wall" to Makefile.djg compile flags. Function prototypes for
fname_case() and mch_update_cursor() were missing. "fd" was unused in
mf_sync(). "puiLocation" was unused in myputch(). "newcmd" unused in
mch_call_shell() for DJGPP version.

==
VERSION 5.5   version-5.5

Version 5.5 is a bug-fix version of 5.4.

Changed   changed-5.5

The DJGPP version is now compiled with "-O2" instead of "-O4" to reduce the
size of the executables.

Moved the src/STYLE file to runtime/doc/develop.txt. Added the design goals
to it.

'backspace' is now a string option. See patch 5.4.15.

Added   added-5.5

Included Exuberant Ctags version 3.3. (Darren Hiebert)

In runtime/mswin.vim, map CTRL-Q to CTRL-V, so that CTRL-Q can be used
everywhere to do what CTRL-V used to do.

Support for decompression of bzip2 files in vimrc_example.vim.

When a patch is included, the patch number is entered in a table in version.c.
This allows skipping a patch without breaking a next one.

Support for mouse scroll wheel in X11. See patch 5.5a.14.

line2byte() can be used to get the size of the buffer. See patch 5.4.35.

The CTRL-R CTRL-O r and CTRL-R CTRL-P r commands in Insert mode are used to
insert a register literally. See patch 5.4.48.

Uninstall program for MS-Windows. To be able to remove the registry entries
for "Edit with Vim". It is registered to be run from the "Add/Remove
programs" application. See patch 5.4.x7.

Fixed   fixed-5.5

When using vimrc_example.vim: An error message when the cursor is on a line
higher than the number of lines in the compressed file. Move the autocommand
for jumping to the last known cursor position to after the decompressing
autocommands.

":mkexrc" and ":mksession" wrote the current value of 'textmode'. That may
mark a file as modified, which causes problems. This is a buffer-specific
setting, it should not affect all files.

"vim --version" wrote two empty lines.

Unix: The alarm signal could kill Vim. It is generated by the Perl alarm()
function. Ignore SIGALRM.

Win32 GUI: Toolbar still had the yellow bitmap for running a Vim script.

BeOS: "tmo" must be bigtime_t, instead of double. (Seibert)

Patch 5.4.1
Problem: Test11 fails when $GZIP is set to "-v". (Matthew Jackson)
Solution: Set $GZIP to an empty string.
Files: src/testdir/test11.in

Patch 5.4.2
Problem: Typing <Esc> at the crypt key prompt caused a crash. (Kallingal)

```
Solution:   Check for a NULL pointer returned from get_crypt_key().
Files:      src/fileio.c

Patch 5.4.3
Problem:    Python: Trying to use the name of an unnamed buffer caused a
            crash. (Daniel Burrows)
Solution:   Check for b_fname being a NULL pointer.
Files:      src/if_python.c

Patch 5.4.4
Problem:    Win32: When compiled without toolbar, but the 'T' flag is in
            'guioptions', there would be an empty space for the toolbar.
Solution:   Add two #ifdefs where checking for the 'T' flag. (Vince Negri)
Files:      src/gui.c

Patch 5.4.5
Problem:    Athena GUI: Using the Buffers.Refresh menu entry caused a crash.
            Looks like any ":unmenu" command may cause trouble.
Solution:   Disallow ":unmenu" in the Athena version.  Disable the Buffers
            menu, because the Refresh item would not work.
Files:      src/menu.c, runtime/menu.vim

Patch 5.4.6
Problem:    GTK GUI: Using ":gui" in the .gvimrc file caused an error.  Only
            happens when the GUI forks.
Solution:   Don't fork in a recursive call of gui_start().
Files:      src/gui.c

Patch 5.4.7
Problem:    Typing 'q' at the more prompt for the ATTENTION message causes the
            file loading to be interrupted. (Will Day)
Solution:   Reset got_int after showing the ATTENTION message.
Files:      src/memline.c

Patch 5.4.8
Problem:    Edit some file, ":he", ":opt": options from help window are shown,
            but pressing space updates from the other window. (Phillipps)
            Also: When there are changes in the option-window, ":q!" gives an
            error message.
Solution:   Before creating the option-window, go to a non-help window.
            Use ":bdel!" to delete the buffer.
Files:      runtime/optwin.vim

Patch 5.4.9
            Just updates version.h.  The real patch has been moved to 5.4.x1.
            This patch is just to keep the version number correct.

Patch 5.4.10
Problem:    GTK GUI: When $DISPLAY is invalid, "gvim -f" just exits.  It
            should run in the terminal.
Solution:   Use gtk_init_check() instead of gtk_init().
Files:      src/gui_gtk_x11.c

Patch 5.4.11
```

Problem: When using the 'S' flag in 'cpoptions', 'tabstop' is not copied to
            the next buffer for some commands, e.g., ":buffer".
Solution: When the BCO_NOHELP flag is given to buf_copy_options(), still
            copy the options used by do_help() when neither the "from" or "to"
            buffer is a help buffer.
Files: src/option.c

Patch 5.4.12
Problem: When using 'smartindent', there would be no extra indent if the
            current line did not have any indent already. (Hanus Adler)
Solution: There was a wrongly placed "else", that previously matched with
            the "if" that set trunc_line. Removed the "else" and added a
            check for trunc_line to be false.
Files: src/misc1.c

Patch 5.4.13
Problem: New SGI C compilers need another option for optimisation.
Solution: Add a check in configure for "-OPT:Olimit". (Chin A Young)
Files: src/configure.in, src/configure

Patch 5.4.14
Problem: Motif GUI: When the popup menu is present, a tiny window appears
            on the desktop for some users.
Solution: Set the menu widget ID for a popup menu to 0. (Thomas Koehler)
Files: src/gui_motif.c

Patch 5.4.15
Problem: Since 'backspace' set to 0 has been made Vi compatible, it is no
            longer possible to only allow deleting autoindent.
Solution: Make 'backspace' a list of parts, to allow each kind of
            backspacing separately.
Files: src/edit.c, src/option.c, src/option.h, src/proto/option.pro,
            runtime/doc/option.txt, runtime/doc/insert.txt

Patch 5.4.16
Problem: Multibyte: Locale zh_TW.Big5 was not checked for in configure.
Solution: Add zh_TW.Big5 to configure check. (Chih-Tsun Huang)
Files: src/configure.in, src/configure

Patch 5.4.17
Problem: GUI: When started from inside gvim with ":!gvim", Vim would not
            start. ":!gvim -f" works fine.
Solution: After forking, wait a moment in the parent process, to give the
            child a chance to set its process group.
Files: src/gui.c

Patch 5.4.18
Problem: Python: The clear_history() function also exists in a library.
Solution: Rename clear_history() to clear_hist().
Files: src/ex_getln.c, src/eval.c, src/proto/ex_getln.pro

Patch 5.4.19
Problem: In a terminal with 25 lines, there is a more prompt after the
            ATTENTION message. When hitting 'q' here the dialog prompt

```
            doesn't appear and file loading is interrupted. (Will Day)
Solution:   Don't allow quitting the printing of a message for the dialog
            prompt.  Added the msg_noquit_more flag for this.
Files:      src/message.c

Patch 5.4.20
Problem:    GTK: When starting gvim, would send escape sequences to the
            terminal to switch the cursor off and on.
Solution:   Don't call msg_start() if the GUI is expected to start.
Files:      src/main.c

Patch 5.4.21
Problem:    Motif: Toplevel menu ordering was wrong when using tear-off items.
Solution:   Don't add one to the index for a toplevel menu.
Files:      src/gui_motif.c

Patch 5.4.22
Problem:    In Insert mode, <C-Left>, <S-Left>, <C-Right> and <S-Right> didn't
            update the column used for vertical movement.
Solution:   Set curwin->w_set_curswant for those commands.
Files:      src/edit.c

Patch 5.4.23
Problem:    When a Visual selection is lost to another program, and then the
            same text is Visually selected again, the clipboard ownership
            wasn't regained.
Solution:   Set clipboard.vmode to NUL to force regaining the clipboard.
Files:      src/normal.c

Patch 5.4.24
Problem:    Encryption: When using ":r file" while 'key' has already entered,
            the 'key' option would be messed up.  When writing the file it
            would be encrypted with an unknown key and lost! (Brad Despres)
Solution:   Don't free cryptkey when it is equal to the 'key' option.
Files:      src/fileio.c

Patch 5.4.25
Problem:    When 'cindent' is set, but 'autoindent' isn't, comments are not
            properly indented when starting a new line. (Mitterand)
Solution:   When there is a comment leader for the new line, but 'autoindent'
            isn't set, do C-indenting.
Files:      src/misc1.c

Patch 5.4.26
Problem:    Multi-byte: a multi-byte character is never recognized in a file
            name, causing a backslash before it to be removed on Windows.
Solution:   Assume that a leading-byte character is a file name character in
            vim_isfilec().
Files:      src/charset.c

Patch 5.4.27
Problem:    Entries in the PopUp[nvic] menus were added for several modes, but
            only deleted for the mode they were used for.  This resulted in
            the  entry remaining in the PopUp menu.
```

```
            When removing a PopUp[nvic] menu, the name had been truncated,
            could result in greying-out the whole PopUp menu.
Solution:   Remove entries for all modes from the PopUp[nvic] menus.  Remove
            the PopUp[nvic] menu entries first, before the name is changed.
Files:      src/menu.c

Patch 5.4.28
Problem:    When using a BufWritePre autocommand to change 'fileformat', the
            new value would not be used for writing the file.
Solution:   Check 'fileformat' after executing the autocommands instead of
            before.
Files:      src/fileio.c

Patch 5.4.29
Problem:    Athena GUI: When removing the 'g' flag from 'guioptions', using a
            menu can result in a crash.
Solution:   Always grey-out menus for Athena, don't hide them.
Files:      src/menu.c

Patch 5.4.30
Problem:    BeOS: Suspending Vim with CTRL-Z didn't work (killed Vim).  The
            first character typed after ":sh" goes to Vim, instead of the
            started shell.
Solution:   Don't suspend Vim, start a new shell.  Kill the async read thread
            when starting a new shell.  It will be restarted later. (Will Day)
Files:      src/os_unix.c, src/ui.c

Patch 5.4.31
Problem:    GUI: When 'mousefocus' is set, moving the mouse over where a
            window boundary was, causes a hit-enter prompt to be finished.
            (Jeff Walker)
Solution:   Don't use 'mousefocus' at the hit-enter prompt.  Also ignore it
            for the more prompt and a few other situations.  When an operator
            is pending, abort it first.
Files:      src/gui.c

Patch 5.4.32
Problem:    Unix: $LDFLAGS was not passed to configure.
Solution:   Pass $LDFLAGS to configure just like $CFLAGS. (Jon Miner)
Files:      src/Makefile

Patch 5.4.33
Problem:    Unix: After expanding an environment variable with the shell, the
            next expansion would also use the shell, even though it is not
            needed.
Solution:   Reset "recursive" before returning from gen_expand_wildcards().
Files:      src/misc1.c

Patch 5.4.34 (also see 5.4.x5)
Problem:    When editing a file, and the file name is relative to a directory
            above the current directory, the file name was made absolute.
            (Gregory Margo)
Solution:   Add an argument to shorten_fnames() which indicates if all file
            names should be shortened, or only absolute names.  In main() only
```

```
            use shorten_fnames() to shorten absolute names.
Files:      src/ex_docmd.c, src/fileio.c, src/main.c, src/proto/fileio.pro

Patch 5.4.35
Problem:    There is no function to get the current file size.
Solution:   Allow using line2byte() with the number of lines in the file plus
            one.  This returns the offset of the line past the end of the
            file, which is the file size plus one.
Files:      src/eval.c, runtime/doc/eval.txt

Patch 5.4.36
Problem:    Comparing strings while ignoring case didn't work correctly for
            some machines. (Mide Steed)
Solution:   vim_stricmp() and vim_strnicmp() only returned 0 or 1.  Changed
            them to return -1 when the first argument is smaller.
Files:      src/misc2.c

Patch 5.4.37 (also see 5.4.40 and 5.4.43)
Problem:    Long strings from the viminfo file are truncated.
Solution:   When writing a long string to the viminfo file, first write a line
            with the length, then the string itself in a second line.
Files:      src/eval.c, src/ex_cmds.c, src/ex_getln.c, src/mark.c, src/ops.c,
            src/search.c, src/proto/ex_cmds.pro, runtime/syntax/viminfo.vim

Patch 5.4.38
Problem:    In the option-window, ":set go&" resulted in 'go' being handled
            like a boolean option.
            Mappings for <Space> and <CR> were overruled by the option-window.
Solution:   When the value of an option isn't 0 or 1, don't handle it like a
            boolean option.
            Save and restore mappings for <Space> and <CR> when entering and
            leaving the option-window.
Files:      runtime/optwin.vim

Patch 5.4.39
Problem:    When setting a hidden option, spaces before the equal sign were
            not skipped and cause an error message.  E.g., ":set csprg =cmd".
Solution:   When skipping over a hidden option, check for a following "=val"
            and skip it too.
Files:      src/option.c

Patch 5.4.40 (depends on 5.4.37)
Problem:    Compiler error for "atol(p + 1)". (Axel Kielhorn)
Solution:   Add a typecast: "atol((char *)p + 1)".
Files:      src/ex_cmds.c

Patch 5.4.41
Problem:    Some commands that were not included would give an error message,
            even when after "if 0".
Solution:   Don't give an error message for an unsupported command when not
            executing the command.
Files:      src/ex_docmd.c

Patch 5.4.42
```

```
Problem:    ":w" would also cause a truncated message to appear in the message
            history.
Solution:   Don't put a kept message in the message history when it starts
            with "<".
Files:      src/message.c

Patch 5.4.43 (depends on 5.4.37)
Problem:    Mixing long lines with multiple lines in a register causes errors
            when writing the viminfo file. (Robinson)
Solution:   When reading the viminfo file to skip register contents, skip
            lines that start with "<".
Files:      src/ops.c

Patch 5.4.44
Problem:    When 'whichwrap' includes '~', a "~" command that goes on to the
            next line cannot be properly undone. (Zellner)
Solution:   Save each line for undo in n_swapchar().
Files:      src/normal.c

Patch 5.4.45 (also see 5.4.x8)
Problem:    When expand("$ASDF") fails, there is an error message.
Solution:   Remove the global expand_interactively.  Pass a flag down to skip
            the error message.
            Also: expand("$ASDF") returns an empty string if $ASDF isn't set.
            Previously it returned "$ASDF" when 'shell' is "sh".
            Also: system() doesn't print an error when the command returns an
            error code.
Files:      many

Patch 5.4.46
Problem:    Backspacing did not always use 'softtabstop' after hitting <CR>,
            inserting a register, moving the cursor, etc.
Solution:   Reset inserted_space much more often in edit().
Files:      src/edit.c

Patch 5.4.47
Problem:    When executing BufWritePre or BufWritePost autocommands for a
            hidden buffer, the cursor could be moved to a non-existing
            position. (Vince Negri)
Solution:   Save and restore the cursor and topline for the current window
            when it is going to be used to execute autocommands for a hidden
            buffer.  Use an existing window for the buffer when it's not
            hidden.
Files:      src/fileio.c

Patch 5.4.48
Problem:    A paste with the mouse in Insert mode was not repeated exactly the
            same with ".".  For example, when 'autoindent' is set and pasting
            text with leading indent. (Perry)
Solution:   Add the CTRL-R CTRL-O r and CTRL-R CTRL-P r commands in Insert
            mode, which insert the contents of a register literally.
Files:      src/edit.c, src/normal.c, runtime/doc/insert.txt

Patch 5.4.49
```

```
Problem:    When pasting text with [ <MiddleMouse>, the cursor could end up
            after the last character of the line.
Solution:   Correct the cursor position for the change in indent.
Files:      src/ops.c

Patch 5.4.x1 (note: Replaces patch 5.4.9)
Problem:    Win32 GUI: menu hints were never used, because WANT_MENU is not
            defined until vim.h is included.
Solution:   Move the #ifdef WANT_MENU from where MENUHINTS is defined to where
            it is used.
Files:      src/gui_w32.c

Patch 5.4.x2
Problem:    BeOS: When pasting text, one character was moved to the end.
Solution:   Re-enable the BeOS code in fill_input_buf(), and fix timing out
            with acquire_sem_etc(). (Will Day)
Files:      src/os_beos.c, src/ui.c

Patch 5.4.x3
Problem:    Win32 GUI: When dropping a directory on a running gvim it crashes.
Solution:   Avoid using a NULL file name.  Also display a message to indicate
            that the current directory was changed.
Files:      src/gui_w32.c

Patch 5.4.x4
Problem:    Win32 GUI: Removing an item from the popup menu doesn't work.
Solution:   Don't remove the item from the menubar, but from the parent popup
            menu.
Files:      src/gui_w32.c

Patch 5.4.x5 (addition to 5.4.34)
Files:      src/gui_w32.c

Patch 5.4.x6
Problem:    Win32: Expanding (dir)name starting with a dot doesn't work.
            (McCormack)  Only when there is a path before it.
Solution:   Fix the check, done before expansion, if the file name pattern
            starts with a dot.
Files:      src/os_win32.c

Patch 5.4.x7
Problem:    Win32 GUI: Removing "Edit with Vim" from registry is difficult.
Solution:   Add uninstall program to remove the registry keys. It is installed
            in the "Add/Remove programs" list for ease of use.
            Also: don't set $VIM when the executable is with the runtime files.
            Also: Add a text file with a step-by-step description of how to
            uninstall Vim for DOS and Windows.
Files:      src/uninstal.c, src/dosinst.c, src/Makefile.w32, uninstal.txt

Patch 5.4.x8 (addition to 5.4.45)
Files:      many

Patch 5.4.x9
Problem:    Win32 GUI: After executing an external command, focus is not
```

            always regained (when using focus-follows-mouse).
Solution: Add SetFocus() in mch_system(). (Mike Steed)
Files: src/os_win32.c

Patch 5.5a.1
Problem: ":let @* = @:" did not work. The text was not put on the
        I   clipboard. (Fisher)
Solution: Own the clipboard and put the text on it.
Files: src/ops.c

Patch 5.5a.2
Problem: append() did not mark the buffer modified. Marks below the
            new line were not adjusted.
Solution: Fix the f_append() function.
Files: src/eval.c

Patch 5.5a.3
Problem: Editing compressed ".gz" files doesn't work on non-Unix systems,
            because there is no "mv" command.
Solution: Add the rename() function and use it instead of ":!mv".
            Also: Disable the automatic jump to the last position, because it
            changes the jumplist.
Files: src/eval.c, runtime/doc/eval.txt, runtime/vimrc_example.vim

Patch 5.5a.4
Problem: When using whole-line completion in insert mode while the cursor
            is in the indent, get "out of memory" error. (Stekrt)
Solution: Don't allocate a negative amount of memory in ins_complete().
Files: src/edit.c

Patch 5.5a.5
Problem: Win32: The 'path' option can hold only up to 256 characters,
            because _MAX_PATH is 256. (Robert Webb)
Solution: Use a fixed path length of 1024.
Files: src/os_win32.h

Patch 5.5a.6
Problem: Compiling with gcc on Win32, using the Unix Makefile, didn't work.
Solution: Add $(SUFFIX) to all places where an executable is used. Also
            pass it to ctags. (Reynolds)
Files: src/Makefile

Patch 5.5a.7
Problem: When using "cat | vim -" in an xterm, the xterm version reply
            would end up in the file.
Solution: Read the file from stdin before switching the terminal to RAW
            mode. Should also avoid problems with programs that use a
            specific terminal setting.
            Also: when using the GUI, print "Reading from stdin..." in the GUI
            window, to give a hint why it doesn't do anything.
Files: src/main.c, src/fileio.c

Patch 5.5a.8

```
Problem:    On multi-threaded Solaris, suspending doesn't work.
Solution:   Call pause() when the SIGCONT signal was not received after
            sending the SIGTSTP signal. (Nagano)
Files:      src/os_unix.c

Patch 5.5a.9
Problem:    'winaltkeys' could be set to an empty argument, which is illegal.
Solution:   Give an error message when doing ":set winaltkeys=".
Files:      src/option.c

Patch 5.5a.10
Problem:    Win32 console: Using ALTGR on a German keyboard to produce "}"
            doesn't work, because the 8th bit is set when ALT is pressed.
Solution:   Don't set the 8th bit when ALT and CTRL are used. (Leipert)
Files:      src/os_win32.c

Patch 5.5a.11
Problem:    Tcl: Configure always uses tclsh8.0.
            Also: Loading a library doesn't work.
Solution:   Add "--with-tclsh" configure argument to allow specifying another
            name for the tcl shell.
            Call Tcl_Init() in tclinit() to make loading libraries work.
            (Johannes Zellner)
Files:      src/configure.in, src/configure, src/if_tcl.c

Patch 5.5a.12
Problem:    The "user_commands" feature is called "user-commands".
Solution:   Replace "user-commands" with "user_commands". (Kim Sung-bom)
            Keep "user-commands" for the has() function, to remain backwards
            compatible with 5.4.
Files:      src/eval.c, src/version.c

Patch 5.5a.13
Problem:    OS/2: When $HOME is not defined, "C:/" is used for the viminfo
            file.  That is very wrong when OS/2 is on another partition.
Solution:   Use $VIM for the viminfo file when it is defined, like for MSDOS.
            Also: Makefile.os2 didn't depend on os_unix.h.
Files:      src/os_unix.h, src/Makefile.os2

Patch 5.5a.14
Problem:    Athena, Motif and GTK: The Mouse scroll wheel doesn't work.
Solution:   Interpret a click of the wheel as a key press of the <MouseDown>
            or <MouseUp> keys.  Default behavior is to scroll three lines, or
            a full page when Shift is used.
Files:      src/edit.c, src/ex_getln.c, src/gui.c, src/gui_gtk_x11.c,
            src/gui_x11.c, src/keymap.h, src/message.c, src/misc1.c,
            src/misc2.c, src/normal.c,  src/proto/normal.pro, src/vim.h,
            runtime/doc/scroll.txt

Patch 5.5a.15
Problem:    Using CTRL-A in Insert mode doesn't work correctly when the insert
            started with the <Insert> key. (Andreas Rohrschneider)
Solution:   Replace <Insert> with "i" before setting up the redo buffer.
Files:      src/normal.c
```

Patch 5.5a.16
Problem: VMS: GUI does not compile and run.
Solution: Various fixes. (Zoltan Arpadffy)
            Moved functions from os_unix.c to ui.c, so that VMS can use them
            too: open_app_context(), x11_setup_atoms() and clip_x11* functions.
            Made xterm_dpy global, it's now used by ui.c and os_unix.c.
            Use gethostname() always, sys_hostname doesn't exist.
Files: src/globals.h, src/gui_x11.c, src/os_vms.mms, src/os_unix.c,
            src/os_vms.c, src/ui.c, src/proto/os_unix.pro, src/proto/ui.pro

Renamed AdjustCursorForMultiByteCharacter() to AdjustCursorForMultiByteChar()
to avoid symbol length limit of 31 characters. (Steve P. Wall)

Patch 5.5b.1
Problem: SASC complains about dead assignments and implicit type casts.
Solution: Removed the dead assignments. Added explicit type casts.
Files: src/buffer.c, src/edit.c, src/eval.c, src/ex_cmds.c,
            src/ex_getln.c, src/fileio.c, src/getchar.c, src/memline.c,
            src/menu.c, src/misc1.c, src/normal.c, src/ops.c, src/quickfix.c,
            src/screen.c

Patch 5.5b.2
Problem: When using "CTRL-O O" in Insert mode, hit <Esc> and then "o" in
            another line truncates that line. (Devin Weaver)
Solution: When using a command that starts Insert mode from CTRL-O, reset
            "restart_edit" first. This avoids that edit() is called with a
            mix of starting a new edit command and restarting a previous one.
Files: src/normal.c

==
VERSION 5.6   version-5.6

Version 5.6 is a bug-fix version of 5.5.

Changed   changed-5.6

Small changes to OleVim files. (Christian Schaller)

Inserted "/**/" between patch numbers in src/version.c. This allows for one
line of context, which some versions of patch need.

Reordered the Syntax menu to avoid long submenus. Removed keyboard shortcuts
for alphabetical items to avoid a clash with fixed items.

Added   added-5.6

Included Exuberant Ctags version 3.4. (Darren Hiebert)

OpenWithVim in Python. (Christian Schaller)

Win32 GUI: gvimext.dll, for the context menu "Edit with Vim" entry. Avoids
the reported problems with the MS Office taskbar. Now it's a Shell Extension.
(Tianmiao Hu)

New syntax files:
abel   Abel (John Cook)
aml   Arc Macro Language (Nikki Knuit)
apachestyle   Apache-style config file (Christian Hammers)
cf   Cold Fusion (Jeff Lanzarotta)
ctrlh   files with CTRL-H sequences (Bram Moolenaar)
cupl   CUPL (John Cook)
cuplsim   CUPL simulation (John Cook)
erlang   Erlang (Kresimir Marzic)
gedcom   Gedcom (Paul Johnson)
icon   Icon (Wendell Turner)
ist   MakeIndex style (Peter Meszaros)
jsp   Java Server Pages (Rafael Garcia-Suarez)
rcslog   Rcslog (Joe Karthauser)
remind   Remind (Davide Alberani)
sqr   Structured Query Report Writer (Paul Moore)
tads   TADS (Amir Karger)
texinfo   Texinfo (Sandor Kopanyi)
xpm2   X Pixmap v2 (Steve Wall)

The 'C' flag in 'cpoptions' can be used to switch off concatenation for
sourced lines. See patch 5.5.013 below. line-continuation

"excludenl" argument for the ":syntax" command. See patch 5.5.032 below.
 :syn-excludenl

Implemented z+ and z^ commands. See patch 5.5.050 below.

Vim logo in Corel Draw format. Can be scaled to any resolution.

Fixed   fixed-5.6

Using this mapping in Select mode, terminated completion:
":vnoremap <C-N> <Esc>a<C-N>" (Benji Fisher)
Ignore K_SELECT in ins_compl_prep().

VMS (Zoltan Arpadffy, David Elins):
- ioctl() in pty.c caused trouble, #ifndef VMS added.
- Cut & paste mismatch corrected.
- Popup menu line crash corrected. (Patch 5.5.047)
- Motif directories during open and save as corrected.
- Handle full file names with version numbers. (Patch 5.5.046)
- Directory handling (CD command etc.)
- Corrected file name conversion VMS to Unix and v.v.
- Recovery was not working.
- Terminal and signal handling was outdated compared to os_unix.c.
- Improved os_vms.txt.

Configure used fprintf() instead of printf() to check for __DATE__ and
__TIME__. (John Card II)

BeOS: Adjust computing the char_height and char_ascent. Round them up
separately, avoids redrawing artifacts. (Mike Steed)

Fix a few multi-byte problems in menu_name_skip(), set_reg_ic(), searchc() and
findmatchlimit(). (Taro Muraoka)

GTK GUI:
- With GTK 1.2.5 and later the scrollbars were not redrawn correctly.
- Adjusted the gtk_form_draw() function.
- SNiFF connection didn't work.
- 'mousefocus' was not working. (Dalecki)
- Some keys were not working with modifiers: Shift-Tab, Ctrl-Space and CTRL-@.

Patch 5.5.001
Problem: Configure in the top directory did not pass on an argument with a
            space correctly. For example "./configure --previs="/My home".
            (Stephane Chazelas)
Solution: Use '"$@"' instead of '$*' to pass on the arguments.
Files: configure

Patch 5.5.002
Problem: Compilation error for using "fds[] & POLLIN". (Jeff Walker)
Solution: Use "fds[].revents & POLLIN".
Files: src/os_unix.c

Patch 5.5.003
Problem: The autoconf check for sizeof(int) is wrong on machines where
            sizeof(size_t) != sizeof(int).
Solution: Use our own configure check. Also fixes the warning for
            cross-compiling.
Files: src/configure.in, src/configure

Patch 5.5.004
Problem: On Unix it's not possible to interrupt ":sleep 100".
Solution: Switch terminal to cooked mode while asleep, to allow a SIGINT to
            wake us up. But switch off echo, added TMODE_SLEEP.
Files: src/term.h, src/os_unix.c

Patch 5.5.005
Problem: When using <f-args> with a user command, an empty argument to the
            command resulted in one empty string, while no string was
            expected.
Solution: Catch an empty argument and pass no argument to the function.
            (Paul Moore)
Files: src/ex_docmd.c

Patch 5.5.006
Problem: Python: When platform-dependent files are in another directory
            than the platform-independent files it doesn't work.

```
Solution:   Also check the executable directory, and add it to CFLAGS. (Tessa
            Lau)
Files:      src/configure.in, src/configure

Patch 5.5.007 (extra)
Problem:    Win32 OLE: Occasional crash when exiting while still being used
            via OLE.
Solution:   Move OleUninitialize() to before deleting the application object.
            (Vince Negri)
Files:      src/if_ole.cpp

Patch 5.5.008
Problem:    10000@@ takes a long time and cannot be interrupted.
Solution:   Check for CTRL-C typed while in the loop to push the register.
Files:      src/normal.c

Patch 5.5.009
Problem:    Recent Sequent machines don't link with "-linet". (Kurtis Rader)
Solution:   Remove configure check for Sequent.
Files:      src/configure.in, src/configure

Patch 5.5.010
Problem:    Ctags freed a memory block twice when exiting.  When out of
            memory, a misleading error message was given.
Solution:   Update to ctags 3.3.2.  Also fixes a few other problems. (Darren
            Hiebert)
Files:      src/ctags/*

Patch 5.5.011
Problem:    After "CTRL-V s", the cursor jumps back to the start, while all
            other operators leave the cursor on the last changed character.
            (Xiangjiang Ma)
Solution:   Position cursor on last changed character, if possible.
Files:      src/ops.c

Patch 5.5.012
Problem:    Using CTRL-] in Visual mode doesn't work when the text includes a
            space (just where it's useful). (Stefan Bittner)
Solution:   Don't escape special characters in a tag name with a backslash.
Files:      src/normal.c

Patch 5.5.013
Problem:    The ":append" and ":insert" commands allow using a leading
            backslash in a line.  The ":source" command concatenates those
            lines. (Heinlein)
Solution:   Add the 'C' flag in 'cpoptions' to switch off concatenation.
Files:      src/ex_docmd.c, src/option.h, runtime/doc/options.txt,
            runtime/filetype.vim, runtime/scripts.vim

Patch 5.5.014
Problem:    When executing a register with ":@", the ":append" command would
            get text lines with a ':' prepended. (Heinlein)
Solution:   Remove the ':' characters.
Files:      src/ex_docmd.c, src/ex_getln.c, src/globals.h
```

Patch 5.5.015
Problem: When using ":g/pat/p", it's hard to see where the output starts,
            the ":g" command is overwritten. Vi keeps the ":g" command.
Solution: Keep the ":g" command, but allow overwriting it with the report
            for the number of changes.
Files: src/ex_cmds.c

Patch 5.5.016 (extra)
Problem: Win32: Using regedit to install Vim in the popup menu requires the
            user to confirm this in a dialog.
Solution: Use "regedit /s" to avoid the dialog
Files: src/dosinst.c

Patch 5.5.017
Problem: If an error occurs when closing the current window, Vim could get
            stuck in the error handling.
Solution: Don't set curwin to NULL when closing the current window.
Files: src/window.c

Patch 5.5.018
Problem: Absolute paths in shell scripts do not always work.
Solution: Use /usr/bin/env to find out the path.
Files: runtime/doc/vim2html.pl, runtime/tools/efm_filter.pl,
            runtime/tools/shtags.pl

Patch 5.5.019
Problem: A function call in 'statusline' stops using ":q" twice from
            exiting, when the last argument hasn't been edited.
Solution: Don't decrement quitmore when executing a function. (Madsen)
Files: src/ex_docmd.c

Patch 5.5.020
Problem: When the output of CTRL-D completion in the commandline goes all
            the way to the last column, there is an empty line.
Solution: Don't add a newline when the cursor wrapped already. (Madsen)
Files: src/ex_getln.c

Patch 5.5.021
Problem: When checking if a file name in the tags file is relative,
            environment variables were not expanded.
Solution: Expand the file name before checking if it is relative. (Madsen)
Files: src/tag.c

Patch 5.5.022
Problem: When setting or resetting 'paste' the ruler wasn't updated.
Solution: Update the status lines when 'ruler' changes because of 'paste'.
Files: src/option.c

Patch 5.5.023
Problem: When editing a new file and autocommands change the cursor
            position, the cursor was moved back to the first non-white, unless
            'startofline' was reset.
Solution: Keep the new column, just like the line number.

```
Files:      src/ex_cmds.c

Patch 5.5.024 (extra)
Problem:    Win32 GUI: When using confirm() to put up a dialog without a
            default button, the dialog would not have keyboard focus.
            (Krishna)
Solution:   Always set focus to the dialog window.  Only set focus to a button
            when a default one is specified.
Files:      src/gui_w32.c

Patch 5.5.025
Problem:    When using "keepend" in a syntax region, a contained match that
            includes the end-of-line could still force that region to
            continue, if there is another contained match in between.
Solution:   Check the keepend_level in check_state_ends().
Files:      src/syntax.c

Patch 5.5.026
Problem:    When starting Vim in a white-on-black xterm, with 'bg' set to
            "dark", and then starting the GUI with ":gui", setting 'bg' to
            "light" in the gvimrc, the highlighting isn't set.  (Tsjokwing)
Solution:   Set the highlighting when 'bg' is changed in the gvimrc, even
            though full_screen isn't set.
Files:      src/option.c

Patch 5.5.027
Problem:    Unix: os_unix.c doesn't compile when XTERM_CLIP is used but
            WANT_TITLE isn't. (Barnum)
Solution:   Move a few functions that are used by the X11 title and clipboard
            and put another "#if" around it.
Files:      src/os_unix.c

Patch 5.5.028 (extra)
Problem:    Win32 GUI: When a file is dropped on Win32 gvim while at the ":"
            prompt, the file is edited but the command line is actually still
            there, the cursor goes back to command line on the next command.
            (Krishna)
Solution:   When dropping a file or directory on gvim while at the ":" prompt,
            insert the name of the file/directory.  Allows using the
            file/directory name for any Ex command.
Files:      src/gui_w32.c

Patch 5.5.029
Problem:    "das" at the end of the file didn't delete the last character of
            the sentence.
Solution:   When there is no character after the sentence, make the operation
            inclusive in current_sent().
Files:      src/search.c

Patch 5.5.030
Problem:    Unix: in os_unix.c, "term_str" is used, which is also defined in
            vim.h as a macro. (wuxin)
Solution:   Renamed "term_str" to "buf" in do_xterm_trace().
Files:      src/os_unix.c
```

```
Patch 5.5.031 (extra)
Problem:    Win32 GUI: When exiting Windows, gvim will leave swap files behind
            and will be killed ungracefully. (Krishna)
Solution:   Catch the WM_QUERYENDSESSION and WM_ENDSESSION messages and try to
            exit gracefully.  Allow the user to cancel the shutdown if there
            is a changed buffer.
Files:      src/gui_w32.c

Patch 5.5.032
Problem:    Patch 5.5.025 wasn't right.  And C highlighting was still not
            working correctly for a #define.
Solution:   Added "excludenl" argument to ":syntax", to be able not to extend
            a containing item when there is a match with the end-of-line.
Files:      src/syntax.c, runtime/doc/syntax.txt, runtime/syntax/c.vim

Patch 5.5.033
Problem:    When reading from stdin, a long line in viminfo would mess up the
            file message.  readfile() uses IObuff for keep_msg, which could be
            overwritten by anyone.
Solution:   Copy the message from IObuff to msg_buf and set keep_msg to that.
            Also change vim_fgets() to not use IObuff any longer.
Files:      src/fileio.c

Patch 5.5.034
Problem:    "gvim -rv" caused a crash.  Using 't_Co' before it's set.
Solution:   Don't try to initialize the highlighting before it has been
            initialized from main().
Files:      src/syntax.c

Patch 5.5.035
Problem:    GTK with XIM: Resizing with status area was messy, and
            ":set guioptions+=b" didn't work.
Solution:   Make status area a separate widget, but not a separate window.
            (Chi-Deok Hwang)
Files:      src/gui_gtk_f.c, src/gui_gtk_x11.c, src/multbyte.c

Patch 5.5.036
Problem:    The GZIP_read() function in $VIMRUNTIME/vimrc_example.vim to
            uncompress a file did not do detection for 'fileformat'.  This is
            because the filtering is done with 'binary' set.
Solution:   Split the filtering into separate write, filter and read commands.
Files:      runtime/vimrc_example.vim

Patch 5.5.037
Problem:    The "U" command didn't mark the buffer as changed. (McCormack)
Solution:   Set the 'modified' flag when using "U".
Files:      src/undo.c

Patch 5.5.038
Problem:    When typing a long ":" command, so that the screen scrolls up,
            causes the hit-enter prompt, even though the user just typed
            return to execute the command.
Solution:   Reset need_wait_return if (part of) the command was typed in
```

```
            getcmdline().
Files:      src/ex_getln.c

Patch 5.5.039
Problem:    When using a custom status line, "%a" (file # of #) reports the
            index of the current window for all windows.
Solution:   Pass a window pointer to append_arg_number(), and pass the window
            being updated from build_stl_str_hl(). (Stephen P. Wall)
Files:      src/buffer.c, src/screen.c, src/proto/buffer.pro

Patch 5.5.040
Problem:    Multi-byte: When there is some error in xim_real_init(), it can
            close XIM and return.  After this there can be a segv.
Solution:   Test "xic" for being non-NULL, don't set "xim" to NULL.  Also try
            to find more matches for supported styles. (Sung-Hyun Nam)
Files:      src/multbyte.c

Patch 5.5.041
Problem:    X11 GUI: CTRL-_ requires the SHIFT key only on some machines.
Solution:   Translate CTRL-- to CTRL-_. (Robert Webb)
Files:      src/gui_x11.c

Patch 5.5.042
Problem:    X11 GUI: keys with ALT were assumed to be used for the menu, even
            when the menu has been disabled by removing 'm' from 'guioptions'.
Solution:   Ignore keys with ALT only when gui.menu_is_active is set. (Raf)
Files:      src/gui_x11.c

Patch 5.5.043
Problem:    GTK: Handling of fontset fonts was not right when 'guifontset'
            contains exactly 14 times '-'.
Solution:   Avoid setting fonts when working with a fontset. (Sung-Hyun Nam)
Files:      src/gui_gtk_x11.c

Patch 5.5.044
Problem:    pltags.pl contains an absolute path "/usr/local/bin/perl".  That
            might not work everywhere.
Solution:   Use "/usr/bin/env perl" instead.
Files:      runtime/tools/pltags.pl

Patch 5.5.045
Problem:    Using "this_session" variable does not work, requires preceding it
            with "v:".  Default filename for ":mksession" isn't mentioned
            in the docs. (Fisher)
Solution:   Support using "this_session" to be backwards compatible.
Files:      src/eval.c, runtime/doc/options.txt

Patch 5.5.046 (extra)
Problem:    VMS: problems with path and filename.
Solution:   Truncate file name at last ';', etc. (Zoltan Arpadffy)
Files:      src/buffer.c, src/fileio.c, src/gui_motif.c, src/os_vms.c,
            src/proto/os_vms.pro

Patch 5.5.047
```

```
Problem:    VMS: Crash when using the popup menu
Solution:   Turn the #define MENU_MODE_CHARS into an array. (Arpadffy)
Files:      src/structs.h, src/menu.c

Patch 5.5.048
Problem:    HP-UX 11: Compiling doesn't work, because both string.h and
            strings.h are included. (Squassabia)
Solution:   The configure test for including both string.h and strings.h
            must include <Xm/Xm.h> first, because it causes problems.
Files:      src/configure.in, src/configure, src/config.h.in

Patch 5.5.049
Problem:    Unix: When installing Vim, the protection bits of files might be
            influenced by the umask.
Solution:   Add $(FILEMOD) to Makefile. (Shetye)
Files:      src/Makefile

Patch 5.5.050
Problem:    "z+" and "z^" commands are missing.
Solution:   Implemented "z+" and "z^".
Files:      src/normal.c, runtime/doc/scroll.txt, runtime/doc/index.txt

Patch 5.5.051
Problem:    Several Unix systems have a problem with the optimization limits
            check in configure.
Solution:   Removed the configure check, let the user add it manually in
            Makefile or the environment.
Files:      src/configure.in, src/configure, src/Makefile

Patch 5.5.052
Problem:    Crash when using a cursor key at the ATTENTION prompt. (Alberani)
Solution:   Ignore special keys at the console dialog.  Also ignore characters
            > 255 for other uses of tolower() and toupper().
Files:      src/menu.c, src/message.c, src/misc2.c

Patch 5.5.053
Problem:    Indenting is wrong after a function when 'cino' has "fs".  Another
            problem when 'cino' has "{s".
Solution:   Put line after closing "}" of a function at the left margin.
            Apply ind_open_extra in the right way after a '{'.
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 5.5.054
Problem:    Unix: ":e #" doesn't work if the alternate file name contains a
            space or backslash. (Hudacek)
Solution:   When replacing "#", "%" or other items that stand for a file name,
            prepend a backslash before special characters.
Files:      src/ex_docmd.c

Patch 5.5.055
Problem:    Using "<C-V>$r-" in blockwise Visual mode replaces one character
            beyond the end of the line. (Zivkov)
Solution:   Only replace existing characters.
Files:      src/ops.c
```

```
Patch 5.5.056
Problem:    After "z20<CR>" messages were printed at the old command line
            position once.  (Veselinovic)
Solution:   Set msg_row and msg_col when changing cmdline_row in
            win_setheight().
Files:      src/window.c

Patch 5.5.057
Problem:    After "S<Esc>" it should be possible to restore the line with "U".
            (Veselinovic)
Solution:   Don't call u_clearline() in op_delete() when changing only one
            line.
Files:      src/ops.c

Patch 5.5.058
Problem:    Using a long search pattern and then "n" causes the hit-enter
            prompt.  (Krishna)
Solution:   Truncate the echoed pattern, like other messages.  Moved code for
            truncating from msg_attr() to msg_strtrunc().
Files:      src/message.c, src/proto/message.pro, src/search.c

Patch 5.5.059
Problem:    GTK GUI: When $term is invalid, using "gvim" gives an error
            message, even though $term isn't really used.  (Robbins)
Solution:   When the GUI is about to start, skip the error messages for a
            wrong $term.
Files:      src/term.c

Patch 5.5.060 (extra)
Problem:    Dos 32 bit: When a directory in 'backupdir' doesn't exist, ":w"
            causes the file to be renamed to "axlqwqhy.ba~". (Matzdorf)
Solution:   The code to work around a LFN bug in Windows 95 doesn't handle a
            non-existing target name correctly.  When renaming fails, make
            sure the file has its original name.  Also do this for the Win32
            version, although it's unlikely that it runs into this problem.
Files:      src/os_msdos.c, src/os_win32.c

Patch 5.5.061
Problem:    When using "\:" in a modeline, the backslash is included in the
            option value. (Mohsin)
Solution:   Remove one backslash before the ':' in a modeline.
Files:      src/buffer.c, runtime/doc/options.txt

Patch 5.5.062 (extra)
Problem:    Win32 console: Temp files are created in the root of the current
            drive, which may be read-only. (Peterson)
Solution:   Use the same mechanism of the GUI version: Use $TMP, $TEMP or the
            current directory.  Cleaned up vim_tempname() a bit.
Files:      src/fileio.c, src/os_win32.h, runtime/doc/os_dos.txt

Patch 5.5.063
Problem:    When using whole-line completion in Insert mode, 'cindent' is
            applied, even after changing the indent of the line.
```

```
Solution:   Don't reindent the completed line after inserting/removing indent.
            (Robert Webb)
Files:      src/edit.c

Patch 5.5.064
Problem:    has("sniff") doesn't work correctly.
Solution:   Return 1 when Vim was compiled with the +sniff feature. (Pruemmer)
Files:      src/eval.c

Patch 5.5.065
Problem:    When dropping a file on Vim, the 'shellslash' option is not
            effective. (Krishna)
Solution:   Fix the slashes in the dropped file names according to
            'shellslash'.
Files:      src/ex_docmd.c, runtime/doc/options.txt

Patch 5.5.066
Problem:    For systems with backslash in file name: Setting a file name
            option to a value starting with "\\machine" removed a backslash.
Solution:   Keep the double backslash for "\\machine", but do change
            "\\\\machine" to "\\machine" for backwards compatibility.
Files:      src/option.c, runtime/doc/options.txt

Patch 5.5.067
Problem:    With 'hlsearch' set, the pattern "\>" doesn't highlight the first
            match in a line. (Benji Fisher)
Solution:   Fix highlighting an empty match.  Also highlight the first
            character in an empty line for "$".
Files:      src/screen.c

Patch 5.5.068
Problem:    Crash when a ":while" is used with an argument that has an error.
            (Sylvain Viart)
Solution:   Was using an uninitialized index in the cs_line[] array.  The
            crash only happened when the index was far off.  Made sure the
            uninitialized index isn't used.
Files:      src/ex_docmd.c

Patch 5.5.069
Problem:    Shifting lines in blockwise Visual mode didn't set the 'modified'
            flag.
Solution:   Do set the 'modified' flag.
Files:      src/ops.c

Patch 5.5.070
Problem:    When editing a new file, creating that file outside of Vim, then
            editing it again, ":w" still warns for overwriting an existing
            file. (Nam)
Solution:   The BF_NEW flag in the "b_flags" field wasn't cleared properly.
Files:      src/buffer.c, src/fileio.c

Patch 5.5.071
Problem:    Using a matchgroup in a ":syn region", which is the same syntax
            group as the region, didn't stop a contained item from matching in
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            the start pattern.
Solution:   Also push an item on the stack when the syntax ID of the
            matchgroup is the same as the syntax ID of the region.
Files:      src/syntax.c

Patch 5.5.072 (extra)
Problem:    Dos 32 bit: When setting 'columns' to a too large value, Vim may
            crash, and the DOS console too.
Solution:   Check that the value of 'columns' isn't larger than the number of
            columns that the BIOS reports.
Files:      src/os_msdos.c, src/proto/os_msdos.pro, src/option.c

Patch 5.5.073 (extra)
Problem:    Win 32 GUI: The Find and Find/Replace dialogs didn't show the
            "match case" checkbox.  The Find/Replace dialog didn't handle the
            "match whole word" checkbox.
Solution:   Support the "match case" and "match whole word" checkboxes.
Files:      src/gui_w32.c

Patch 5.6a.001
Problem:    Using <C-End> with a count doesn't work like it does with "G".
            (Benji Fisher)
Solution:   Accept a count for <C-End> and <C-Home>.
Files:      src/normal.c

Patch 5.6a.002
Problem:    The script for conversion to HTML was an older version.
Solution:   Add support for running 2html.vim on a color terminal.
Files:      runtime/syntax/2html.vim

Patch 5.6a.003
Problem:    Defining a function inside a function didn't give an error
            message.  A missing ":endfunction" doesn't give an error message.
Solution:   Allow defining a function inside a function.
Files:      src/eval.c, runtime/doc/eval.txt

Patch 5.6a.004
Problem:    A missing ":endwhile" or ":endif" doesn't give an error message.
            (Johannes Zellner)
Solution:   Check for missing ":endwhile" and ":endif" in sourced files.
            Add missing ":endif" in file selection macros.
Files:      src/ex_docmd.c, runtime/macros/file_select.vim

Patch 5.6a.005
Problem:    'hlsearch' was not listed alphabetically.  The value of 'toolbar'
            was changed when 'compatible' is set.
Solution:   Moved entry of 'hlsearch' in options[] table down.
            Don't reset 'toolbar' option to the default value when
            'compatible' is set.
Files:      src/option.c

Patch 5.6a.006
Problem:    Using a backwards range inside ":if 0" gave an error message.
Solution:   Don't complain about a range when it is not going to be used.
```

(Stefan Roemer)
Files: src/ex_docmd.c

Patch 5.6a.007
Problem: ":let" didn't show internal Vim variables. (Ron Aaron)
Solution: Do show ":v" variables for ":let" and ":let v:name".
Files: src/eval.c

Patch 5.6a.008
Problem: Selecting a syntax from the Syntax menu gives an error message.
Solution: Replace "else if" in SetSyn() with "elseif". (Ronald Schild)
Files: runtime/menu.vim

Patch 5.6a.009
Problem: When compiling with +extra_search but without +syntax, there is a compilation error in screen.c. (Axel Kielhorn)
Solution: Adjust the #ifdef for declaring and initializing "line" in win_line(). Also solve compilation problem when +statusline is used without +eval. Another one when +cmdline_compl is used without +eval.
Files: src/screen.c, src/misc2.c

Patch 5.6a.010
Problem: In a function, ":startinsert!" does not append to the end of the line if a ":normal" command was used to move the cursor. (Fisher)
Solution: Reset "w_set_curswant" to avoid that w_curswant is changed again.
Files: src/ex_docmd.c

Patch 5.6a.011 (depends on 5.6a.004)
Problem: A missing ":endif" or ":endwhile" in a function doesn't give an error message.
Solution: Give that error message.
Files: src/ex_docmd.c

Patch 5.6a.012 (depends on 5.6a.008)
Problem: Some Syntax menu entries caused a hit-enter prompt.
Solution: Call a function to make the command shorter. Also rename a few functions to avoid name clashes.
Files: runtime/menu.vim

Patch 5.6a.013
Problem: Command line completion works different when another completion was done earlier. (Johannes Zellner)
Solution: Reset wim_index when starting a new completion.
Files: src/ex_getln.c

Patch 5.6a.014
Problem: Various warning messages when compiling and running lint with different combinations of features.
Solution: Fix the warning messages.
Files: src/eval.c, src/ex_cmds.c, src/ex_docmd.c, src/gui_gtk_x11.c, src/option.c, src/screen.c, src/search.c, src/syntax.c, src/feature.h, src/globals.h

Patch 5.6a.015
Problem: The vimtutor command doesn't always know the value of $VIMRUNTIME.
Solution: Let Vim expand $VIMRUNTIME, instead of the shell.
Files: src/vimtutor

Patch 5.6a.016 (extra)
Problem: Mac: Window size is restricted when starting. Cannot drag the
            window all over the desktop.
Solution: Get real screen size instead of assuming 640x400. Do not use a
            fixed number for the drag limits. (Axel Kielhorn)
Files: src/gui_mac.c

Patch 5.6a.017
Problem: The "Paste" entry in popup menu for Visual, Insert and Cmdline
            mode is in the wrong position. (Stol)
Solution: Add priority numbers for all Paste menu entries.
Files: runtime/menu.vim

Patch 5.6a.018
Problem: GTK GUI: submenu priority doesn't work.
            Help dialog could be destroyed too soon.
            When closing a dialog window (e.g. the "ATTENTION" one), Vim would
            just hang.
            When GTK theme is changed, Vim doesn't adjust to the new colors.
            Argument for ":promptfind" isn't used.
Solution: Fixed the mentioned problems.
            Made the dialogs look&feel nicer.
            Moved functions to avoid the need for a forward declaration.
            Fixed reentrancy of the file browser dialog.
            Added drag&drop support for GNOME.
            Init the text for the Find/replace dialog from the last used
            search string. Set "match whole word" toggle button correctly.
            Made repeat rate for drag outside of window depend on the
            distance from the window. (Marcin Dalecki)
            Made the drag in Visual mode actually work.
            Removed recursiveness protection from gui_mch_get_rgb(), it might
            cause more trouble than it solves.
Files: src/ex_docmd.c, src/gui_gtk.c, src/gui_gtk_x11.c, src/ui.c,
            src/proto/ui.pro, src/misc2.c

Patch 5.6a.019
Problem: When trying to recover through NFS, which uses a large block size,
            Vim might think the swap file is empty, because mf_blocknr_max is
            zero. (Scott McDermott)
Solution: When computing the number of blocks of the file in mf_open(),
            round up instead of down.
Files: src/memfile.c

Patch 5.6a.020
Problem: GUI GTK: Could not set display for gvim.
Solution: Add "-display" and "--display" arguments. (Marcin Dalecki)
Files: src/gui_gtk_x11.c

Patch 5.6a.021

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Problem:    Recovering still may not work when the block size of the device
            where the swap file is located is larger than 4096.
Solution:   Read block 0 with the minimal block size.
Files:      src/memline.c, src/memfile.c, src/vim.h

Patch 5.6a.022 (extra)
Problem:    Win32 GUI: When an error in the vimrc causes a dialog to pop up
            (e.g., for an existing swap file), Vim crashes. (David Elins)
Solution:   Before showing a dialog, open the main window.
Files:      src/gui_w32.c

Patch 5.6a.023
Problem:    Using expand("%:gs??/?") causes a crash. (Ron Aaron)
Solution:   Check for running into the end of the string in do_string_sub().
Files:      src/eval.c

Patch 5.6a.024
Problem:    Using an autocommand to delete a buffer when leaving it can cause
            a crash when jumping to a tag. (Franz Gorkotte)
Solution:   In do_tag(), store tagstacklen before jumping to another buffer.
            Check tagstackidx after jumping to another buffer.
            Add extra check in win_split() if tagname isn't NULL.
Files:      src/tag.c, src/window.c

Patch 5.6a.025 (extra)
Problem:    Win32 GUI: The tables for toupper() and tolower() are initialized
            too late. (Mike Steed)
Solution:   Move the initialization to win32_init() and call it from main().
Files:      src/main.c, src/os_w32.c, src/proto/os_w32.pro

Patch 5.6a.026
Problem:    When the SNiFF connection is open, shell commands hang. (Pruemmer)
Solution:   Skip a second wait() call if waitpid() already detected that the
            child has exited.
Files:      src/os_unix.c

Patch 5.6a.027 (extra)
Problem:    Win32 GUI: The "Edit with Vim" popup menu entry causes problems
            for the Office toolbar.
Solution:   Use a shell extension dll. (Tianmiao Hu)
            Added it to the install and uninstal programs, replaces the old
            "Edit with Vim" menu registry entries.
Files:      src/dosinst.c, src/uninstal.c, gvimext/*, runtime/doc/gui_w32.txt

Patch 5.6a.028 (extra)
Problem:    Win32 GUI: Dialogs and tear-off menus can't handle multi-byte
            characters.
Solution:   Adjust nCopyAnsiToWideChar() to handle multi-byte characters
            correctly.
Files:      src/gui_w32.c

==============================================================================
VERSION 5.7                                                  version-5.7
```

Version 5.7 is a bug-fix version of 5.6.

Changed   changed-5.7

Renamed src/INSTALL.mac to INSTALL_mac.txt to avoid it being recognized with a
wrong file type. Also renamed src/INSTALL.amiga to INSTALL_ami.txt.

Added   added-5.7

New syntax files:
stp   Stored Procedures (Jeff Lanzarotta)
snnsnet, snnspat, snnsres   SNNS (Davide Alberani)
mel   MEL (Robert Minsk)
ruby   Ruby (Mirko Nasato)
tli   TealInfo (Kurt W. Andrews)
ora   Oracle config file (Sandor Kopanyi)
abaqus   Abaqus (Carl Osterwisch)
jproperties   Java Properties (Simon Baldwin)
apache   Apache config (Allan Kelly)
csp   CSP (Jan Bredereke)
samba   Samba config (Rafael Garcia-Suarez)
kscript   KDE script (Thomas Capricelli)
hb   Hyper Builder (Alejandro Forero Cuervo)
fortran   Fortran (rewritten) (Ajit J. Thakkar)
sml   SML (Fabrizio Zeno Cornelli)
cvs   CVS commit (Matt Dunford)
aspperl   ASP Perl (Aaron Hope)
bc   BC calculator (Vladimir Scholtz)
latte   Latte (Nick Moffitt)
wml   WML (Gerfried Fuchs)

Included Exuberant ctags 3.5.1. (Darren Hiebert)

"display" and "fold" arguments for syntax items. For future extension, they
are ignored now.

strftime() function for the Macintosh.

macros/explorer.vim: A file browser script (M A Aziz Ahmed)

Fixed   fixed-5.7

The 16 bit MS-DOS version is now compiled with Bcc 3.1 instead of 4.0. The
executable is smaller.

When a "make test" failed, the output file was lost. Rename it to
test99.failed to be able to see what went wrong.

After sourcing bugreport.vim, it's not clear that bugreport.txt has been

written in the current directory. Edit bugreport.txt to avoid that.

Adding IME support when using Makefile.w32 didn't work. (Taro Muraoka)

Win32 console: Mouse drags were passed on even when the mouse didn't move.

Perl interface: In Buffers(), type of argument to SvPV() was int, should be
STRLEN. (Tony Leneis)

Problem with prototype for index() on AIX 4.3.0. Added check for _AIX43 in
os_unix.h. (Jake Hamby)

Mappings in mswin.vim could break when some commands are mapped. Add "nore"
to most mappings to avoid re-mapping.

modify_fname() made a copy of a file name for ":p" when it already was a full
path name, which is a bit slow.

Win32 with Borland C++ 5.5: Pass the path to the compiler on to xxd and ctags,
to avoid depending on $PATH. Fixed "make clean".

Many fixes to Macintosh specific parts: (mostly by Dany StAmant)
- Only one Help menu.
- No more crash when removing a menu item.
- Support as External Editor for Codewarrior (still some little glitches).
- Popup menu support.
- Fixed crash when pasting after application switch.
- Color from rgb.txt properly displayed.
- 'isprint' default includes all chars above '~'. (Axel Kielhorn)
- mac_expandpath() was leaking memory.
- Add digraphs table. (Axel Kielhorn)
- Multi-byte support: (Kenichi Asai)
  Switch keyscript when going in/out of Insert mode.
  Draw multi-byte character correctly.
  Don't use mblen() but highest bit of char to detect multi-byte char.
  Display value of multi-byte in statusline (also for other systems).
- mouse button was not initialized properly to MOUSE_LEFT when
  USE_CTRLCLICKMENU not defined.
- With Japanese SJIS characters: Make "w", "b", and "e" work
  properly. (Kenichi Asai)
- Replaced old CodeWarrior file os_mac.CW9.hqx with os_mac.cw5.sit.hqx.

Fixes for VMS: (Zoltan Arpadffy) (also see patch 5.6.045 below)
- Added Makefile_vms.mms and vimrc.vms to src/testdir to be able to run the
  tests.
- Various fixes.
- Set 'undolevels' to 1000 by default.
- Made mch_settitle() equivalent to the one in os_unix.c.

RiscOS: A few prototypes for os_riscos.c were outdated. Generate prototypes
automatically.

Previously released patches:

```
Patch 5.6.001
Problem:    When using "set bs=0 si cin", Inserting "#<BS>" or "}<BS>" which
            reduces the indent doesn't delete the "#" or "}". (Lorton)
Solution:   Adjust ai_col in ins_try_si().
Files:      src/edit.c

Patch 5.6.002
Problem:    When using the vim.vim syntax file, a comment with all uppercase
            characters causes a hang.
Solution:   Adjust pattern for vimCommentTitle (Charles Campbell)
Files:      runtime/syntax/vim.vim

Patch 5.6.003
Problem:    GTK GUI: Loading a user defined toolbar bitmap gives a warning
            about the colormap.  Probably because the window has not been
            opened yet.
Solution:   Use gdk_pixmap_colormap_create_from_xpm() to convert the xpm file.
            (Keith Radebaugh)
Files:      src/gui_gtk.c

Patch 5.6.004 (extra)
Problem:    Win32 GUI with IME: When setting 'guifont' to "*", the font
            requester appears twice.
Solution:   In gui_mch_init_font() don't call get_logfont() but copy
            norm_logfont from fh. (Yasuhiro Matsumoto)
Files:      src/gui_w32.c

Patch 5.6.005
Problem:    When 'winminheight' is zero, CTRL-W - with a big number causes a
            crash.  (David Kotchan)
Solution:   Check for negative window height in win_setheight().
Files:      src/window.c

Patch 5.6.006
Problem:    GTK GUI: Bold font cannot always be used.  Memory is freed too
            early in gui_mch_init_font().
Solution:   Move call to g_free() to after where sdup is used. (Artem Hodyush)
Files:      src/gui_gtk_x11.c

Patch 5.6.007 (extra)
Problem:    Win32 IME: Font is not changed when screen font is changed. And
            IME composition window does not trace the cursor.
Solution:   Initialize IME font.  When cursor is moved, set IME composition
            window with ImeSetCompositionWindow().  Add call to
            ImmReleaseContext() in several places. (Taro Muraoka)
Files:      src/gui.c, src/gui_w32.c, src/proto/gui_w32.pro

Patch 5.6.008 (extra)
Problem:    Win32: When two files exist with the same name but different case
            (through NFS or Samba), fixing the file name case could cause the
            wrong one to be edited.
Solution:   Prefer a perfect match above a match while ignoring case in
            fname_case().  (Flemming Madsen)
```

```
Files:      src/os_win32.c

Patch 5.6.009 (extra)
Problem:    Win32 GUI: Garbage in Windows Explorer help line when selecting
            "Edit with Vim" popup menu entry.
Solution:   Only return the help line when called with the GCS_HELPTEXT flag.
            (Tianmiao Hu)
Files:      GvimExt/gvimext.cpp

Patch 5.6.010
Problem:    A file name which contains a TAB was not read correctly from the
            viminfo file and the ":ls" listing was not aligned properly.
Solution:   Parse the buffer list lines in the viminfo file from the end
            backwards.  Count a Tab for two characters to align the ":ls" list.
Files:      src/buffer.c

Patch 5.6.011
Problem:    When 'columns' is huge (using a tiny font) and 'statusline' is
            used, Vim can crash.
Solution:   Limit maxlen to MAXPATHL in win_redr_custom(). (John Mullin)
Files:      src/screen.c

Patch 5.6.012
Problem:    When using "zsh" for /bin/sh, toolcheck may hang until "exit" is
            typed. (Kuratczyk)
Solution:   Add "-c exit" when checking for the shell version.
Files:      src/toolcheck

Patch 5.6.013
Problem:    Multibyte char in tooltip is broken.
Solution:   Consider multibyte char in replace_termcodes(). (Taro Muraoka)
Files:      src/term.c

Patch 5.6.014
Problem:    When cursor is at the end of line and the character under cursor
            is a multibyte character, "yl" doesn't yank 1 multibyte-char.
            (Takuhiro Nishioka)
Solution:   Recognize a multibyte-char at end-of-line correctly in oneright().
            (Taro Muraoka)
            Also: make "+quickfix" in ":version" output appear alphabetically.
Files:      src/edit.c

Patch 5.6.015
Problem:    New xterm delete key sends <Esc>[3~ by default.
Solution:   Added <kDel> and <kIns> to make the set of keypad keys complete.
Files:      src/edit.c, src/ex_getln.c, src/keymap.h, src/misc1.c,
            src/misc2.c, src/normal.c, src/os_unix.c, src/term.c

Patch 5.6.016
Problem:    When deleting a search string from history from inside a mapping,
            another entry is deleted too. (Benji Fisher)
Solution:   Reset last_maptick when deleting the last entry of the search
            history.  Also: Increment maptick when starting a mapping from
            typed characters to avoid a just added search string being
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            overwritten or removed from history.
Files:      src/ex_getln.c, src/getchar.c

Patch 5.6.017
Problem:    ":s/e/\^M/" should replace an "e" with a CTRL-M, not split the
            line. (Calder)
Solution:   Replace the backslash with a CTRL-V internally. (Stephen P. Wall)
Files:      src/ex_cmds.c

Patch 5.6.018
Problem:    ":help [:digit:]" takes a long time to jump to the wrong place.
Solution:   Insert a backslash to avoid the special meaning of '[]'.
Files:      src/ex_cmds.c

Patch 5.6.019
Problem:    "snd.c", "snd.java", etc. were recognized as "mail" filetype.
Solution:   Make pattern for mail filetype more strict.
Files:      runtime/filetype.vim

Patch 5.6.020 (extra)
Problem:    The DJGPP version eats processor time (Walter Briscoe).
Solution:   Call __dpmi_yield() in the busy-wait loop.
Files:      src/os_msdos.c

Patch 5.6.021
Problem:    When 'selection' is "exclusive", a double mouse click in Insert
            mode doesn't select last char in line. (Lutz)
Solution:   Allow leaving the cursor on the NUL past the line in this case.
Files:      src/edit.c

Patch 5.6.022
Problem:    ":e \~<Tab>" expands to ":e ~\$ceelen", which doesn't work.
Solution:   Re-insert the backslash before the '~'.
Files:      src/ex_getln.c

Patch 5.6.023 (extra)
Problem:    Various warnings for the Ming compiler.
Solution:   Changes to avoid the warnings. (Bill McCarthy)
Files:      src/ex_cmds.c, src/gui_w32.c, src/os_w32exe.c, src/os_win32.c,
            src/syntax.c, src/vim.rc

Patch 5.6.024 (extra)
Problem:    Win32 console: Entering CTRL-_ requires the shift key. (Kotchan)
Solution:   Specifically catch keycode 0xBD, like the GUI.
Files:      src/os_win32.c

Patch 5.6.025
Problem:    GTK GUI: Starting the GUI could be interrupted by a SIGWINCH.
            (Nils Lohner)
Solution:   Repeat the read() call to get the gui_in_use value when
            interrupted by a signal.
Files:      src/gui.c

Patch 5.6.026 (extra)
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Problem:    Win32 GUI: Toolbar bitmaps are searched for in
            $VIMRUNTIME/bitmaps, while GTK looks in $VIM/bitmaps. (Keith
            Radebaugh)
Solution:   Use $VIM/bitmaps for both, because these are not part of the
            distribution but defined by the user.
Files:      src/gui_w32.c, runtime/doc/gui.txt

Patch 5.6.027
Problem:    TCL: Crash when using a Tcl script (reported for Win32).
Solution:   Call Tcl_FindExecutable() in main(). (Brent Fulgham)
Files:      src/main.c

Patch 5.6.028
Problem:    Xterm patch level 126 sends codes for mouse scroll wheel.
            Fully works with xterm patch level 131.
Solution:   Recognize the codes for button 4 (0x60) and button 5 (0x61).
Files:      src/term.c

Patch 5.6.029
Problem:    GTK GUI: Shortcut keys cannot be used for a dialog. (Johannes
            Zellner)
Solution:   Add support for shortcut keys. (Marcin Dalecki)
Files:      src/gui_gtk.c

Patch 5.6.030
Problem:    When closing a window and 'ea' is set, Vim can crash. (Yasuhiro
            Matsumoto)
Solution:   Set "curbuf" to a valid value in win_close().
Files:      src/window.c

Patch 5.6.031
Problem:    Multi-byte: When a double-byte character ends in CSI, Vim waits
            for another character to be typed.
Solution:   Recognize the CSI as the second byte of a character and don't wait
            for another one. (Yasuhiro Matsumoto)
Files:      src/getchar.c

Patch 5.6.032
Problem:    Functions with an argument that is a line number don't all accept
            ".", "$", etc. (Ralf Arens)
Solution:   Add get_art_lnum() and use it for setline(), line2byte() and
            synID().
Files:      src/eval.c

Patch 5.6.033
Problem:    Multi-byte: "f " sometimes skips to the second space.  (Sung-Hyun
            Nam)
Solution:   Change logic in searchc() to skip trailing byte of a double-byte
            character.
            Also: Ask for second byte when searching for double-byte
            character. (Park Chong-Dae)
Files:      src/search.c

Patch 5.6.034 (extra)
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Problem:    Compiling with Borland C++ 5.5 fails on tolower() and toupper().
Solution:   Use TO_LOWER() and TO_UPPER() instead.  Also adjust the Makefile
            to make using bcc 5.5 easier.
Files:      src/edit.c, src/ex_docmd.c, src/misc1.c, src/Makefile.bor

Patch 5.6.035
Problem:    Listing the"+comments" feature in the ":version" output depended
            on the wrong ID. (Stephen P. Wall)
Solution:   Change "CRYPTV" to "COMMENTS".
Files:      src/version.c

Patch 5.6.036
Problem:    GTK GUI: Copy/paste text doesn't work between gvim and Eterm.
Solution:   Support TEXT and COMPOUND_TEXT selection targets. (ChiDeok Hwang)
Files:      src/gui_gtk_x11.c

Patch 5.6.037
Problem:    Multi-byte: Can't use "f" command with multi-byte character in GUI.
Solution:   Enable XIM in Normal mode for the GUI. (Sung-Hyun Nam)
Files:      src/gui_gtk_x11.c, src/multbyte.c

Patch 5.6.038
Problem:    Multi-clicks in GUI are interpreted as a mouse wheel click.  When
            'ttymouse' is "xterm" a mouse click is interpreted as a mouse
            wheel click.
Solution:   Don't recognize the mouse wheel in check_termcode() in the GUI.
            Use 0x43 for a mouse drag in do_xterm_trace(), not 0x63.
Files:      src/term.c, src/os_unix.c

Patch 5.6.039
Problem:    Motif GUI under KDE: When trying to logout, Vim hangs up the
            system. (Hermann Rochholz)
Solution:   When handling the WM_SAVE_YOURSELF event, set the WM_COMMAND
            property of the window to let the session manager know we finished
            saving ourselves.
Files:      src/gui_x11.c

Patch 5.6.040
Problem:    When using ":s" command, matching the regexp is done twice.
Solution:   After copying the matched line, adjust the pointers instead of
            finding the match again. (Loic Grenie)  Added vim_regnewptr().
Files:      src/ex_cmds.c, src/regexp.c, src/proto/regexp.pro

Patch 5.6.041
Problem:    GUI: Athena, Motif and GTK don't give more than 10 dialog buttons.
Solution:   Remove the limit on the number of buttons.
            Also support the 'v' flag in 'guioptions'.
            For GTK: Center the buttons.
Files:      src/gui_athena.c, src/gui_gtk.c, src/gui_motif.c

Patch 5.6.042
Problem:    When doing "vim -u vimrc" and vimrc contains ":q", the cursor in
            the terminal can remain off.
Solution:   Call cursor_on() in mch_windexit().
```

```
Files:      src/os_unix.c

Patch 5.6.043 (extra)
Problem:    Win32 GUI: When selecting guifont with the dialog, 'guifont'
            doesn't include the bold or italic attributes.
Solution:   Append ":i" and/or ":b" to 'guifont' in gui_mch_init_font().
Files:      src/gui_w32.c

Patch 5.6.044 (extra)
Problem:    MS-DOS and Windows: The line that dosinst.exe appends to
            autoexec.bat to set PATH is wrong when Vim is in a directory with
            an embedded space.
Solution:   Use double quotes for the value when there is an embedded space.
Files:      src/dosinst.c

Patch 5.6.045 (extra) (fixed version)
Problem:    VMS: Various small problems.
Solution:   Many small changes. (Zoltan Arpadffy)
            File name modifier ":h" keeps the path separator.
            File name modifier ":e" also removes version.
            Compile with MAX_FEAT by default.
            When checking for autocommands ignore version in file name.
            Be aware of file names being case insensitive.
            Added vt320 builtin termcap.
            Be prepared for an empty default_vim_dir.
Files:      runtime/gvimrc_example.vim, runtime/vimrc_example.vim,
            runtime/doc/os_vms.txt, src/eval.c, src/feature.h, src/fileio.c,
            src/gui_motif.c, src/gui_vms_conf.h, src/main.c, src/memline.c,
            src/misc1.c, src/option.c, src/os_vms_conf.h, src/os_vms.c,
            src/os_vms.h, src/os_vms.mms, src/tag.c, src/term.c, src/version.c

Patch 5.6.046
Problem:    Systems with backslash in file name: With 'shellslash' set, "vim
            */*.c" only uses a slash for the first file name.  (Har'El)
Solution:   Fix slashes in file name arguments after reading the vimrc file.
Files:      src/option.c

Patch 5.6.047
Problem:    $CPPFLAGS is not passed on to ctags configure.
Solution:   Add it. (Walter Briscoe)
Files:      src/config.mk.in, src/Makefile

Patch 5.6.048
Problem:    CTRL-R in Command-line mode is documented to insert text as typed,
            but inserts text literally.
Solution:   Make CTRL-R insert text as typed, use CTRL-R CTRL-R to insert
            literally.  This is consistent with Insert mode.  But characters
            that end Command-line mode are inserted literally.
Files:      runtime/doc/index.txt, runtime/doc/cmdline.txt, src/ex_getln.c,
            src/ops.c, src/proto/ops.pro

Patch 5.6.049
Problem:    Documentation for [!] after ":ijump" is wrong way around. (Benji
            Fisher)
```

```
Solution:   Fix the documentation.  Also improve the code to check for a match
            after a /* */ comment.
Files:      runtime/doc/tagsearch.txt, src/search.c

Patch 5.6.050
Problem:    Replacing is wrong when replacing a single-byte char with
            double-byte char or the other way around.
Solution:   Shift the text after the character when it is replaced.
            (Yasuhiro Matsumoto)
Files:      src/normal.c, src/misc1.c

Patch 5.6.051
Problem:    ":tprev" and ":tnext" don't give an error message when trying to
            go before the first or beyond the last tag. (Robert Webb)
Solution:   Added error messages.  Also: Delay a second when a file-read
            message is going to overwrite an error message, otherwise it won't
            be seen.
Files:      src/fileio.c, src/tag.c

Patch 5.6.052
Problem:    Multi-byte: When an Ex command has a '|' or '"' as a second byte,
            it terminates the command.
Solution:   Skip second byte of multi-byte char when checking for '|' and '"'.
            (Asai Kenichi)
Files:      src/ex_docmd.c

Patch 5.6.053
Problem:    CTRL-] doesn't work on a tag that contains a '|'. (Cesar Crusius)
Solution:   Escape '|', '"' and '\' in tag names when using CTRL-] and also
            for command-line completion.
Files:      src/ex_getln.c, src/normal.c

Patch 5.6.054
Problem:    When using ":e" and ":e #" the cursor is put in the first column
            when 'startofline' is set. (Cordell)
Solution:   Use the last known column when 'startofline' is set.
            Also, use ECMD_LAST more often to simplify the code.
Files:      src/buffer.c, src/ex_cmds.c, src/ex_docmd.c, src/proto/buffer.pro

Patch 5.6.055
Problem:    When 'statusline' only contains a text without "%" and doesn't fit
            in the window, Vim crashes. (Ron Aaron)
Solution:   Don't use the pointer for the first item if there is no item.
Files:      src/screen.c

Patch 5.6.056 (extra)
Problem:    MS-DOS: F11 and F12 don't work when 'bioskey' is set.
Solution:   Use enhanced keyboard functions. (Vince Negri)
            Detect presence of enhanced keyboard and set bioskey_read and
            bioskey_ready.
Files:      src/os_msdos.c

Patch 5.6.057 (extra)
Problem:    Win32 GUI: Multi-byte characters are wrong in dialogs and tear-off
```

menus.
Solution: Use system font instead of a fixed font. (Matsumoto, Muraoka)
Files: src/gui_w32.c

Patch 5.6.058
Problem: When the 'a' flag is not in 'guioptions', non-Windows systems
           copy Visually selected text to the clipboard/selection on a yank
           or delete command anyway. On Windows it isn't done even when the
           'a' flag is included.
Solution: Respect the 'a' flag in 'guioptions' on all systems.
Files: src/normal.c

Patch 5.6.059 (extra)
Problem: When moving the cursor over italic text and the characters spill
           over to the cell on the right, that spill-over is deleted.
           Noticed in the Win32 GUI, can happen on other systems too.
Solution: Redraw italic text starting from a blank, like this is already
           done for bold text. (Vince Negri)
Files: src/gui.c, src/gui.h, src/gui_w32.c

Patch 5.6.060
Problem: Some bold characters spill over to the cell on the left, that
           spill-over can remain sometimes.
Solution: Redraw a character when the next character was bold and needs
           redrawing. (Robert Webb)
Files: src/screen.c

Patch 5.6.061
Problem: When xterm sends 8-bit controls, recognizing the version response
           doesn't work.
           When using CSI instead of <Esc>[for the termcap color codes,
           using 16 colors doesn't work. (Neil Bird)
Solution: Also accept CSI in place of <Esc>[for the version string.
           Also check for CSI when handling colors 8-15 in term_color().
           Use CSI for builtin xterm termcap entries when 'term' contains
           "8bit".
Files: runtime/doc/term.txt, src/ex_cmds.c, src/option.c, src/term.c,
           src/os_unix.c, src/proto/option.pro, src/proto/term.pro

Patch 5.6.062
Problem: The documentation says that setting 'smartindent' doesn't have an
           effect when 'cindent' is set, but it does make a difference for
           lines starting with "#". (Neil Bird)
Solution: Really ignore 'smartindent' when 'cindent' is set.
Files: src/misc1.c, src/ops.c

Patch 5.6.063
Problem: Using "I" in Visual-block mode doesn't accept a count. (Johannes
           Zellner)
Solution: Pass the count on to do_insert() and edit(). (Allan Kelly)
Files: src/normal.c, src/ops.c, src/proto/ops.pro

Patch 5.6.064
Problem: MS-DOS and Win32 console: Mouse doesn't work correctly after

```
            including patch 5.6.28. (Vince Negri)
Solution:   Don't check for mouse scroll wheel when the mouse code contains
            the number of clicks.
Files:      src/term.c

Patch 5.6.065
Problem:    After moving the cursor around in Insert mode, typing a space can
            still trigger an abbreviation. (Benji Fisher)
Solution:   Don't check for an abbreviation after moving around in Insert mode.
Files:      src/edit.c

Patch 5.6.066
Problem:    Still a few bold character spill-over remains after patch 60.
Solution:   Clear character just in front of blanking out rest of the line.
            (Robert Webb)
Files:      src/screen.c

Patch 5.6.067
Problem:    When a file name contains a NL, the viminfo file is corrupted.
Solution:   Use viminfo_writestring() to convert the NL to CTRL-V n.
            Also fix the Buffers menu and listing a menu name with a newline.
Files:      runtime/menu.vim, src/buffer.c, src/mark.c, src/menu.c

Patch 5.6.068
Problem:    Compiling the Perl interface doesn't work with Perl 5.6.0.
            (Bernhard Rosenkraenzer)
Solution:   Also check xs_apiversion for the version number when prepending
            defines for PL_*.
Files:      src/Makefile

Patch 5.6.069
Problem:    "go" doesn't always end up at the right character when
            'fileformat' is "dos". (Bruce DeVisser)
Solution:   Correct computations in ml_find_line_or_offset().
Files:      src/memline.

Patch 5.6.070 (depends on 5.6.068)
Problem:    Compiling the Perl interface doesn't work with Perl 5.6.0.
            (Bernhard Rosenkraenzer)
Solution:   Simpler check instead of the one from patch 68.
Files:      src/Makefile

Patch 5.6.071
Problem:    "A" in Visual block mode on a Tab positions the cursor one char to
            the right. (Michael Haumann)
Solution:   Correct the column computation in op_insert().
Files:      src/ops.c

Patch 5.6.072
Problem:    When starting Vim with "vim +startinsert", it enters Insert mode
            only after typing the first command. (Andrew Pimlott)
Solution:   Insert a dummy command in the stuff buffer.
Files:      src/main.c
```

Patch 5.6.073 (extra) (depends on 5.6.034)
Problem: Win32 GUI: When compiled with Bcc 5.5 menus don't work.
            In dosinst.c toupper() and tolower() give an "internal compiler
            error" for Bcc 5.5.
Solution: Define WINVER to 4 to avoid compiling for Windows 2000. (Dan
            Sharp) Also cleaned up compilation arguments.
            Use our own implementation of toupper() in dosinst.c. Use
            mytoupper() instead of tolower().
Files: src/Makefile.bor, src/dosinst.c

Patch 5.6.074 (extra)
Problem: Entering CSI directly doesn't always work, because it's recognized
            as the start of a special key. Mostly a problem with multi-byte
            in the GUI.
Solution: Use K_CSI for a typed CSI character. Use <CSI> for a normal CSI,
            <xCSI> for a CSI typed in the GUI.
Files: runtime/doc/intro.txt, src/getchar.c, src/gui_amiga.c,
            src/gui_gtk_x11.c, src/gui_mac.c, src/gui_riscos.c, src/gui_w32.c,
            src/keymap.h, src/misc2.c

Patch 5.6.075
Problem: When using "I" or "A" in Visual block mode while 'sts' is set may
            change spaces to a Tab the inserted text is not correct. (Mike
            Steed) And some other problems when using "A" to append after the
            end of the line.
Solution: Check for change in spaces/tabs after inserting the text. Append
            spaces to fill the gap between the end-of-line and the right edge
            of the block.
Files: src/ops.c

Patch 5.6.076
Problem: GTK GUI: Mapping <M-Space> doesn't work.
Solution: Don't use the "Alt" modifier twice in key_press_event().
Files: src/gui_gtk_x11.c

Patch 5.6.077
Problem: GUI: When interrupting an external program with CTRL-C, gvim might
            crash. (Benjamin Korvemaker)
Solution: Avoid using a NULL pointer in ui_inchar_undo().
Files: src/ui.c

Patch 5.6.078
Problem: Locale doesn't always work on FreeBSD. (David O'Brien)
Solution: Link with the "xpg4" library when available.
Files: src/configure.in, src/configure

Patch 5.6.079
Problem: Vim could crash when several Tcl interpreters are created and
            destroyed.
Solution: handle the "exit" command and nested ":tcl" commands better. (Ingo
            Wilken)
Files: runtime/doc/if_tcl.txt, src/if_tcl.c

Patch 5.6.080

```
Problem:    When jumping to a tag, generating the tags file and jumping to the
            same tag again uses the old search pattern. (Sung-Hyun Nam)
Solution:   Flush cached tag matches when executing an external command.
Files:      src/misc2.c, src/proto/tag.pro, src/tag.c

Patch 5.6.081
Problem:    ":syn include" uses a level for the included file, this confuses
            contained items included at the same level.
Solution:   Use a unique tag for each included file.  Changed sp_syn_inc_lvl
            to sp_syn_inc_tag. (Scott Bigham)
Files:      src/syntax.c, src/structs.h

Patch 5.6.082
Problem:    When using cscope, Vim can crash.
Solution:   Initialize tag_fname in find_tags(). (Anton Blanchard)
Files:      src/tag.c

Patch 5.6.083 (extra)
Problem:    Win32: The visual beep can't be seen. (Eric Roesinger)
Solution:   Flush the output before waiting with GdiFlush(). (Maurice S. Barnum)
            Also: Allow specifying the delay in t_vb for the GUI.
Files:      src/gui.c, src/gui_amiga.c, src/gui_gtk_x11.c, src/gui_mac.c,
            src/gui_riscos.c, src/gui_w32.c, src/gui_x11.c, src/gui_beos.cc,
            src/proto/gui_amiga.pro, src/proto/gui_gtk_x11.pro,
            src/proto/gui_mac.pro, src/proto/gui_riscos.pro,
            src/proto/gui_w32.pro, src/proto/gui_x11.pro,
            src/proto/gui_beos.pro

Patch 5.6.084 (depends on 5.6.074)
Problem:    GUI: Entering CSI doesn't always work for Athena and Motif.
Solution:   Handle typed CSI as <xCSI> (forgot this bit in 5.6.074).
Files:      src/gui_x11.c

Patch 5.6.085
Problem:    Multi-byte: Using "r" to replace a double-byte char with a
            single-byte char moved the cursor one character. (Matsumoto)
            Also, using a count when replacing a single-byte char with a
            double-byte char didn't work.
Solution:   Don't use del_char() to delete the second byte.
            Get "ptr" again after calling ins_char().
Files:      src/normal.c

Patch 5.6.086 (extra)
Problem:    Win32: When using libcall() and the returned value is not a valid
            pointer, Vim crashes.
Solution:   Use IsBadStringPtr() to check if the pointer is valid.
Files:      src/os_win32.c

Patch 5.6.087
Problem:    Multi-byte: Commands and messages with multi-byte characters are
            displayed wrong.
Solution:   Detect double-byte characters. (Yasuhiro Matsumoto)
Files:      src/ex_getln.c, src/message.c, src/misc2.c, src/screen.c
```

```
Patch 5.6.088
Problem:    Multi-byte with Motif or Athena: The message "XIM requires
            fontset" is annoying when Vim was compiled with XIM support but it
            is not being used.
Solution:   Remove that message.
Files:      src/multbyte.c

Patch 5.6.089
Problem:    On non-Unix systems it's possible to overwrite a read-only file
            without using "!".
Solution:   Check if the file permissions allow overwriting before moving the
            file to become the backup file.
Files:      src/fileio.c

Patch 5.6.090
Problem:    When editing a file in "/home/dir/home/dir" this was replaced with
            "~~".  (Andreas Jellinghaus)
Solution:   Replace the home directory only once in home_replace().
Files:      src/misc1.c

Patch 5.6.091
Problem:    When editing many "no file" files, can't create swap file, because
            .sw[a-p] have all been used.  (Neil Bird)
Solution:   Also use ".sv[a-z]", ".su[a-z]", etc.
Files:      src/memline.c

Patch 5.6.092
Problem:    FreeBSD: When setting $TERM to a non-valid terminal name, Vim
            hangs in tputs().
Solution:   After tgetent() returns an error code, call it again with the
            terminal name "dumb".  This apparently creates an environment in
            which tputs() doesn't fail.
Files:      src/term.c

Patch 5.6.093 (extra)
Problem:    Win32 GUI: "ls | gvim -" will show a message box about reading
            stdin when Vim exits. (Donohue)
Solution:   Don't write a message about the file read from stdin until the GUI
            has started.
Files:      src/fileio.c

Patch 5.6.094
Problem:    Problem with multi-byte string for ":echo var".
Solution:   Check for length in msg_outtrans_len_attr(). (Sung-Hyun Nam)
            Also make do_echo() aware of multi-byte characters.
Files:      src/eval.c, src/message.c

Patch 5.6.095
Problem:    With an Emacs TAGS file that include another a relative path
            doesn't always work.
Solution:   Use expand_tag_fname() on the name of the included file.
            (Utz-Uwe Haus)
Files:      src/tag.c
```

```
Patch 5.6.096
Problem:    Unix: When editing many files, startup can be slow. (Paul
            Ackersviller)
Solution:   Halve the number of stat() calls used to add a file to the buffer
            list.
Files:      src/buffer.c

Patch 5.7a.001
Problem:    GTK doesn't respond on drag&drop from ROX-Filer.
Solution:   Add "text/uri-list" target. (Thomas Leonard)
            Also: fix problem with checking for trash arguments.
Files:      src/gui_gtk_x11.c

Patch 5.7a.002
Problem:    Multi-byte: 'showmatch' is performed when second byte of an
            inserted double-byte char is a paren or brace.
Solution:   Check IsTrailByte() before calling showmatch(). (Taro Muraoka)
Files:      src/misc1.c

Patch 5.7a.003
Problem:    Multi-byte: After using CTRL-O in Insert mode with the cursor at
            the end of the line on a multi-byte character the cursor moves to
            the left.
Solution:   Check for multi-byte character at end-of-line. (Taro Muraoka)
            Also: fix cls() to detect a double-byte character. (Chong-Dae Park)
Files:      src/edit.c, src/search.c

Patch 5.7a.004
Problem:    When reporting the search pattern offset, the string could be
            unterminated, which may cause a crash.
Solution:   Terminate the string for the search offset. (Stephen P. Wall)
Files:      src/search.c

Patch 5.7a.005
Problem:    When ":s//~/" doesn't find a match it reports "[NULL]" for the
            pattern.
Solution:   Use get_search_pat() to obtain the actually used pattern.
Files:      src/ex_cmds.c, src/proto/search.pro, src/search.c

Patch 5.7a.006 (extra)
Problem:    VMS: Various problems, also with the VAXC compiler.
Solution:   In many places use the Unix code for VMS too.
            Added time, date and compiler version to version message.
            (Zoltan Arpadffy)
Files:      src/ex_cmds.c, src/ex_docmd.c, src/globals.h, src/gui_vms_conf.h,
            src/main.c, src/message.c, src/misc1.c, src/os_vms.c,
            src/os_vms.h, src/os_vms.mms, src/os_vms_conf.h,
            src/proto/os_vms.pro, src/proto/version.pro, src/term.c,
            src/version.c, src/xxd/os_vms.mms, src/xxd/xxd.c

Patch 5.7a.007
Problem:    Motif and Athena GUI: CTRL-@ is interpreted as CTRL-C.
Solution:   Only use "intr_char" when it has been set.
Files:      src/gui_x11.c
```

Patch 5.7a.008
Problem: GTK GUI: When using CTRL-L the screen is redrawn twice, causing
            trouble for bold characters. Also happens when moving with the
            scrollbar. Best seen when 'writedelay' is non-zero.
            When starting the GUI with ":gui" the screen is redrawn once with
            the wrong colors.
Solution: Only set the geometry hints when the window size really changed.
            This avoids setting it each time the scrollbar is forcefully
            redrawn.
            Don't redraw in expose_event() when gui.starting is still set.
Files: src/gui_gtk_x11.c

==
VERSION 5.8   version-5.8

Version 5.8 is a bug-fix version of 5.7.

Changed   changed-5.8

Ctags is no longer included with Vim. It has grown into a project of its own.
You can find it here: http://ctags.sf.net. It is highly recommended as a Vim
companion when you are writing programs.

Added   added-5.8

New syntax files:
acedb   AceDB (Stewart Morris)
aflex   Aflex (Mathieu Clabaut)
antlr   Antlr (Mathieu Clabaut)
asm68k   68000 Assembly (Steve Wall)
automake   Automake (John Williams)
ayacc   Ayacc (Mathieu Clabaut)
b   B (Mathieu Clabaut)
bindzone   BIND zone (glory hump)
blank   Blank (Rafal Sulejman)
cfg   Configure files (Igor Prischepoff)
changelog   ChangeLog (Gediminas Paulauskas)
cl   Clever (Phil Uren)
crontab   Crontab (John Hoelzel)
csc   Essbase script (Raul Segura Acevedo)
cynlib   Cynlib(C++) (Phil Derrick)
cynpp   Cyn++ (Phil Derrick)
debchangelog   Debian Changelog (Wichert Akkerman)
debcontrol   Debian Control (Wichert Akkerman)
dns   DNS zone file (Jehsom)
dtml   Zope's DTML (Jean Jordaan)
dylan   Dylan, Dylan-intr and Dylan-lid (Brent Fulgham)
ecd   Embedix Component Description (John Beppu)

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fgl             Informix 4GL (Rafal Sulejman)
foxpro          FoxPro (Powing Tse)
gsp             GNU Server Pages (Nathaniel Harward)
gtkrc           GTK rc (David Necas)
hercules        Hercules (Avant! Corporation) (Dana Edwards)
htmlos          HTML/OS by Aestiva (Jason Rust)
inittab         SysV process control (David Necas)
iss             Inno Setup (Dominique Stephan)
jam             Jam (Ralf Lemke)
jess            Jess (Paul Baleme)
lprolog         LambdaProlog (Markus Mottl)
ia64            Intel Itanium (parth malwankar)
kix             Kixtart (Nigel Gibbs)
mgp             MaGic Point (Gerfried Fuchs)
mason           Mason (HTML with Perl) (Andrew Smith)
mma             Mathematica (Wolfgang Waltenberger)
nqc             Not Quite C (Stefan Scherer)
omnimark        Omnimark (Paul Terray)
openroad        OpenROAD (Luis Moreno Serrano)
named           BIND configuration (glory hump)
papp            PApp (Marc Lehmann)
pfmain          Postfix main config (Peter Kelemen)
pic             PIC assembly (Aleksandar Veselinovic)
ppwiz           PPWizard (Stefan Schwarzer)
progress        Progress (Phil Uren)
psf             Product Specification File (Rex Barzee)
r               R (Tom Payne)
registry        MS-Windows registry (Dominique Stephan)
robots          Robots.txt (Dominique Stephan)
rtf             Rich Text Format (Dominique Stephan)
setl            SETL (Alex Poylisher)
sgmldecl        SGML Declarations (Daniel A. Molina W.)
sinda           Sinda input (Adrian Nagle)
sindacmp        Sinda compare (Adrian Nagle)
sindaout        Sinda output (Adrian Nagle)
smith           SMITH (Rafal Sulejman)
snobol4         Snobol 4 (Rafal Sulejman)
strace          Strace (David Necas)
tak             TAK input (Adrian Nagle)
takcmp          TAK compare (Adrian Nagle)
takout          TAK output (Adrian Nagle)
tasm            Turbo assembly (FooLman)
texmf           TeX configuration (David Necas)
trasys          Trasys input (Adrian Nagle)
tssgm           TSS Geometry (Adrian Nagle)
tssop           TSS Optics (Adrian Nagle)
tsscl           TSS Command line (Adrian Nagle)
virata          Virata Configuration Script (Manuel M.H. Stol)
vsejcl          VSE JCL (David Ondrejko)
wdiff           Wordwise diff (Gerfried Fuchs)
wsh             Windows Scripting Host (Paul Moore)
xkb             X Keyboard Extension (David Necas)

Renamed php3 to php, it now also supports php4 (Lutz Eymers)
```

Patch 5.7.015
Problem: Syntax files for Vim 6.0 can't be used with 5.x.
Solution: Add the "default" argument to the ":highlight" command: Ignore the
            command if highlighting was already specified.
Files: src/syntax.c

Generate the Syntax menu with makemenu.vim, so that it doesn't have to be done
when Vim is starting up. Reduces the startup time of the GUI.

Fixed   fixed-5.8

Conversion of docs to HTML didn't convert " tag s" to a hyperlink.

Fixed compiling under NeXT. (Jeroen C.M. Goudswaard)

optwin.vim gave an error when used in Vi compatible mode ('cpo' contains 'C').

Tcl interpreter: "buffer" command didn't check for presence of an argument.
(Dave Bodenstab)

dosinst.c: Added checks for too long file name.

Amiga: a file name starting with a colon was considered absolute but it isn't.
Amiga: ":pwd" added a slash when in the root of a drive.

Macintosh: Warnings for unused variables. (Bernhard Pruemmer)

Unix: When catching a deadly signal, handle it in such a way that it's
unlikely that Vim will hang. Call _exit() instead of exit() in case of a
severe problem.

Setting the window title from nothing to something didn't work after patch 29.

Check for ownership of .exrc and .vimrc was done with stat(). Use lstat() as
well for extra security.

Win32 GUI: Printing a file with 'fileformat' "unix" didn't work. Set
'fileformat' to "dos" before writing the temp file.

Unix: Could start waiting for a character when checking for a CTRL-C typed
when an X event is received.

Could not use Perl and Python at the same time on FreeBSD, because Perl used
"-lc" and Python used the threaded C library.

Win32: The Mingw compiler gave a few warning messages.

When using "ZZ" and an autocommand for writing uses an abbreviation it didn't
work. Don't stuff the ":x" command but execute it directly. (Mikael Berthe)

VMS doesn't always have lstat(), added an #ifdef around it.

Added a few corrections for the Macintosh. (Axel Kielhorn)

Win32: GvimExt could not edit more than a few files at once, the length of the
argument was fixed.

Previously released patches for Vim 5.7:

Patch 5.7.001
Problem: When the current buffer is crypted, and another modified buffer
            isn't, ":wall" will encrypt the other buffer.
Solution: In buf_write() use "buf" instead of "curbuf" to check for the
            crypt key.
Files: src/fileio.c

Patch 5.7.002
Problem: When 'showmode' is set, using "CTRL-O :r file" waits three seconds
            before displaying the read text. (Wichert Akkerman)
Solution: Set "keep_msg" to the file message so that the screen is redrawn
            before the three seconds wait for displaying the mode message.
Files: src/fileio.c

Patch 5.7.003
Problem: Searching for "[[:cntrl:]]" doesn't work.
Solution: Exclude NUL from the matching characters, it terminates the list.
Files: src/regexp.c

Patch 5.7.004
Problem: GTK: When selecting a new font, Vim can crash.
Solution: In gui_mch_init_font() unreference the old font, not the new one.
Files: src/gui_gtk_x11.c

Patch 5.7.005
Problem: Multibyte: Inserting a wrapped line corrupts kterm screen.
            Pasting TEXT/COMPOUND_TEXT into Vim does not work.
            On Motif no XIM status line is displayed even though it is
            available.
Solution: Don't use xterm trick for wrapping lines for multibyte mode.
            Correct a missing "break", added TEXT/COMPOUND_TEXT selection
            request.
            Add XIMStatusArea fallback code.
            (Katsuhito Nagano)
Files: src/gui_gtk_x11.c, src/multbyte.c, src/screen.c, src/ui.c

Patch 5.7.006
Problem: GUI: redrawing the non-Visual selection is wrong when the window
            is unobscured. (Jean-Pierre Etienne)
Solution: Redraw the selection properly and don't clear it. Added "len"
            argument to clip_may_redraw_selection().
Files: src/gui.c, src/ui.c, src/proto/ui.pro

Patch 5.7.007
Problem: Python: Crash when using the current buffer twice.

```
Solution:   Increase the reference count for buffer and window objects.
            (Johannes Zellner)
Files:      src/if_python.c

Patch 5.7.008
Problem:    In Ex mode, backspacing over the first TAB doesn't work properly.
            (Wichert Akkerman)
Solution:   Switch the cursor on before printing the newline.
Files:      src/ex_getln.c

Patch 5.7.009 (extra)
Problem:    Mac: Crash when using a long file.
Solution:   Don't redefine malloc() and free(), because it will break using
            realloc().
Files:      src/os_mac.h

Patch 5.7.010
Problem:    When using CTRL-A on a very long number Vim can crash.  (Michael
            Naumann)
Solution:   Truncate the length of the new number to avoid a buffer overflow.
Files:      src/ops.c

Patch 5.7.011 (extra)
Problem:    Win32 GUI on NT 5 and Win98: Displaying Hebrew is reversed.
Solution:   Output each character separately, to avoid that Windows reverses
            the text for some fonts. (Ron Aaron)
Files:      src/gui_w32.c

Patch 5.7.012
Problem:    When using "-complete=buffer" for ":command" the user command
            fails.
Solution:   In a user command don't replace the buffer name with a count for
            the  buffer number.
Files:      src/ex_docmd.c

Patch 5.7.013
Problem:    "gD" didn't always find a match in the first line, depending on
            the column the search started at.
Solution:   Reset the column to zero before starting to search.
Files:      src/normal.c

Patch 5.7.014
Problem:    Rot13 encoding was done on characters with accents, which is
            wrong. (Sven Gottwald)
Solution:   Only do rot13 encoding on ASCII characters.
Files:      src/ops.c

Patch 5.7.016
Problem:    When hitting 'n' for a ":s///c" command, the ignore-case flag was
            not restored, some matches were skipped. (Daniel Blaustein)
Solution:   Restore the reg_ic variable when 'n' was hit.
Files:      src/ex_cmds.c

Patch 5.7.017
```

```
Problem:    When using a Vim script for Vim 6.0 with <SID> before a function
            name, it produces an error message even when inside an "if version
            >= 600".  (Charles Campbell)
Solution:   Ignore errors in the function name when the function is not going
            to be defined.
Files:      src/eval.c

Patch 5.7.018
Problem:    When running "rvim" or "vim -Z" it was still possible to execute a
            shell command with system() and backtick-expansion. (Antonios A.
            Kavarnos)
Solution:   Disallow executing a shell command in get_cmd_output() and
            mch_expand_wildcards().
Files:      src/misc1.c, src/os_unix.c

Patch 5.7.019
Problem:    Multibyte: In a substitute string, a multi-byte character isn't
            skipped properly, can be a problem when the second byte is a
            backslash.
Solution:   Skip an extra byte for a double-byte character. (Muraoka Taro)
Files:      src/ex_cmds.c

Patch 5.7.020
Problem:    Compilation doesn't work on MacOS-X.
Solution:   Add a couple of #ifdefs. (Jamie Curmi)
Files:      src/regexp.c, src/ctags/general.h

Patch 5.7.021
Problem:    Vim sometimes produces a beep when started in an xterm.  Only
            happens when compiled without mouse support.
Solution:   Requesting the xterm version results in a K_IGNORE.  This wasn't
            handled when mouse support is disabled.  Accept K_IGNORE always.
Files:      src/normal.c

Patch 5.7.022
Problem:    %v in 'statusline' is not displayed when it's equal to %c.
Solution:   Check if %V or %v is used and handle them differently.
Files:      src/screen.c

Patch 5.7.023
Problem:    Crash when a WinLeave autocommand deletes the buffer in the other
            window.
Solution:   Check that after executing the WinLeave autocommands there still
            is a window to be closed.  Also update the test that was supposed
            to check for this problem.
Files:      src/window.c, testdir/test13.in, testdir/test13.ok

Patch 5.7.024
Problem:    Evaluating an expression for 'statusline' can have side effects.
Solution:   Evaluate the expression in a sandbox.
Files:      src/edit.c, src/eval.c, src/proto/eval.pro, src/ex_cmds.c,
            src/ex_cmds.h, src/ex_docmd.c, src/globals.h, src/option.c,
            src/screen.c, src/undo.c
```

```
Patch 5.7.025 (fixed)
Problem:    Creating a temp file has a race condition.
Solution:   Create a private directory to write the temp files in.
Files:      src/fileio.c, src/misc1.c, src/proto/misc1.pro,
            src/proto/fileio.pro, src/memline.c, src/os_unix.h

Patch 5.7.026 (extra)
Problem:    Creating a temp file has a race condition.
Solution:   Create a private directory to write the temp files in.
            This is the extra part of patch 5.7.025.
Files:      src/os_msdos.h

Patch 5.7.027
Problem:    Starting to edit a file can cause a crash.  For example when in
            Insert mode, using CTRL-O :help abbr<Tab> to scroll the screen and
            then <CR>, which edits a help file. (Robert Bogomip)
Solution:   Check if keep_msg is NULL before copying it.
Files:      src/fileio.c

Patch 5.7.028
Problem:    Creating a backup or swap file could fail in rare situations.
Solution:   Use O_EXCL for open().
Files:      src/fileio.c, src/memfile.c

Patch 5.7.029
Problem:    Editing a file with an extremely long name crashed Vim.
Solution:   Check for length of the name when setting the window title.
Files:      src/buffer.c

Patch 5.7.030
Problem:    A ":make" or ":grep" command with a very long argument could cause
            a crash.
Solution:   Allocate the buffer for the shell command.
Files:      src/ex_docmd.c


 vim:tw=78:ts=8:ft=help:norl:
```

version6.txt For Vim version 8.1. Last change: 2018 Mar 18

VIM REFERENCE MANUAL by Bram Moolenaar

Welcome to Vim Version 6.0! A large number of features has been added. This file mentions all the new items that have been added, changes to existing features and bug fixes compared to Vim 5.x.

See vi_diff.txt for an overview of differences between Vi and Vim 6.0.
See version4.txt for differences between Vim 3.0 and Vim 4.0.
See version5.txt for differences between Vim 4.0 and Vim 5.0.

==
INCOMPATIBLE CHANGES   incompatible-6

These changes are incompatible with previous releases. Check this list if you
run into a problem when upgrading from Vim 5.x to 6.0

Cursor position in Visual mode   curpos-visual

When going from one window to another window on the same buffer while in
Visual mode, the cursor position of the other window is adjusted to keep the
same Visual area. This can be used to set the start of the Visual area in one
window and the end in another. In vim 5.x the cursor position of the other
window would be used, which could be anywhere and was not very useful.

Substitute command Vi compatible   substitute-CR

The substitute string (the "to" part of the substitute command) has been made

Vi compatible. Previously a CTRL-V had a special meaning and could be used to prevent a <CR> to insert a line break. This made it impossible to insert a CTRL-V before a line break. Now a backslash is used to prevent a <CR> to cause a line break. Since the number of backslashes is halved, it is still possible to insert a line break at the end of the line. This now works just like Vi, but it's not compatible with Vim versions before 6.0.

When a ":s" command doesn't make any substitutions, it no longer sets the '[and '] marks. This is not related to Vi, since it doesn't have these marks.

Global option values introduced new-global-values

There are now global values for options which are local to a buffer or window. Previously the local options were copied from one buffer to another. When editing another file this could cause option values from a modeline to be used for the wrong file. Now the global values are used when entering a buffer that has not been used before. Also, when editing another buffer in a window, the local window options are reset to their global values. The ":set" command sets both the local and global values, this is still compatible. But a modeline only sets the local value, this is not backwards compatible.

":let &opt = val" now sets the local and global values, like ":set". New commands have been added to set the global or local value:

```
        :let &opt = val         like ":set"
        :let &g:opt = val       like ":setglobal"
        :let &l:opt = val       like ":setlocal"
```

'fileencoding' changed fileencoding-changed

'fileencoding' was used in Vim 5.x to set the encoding used inside all of Vim. This was a bit strange, because it was local to a buffer and worked for all buffers. It could never be different between buffers, because it changed the way text in all buffers was interpreted.
It is now used for the encoding of the file related to the buffer. If you still set 'fileencoding' it is likely to be overwritten by the detected encoding from 'fileencodings', thus it is "mostly harmless".
The old FileEncoding autocommand now does the same as the new EncodingChanged event.

Digraphs changed digraphs-changed

The default digraphs now correspond to RFC1345. This is very different from what was used in Vim 5.x. digraphs

Filetype detection changed filetypedetect-changed

The filetype detection previously was using the "filetype" autocommand group.
This caused confusion with the FileType event name (case is ignored). The
group is now called "filetypedetect". It still works, but if the "filetype"
group is used the autocommands will not be removed by ":filetype off".
   The support for 'runtimepath' has made the "myfiletypefile" and
"mysyntaxfile" mechanism obsolete. They are still used for backwards
compatibility.

The connection between the FileType event and setting the 'syntax' option was
previously in the "syntax" autocommand group. That caused confusion with the
Syntax event name. The group is now called "syntaxset".

The distributed syntax files no longer contain "syntax clear". That makes it
possible to include one in the other without tricks. The syntax is now
cleared when the 'syntax' option is set (by an autocommand added from
synload.vim). This makes the syntax cleared when the value of 'syntax' does
not correspond to a syntax file. Previously the existing highlighting was
kept.

Unlisted buffers introduced new-unlisted-buffers

There is now a difference between buffers which don't appear in the buffer
list and buffers which are really not in the buffer list. Commands like
":ls", ":bnext", ":blast" and the Buffers menu will skip buffers not in the
buffer list. unlisted-buffer
The 'buflisted' option can be used to make a buffer appear in the buffer list
or not.

Several commands that previously added a buffer to the buffer list now create
an unlisted buffer. This means that a ":bnext" and ":ball" will not find these
files until they have actually been edited. For example, buffers used for the
alternative file by ":write file" and ":read file".
   Other commands previously completely deleted a buffer and now only remove
the buffer from the buffer list. Commands relying on a buffer not to be
present might fail. For example, a ":bdelete" command in an autocommand that
relied on something following to fail (was used in the automatic tests).
 :bwipeout can be used for the old meaning of ":bdelete".

The BufDelete autocommand event is now triggered when a buffer is removed from
the buffer list. The BufCreate event is only triggered when a buffer is
created that is added to the buffer list, or when an existing buffer is added
to the buffer list. BufAdd is a new name for BufCreate.
The new BufNew event is for creating any buffer and BufWipeout for really
deleting a buffer.

When doing Insert mode completion, only buffers in the buffer list are
scanned. Added the 'U' flag to 'complete' to do completion from unlisted
buffers.

Unlisted buffers are not stored in a viminfo file.

CTRL-U in Command-line mode changed		CTRL-U-changed

Using CTRL-U when editing the command line cleared the whole line. Most
shells only delete the characters before the cursor. Made it work like that.
(Steve Wall)

You can get the old behavior with CTRL-E CTRL-U:
	:cnoremap <C-U> <C-E><C-U>

Ctags gone		ctags-gone

Ctags is no longer part of the Vim distribution. It's now a grown-up program
by itself, it deserves to be distributed separately.
Ctags can be found here: http://ctags.sf.net/.

Documentation reorganized		documentation-6

The documentation has been reorganized, an item may not be where you found it
in Vim 5.x.
- The user manual was added, some items have been moved to it from the
  reference manual.
- The quick reference is now in a separate file (so that it can be printed).

The examples in the documentation were previously marked with a ">" in the
first column. This made it difficult to copy/paste them. There is now a
single ">" before the example and it ends at a "<" or a non-blank in the first
column. This also looks better without highlighting.

'helpfile' is no longer used to find the help tags file. This allows a user
to add its own help files (e.g., for plugins).

Modeless selection and clipboard		modeless-and-clipboard

The modeless selection is used to select text when Visual mode can't be used,
for example when editing the command line or at the more prompt.
In Vim 5.x the modeless selection was always used. On MS-Windows this caused
the clipboard to be overwritten, with no way to avoid that. The modeless
selection now obeys the 'a' and 'A' flags in 'guioptions' and "autoselect" and
"autoselectml" in 'clipboard'. By default there is no automatic copy on
MS-Windows. Use the c_CTRL-Y command to manually copy the selection.

To get the old behavior back, do this:

	:set clipboard^=autoselectml guioptions+=A

Small incompatibilities		incomp-small-6

'backupdir', 'cdpath', 'directory', 'equalprg', 'errorfile', 'formatprg',
'grepprg', 'helpfile', 'makeef', 'makeprg', 'keywordprg', 'cscopeprg',
'viminfo' and 'runtimepath' can no longer be set from a modeline, for better
security.

Removed '_' from the 'breakat' default: It's commonly used in keywords.

The default for 'mousehide' is on, because this works well for most people.

The Amiga binary is now always compiled with "big" features. The "big" binary
archive no longer exists.

The items "[RO]", "[+]", "[help]", "[Preview]" and "[filetype]" in
'statusline' no longer have a leading space.

Non-Unix systems: When expanding wildcards for the Vim arguments, don't use
'suffixes'. It now works as if the shell had expanded the arguments.

The 'lisp', 'smartindent' and 'cindent' options are not switched off when
'paste' is set. The auto-indenting is disabled when 'paste' is set, but
manual indenting with "=" still works.

When formatting with "=" uses 'cindent' or 'indentexpr' indenting, and there
is no change in indent, this is not counted as a change ('modified' isn't set
and there is nothing to undo).

Report 'modified' as changed when 'fileencoding' or 'fileformat' was set.
Thus it reflects the possibility to abandon the buffer without losing changes.

The "Save As" menu entry now edits the saved file. Most people expect it to
work like this.

A buffer for a directory is no longer added to the Buffers menu.

Renamed <Return> to <Enter>, since that's what it's called on most keyboards.
Thus it's now the hit-enter prompt instead of the hit-return prompt.
Can map <Enter> just like <CR> or <Return>.

The default for the 'viminfo' option is now '20,"50,h when 'compatible' isn't
set. Most people will want to use it, including beginners, but it required
setting the option, which isn't that easy.

After using ":colder" the newer error lists are overwritten. This makes it
possible to use ":grep" to browse in a tree-like way. Must use ":cnewer 99"
to get the old behavior.

The patterns in 'errorformat' would sometimes ignore case (MS-Windows) and
sometimes not (Unix). Now case is always ignored. Add "\C" to the pattern to
match case.

The 16 bit MS-DOS version is now compiled without the +listcmds feature
(buffer list manipulation commands). They are not often needed and this

executable needs to be smaller.

'sessionoptions' now includes "curdir" by default. This means that restoring
a session will result in the current directory being restored, instead of
going to the directory where the session file is located.

A session deleted all buffers, deleting all marks. Now keep the buffer list,
it shouldn't hurt for some existing buffers to remain present.
When the argument list is empty ":argdel *" caused an error message.

No longer put the search pattern from a tag jump in the history.

Use "SpecialKey" highlighting for unprintable characters instead of "NonText".
The idea is that unprintable text or any text that's displayed differently
from the characters in the file is using "SpecialKey", and "NonText" is used
for text that doesn't really exist in the file.

Motif now uses the system default colors for the menu and scrollbar. Used to
be grey. It's still possible to set the colors with ":highlight" commands and
resources.

Formatting text with "gq" breaks a paragraph at a non-empty blank line.
Previously the line would be removed, which wasn't very useful.

":normal" does no longer hang when the argument ends in half a command.
Previously Vim would wait for more characters to be typed, without updating
the screen. Now it pretends an <Esc> was typed.

Bitmaps for the toolbar are no longer searched for in "$VIM/bitmaps" but in
the "bitmaps" directories in 'runtimepath'.

Now use the Cmdline-mode menus for the hit-enter prompt instead of the Normal
mode menus. This generally works better and allows using the "Copy" menu to
produce CTRL-Y to copy the modeless selection.

Moved the font selection from the Window to the Edit menu, together with the
other settings.

The default values for 'isfname' include more characters to make "gf" work
better.

Changed the license for the documentation to the Open Publication License.
This seemed fair, considering the inclusion of parts of the Vim book, which is
also published under the OPL. The downside is that we can't force someone who
would sell copies of the manual to contribute to Uganda.

After "ayy don't let ""yy or :let @" = val overwrite the "a register.
Use the unnamed register instead.

MSDOS: A pattern "*.*" previously also matched a file name without a dot.
This was inconsistent with other versions.

In Insert mode, CTRL-O CTRL-\ CTRL-N {cmd} remains in Normal mode. Previously
it would go back to Insert mode, thus confusing the meaning of CTRL-\ CTRL-N,

which is supposed to take us to Normal mode (especially in ":amenu").

Allow using ":" commands after an operator. Could be used to implement a new movement command. Thus it no longer aborts a pending operator.

For the Amiga the "-d {device}" argument was possible. When compiled with the diff feature, this no longer works. Use "-dev {device}" instead. -dev

Made the default mappings for <S-Insert> in Insert mode insert the text literally, avoids that special characters like BS cause side effects.

Using ":confirm" applied to the rest of the line. Now it applies only to the command right after it. Thus ":confirm if x | edit | endif" no longer works, use ":if x | confirm edit | endif". This was the original intention, that it worked differently was a bug.

==
NEW FEATURES   new-6

Folding   new-folding

Vim can now display a buffer with text folded. This allows overviewing the structure of a file quickly. It is also possible to yank, delete and put folded text, for example to move a function to another position.

There is a whole bunch of new commands and options related to folding.
See folding .

Vertically split windows   new-vertsplit

Windows can also be split vertically. This makes it possible to have windows side by side. One nice use for this is to compare two similar files (see new-diff-mode). The 'scrollbind' option can be used to synchronize scrolling.

A vertical split can be created with the commands:
        :vsplit   or CTRL-W v or CTRL-W CTRL-V   :vsplit
        :vnew   :vnew
        :vertical {cmd}   :vertical
The last one is a modifier, which has a meaning for any command that splits a window. For example:
        :vertical stag main
Will vertically split the window and jump to the tag "main" in the new window.

Moving from window to window horizontally can be done with the CTRL-W_h and CTRL-W_l commands. The CTRL-W_k and CTRL-W_j commands have been changed to jump to the window above or below the cursor position.

The vertical and horizontal splits can be mixed as you like. Resizing windows is easy when using the mouse, just position the pointer on a status line or vertical separator and drag it. In the GUI a special mouse pointer shape

indicates where you can drag a status or separator line.

To resize vertically split windows use the CTRL-W_< and CTRL-W_> commands.
To make a window the maximum width use the CTRL-W | command CTRL-W_bar .

To force a new window to use the full width or height of the Vim window,
these two modifiers are available:
	:topleft {cmd}		New window appears at the top with full
				width or at the left with full height.
	:botright {cmd}		New window appears at the bottom with full
				width or at the right with full height.
This can be combined with ":vertical" to force a vertical split:
	:vert bot dsplit DEBUG
This will open a window at the far right, occupying the full height of the Vim
window, with the cursor on the first definition of "DEBUG".
The help window is opened at the top, like ":topleft" was used, if the current
window is fewer than 80 characters wide.

A few options can be used to set the preferences for vertically split windows.
They work similar to their existing horizontal equivalents:
	horizontal	vertical
	'splitbelow'	'splitright'
	'winheight'	'winwidth'
	'winminheight'	'winminwidth'
It's possible to set 'winminwidth' to zero, so that temporarily unused windows
hardly take up space without closing them.

The new 'eadirection' option tells where 'equalalways' applies:
	:set eadirection=both		both directions
	:set eadirection=ver		equalize window heights
	:set eadirection=hor		equalize windows widths
This can be used to avoid changing window sizes when you want to keep them.

Since windows can become quite narrow with vertical splits, text lines will
often not fit. The 'sidescrolloff' has been added to keep some context left
and right of the cursor. The 'listchars' option has been extended with the
"precedes" item, to show a "<" for example, when there is text left off the
screen. (Utz-Uwe Haus)

"-O" command line argument: Like "-o" but split windows vertically. (Scott
Urban)

Added commands to move the current window to the very top (CTRL-W K), bottom
(CTRL-W J), left (CTRL-W H) and right (CTRL-W L). In the new position the
window uses the full width/height of the screen.

When there is not enough room in the status line for both the file name and
the ruler, use up to half the width for the ruler. Useful for narrow windows.

Diff mode   new-diff-mode

In diff mode Vim shows the differences between two, three or four files.

Folding is used to hide the parts of the file that are equal.
Highlighting is used to show deleted and changed lines.
See diff-mode .

An easy way to start in diff mode is to start Vim as "vimdiff file1 file2".
Added the vimdiff manpage.

In a running Vim the :diffsplit command starts diff mode for the current file and another file. The :diffpatch command starts diff mode using the current file and a patch file. The :diffthis command starts diff mode for the current window.

Differences can be removed with the :diffget and :diffput commands.

- The 'diff' option switches diff mode on in a window.
- The :diffupdate command refreshes the diffs.
- The 'diffopt' option changes how diffs are displayed.
- The 'diffexpr' option can be set how a diff is to be created.
- The 'patchexpr' option can be set how patch is applied to a file.
- Added the "diff" folding method. When opening a window for diff-mode, set 'foldlevel' to zero and 'foldenable' on, to close the folds.
- Added the DiffAdd, DiffChange, DiffDelete and DiffText highlight groups to specify the highlighting for differences. The defaults are ugly...
- Unix: make a vimdiff symbolic link for "make install".
- Removed the now obsolete "vimdiff.vim" script from the distribution.
- Added the "[c" and "]c" commands to move to the next/previous change in diff mode.

Easy Vim: click-and-type new-evim
---

eVim stands for "Easy Vim". This is a separate program, but can also be started as "vim -y".

This starts Vim with 'insertmode' set to allow click-and-type editing. The $VIMRUNTIME/evim.vim script is used to add mappings and set options to be able to do most things like Notepad. This is only for people who can't stand two modes.

eView does the same but in readonly mode.

In the GUI a CTRL-C now only interrupts when busy with something, not when waiting for a character. Allows using CTRL-C to copy text to the clipboard.

User manual new-user-manual

The user manual has been added. It is organised around editing tasks. It reads like a book, from start to end. It should allow beginners to start learning Vim. It helps everybody to learn using the most useful Vim features. It is much easier to read than the reference manual, but omits details. See user-manual .

The user manual includes parts of the Vim book by Steve Oualline frombook .
It is published under the OPL manual-copyright .

When syntax highlighting is not enabled, the characters in the help file which
mark examples ('>' and '<') and header lines ('~') are replaced with a space.

When closing the help window, the window layout is restored from before
opening it, if the window layout didn't change since then.
When opening the help window, put it at the top of the Vim window if the
current window is fewer than 80 characters and not full width.

Flexible indenting new-indent-flex

Automatic indenting is now possible for any language. It works with a Vim
script, which makes it very flexible to compute the indent.

The ":filetype indent on" command enables using the provided indent scripts.
This is explained in the user manual: 30.3 .

The 'indentexpr' option is evaluated to get the indent for a line. The
'indentkeys' option tells when to trigger re-indenting. Normally these
options are set from an indent script. Like Syntax files, indent scripts will
be created and maintained by many people.

Extended search patterns new-searchpat

Added the possibility to match more than one line with a pattern. (partly by
Loic Grenie)
New items in a search pattern for multi-line matches:
\n   match end-of-line, also in []
_[]   match characters in range and end-of-line
_x   match character class and end-of-line
_.   match any character or end-of-line
_^   match start-of-line, can be used anywhere in the regexp
_$ match end-of-line, can be used anywhere in the regexp

Various other new items in search patterns:
\c   ignore case for the whole pattern
\C   match case for the whole pattern
\m   magic on for the following
\M   magic off for the following
\v   make following characters "very magic"
\V   make following characters "very nomagic"

\@!   don't match atom before this.
                Example: "foo\(bar\)\@!" matches "foo " but not "foobar".
\@=   match atom, resulting in zero-width match
                Example: "foo\(bar\)\@=" matches "foo" in "foobar".
\@<!   don't match preceding atom before the current position

```
\@<=            match preceding atom before the current position
\@>             match preceding atom as a subexpression

\&              match only when branch before and after it match

\%[]            optionally match a list of atoms; "end\%[if]" matches "end",
                "endi" and "endif"
\%(\)           like \(\), but without creating a back-reference; there can be
                any number of these, overcomes the limit of nine \( \) pairs
\%^             match start-of-file (Chase Tingley)
\%$             match end-of-file (Chase Tingley)
\%#             Match with the cursor position. (Chase Tingley)
\?              Just like "\=" but can't be used in a "?" command.

\%23l           match in line 23
\%<23l          match before line 23
\%>23l          match after line 23
\%23c, \%<23c, \%>23c   match in/before/after column 23
\%23v, \%<23v, \%>23v   match in/before/after virtual column 23


For syntax items:
\z(...\)        external reference match set (in region start pattern)
\z1 - \z9       external reference match use (in region skip or end pattern)
        (Scott Bigham)

\zs             use position as start of match
\ze             use position as end of match

Removed limit of matching only up to 32767 times with *, \+, etc.

Added support to match multi-byte characters. (partly by Muraoka Taro)
Made "\<" and "\>" work for UTF-8. (Muraoka Taro)


UTF-8 support                                                   new-utf-8
-------------

Vim can now edit files in UTF-8 encoding.  Up to 31 bit characters can be
used, but only 16 bit characters are displayed.  Up to two combining
characters are supported, they overprint the preceding character.
Double-wide characters are also supported.  See  UTF-8 .

UCS-2, UCS-4 and UTF-16 encodings are supported too, they are converted to
UTF-8 internally.  There is also support for editing Unicode files in a Latin1
environment.  Other encodings are converted with iconv() or an external
converter specified with 'charconvert'.

Many new items for Multi-byte support:
- Added 'encoding' option: specifies character encoding used inside Vim.  It
  can be any 8-bit encoding, some double-byte encodings or Unicode.
  It is initialized from the environment when a supported value is found.
- Added 'fileencoding' and 'fileencodings': specify character coding in a
  file, similar to 'fileformat' and 'fileformats'.
```

  When 'encoding' is "utf-8" and 'fileencodings' is "utf-8,latin1" this will
  automatically switch to latin1 if a file does not contain valid UTF-8.
- Added 'bomb' option and detection of a BOM at the start of a file. Can be
  used with "ucs-bom" in 'fileencodings' to automatically detect a Unicode
  file if it starts with a BOM. Especially useful on MS-Windows (NT and
  2000), which uses ucs-2le files with a BOM (e.g., when exporting the
  registry).
- Added the 'termencoding' option: Specifies the encoding used for the
  terminal. Useful to put Vim in utf-8 mode while in a non-Unicode locale:
    :let &termencoding = &encoding
    :set encoding=utf-8
- When 'viminfo' contains the 'c' flag, the viminfo file is converted from the
  'encoding' it was written with to the current 'encoding'.
- Added ":scriptencoding" command: convert lines in a sourced script to
  'encoding'. Useful for menu files.
- Added 'guifontwide' to specify a font for double-wide characters.
- Added Korean support for character class detection. Also fix cls() in
  search.c. (Chong-Dae Park)
- Win32: Typing multi-byte characters without IME. (Alexander Smishlajev)
- Win32 with Mingw: compile with iconv library. (Ron Aaron)
- Win32 with MSVC: dynamically load iconv.dll library. (Muraoka Taro)
- Make it possible to build a version with multi-byte and iconv support with
  Borland 5.5. (Yasuhiro Matsumoto)
- Added 'delcombine' option: Delete combining character separately. (Ron
  Aaron)
- The "xfontset" feature isn't required for "xim". These are now two
  independent features.
- XIM: enable XIM when typing a language character (Insert mode, Search
  pattern, "f" or "r" command). Disable XIM when typing a Normal mode
  command.
- When the XIM is active, show "XIM" in the 'showmode' message. (Nam SungHyun)
- Support "CursorIM" for XIM. (Nam SungHyun)
- Added 'm' flag to 'formatoptions': When wrapping words, allow splitting at
  each multibyte character, not only at a space.
- Made ":syntax keyword" work with multi-byte characters.
- Added support for Unicode upper/lowercase flipping and comparing. (based on
  patch by Raphael Finkel)
  Let "~" on multi-byte characters that have a third case ("title case")
  switch between the three cases. (Raphael Finkel)

Allow defining digraphs for multi-byte characters.
Added RFC1345 digraphs for Unicode.
Most Normal mode commands that accept a character argument, like "r", "t" and
"f" now accept a digraph. The 'D' flag in 'cpoptions' disables this to remain
Vi compatible.

Added Language mapping and 'keymap' to be able to type multi-byte characters:
- Added the ":lmap" command and friends: Define mappings that are used when
  typing characters in the language of the text. Also for "r", "t", etc. In
  Insert and Command-line mode CTRL-^ switches the use of the mappings on/off.
  CTRL-^ also toggles the use of an input method when no language mappings are
  present. Allows switching the IM back on halfway typing.
- "<char-123>" argument to ":map", allows to specify the decimal, octal or
  hexadecimal value of a character.

- Implemented the 'keymap' option: Load a keymap file. Uses ":lnoremap" to
  define mappings for the keymap. The new ":loadkeymap" command is used in
  the keymap file.
- Added 'k' flag in 'statusline': Value of "b:keymap_name" or 'keymap' when
  it's being used. Uses "<lang>" when no keymap is loaded and ":lmap"s are
  active. Show this text in the default statusline too.
- Added the 'iminsert' and 'imsearch' options: Specify use of langmap mappings
  and Input Method with an option. (Muraoka Taro)
  Added 'imcmdline' option: When set the input method is always enabled when
  starting to edit a command line. Useful for a XIM that uses dead keys to
  type accented characters.
  Added 'imactivatekey' option to better control XIM. (Muraoka Taro)
- When typing a mapping that's not finished yet, display the last character
  under the cursor in Insert mode and Command-line mode. Looks good for dead
  characters.
- Made the 'langmap' option recognize multi-byte characters. But mapping only
  works for 8-bit characters. Helps when using UTF-8.
- Use a different cursor for when ":lmap" mappings are active. Can specify
  two highlight groups for an item in 'guicursor'. By default "lCursor" and
  "Cursor" are equal, the user must set a color he likes.
  Use the cursor color for hangul input as well. (Sung-Hyun Nam)
- Show "(lang)" for 'showmode' when language mapping is enabled.
- UTF-8: Made "r" work with a ":lmap" that includes a composing character.
  Also works for "f", which now works to find a character that includes a
  composing character.

Other multi-byte character additions:
- Support double-byte single-width characters for euc-jp: Characters starting
  with 0x8E. Added ScreenLines2[] to store the second byte.

Multi-language support   new-multi-lang

The messages used in Vim can be translated. Several translations are
available. This uses the gettext mechanism. It allows adding a translation
without recompiling Vim. multi-lang (partly by Marcin Dalecki)

The translation files are in the src/po directory. The src/po/README.txt file
explains a few things about doing a translation.

Menu translations are available as well. This uses the new :menutranslate
command. The translations are found in the runtime directory "lang". This
allows a user to add a translation.

Added :language command to set the language (locale) for messages, time and
character type. This allows switching languages in Vim without changing the
locale outside of Vim.

Made it possible to have vimtutor use different languages. (Eduardo Fernandez)
Spanish (Eduardo Fernandez), Italian (Antonio Colombo), Japanese (Yasuhiro
Matsumoto) and French (Adrien Beau) translations are included.
Added "vimtutor.bat": script to start Vim on a copy of the tutor file for
MS-Windows. (Dan Sharp)

- Added v:lang variable to be able to get current language setting.
  (Marcin Dalecki) Also v:lc_time and v:ctype.
- Make it possible to translate the dialogs used by the menus. Uses global
  "menutrans_" variables. ":menutrans clear" deletes them.
- removed "broken locale" (Marcin Dalecki).
- Don't use color names in icons, use RGB values. The names could be
  translated.
- Win32: Added global IME support (Muraoka)
- Win32: Added dynamic loading of IME support.
- ":messages" prints a message about who maintains the messages or the
  translations. Useful to find out where to make a remark about a wrong
  translation.
- --disable-nls argument for configure: Disable use of gettext(). (Sung-Hyun
  Nam)
- Added NLS support for Win32 with the MingW compiler. (Eduardo Fernandez)
- When available, call bind_textdomain_codeset() to have gettext() translate
  messages to 'encoding'. This requires GNU gettext 0.10.36 or later.
- Added gettext support for Win32. This means messages will be translated
  when the locale is set and libintl.dll can be found. (Muraoka Taro)
  Also made it work with MingW compiler. (Eduardo Fernandez)
  Detect the language and set $LANG to get the appropriate translated messages
  (if supported). Also use $LANG to select a language, v:lang is a very
  different kind of name.
- Made gvimext.dll use translated messages, if possible. (Yasuhiro Matsumoto)

Plugin support   new-plugins

To make it really easy to load a Vim script when starting Vim, the "plugin"
runtime directory can be used. All "*.vim" files in it will be automatically
loaded. For Unix, the directory "~/.vim/plugin" is used by default. The
'runtimepath' option can be set to look in other directories for plugins.
 load-plugins   add-plugin

The :runtime command has been added to load one or more files in
'runtimepath'.

Standard plugins:
netrw.vim - Edit files over a network new-network-files
gzip.vim - Edit compressed files
explorer.vim - Browse directories new-file-browser

Added support for local help files. add-local-help .
When searching for help tags, all "doc/tags" files in 'runtimepath' are used.
Added the ":helptags" command: Generate a tags file for a help directory.
The first line of each help file is automagically added to the "LOCAL
ADDITIONS" section in doc/help.txt.

Added the <unique> argument to ":map": only add a mapping when it wasn't
defined before.

When displaying an option value with 'verbose' set will give a message about

where the option was last set. Very useful to find out which script did set the value.

The new :scriptnames command displays a list of all scripts that have been sourced.

GUI: For Athena, Motif and GTK look for a toolbar bitmap in the "bitmaps" directories in 'runtimepath'. Allows adding your own bitmaps.

Filetype plugins new-filetype-plugins

A new group of files has been added to do settings for specific file types. These can be options and mappings which are specifically used for one value of 'filetype'.

The files are located in "$VIMRUNTIME/ftplugin". The 'runtimepath' option makes it possible to use several sets of plugins: Your own, system-wide, included in the Vim distribution, etc.

To be able to make this work, several features were added:
- Added the "s:" variables, local to a script. Avoids name conflicts with global variables. They can be used in the script and in functions, autocommands and user commands defined in the script. They are kept between invocations of the same script. s:var
- Added the global value for local options. This value is used when opening a new buffer or editing another file. The option value specified in a modeline or filetype setting is not carried over to another buffer.
  ":set" sets both the local and the global value.
  ":setlocal" sets the local option value only.
  ":setglobal" sets or displays the global value for a local option.
  ":setlocal name<" sets a local option to its global value.
- Added the buffer-local value for some global options: 'equalprg', 'makeprg', 'errorformat', 'grepprg', 'path', 'dictionary', 'thesaurus', 'tags', 'include' and 'define'. This allows setting a local value for these global options, without making it incompatible.
- Added mappings and abbreviations local to a buffer: ":map <buffer>".
- In a mapping "<Leader>" can be used to get the value of the "mapleader" variable. This simplifies mappings that use "mapleader". "<Leader>" defaults to "\". "<LocalLeader>" does the same with "maplocalleader". This is to be used for mappings local to a buffer.
- Added <SID> Script ID to define functions and mappings local to a script.
- Added <script> argument to ":noremap" and ":noremenu": Only remap script-local mappings. Avoids that mappings from other scripts get in the way, but does allow using mappings defined in the script.
- User commands can be local to a buffer: ":command -buffer".

The new ":setfiletype" command is used in the filetype detection autocommands, to avoid that 'filetype' is set twice.

File browser new-file-browser

When editing a directory, the explorer plugin will list the files in the directory. Pressing <Enter> on a file name edits that file. Pressing <Enter> on a directory moves the browser to that directory.

There are several other possibilities, such as opening a file in the preview window, renaming files and deleting files.

Editing files over a network new-network-files

Files starting with scp://, rcp://, ftp:// and http:// are recognized as remote files. An attempt is made to access these files with the indicated method. For http:// only reading is possible, for the others writing is also supported. Uses the netrw.vim script as a standard "plugin". netrw

Made "gf" work on a URL. It no longer assumes the file is local on the computer (mostly didn't work anyway, because the full path was required). Adjusted test2 for this.

Allow using a URL in 'path'. Makes ":find index.html" work.

GTK: Allow dropping a http:// and ftp:// URL on Vim. The netrw plugin takes care of downloading the file. (Mikael Berthe)

Window for command-line editing new-cmdwin

The Command-line window can be used to edit a command-line with Normal and Insert mode commands. When it is opened it contains the history. This allows copying parts of previous command lines. cmdwin

The command-line window can be opened from the command-line with the key specified by the 'cedit' option (like Nvi). It can also be opened directly from Normal mode with "q:", "q/" and "q?".

The 'cmdwinheight' is used to specify the initial height of the window.

In Insert mode CTRL-X CTRL-V can be used to complete an Ex command line, like it's done on the command-line. This is also useful for writing Vim scripts!

Additionally, there is "improved Ex mode". Entered when Vim is started as "exim" or "vim -E", and with the "gQ" command. Works like repeated use of ":", with full command-line editing and completion. (Ulf Carlsson)

Debugging mode new-debug-mode

In debugging mode sourced scripts and user functions can be executed line by line. There are commands to step over a command or step into it. debug-mode

Breakpoints can be set to run until a certain line in a script or user function is executed. :breakadd

Debugging can be started with ":debug {cmd}" to debug what happens when a command executes. The -D argument can be used to debug while starting up.

Cursor in virtual position new-virtedit

Added the 'virtualedit' option: Allow positioning the cursor where there is no actual character in Insert mode, Visual mode or always. (Matthias Kramm) This is especially useful in Visual-block mode. It allows positioning a corner of the area where there is no text character. (Many improvements by Chase Tingley)

Debugger interface new-debug-itf

This was originally made to work with Sun Visual Workshop. (Gordon Prieur) See debugger.txt , sign.txt and workshop.txt .

Added the ":sign" command to define and place signs. They can be displayed with two ASCII characters or an icon. The line after it can be highlighted. Useful to display breakpoints and the current PC position.

Added the :wsverb command to execute debugger commands.

Added balloon stuff: 'balloondelay' and 'ballooneval' options.

Added "icon=" argument for ":menu". Allows defining a specific icon for a ToolBar item.

Communication between Vims new-vim-server

Added communication between two Vims. Makes it possible to send commands from one Vim to another. Works for X-Windows and MS-Windows clientserver .

Use "--remote" to have files be edited in an already running Vim.
Use "--remote-wait" to do the same and wait for the editing to finish.
Use "--remote-send" to send commands from one Vim to another.
Use "--remote-expr" to have an expression evaluated in another Vim.
Use "--serverlist" to list the currently available Vim servers. (X only)
There are also functions to communicate between the server and the client.
remote_send() remote_expr()

(X-windows version implemented by Flemming Madsen, MS-Windows version by Paul Moore)

Added the command server name to the window title, so you can see which server name belongs to which Vim.

Removed the OleVim directory and SendToVim.exe and EditWithVim.exe from the distribution. Can now use "gvim --remote" and "gvim --remote-send", which is portable.

GTK+: Support running Vim inside another window. Uses the --socketid argument (Neil Bird)

Buffer type options new-buftype

The 'buftype' and 'bufhidden' options have been added. They can be set to have different kinds of buffers. For example:
- 'buftype' = "quickfix": buffer with error list
- 'buftype' = "nofile" and 'bufhidden' = "delete": scratch buffer that will be deleted as soon as there is no window displaying it.

'bufhidden' can be used to overrule the 'hidden' option for one buffer.

In combination with 'buflisted' and 'swapfile' this offers the possibility to use various kinds of special buffers. See special-buffers .

Printing new-printing

Included first implementation of the ":hardcopy" command for printing to paper. For MS-Windows any installed printer can be used. For other systems a PostScript file is generated, which can be printed with the 'printexpr' option.
(MS-Windows part by Vince Negri, Vipin Aravind, PostScript by Vince Negri and Mike Williams)

Made ":hardcopy" work with multi-byte characters. (Muraoka Taro, Yasuhiro Matsumoto)

Added options to tune the way printing works: (Vince Negri)
- 'printoptions' defines various things.
- 'printheader' specifies the header format. Added "N" field to 'statusline' for the page number.
- 'printfont' specifies the font name and attributes.
- 'printdevice' defines the default printer for ":hardcopy!".

Ports ports-6

Port to OS/390 Unix (Ralf Schandl)
- A lot of changes to handle EBCDIC encoding.
- Changed Ctrl('x') to Ctrl_x define.

Included jsbmouse support. (Darren Garth)
Support for dec mouse in Unix. (Steve Wall)

Port to 16-bit MS Windows (Windows 3.1x) (Vince Negri)

Port to QNX. Supports the Photon GUI, mouse, etc. (Julian Kinraid)

Allow cross-compiling the Win32 version with Make_ming.mak. (Ron Aaron)
Added Python support for compiling with Mingw. (Ron Aaron)

Dos 32 bit: Added support the Windows clipboard. (David Kotchan)

Win32: Dynamically load Perl and Python. Allows compiling Vim with these
interfaces and will try to find the DLLs at runtime. (Muraoka Taro)

Compiling the Win32 GUI with Cygwin. Also compile vimrun, dosinst and
uninstall. (Gerfried)

Mac: Make Vim compile with the free MPW compiler supplied by Apple. And
updates for CodeWarrior. (Axel Kielhorn)

Added typecasts and ifdefs as a start to make Vim work on Win64 (George
Reilly)

Quickfix extended quickfix-6

Added the "error window". It contains all the errors of the current error
list. Pressing <Enter> in a line makes Vim jump to that line (in another
window). This makes it easy to navigate through the error list.
 quickfix-window .

- :copen opens the quickfix window.
- :cclose closes the quickfix window.
- :cwindow takes care that there is a quickfix window only when there are
  recognized errors. (Dan Sharp)

- Quickfix also knows "info", next to "warning" and "error" types. "%I" can be
  used for the start of a multi-line informational message. (Tony Leneis)
- The "%p" argument can be used in 'errorformat' to get the column number from
  a line where "^" points to the column. (Stefan Roemer)
- When using "%f" in 'errorformat' on a DOS/Windows system, also include "c:"
  in the filename, even when using "%f:".

Operator modifiers new-operator-mod

Insert "v", "V" or CTRL-V between an operator and a motion command to force
the operator to work characterwise, linewise or blockwise. o_v

Search Path new-search-path

Vim can search in a directory tree not only in downwards but also upwards.
Works for the 'path', 'cdpath' and 'tags' options. (Ralf Schandl)

Also use "**" for 'tags' option. (Ralf Schandl)

Added 'includeexpr', can be used to modify file name found by 'include'
option.
Also use 'includeexpr' for "gf" and "<cfile>" when the file can't be found
without modification. Useful for doing "gf" on the name after an include or
import statement.

Added the 'cdpath' option: Locations to find a ":cd" argument. (Raf)

Added the 'suffixesadd' option: Suffixes to be added to a file name when
searching for a file for the "gf", "[I", etc. commands.

Writing files improved   new-file-writing

Added the 'backupcopy' option: Select whether a file is to be copied or
renamed to make a backup file. Useful on Unix to speed up writing an ordinary
file. Useful on other systems to preserve file attributes and when editing a
file on a Unix filesystem.

Added the 'autowriteall' option. Works like 'autowrite' but for more
commands.

Added the 'backupskip' option: A list of file patterns to skip making a backup
file when it matches. The default for Unix includes "/tmp/*", this makes
"crontab -e" work.

Added support for Access Control Lists (ACL) for FreeBSD and Win32. The ACL
is copied from the original file to the new file (or the backup if it's
copied).
ACL is also supported for AIX, Solaris and generic POSIX. (Tomas Ogren)
And on SGI.

Argument list   new-argument-list

The support for the argument list has been extended. It can now be
manipulated to contain the files you want it to contain.

The argument list can now be local to a window. It is created with the
:arglocal command. The :argglobal command can be used to go back to the
global argument list.

The :argdo command executes a command on all files in the argument list.

File names can be added to the argument list with :argadd . File names can
be removed with :argdelete .

"##" can be used like "#", it is replaced by all the names in the argument
list concatenated. Useful for ":grep foo ##".

The :argedit adds a file to the argument list and edits it. Like ":argadd"
and then ":edit".

Restore a View new-View

The ":mkview" command writes a Vim script with the settings and mappings for
one window. When the created file is sourced, the view of the window is
restored. It's like ":mksession" for one window.
The View also contains the local argument list and manually created, opened
and closed folds.

Added the ":loadview" command and the 'viewdir' option: Allows for saving and
restoring views of a file with simple commands. ":mkview 1" saves view 1 for
the current file, ":loadview 1" loads it again. Also allows quickly switching
between two views on one file. And saving and restoring manual folds and the
folding state.

Added 'viewoptions' to specify how ":mkview" works.

":mksession" now also works fine with vertical splits. It has been further
improved and restores the view of each window. It also works properly with
preview and quickfix windows.

'sessionoptions' is used for ":mkview" as well.
Added "curdir" and "sesdir" to 'sessionoptions'. Allows selection of what
the current directory will be restored to.

The session file now also contains the argument list(s).

Color schemes new-color-schemes

Support for loading a color scheme. Added the ":colorscheme" command.
Automatically add menu entries for available schemes.
Should now properly reset the colors when 'background' or 't_Co' is changed.
":highlight clear" sets the default colors again.
":syntax reset" sets the syntax highlight colors back to the defaults.
For ":set bg&" guess the value. This allows a color scheme to switch back to
the default colors.
When syntax highlighting is switched on and a color scheme was defined, reload
the color scheme to define the colors.

Various new items new-items-6

Normal mode commands:

"gi"   Jump to the ^ mark and start Insert mode. Also works when the
                mark is just after the line. gi

"g'm" and "g`m"
                Jump to a mark without changing the jumplist. Now you can use
                g`" to jump to the last known position in a file without side
                effects. Also useful in mappings.

[', [`, ]' and ]`
                move the cursor to the next/previous lowercase mark.

g_   Go to last non-blank in line. (Steve Wall)

Options:

'autoread'   When detected that a file changed outside of Vim,
                automatically read a buffer again when it's not changed.
                It has a global and a local value. Use ":setlocal autoread<"
                to go back to using the global value for 'autoread'.

'debug'   When set to "msg" it will print error messages that would
                otherwise be omitted. Useful for debugging 'indentexpr' and
                'foldexpr'.

'lispwords'   List of words used for lisp indenting. It was previously hard
                coded. Added a number of Lisp names to the default.

'fold...'   Many new options for folding.

'modifiable'   When off, it is impossible to make changes to a buffer.
                The %m and %M items in 'statusline' show a '-'.

'previewwindow' Set in the preview window. Used in a session file to mark a
                window as the preview window.

'printfont'
'printexpr'
'printheader'
'printdevice'
'printoptions' for ":hardcopy".

'buflisted'   Makes a buffer appear in the buffer list or not.

Use "vim{version}:" for modelines, only to be executed when the version is
>= {version}. Also "vim>{version}", "vim<{version}" and "vim={version}".

Ex commands:

:sav[eas][!] {file}
                Works like ":w file" and ":e #", but without loading the file
                again and avoiding other side effects. :saveas

```
:silent[!] {cmd}
                Execute a command silently.  Also don't use a delay that would
                come after the message.  And don't do 'showmatch'.
                RISCOS: Removed that "!~cmd" didn't output anything, and
                didn't wait for <Enter> afterwards.  Can use ":silent !cmd"
                now.
:menu <silent>  Add a menu that won't echo Ex commands.
:map <silent>   Add a mapping that won't echo Ex commands.

:checktime      Check for changed buffers.

:verbose {cmd}  Set 'verbose' for one command.

:echomsg {expr}
:echoerr {expr} Like ":echo" but store the message in the history. (Mark
                Waggoner)

:grepadd        Works just like ":grep" but adds to the current error list
                instead of defining a new list.  :grepadd

:finish         Finish sourcing a file.  Can be used to skip the rest of a Vim
                script.  :finish

:leftabove
:aboveleft      Split left/above current window.

:rightbelow
:belowright     Split right/below current window.

:first, :bfirst, :ptfirst, etc.
                Alias for ":rewind".  It's more logical compared to ":last".

:enew           Edit a new, unnamed buffer.  This is needed, because ":edit"
                re-edits the same file. (Wall)

:quitall        Same as ":qall".

:match          Define match highlighting local to a window.  Allows
                highlighting an item in the current window without interfering
                with syntax highlighting.

:menu enable
:menu disable   Commands to enable/disable menu entries without removing them.
                (Monish Shah)

:windo          Execute a command in all windows.
:bufdo          Execute a command in all buffers.

:wincmd         Window (CTRL-W) command.  Useful when a Normal mode command
                can't be used (e.g., for a CursorHold autocommand).  See
                 CursorHold-example  for a nice application with it.

:lcd and :lchdir
                Set local directory for a window. (Benjie Chen)
```

:hide {command}
                Execute {command} with 'hidden' set.

:emenu   in Visual mode to execute a ":vmenu" entry.

:popup   Pop up a popup menu.

:redraw   Redraw the screen even when busy with a script or function.

:hardcopy   Print to paper.

:compiler   Load a Vim script to do settings for a specific compiler.

:z#   List numbered lines. (Bohdan Vlasyuk)

New marks:

'(and ')   Begin or end of current sentence. Useful in Ex commands.
'{ and '}   Begin or end of current paragraph. Useful in Ex commands.
'.   Position of the last change in the current buffer.
'^   Position where Insert mode was stopped.

Store the ^ and . marks in the viminfo file. Makes it possible to jump to the
last insert position or changed text.

New functions:
argidx()   Current index in argument list.
buflisted()   Checks if the buffer exists and has 'buflisted' set.
cindent()   Get indent according to 'cindent'.
eventhandler() Returns 1 when inside an event handler and interactive
                commands can't be used.
executable()   Checks if a program or batch script can be executed.
filewritable() Checks if a file can be written. (Ron Aaron)
foldclosed()   Find out if there is a closed fold. (Johannes Zellner).
foldcloseend() Find the end of a closed fold.
foldlevel()   Find out the foldlevel. (Johannes Zellner)
foreground()   Move the GUI window to the foreground.
getchar()   Get one character from the user. Can be used to define a
                mapping that takes an argument.
getcharmod()   Get last used key modifier.
getbufvar()   gets the value of an option or local variable in a buffer (Ron
                Aaron)
getfsize()   Return the size of a file.
getwinvar()   gets the value of an option or local variable in a window (Ron
                Aaron)
globpath()   Find matching files in a list of directories.
hasmapto()   Detect if a mapping to a string is already present.
iconv()   Convert a string from one encoding to another.
indent()   gets the indent of a line (Ron Aaron)
inputdialog()   Like input() but use a GUI dialog when possible. Currently
                only works for Win32, Motif, Athena and GTK.

```
                Use inputdialog() for the Edit/Settings/Text Width menu.  Also
                for the Help/Find.. and Toolbar FindHelp items.
                (Win32 support by Thore B. Karlsen)
                (Win16 support by Vince Negri)
inputsecret()   Ask the user to type a string without showing the typed keys.
                (Charles Campbell)
libcall()       for Unix (Neil Bird, Johannes Zellner, Stephen Wall)
libcallnr()     for Win32 and Unix
lispindent()    Get indent according to 'lisp'.
mode()          Return a string that indicates the current mode.
nextnonblank()  Skip blank lines forwards.
prevnonblank()  Skip blank lines backwards.  Useful to for indent scripts.
resolve()       MS-Windows: resolve a shortcut to the file it points to.
                Unix: resolve a symbolic link.
search()        Search for a pattern.
searchpair()    Search for matching pair.  Can be used in indent files to find
                the "if" matching an endif.
setbufvar()     sets an option or variable local to a buffer (Ron Aaron)
setwinvar()     sets an option or variable local to a window (Ron Aaron)
stridx()        Search for first occurrence of one string in another.
strridx()       Search for last occurrence of one string in another.
tolower()       Convert string to all-lowercase.
toupper()       Convert string to all-uppercase.
type()          Check the type of an expression.
wincol()        window column of the cursor
winwidth()      Width of a window. (Johannes Zellner)
winline()       window line of the cursor


Added expansion of curly braces in variable and function names.  This can be
used for variable names that include the value of an option.  Or a primitive
form of arrays. (Vince Negri)


New autocommand events:
BufWinEnter     Triggered when a buffer is displayed in a window, after using
                the modelines.  Can be used to load a view.
BufWinLeave     Triggered when a buffer is no longer in a window.  Also
                triggered when exiting Vim.  Can be used to save views.
FileChangedRO   Triggered before making the first change to a read-only file.
                Can be used to check-out the file. (Scott Graham)
TermResponse    Triggered when the terminal replies to the version-request.
                The v:termresponse internal variable holds the result.  Can be
                used to react to the version of the terminal.  (Ronald Schild)
FileReadCmd     Triggered before reading a file.
BufReadCmd      Triggered before reading a file into a buffer.
FileWriteCmd    Triggered before writing a file.
BufWriteCmd     Triggered before writing a buffer into a file.
FileAppendCmd   Triggered before appending to a file.
FuncUndefined   Triggered when a user function is not defined. (Ron Aaron)

The autocommands for the *Cmd events read or write the file instead of normal
file read/write.  Use this in netrw.vim to be able to edit files on a remote
system. (Charles Campbell)
```

New Syntax files:

```
bdf             BDF font definition (Nikolai Weibull)
catalog         SGML catalog (Johannes Zellner)
debchangelog    Debian Changelog (Wichert Akkerman)
debcontrol      Debian Control (Wichert Akkerman)
dot             dot (Markus Mottl)
dsl             DSSSL syntax (Johannes Zellner)
eterm           Eterm configuration (Nikolai Weibull)
indent          Indent profile (Nikolai Weibull)
lftp            LFTP (Nikolai Weibull)
lynx            Lynx config (Doug Kearns)
mush            mush sourcecode (Bek Oberin)
natural         Natural (Marko Leipert)
pilrc           Pal resource compiler (Brian Schau)
plm             PL/M (Philippe Coulonges)
povini          Povray configuration (David Necas)
ratpoison       Ratpoison config/command (Doug Kearns)
readline        readline config (Nikolai Weibull)
screen          Screen RC (Nikolai Weibull)
specman         Specman (Or Freund)
sqlforms        SQL*Forms (Austin Ziegler)
terminfo        terminfo (Nikolai Weibull)
tidy            Tidy configuration (Doug Kearns)
wget            Wget configuration (Doug Kearns)
```

Updated many syntax files to work both with Vim 5.7 and 6.0.

Interface to Ruby. (Shugo Maeda)
Support dynamic loading of the Ruby interface on MS-Windows. (Muraoka Taro)
Support this for Mingw too. (Benoit Cerrina)

Win32: Added possibility to load TCL dynamically. (Muraoka Taro)
Also for Borland 5.5. (Dan Sharp)

Win32: When editing a file that is a shortcut (*.lnk file), edit the file it links to. Unless 'binary' is set, then edit the shortcut file itself. (Yasuhiro Matsumoto)

The ":command" command now accepts a "-bar" argument. This allows the user command to be followed by "| command".

The preview window is now also used by these commands:
- :pedit edits the specified file in the preview window
- :psearch searches for a word in included files, like :ijump , and displays the found text in the preview window.

Added the CTRL-W P command: go to preview window.

MS-DOS and MS-Windows also read the system-wide vimrc file $VIM/vimrc. Mostly for NT systems with multiple users.

A double-click of the mouse on a character that has a "%" match selects from that character to the match. Similar to "v%".

"-S session.vim" argument: Source a script file when starting up. Convenient way to start Vim with a session file.

Added "--cmd {command}" Vim argument to execute a command before a vimrc file is loaded. (Vince Negri)

Added the "-M" Vim argument: reset 'modifiable' and 'write', thus disallow making changes and writing files.

Added runtime/delmenu.vim. Source this to remove all menus and prepare for loading new menus. Useful when changing 'langmenu'.

Perl script to filter Perl error messages to quickfix usable format. (Joerg Ziefle)

Added runtime/macros/less.vim: Vim script to simulate less, but with syntax highlighting.

MS-Windows install program: (Jon Merz)
- The Win32 program can now create shortcuts on the desktop and install Vim in the Start menu.
- Possibly remove old "Edit with Vim" entries.
- The Vim executable is never moved or $PATH changed. A small batch file is created in a directory in $PATH. Fewer choices to be made.
- Detect already installed Vim versions and offer to uninstall them first.

Improved the MS-Windows uninstal program. It now also deletes the entries in the Start menu, icons from the desktop and the created batch files. (Jon Merz) Also made it possible to delete only some of these. Also unregister gvim for OLE.

Generate a self-installing Vim package for MS-Windows. This uses NSIS. (Jon Merz et al.)

Added ":filetype detect". Try detecting the filetype again. Helps when writing a new shell script, after adding "#!/bin/csh".

Added ":augroup! name" to delete an autocommand group. Needed for the client-server "--remote-wait".

Add the Vim version number to the viminfo file, useful for debugging.

==
IMPROVEMENTS   improvements-6

Added the 'n' flag in 'cpoptions': When omitted text of wrapped lines is not put between line numbers from 'number' option. Makes it a lot easier to read wrapped lines.

When there is a format error in a tags file, the byte position is reported so that the error can be located.

"gf" works in Visual mode: Use the selected text as the file name. (Chase Tingley)

Allow ambiguous mappings. Thus "aa" and "aaa" can both be mapped, the longest matching one is used. Especially useful for ":lmap" and 'keymap'.

Encryption: Ask the key to be typed twice when crypting the first time. Otherwise a typo might cause the text to be lost forever. (Chase Tingley)

The window title now has "VIM" on the end. The file name comes first, useful in the taskbar. A "+" is added when the file is modified. "=" is added for a read-only file. "-" is added for a file with 'modifiable' off.

In Visual mode, mention the size of the selected area in the 'showcmd' position.

Added the "b:changedtick" variable. Incremented at each change, also for undo. Can be used to take action only if the buffer has been changed.

In the replacement string of a ":s" command "\=" can be used to replace with the result of an expression. From this expression the submatch() function can be used to access submatches.

When doing ":qall" and there is a change in a buffer that is being edited in another window, jump to that window, instead of editing that buffer in the current window.

Added the "++enc=" and "++ff=" arguments to file read/write commands to force using the given 'encoding' or 'fileformat'. And added the "v:cmdarg" variable, to be used for FileReadCmd autocommands that read/write the file themselves.

When reading stdin, first read the text in binary mode and then re-read it with automatic selection of 'fileformat' and 'fileencoding'. This avoids problems with not being able to rewind the file (e.g., when a line near the end of the file ends in LF instead of CR-LF).
When reading text from stdin and the buffer is empty, don't mark it changed. Allows exiting without trouble.

Added an ID to many error messages. This will make it easier to find help for a message.

Insert mode:
- "CTRL-G j" and "CTRL-G k" can be used to insert in another line in the same column. Useful for editing a table.
- Added Thesaurus completion with CTRL-X CTRL-T. (Vince Negri)
- Added the 'thesaurus' option, to use instead of 'dictionary' for thesaurus completion. Added the 's' flag in 'complete'.
- Made CTRL-X CTRL-L in Insert mode use the 'complete' option. It now also scans other loaded buffers for matching lines.
- CTRL-R now also works in Insert mode while doing completion with CTRL-X or CTRL-N. (Neil Bird)
- When doing Insert mode completion, when completion is finished check for a

match with words from 'cinkeys' or 'indentkeys'.

Performance:
- Made display updating more efficient. Insert/delete lines may be used for all changes, also for undo/redo.
- The display is not redrawn when there is typeahead in Insert mode. Speeds up CTRL-R a lot.
- Improved speed of screen output for 32 bit DOS version. (Vince Negri)
- When dragging with the mouse, there is a lookahead to skip mouse codes when there is another one next. Makes dragging with the mouse a lot faster.
- Also a memory usage improvement: When calling u_save with a single line, don't save it if the line was recently saved for the same undo already.
- When using a script that appends one character at a time, the amount of allocated memory was growing steadily. Also when 'undolevels' is -1. Caused by the line saved for "U" never to be freed. Now free an undo block when it becomes empty.
- GUI and Dos32: Use a vertical scroll region, to make scrolling in a vertically split window faster. No need to redraw the whole window.
- When scrolling isn't possible with terminal codes (e.g., for a vertically split window) redraw from ScreenLines[]. That should be faster than going through the lines with win_line(), especially when using syntax highlighting.
- The Syntax menu is now pre-generated by a separate script. Makes loading the menu 70% faster. This can halve the startup time of gvim.
- When doing ":help tag", don't open help.txt first, jump directly to the help tag. It's faster and avoids an extra message.
- Win32: When a file name doesn't end in ".lnk" don't try resolving a shortcut, it takes quite a bit of time.
- Don't update the mouse pointer shape while there are typeahead characters.
- Change META[] from a string into an array, avoids using strchr() on it.
- Don't clear the command line when adding characters, avoids that screen_fill is called but doesn't do anything.

Robustness:
- Unix: Check for running out of stack space when executing a regexp. Avoids a nasty crash. Only works when the system supports running the signal function on another stack.
- Disallow ":source <dirname>". On unix it's possible to read a directory, does not make sense to use it as Vim commands.

Security:
- When reading from or writing to a temporary file, check that it isn't a symbolic link. Gives some protection against symlink attacks.
- When creating a backup file copy or a swap file, check for it already existing to avoid a symlink attack. (Colin Phipps)
- Evaluating options which are an expression is done in a sandbox . If the option was set by a modeline, it cannot cause damage.
- Use a secure way to generate temp file names: Create a private directory for temp files. Used for Unix, MS-DOS and OS/2.
- 'makeef' can be empty, which means that an internally generated file name is used. The old default was "/tmp/file", which is a security risk. Writing 'makeef' in the current directory fails in a read-only directory and causes trouble when using ":grep" on all files. Made the default empty for all systems, so that a temp file is used.

- The command from a tags file is executed in the sandbox for better security.
- The Ruby, Tcl and Python interfaces cannot be used from the sandbox. They
  might do dangerous things. Perl is still possible, but limited to the Safe
  environment. (Donnie Smith)

Syntax highlighting:
- Optimized the speed by caching the state stack all over the file, not just
  the part being displayed. Required for folding.
- Added ":syntax sync fromstart": Always parse from the start of the file.
- Added the "display" argument for syntax items: use the item only when
  displaying the result. Can make parsing faster for text that isn't going to
  be displayed.
- When using CTRL-L, the cached states are deleted, to force parsing the text
  again.
- Use elfhash algorithm for table of keywords. This should give a better
  distribution and speedup keyword lookup. (Campbell)
- Also allow the "lc" leading context for skip and end patterns. (Scott
  Bigham)
- Syntax items can have the "extend" argument to undo the effect of a
  "keepend" argument of an item it is contained in. Makes it possible to have
  some contained items extend a region while others don't.
- ":syntax clear" now deletes the b:current_syntax variable. That's logical,
  since no syntax is defined after this command.
- Added ":syntax enable": switch on syntax highlighting without changing the
  colors. This allows specifying the colors in the .vimrc file without the
  need for a mysyntaxfile.
- Added ":syntax reset": reset the colors to their defaults.
- Added the "contains=TOP" and "contains=CONTAINED" arguments. Makes it
  possible to define a transparent item that doesn't contain itself.
- Added a "containedin" argument to syntax items. Allows adding a contained
  item to an existing item (e.g., to highlight a name in a comment).

Modeless selection:
- When in the command-line window, use modeless selection in the other
  windows. Makes it possible to copy visible text to the command-line window.
- Support modeless selection on the cmdline in a terminal. Previously it was
  only possible for the GUI.
- Make double-right-click in modeless selection select a whole word. Single
  right click doesn't use the word selection started by a double-left-click.
  Makes it work like in Visual mode.
- The modeless selection no longer has an implied automatic copy to the
  clipboard. It now obeys the 'a' and 'A' flags in 'guioptions' or
  "autoselect" and "autoselectml" in 'clipboard'.
- Added the CTRL-Y command in Cmdline-mode to copy the modeless selection to
  the clipboard. Also works at the hit-enter prompt and the more prompt.
  Removed the mappings in runtime/mswin.vim for CTRL-Y and CTRL-Z in
  cmdline-mode to be able to use CTRL-Y in the new way.

Reduced the amount of stack space used by regmatch() to allow it to handle
complicated patterns on a longer text.

'isfname' now includes '%' and '#'. Makes "vim dir\#file" work for MS-DOS.

Added keypad special keys <kEnter>, <k0> - <k9>. When not mapped they behave

like the ASCII equivalent. (Ivan Wellesz and Vince Negri)
Recognize a few more xterm keys: <C-Right>, <C-Left>, <C-End>, <C-Home>

Also trigger the BufUnload event when Vim is going to exit. Perhaps a script needs to do some cleaning up.

Expand expression in backticks: `={expr}`. Can be used where backtick expansion is done. (Vince Negri)

GUI:
- Added 'L' and 'R' flags in 'guioptions': Add a left or right scrollbar only when there is a vertically split window.
- X11: When a color can't be allocated, use the nearest match from the colormap. This avoids that black is used for many things. (Monish Shah)
  Also do this for the menu and scrollbar, to avoid that they become black.
- Win32 and X11: Added 'mouseshape' option: Adjust the mouse pointer shape to the current mode. (Vince Negri)
- Added the 'linespace' option: Insert a pixel line between lines. (Nam)
- Allow modeless selection (without moving the cursor) by keeping CTRL and SHIFT pressed. (Ivan Wellesz)
- Motif: added toolbar. (Gordon Prieur) Also added tooltips.
- Athena: added toolbar and tooltips. (David Harrison -- based on Gordon Prieur's work)
- Made the 'toolbar' option work for Athena and Motif. Can now switch between text and icons on the fly. (David Harrison)
- Support menu separator lines for Athena. (David Harrison)
- Athena: Adjust the arrow pixmap used in a pullright menu to the size of the font. (David Harrison)
- Win32: Added "c" flag to 'guifont' to be able to specify the charset. (Artem Khodush)
- When no --enable-xim argument is given, automatically enable it when a X GUI is used. Required for dead key support (and multi-byte input).
- After a file selection dialog, check that the edited files were not changed or deleted. The Win32 dialog allows deleting and renaming files.
- Motif and Athena: Added support for "editres". (Marcin Dalecki)
- Motif and Athena: Added "menuFont" to be able to specify a font or fontset for the menus. Can also be set with the "Menu" highlight group. Useful when the locale is different from 'encoding'. (David Harrison)
  When FONTSET_ALWAYS is defined, always use a fontset for the menus. Should avoid trouble with changing from a font to a fontset. (David Harrison)
- Highlighting and font for the tooltips can be specified with the "Tooltip" highlight group. (David Harrison)
- The Cmdline-mode menus can be used at the more-prompt. This mostly works fine, because they start with a CTRL-C. The "Copy" menu works to copy the modeless selection. Allows copying the output of ":set all" or ":intro" without auto-selection.
- When starting the GUI when there is no terminal connected to stdout and stderr, display error messages in a dialog. Previously they wouldn't be displayed at all.
- Allow setting 'browsedir' to the name of a directory, to be used for the file dialog. (Dan Sharp)
- b:browsefilter and g:browsefilter can be set to the filters used for the file dialog. Supported for Win32 and Motif GUI. (Dan Sharp)

X11:
- Support for the clipboard selection as register "+. When exiting or
  suspending copy the selection to cut buffer 0. Should allow copy/paste with
  more applications in a X11-standard way. (Neil Bird)
- Use the X clipboard in any terminal, not just in an xterm.
  Added "exclude:" in 'clipboard': Specify a pattern to match against terminal
  names for which no connection should be made to the X server. The default
  currently work for FreeBSD and Linux consoles.
- Added a few messages for when 'verbose' is non-zero to show what happens
  when trying to connect to the X server. Should help when trying to find out
  why startup is slow.

GTK GUI: (partly by Marcin Dalecki)
- With some fonts the characters can be taller than ascent + descent. E.g.,
  "-misc-fixed-*-*-*-*-18-*-*-*-*-*-iso10646-1". Add one to the character
  cell height.
- Implement "no" value for 'winaltkeys': don't use Alt-Key as a menu shortcut,
  when 'wak' changed after creating the menus.
- Setting 'wak' after the GUI started works.
- recycle text GC's to reduce communication.
- Adjust icon size to window manager.
- Cleanup in font handling.
- Replace XQueryColor with GDK calls.
- Gnome support. Detects Gnome in configure and uses different widgets.
  Otherwise it's much like GTK. (Andy Kahn)
  It is disabled by default, because it causes a few problems.
- Removed the special code to fork first and then start the GUI. Now use
  _exit() instead of exit(), this works fine without special tricks.
- Dialogs sometimes appeared a bit far away. Position the dialogs inside
  the gvim window. (Brent Verner)
- When dropping a file on Vim, remove extra slashes from the start of the
  path. Also shorten the file name if possible.

Motif: (Marcin Dalecki)
- Made the dialog layout better.
- Added find and find/replace dialogs.
- For the menus, change "iso-8859" to "iso_8859", Linux appears to need this.
- Added icon to dialogs, like for GTK.
- Use XPM bitmaps for the icon when possible. Use the Solaris XpmP.h include
  file when it's available.
- Change the shadow of the toolbar items to get a visual feedback of it being
  pressed on non-LessTif.
- Use gadgets instead of windows for some items for speed.

Command line completion:
- Complete environment variable names. (Mike Steed)
- For ":command", added a few completion methods: "mapping", "function",
  "expression" and "environment".
- When a function doesn't take arguments, let completion add () instead of (.

For MS-DOS, MS-Windows and OS/2: Expand %VAR% environment variables like $VAR.
(Walter Briscoe)

Redirect messages to the clipboard ":redir @*" and to the unnamed register

":redir @"". (Wall)

":let @/ = '"" clears the search pattern, instead of setting it to an empty
string.

Expression evaluation:
- "? :" can be used like in C.
- col("$") returns the length of the cursor line plus one. (Stephen P. Wall)
- Optional extra argument for match(), matchend() and matchstr(): Offset to
  start looking for a match.
- Made third argument to strpart() optional. (Paul Moore, Zdenek Sekera)
- exists() can also be used to check for Ex commands and defined autocommands.
- Added extra argument to input(): Default text.
- Also set "v:errmsg" when using ":silent! cmd".
- Added the v:prevcount variable: v:count for the previous command.
- Added "v:progname", name with which Vim was started. (Vince Negri)
- In the verbose message about returning from a function, also show the return
  value.

Cscope:
- Added the cscope_connection() function. (Andy Kahn)
- ":cscope kill -1" kills all cscope connections. (Andy Kahn)
- Added the 'cscopepathcomp' option. (Scott Hauck)
- Added ":scscope" command, split window and execute Cscope command. (Jason
  Duell)

VMS:
- Command line arguments are always uppercase. Interpret a "-X" argument as
  "-x" and "-/X" as "-X".
- Set 'makeprg' and 'grepprg' to meaningful defaults. (Zoltan Arpadffy)
- Use the X-clipboard feature and the X command server. (Zoltan Arpadffy)

Macintosh: (Dany St-Amant)
- Allow a tags file to have CR, CR-LF or LF line separator. (Axel Kielhorn)
- Carbonized (while keeping non Carbon code)
  (Some work "stolen" from Ammon Skidmore)
- Improved the menu item index handling (should be faster)
- Runtime commands now handle / in file name (MacOS 9 version)
- Added ":winpos" support.
- Support using "~" in file names for home directory.

Options:
- When using set += or ^= , check for items used twice. Duplicates are
  removed. (Vince Negri)
- When setting an option that is a list of flags, remove duplicate flags.
- If possible, use getrlimit() to set 'maxmemtot' and 'maxmem'. (Pina)
- Added "alpha" to 'nrformats': increment or decrement an alphabetic character
  with CTRL-A and CTRL-X.
- ":set opt&vi" sets an option to its Vi default, ":set opt&vim" to its Vim
  default. Useful to set 'cpo' to its Vim default without knowing what flags
  that includes.
- 'scrolloff' now also applies to a long, wrapped line that doesn't fit in the
  window.
- Added more option settings to the default menus.

- Updated the option window with new options. Made it a bit easier to read.

Internal changes:
- Split line pointers in text part and attributes part. Allows for future
  change to make attribute more than one byte.
- Provide a qsort() function for systems that don't have it.
- Changed the big switch for Normal mode commands into a table. This cleans
  up the code considerably and avoids trouble for some optimizing compilers.
- Assigned a negative value to special keys, to avoid them being mixed up with
  Unicode characters.
- Global variables expand_context and expand_pattern were not supposed to be
  global. Pass them to ExpandOne() and all functions called by it.
- No longer use the global reg_ic flag. It caused trouble and in a few places
  it was not set.
- Removed the use of the stuff buffer for "*", "K", CTRL-], etc. Avoids
  problem with autocommands.
- Moved some code from ex_docmd.c to ex_cmds2.c. The file was getting too
  big. Also moved some code from screen.c to move.c.
- Don't include the CRC table for encryption, generate it. Saves quite a bit
  of space in the source code. (Matthias Kramm)
- Renamed multibyte.c to mbyte.c to avoid a problem with 8.3 filesystems.
- Removed the GTK implementation of ":findhelp", it now uses the
  ToolBar.FindHelp menu entry.
- Renamed mch_windexit() to mch_exit(), mch_init() to mch_early_init() and
  mch_shellinit() to mch_init().

Highlighting:
- In a ":highlight" listing, show "xxx" with the highlight color.
- Added support for xterm with 88 or 256 colors. The right color numbers will
  be used for the name used in a ":highlight" command. (Steve Wall)
- Added "default" argument for ":highlight". When included, the command is
  ignored if highlighting for the group was already defined.
  All syntax files now use ":hi default ..." to allow the user to specify
  colors in his vimrc file. Also, the "if did_xxx_syntax_inits" is not needed
  anymore. This greatly simplifies using non-default colors for a specific
  language.
- Adjusted colortest.vim: Included colors on normal background and reduced the
  size by using a while loop. (Rafael Garcia-Suarez)
- Added the "DarkYellow" color name. Just to make the list of standard colors
  consistent, it's not really a nice color to use.

When an xterm is in 8-bit mode this is detected by the code returned for
 t_RV . All key codes are automatically converted to their 8-bit versions.

The OPT_TCAP_QUERY in xterm patch level 141 and later is used to obtain the
actual key codes used and the number of colors for t_Co. Only when t_RV is
also used.

":browse set" now also works in the console mode. ":browse edit" will give an
error message.

":bdelete" and ":bunload" only report the number of deleted/unloaded buffers
when more than 'report'. The message was annoying when deleting a buffer in a
script.

Jump list:
- The number of marks kept in the jumplist has been increased from 50 to 100.
- The jumplist is now stored in the viminfo file. CTRL-O can be used to jump
  to positions from a previous edit session.
- When doing ":split" copy the jumplist to the new window.

Also set the '[and '] marks for the "~" and "r" commands. These marks are
now always set when making a change with a Normal mode command.

Python interface: Allow setting the width of a vertically split window. (John
Cook)

Added "=word" and "=~word" to 'cinkeys' (also used in 'indentkeys').

Added "j1" argument in 'cinoptions': indent {} inside () for Java. (Johannes
Zellner)
Added the "l" flag in 'cinoptions'. (Anduin Withers)
Added 'C', 'U', 'w' and 'm' flags to 'cinoptions'. (Servatius Brandt)

When doing ":wall" or ":wqall" and a modified buffer doesn't have a name,
mention its buffer number in the error message.

":function Name" lists the function with line numbers. Makes it easier to
find out where an error happened.

In non-blockwise Visual mode, "r" replaces all selected characters with the
typed one, like in blockwise Visual mode.

When editing the last file in the argument list in any way, allow exiting.
Previously this was only possible when getting to that file with ":next" or
":last".

Added the '1' flag to 'formatoptions'. (Vit Stradal)
Added 'n' flag in 'formatoptions': format a numbered list.

Swap file:
- When a swap file already exists, and the user selects "Delete" at the
  ATTENTION prompt, use the same ".swp" swapfile, to avoid creating a ".swo"
  file which won't always be found.
- When giving the ATTENTION message and the date of the file is newer than the
  date of swap file, give a warning about this.
- Made the info for an existing swap file a bit shorter, so that it still fits
  on a 24 line screen.
- It was possible to make a symlink with the name of a swap file, linking to a
  file that doesn't exist. Vim would then silently use another file (if open
  with O_EXCL refuses a symlink). Now check for a symlink to exist. Also do
  another check for an existing swap file just before creating it to catch a
  symlink attack.

The g CTRL-G command also works in Visual mode and counts the number of words.
(Chase Tingley)

Give an error message when using 'shell' and it's empty.

Added the possibility to include "%s" in 'shellpipe'.

Added "uhex" value for 'display': show non-printable characters as <xx>.
Show unprintable characters with NonText highlighting, also in the command
line.

When asked to display the value of a hidden option, tell it's not supported.

Win32:
- When dropping a shortcut on gvim (.lnk file) edit the target, not the
  shortcut itself. (Yasuhiro Matsumoto)
- Added C versions of the OpenWithVim and SendToVim programs. (Walter Briscoe)
- When 'shell' is "cmd" or "cmd.exe", set 'shellredir' to redirect stderr too.
  Also check for the Unix shell names.
- When $HOMEDRIVE and $HOMEPATH are defined, use them to define $HOME. (Craig
  Barkhouse)

Win32 console version:
- Includes the user and system name in the ":version" message, when available.
  It generates a pathdef.c file for this. (Jon Miner)
- Set the window icon to Vim's icon (only for Windows 2000). While executing
  a shell command, modify the window title to show this. When exiting,
  restore the cursor position too. (Craig Barkhouse)
- The Win32 console version can be compiled with OLE support. It can only
  function as a client, not as an OLE server.

Errorformat:
- Let "%p" in 'errorformat' (column of error indicated by a row of characters)
  also accept a line of dots.
- Added "%v" item in 'errorformat': Virtual column number. (Dan Sharp)
- Added a default 'errorformat' value for VMS. (Jim Bush)

The "p" command can now be used in Visual mode. It overwrites the selected
text with the contents of a register.

Highlight the <> items in the intro message to make clear they are special.

When using the "c" flag for ":substitute", allow typing "l" for replacing this
item and then stop: "last".

When printing a verbose message about sourcing another file, print the line
number.

When resizing the Vim window, don't use 'equalalways'. Avoids that making the
Vim window smaller makes split windows bigger. And it's what the docs say.

When typing CTRL-D in Insert mode, just after an autoindent, then hitting CR
kept the remaining white space. Now made it work like BS: delete the
autoindent to avoid a blank non-empty line results.

Added a GetHwnd() call to the OLE interface. (Vince Negri)

Made ":normal" work in an event handler. Useful when dropping a file on Vim

and for CursorHold autocommands.

For the MS-Windows version, don't change to the directory of the file when a slash is used instead of a backslash. Explorer should always use a backslash, the user can use a slash when typing the command.

Timestamps:
- When a buffer was changed outside of Vim and regaining focus, give a dialog to allow the user to reload the file. Now also for other GUIs than MS-Windows. And also used in the console, when compiled with dialog support.
- Inspect the file contents to find out if it really changed, ignore situations where only the time stamp changed (e.g., checking the file out from CVS).
- When checking the timestamp, first check if the file size changed, to avoid a file compare then. Makes it quicker for large (log) files that are appended to.
- Don't give a warning for a changed or deleted file when 'buftype' is set.
- No longer warn for a changed directory. This avoids that the file explorer produces warnings.
- Checking timestamps is only done for buffers that are not hidden. These will be checked when they become unhidden.
- When checking for a file being changed outside of Vim, also check if the file permissions changed. When the file contents didn't change but the permissions did, give a warning.
- Avoid checking too often, otherwise the dialog keeps popping up for a log file that steadily grows.

Mapping <M-A> when 'encoding' is "latin1" and then setting 'encoding' to "utf-8" causes the first byte of a multi-byte to be mapped. Can cause very hard to find problems. Disallow mapping part of a multi-byte character.

For ":python" and ":tcl" accept an in-line script. (Johannes Zellner)
Also for ":ruby" and ":perl". (Benoit Cerrina)

Made ":syn include" use 'runtimepath' when the file name is not a full path.

When 'switchbuf' contains "split" and the current window is empty, don't split the window.

Unix: Catch SIGPWR to preserve files when the power is about to go down.

Sniff interface: (Anton Leherbauer)
- fixed windows code, esp. the event handling stuff
- adaptations for sniff 4.x ($SNIFF_DIR4)
- support for adding sniff requests at runtime

Support the notation <A-x> as an alias for <M-x>. This logical, since the Alt key is used.

":find" accepts a count, which means that the count'th match in 'path' is used.

":ls" and ":buffers" output shows modified/readonly/modifiable flag. When a

buffer is active show "a" instead of nothing. When a buffer isn't loaded
show nothing instead of "-".

Unix install:
- When installing the tools, set absolute paths in tools scripts efm_perl.pl
  and mve.awk. Avoids that the user has to edit these files.
- Install Icons for KDE when the directories exist and the icons do not exist
  yet.

Added has("win95"), to be able to distinguish between MS-Windows 95/98/ME and
NT/2000/XP in a Vim script.

When a ":cd" command was typed, echo the new current directory. (Dan Sharp)

When using ":winpos" before the GUI window has been opened, remember the
values until it is opened.

In the ":version" output, add "/dyn" for features that are dynamically loaded.
This indicates the feature may not always work.

On Windows NT it is possible that a directory is read-only, but a file can be
deleted. When making a backup by renaming the file and 'backupdir' doesn't
use the current directory, this causes the original file to be deleted,
without the possibility to create a new file. Give an extra error message
then to warn to user about this.

Made CTRL-R CTRL-O at the command line work like CTRL-R CTRL-R, so that it's
consistent with Insert mode.

==
COMPILE TIME CHANGES   compile-changes-6

All generated files have been moved out of the "src" directory. This makes it
easy to see which files are not edited by hand. The files generated by
configure are now in the "src/auto" directory. For Unix, compiled object
files go in the objects directory.

The source archive was over the 1.4M floppy limit. The archives are now split
up into two runtime and two source archives. Also provide a bzip2 compressed
archive that contains all the sources and runtime files.

Added "reconfig" as a target for make. Useful when changing some of the
arguments that require flushing the cache, such as switching from GTK to
Motif. Adjusted the meaning of GUI_INC_LOC and GUI_LIB_LOC to be consistent
over different GUIs.

Added src/README.txt to give an overview of the main parts of the source code.

The Unix Makefile now fully supports using $(DESTDIR) to install to a specific
location. Replaces the manual setting of *ENDLOC variables.

Added the possibility for a maintainer of a binary version to include his
e-mail address with the --with-compiledby configure argument.

Included features are now grouped in "tiny", "small", "normal", "big" and
"huge". This replaces "min-features" and "max-features". Using "tiny"
disables multiple windows for a really small Vim.

For the tiny version or when FEAT_WINDOWS is not defined: Firstwin and lastwin
are equal to curwin and don't use w_next and w_prev.

Added the +listcmds feature. Can be used to compile without the Vim commands
that manipulate the buffer list and argument list (the buffer list itself is
still there, can't do without it).

Added the +vreplace feature. It is disabled in the "small" version to avoid
that the 16 bit DOS version runs out of memory.

Removed GTK+ support for versions older than 1.1.16.

The configure checks for using PTYs have been improved. Code taken from a
recent version of screen.

Added configure options to install Vim, Ex and View under another name (e.g.,
vim6, ex6 and view6).

Added "--with-global-runtime" configure argument. Allows specifying the
global directory used in the 'runtimepath' default.

Made enabling the SNiFF+ interface possible with a configure argument.

Configure now always checks /usr/local/lib for libraries and
/usr/local/include for include files. Helps finding the stuff for iconv() and
gettext().

Moved the command line history stuff into the +cmdline_hist feature, to
exclude the command line history from the tiny version.

MS-Windows: Moved common functions from Win16 and Win32 to os_mswin.c. Avoids
having to change two files for one problem. (Vince Negri)

Moved common code from gui_w16.c and gui_w32.c to gui_w48.c (Vince Negri)

The jumplist is now a separate feature. It is disabled for the "small"
version (16 bit MS-DOS).

Renamed all types ending in _t to end in _T. Avoids potential problems with
system types.

Added a configure check for X11 header files that implicitly define the return
type to int. (Steve Wall)

"make doslang" in the top directory makes an archive with the menu and .mo
files for Windows. This uses the files generated on Unix, these should work
on MS-Windows as well.

Merged a large part of os_vms.c with os_unix.c. The code was duplicated in
the past which made maintenance more work. (Zoltan Arpadffy)

Updated the Borland C version 5 Makefile: (Dan Sharp)
- Fixed the Perl build
- Added python and tcl builds
- Added dynamic perl and dynamic python builds
- Added uninstal.exe build
- Use "yes" and "no" for the options, like in Make_mvc.mak.

Win32: Merged Make_gvc.mak and Make_ovc.mak into one file: Make_ivc.mak. It's much smaller, many unnecessary text has been removed. (Walter Briscoe)
Added Make_dvc.mak to be able to debug exe generated with Make_mvc.mak in MS-Devstudio. (Walter Briscoe)

MS-Windows: The big gvim.exe, which includes OLE, now also includes dynamically loaded Tcl, Perl and Python. This uses ActivePerl 5.6.1, ActivePython 2.1.1 and ActiveTCL 8.3.3

Added AC_EXEEXT to configure.in, to check if the executable needs ".exe" for Cygwin or MingW. Renamed SUFFIX to EXEEXT in Makefile.

Win32: Load comdlg32.dll delayed for faster startup. Only when using VC 6. (Vipin Aravind)

Win32: When compiling with Borland, allow using IME. (Yasuhiro Matsumoto)

Win32: Added Makefile for Borland 5 to compile gvimext.dll. (Yasuhiro Matsumoto)

==
BUG FIXES bug-fixes-6

When checking the command name for "gvim", "ex", etc. ignore case. Required for systems where case is ignored in command names.

Search pattern "[a-c-e]" also matched a 'd' and didn't match a '-'.

When double-clicking in another window, wasn't recognized as double click, because topline is different. Added set_mouse_topline().

The BROKEN_LOCALE check was broken. (Marcin Dalecki)

When "t_Co" is set, the default colors remain the same, thus wrong. Reset the colors after changing "t_Co". (Steve Wall)

When exiting with ":wqall" the messages about writing files could overwrite each other and be lost forever.

When starting Vim with an extremely long file name (around 1024 characters) it would crash. Added a few checks to avoid buffer overflows.

CTRL-E could get stuck in a file with very long lines.

":au syntax<Tab>" expanded event names while it should expand groups starting with "syntax".

When expanding a file name caused an error (e.g., for <amatch>) it was
produced even when inside an "if 0".

'cindent' formatted C comments differently from what the 'comments' option
specified. (Steve Wall)

Default for 'grepprg' didn't include the file name when only grepping in one
file. Now /dev/null has been added for Unix.

Opening the option window twice caused trouble. Now the cursor goes to the
existing option window.

":sview" and ":view" didn't set 'readonly' for an existing buffer. Now do set
'readonly', unless the buffer is also edited in another window.

GTK GUI: When 'guioptions' excluded 'g', the more prompt caused the toolbar
and menubar to disappear and resize the window (which clears the text).
Now always grey-out the toplevel menus to avoid that the menubar changes size
or disappears.

When re-using the current buffer for a new buffer, buffer-local variables were
not deleted.

GUI: when 'scrolloff' is 0 dragging the mouse above the window didn't cause a
down scroll. Now pass on a mouse event with mouse_row set to -1.

Win32: Console version didn't work on telnet, because of switching between two
console screens. Now use one console screen and save/restore the contents
when needed. (Craig Barkhouse)

When reading a file the magic number for encryption was included in the file
length. (Antonio Colombo)

The quickfix window contained leading whitespace and NULs for multi-line
messages. (David Harrison)

When using cscope, redundant tags were removed. This caused a numbering
problem, because they were all listed. Don't remove redundant cscope tags.
(David Bustos).

Cscope: Test for which matches are in the current buffer sometimes failed,
causing a jump to another match than selected. (David Bustos)

Win32: Buffer overflow when adding a charset name in a font.

'titlestring' and 'iconstring' were evaluating an expression in the current
context, which could be a user function, which is a problem for local
variables vs global variables.

Win32 GUI: Mapping <M-F> didn't work. Now handle SHIFT and CTRL in
_OnSysChar().

Win32 GUI: (on no file), :vs<CR>:q<CR> left a trail of pixels down the middle.

Could also happen for the ruler. screen_puts() didn't clear the right char in ScreenLines[] for the bold trick.

Win32: ":%!sort|uniq" didn't work, because the input file name touches the "|". Insert a space before the "|".

OS/2: Expanding wildcards included non-existing files. Caused ":runtime" to fail, which caused syntax highlighting to fail.

Pasting a register containing CTRL-R on the command line could cause an endless loop that can't be interrupted. Now it can be stopped with CTRL-C.

When 'verbose' is set, a message for file read/write could overwrite the previous message.
When 'verbose' is set, the header from ":select" was put after the last message. Now start a new line.

The hit-enter prompt reacted to the response of the t_RV string, causing messages at startup to disappear.

When t_Co was set to 1, colors were still used. Now only use color when t_Co > 1.

Listing functions with ":function" didn't quit when 'q' or ':' was typed at the more prompt.

Use mkstemp() instead of mktemp() when it's available, avoids a warning for linking on FreeBSD.

When doing Insert mode completion it's possible that b_sfname is NULL. Don't give it to printf() for the "Scanning" message.

":set runtimepath-=$VIMRUNTIME" didn't work, because expansion of wildcards was done after trying to remove the string. Now for ":set opt+=val" and ":set opt-=val" the expansion of wildcards is done before adding or removing "val".

Using CTRL-V with the "r" command with a blockwise Visual selection inserted a CTRL-V instead of getting a special character.

Unix: Changed the order of libraries: Put -lXdmcp after -lX11 and -lSM -lICE after -lXdmcp. Should fix link problem on HP-UX 10.20.

Don't remove the last "-lm" from the link line. Vim may link but fail later when the GUI starts.

When the shell returns with an error when trying to expand wildcards, do include the pattern when the "EW_NOTFOUND" flag was set.
When expanding wildcards with the shell fails, give a clear error message instead of just "1 returned".

Selecting a Visual block, with the start partly on a Tab, deleting it leaves the cursor too far to the left. Causes "s" to work in the wrong position.

Pound sign in normal.c caused trouble on some compilers. Use 0xA3 instead.

Warning for changing a read-only file wasn't given when 'insertmode' was set.

Win32: When 'shellxquote' is set to a double quote (e.g., using csh), ":!start notepad file" doesn't work. Remove the double quotes added by 'shellxquote' when using ":!start". (Pavol Juhas)

The "<f-args>" argument of ":command" didn't accept Tabs for white space.
Also, don't add an empty argument when there are trailing blanks.

":e test\\je" edited "test\je", but ":next test\\je" edited "testje".
Backslashes were removed one time too many for ":next".

VMS: "gf" didn't work properly. Use vms_fixfilename() to translate the file name. (Zoltan Arpadffy)

After ":hi Normal ctermbg=black ctermfg=white" and suspending Vim not all characters are redrawn with the right background.

When doing "make test" without +eval or +windows feature, many tests failed.
Now have test1 generate a script to copy the correct output, so that a test that doesn't work is skipped.

On FreeBSD the Perl interface added "-lc" to the link command and Python added "-pthread". These two don't work together, because the libc_r library should be used. Removed "-lc" from Perl, it should not be needed.
Also: Add "-pthread" to $LIBS, so that the checks for functions is done with libc_r. Sigaltstack() appears to be missing from libc_r.

The Syntax sub-menus were getting too long, reorganized them and added another level for some languages.

Visual block "r"eplace didn't work well when a Tab is partly included.
(Matthias Kramm)

When yanking a Visual block, where some lines end halfway the block, putting the text somewhere else doesn't insert a block. Padd with spaces for missing characters. Added "y_width" to struct yankreg. (Matthias Kramm)

If a substitute string has a multibyte character after a backslash only the first byte of it was skipped. (Muraoka Taro)

Win32: Numeric keypad keys were missing from the builtin termcap entry.

When a file was read-only ":wa!" didn't force it to be written. (Vince Negri)

Amiga: A file name starting with a colon was considered absolute but it isn't.
Amiga: ":pwd" added a slash when in the root of a drive.

Don't let 'ttymouse' default to "dec" when compiled with dec mouse support.
It breaks the gpm mouse (Linux console).

The prototypes for the Perl interface didn't work for threaded Perl. Added a sed command to remove the prototypes from proto/if_perl.pro and added them

manually to if_perl.xs.

When ":w!" resets the 'readonly' option the title and status lines were not updated.

":args" showed the current file when the argument list was empty. Made this work like Vi: display nothing.

"99:<C-U>echo v:count" echoed "99" in Normal mode, but 0 in Visual mode. Don't set v:count when executing a stuffed command.

Amiga: Got a requester for "home:" because it's in the default runtime path. Don't bring up a requester when searching for a file in 'path', sourcing the .vimrc file or using ":runtime".

Win16 and Win32: Considered a file "\path\file" absolute. Can cause the same file to appear as two different buffers.

Win32: Renaming a file to an empty string crashed Vim. Happened when using explorer.vim and hitting ESC at the rename prompt.

Win32: strftime() crashed when called with a "-1" value for the time.

Win32 with Borland compiler: mch_FullName() didn't work, caused tag file not to be found.

Cscope sometimes jumped to the wrong tag. (David Bustos)

OS/2: Could not find the tags file. mch_expand_wildcards() added another slash to a directory name.

When using ">>" the `] mark was not in the last column.

When Vim was compiled without menu support, filetype.vim was still trying to source the menu.vim script. (Rafael Garcia-Suarez)

":ptag" added an item to the tag stack.

Win32 IME: "gr" didn't use IME mode.

In the "vim --help" message the term "options" was used for arguments. That's confusing, call them "arguments".

When there are two windows, and a BufUnload autocommand for closing window #1 closed window #2, Vim would crash.

When there is a preview window and only one other window, ":q" wouldn't exit.

In Insert mode, when cancelling a digraph with ESC, the '?' wasn't removed.

On Unix glob(".*") returned "." and "..", on Windows it didn't. On Windows glob("*") also returned files starting with a dot. Made this work like Unix on all systems.

Win32: Removed old code to open a console. Vimrun is now used and works fine.

Compute the room needed by the intro message accurately, so that it also fits on a 25 line console. (Craig Barkhouse)

":ptnext" was broken. Now remember the last tag used in the preview window separately from the tagstack.

Didn't check for "-display" being the last argument. (Wichert Akkerman)

GTK GUI: When starting "gvim" under some conditions there would be an X error. Don't replace the error handler when creating the xterm clipboard. (Wichert Akkerman)

Adding a space after a help tag caused the tag not to be found. E.g., ":he autoindent ".

Was trying to expand a URL into a full path name. On Windows this resulted in the current directory to be prepended to the URL. Added vim_isAbsName() and vim_FullName() to avoid that various machine specific functions do it differently.

":n *.c" ":cd .." ":n" didn't use the original directory of the file. Vi only does it for the current file (looks like a bug). Now remember the buffer used for the entry in the argument list and use its name (adjusted when doing ":cd"), unless it's deleted.

When inserting a special key as its name ("<F8>" as four characters) after moving around in Insert mode, undo didn't work properly.

Motif GUI: When using the right mouse button, for some people gvim froze for a couple of seconds (Motif 1.2?). This doesn't happen when there is no Popup menu. Solved by only creating a popup menu when 'mousemodel' is "popup" or "popup_setpos". (David Harrison)

Motif: When adding many menu items, the "Help" menu disappeared but the menubar didn't wrap. Now manually set the menubar height.

When using <BS> in Insert mode to remove a line break, or using "J" to join lines, the cursor could end up halfway a multi-byte character. (Muraoka Taro)

Removed defining SVR4 in configure. It causes problems for some X header files and doesn't appear to be used anywhere.

When 'wildignore' is used, 'ignorecase' for a tag match was not working.

When 'wildignore' contains "*~" it was impossible to edit a file ending in a "~". Now don't recognize a file ending in "~" as containing wildcards.

Disabled the mouse code for OS/2. It was not really used.

":mksession" always used the full path name for a buffer, also when the short name could be used.
":mkvimrc" and ":mksession" didn't save 'wildchar' and 'pastetoggle' in such a

way that they would be restored. Now use the key name if possible, this is portable.

After recovering a file and abandoning it, an ":edit" command didn't give the ATTENTION prompt again. Would be useful to be able to delete the file in an easy way. Reset the BF_RECOVERED flag when unloading the buffer.

histdel() could match or ignore case, depending on what happened before it. Now always match case.

When a window size was specified when splitting a window, it would still get the size from 'winheight' or 'winwidth' if it's larger.

When using "append" or "insert" inside a function definition, a line starting with "function" or "endfunction" caused confusion. Now recognize the commands and skip lines until a ".".

At the end of any function or sourced file need_wait_return could be reset, causing messages to disappear when redrawing.

When in a while loop the line number for error messages stayed fixed. Now the line number is remembered in the while loop.

"cd c:/" didn't work on MS-DOS. mch_isdir() removed a trailing slash.

MS-Windows: getftime() didn't work when a directory had a trailing slash or backslash. Didn't show the time in the explorer because of this.

When doing wildcard completion, a directory "a/" sorted after "a-b". Now recognize path separators when sorting files.

Non-Unix systems: When editing "c:/dir/../file" and "c:/file" they were created as different buffers, although it's the same file. Expand to a full file name also when an absolute name contains "..".

"g&" didn't repeat the last substitute properly.

When 'clipboard' was set to "unnamed", a "Y" command would not write to "0. Now make a copy of register 0 to the clipboard register.

When the search pattern matches in many ways, it could not always be interrupted with a CTRL-C. And CTRL-C would have to be hit once for every line when 'hlsearch' is on.
When 'incsearch' is on and interrupting the search for a match, don't abandon the command line.

When turning a directory name into a full path, e.g., with fnamemodify(), sometimes a slash was added. Make this consistent: Don't add a slash.

When a file name contains a "!", using it in a shell command will cause trouble: ":!cat %". Escape the "!" to avoid that. Escape it another time when 'shell' contains "sh".

Completing a file name that has a tail that starts with a "~" didn't work:

":e view/~<Tab>".

Using a ":command" argument that contains < and > but not for a special
argument was not skipped properly.

The DOS install program: On Win2000 the check for a vim.exe or gvim.exe in
$PATH didn't work, it always found it in the current directory.
Rename the vim.exe in the current dir to avoid this. (Walter Briscoe)

In the MS-DOS/Windows install program, use %VIM% instead of an absolute path,
so that moving Vim requires only one change in the batch file.

Mac: mch_FullName() changed the "fname" argument and didn't always initialize
the buffer.

MS-DOS: mch_FullName() didn't fix forward/backward slashes in an absolute file
name.

"echo expand("%:p:h")" with an empty file name removed one directory name on
MS-DOS. For Unix, when the file name is a directory, the directory name was
removed. Now make it consistent: "%:p" adds a path separator for all systems,
but no path separator is added in other situations.

Unix: When checking for a CTRL-C (could happen any time) and there is an X
event (e.g., clipboard updated) and there is typeahead, Vim would hang until a
character was typed.

MS-DOS, MS-Windows and Amiga: expanding "$ENV/foo" when $ENV ends in a colon,
had the slash removed.

":he \^=" gave an error for using _. ":he ^=" didn't find tag :set^=. Even
"he :set^=" didn't find it.

A tags file name "D:/tags" was used as file "tags" in "D:". That doesn't work
when the current path for D: isn't the root of the drive.

Removed calls to XtInitializeWidgetClass(), they shouldn't be necessary.

When using a dtterm or various other color terminals, and the Normal group has
been set to use a different background color, the background wouldn't always
be displayed with that color. Added check for "ut" termcap entry: If it's
missing, clearing the screen won't give us the current background color. Need
to draw each character instead. Vim now also works when the "cl" (clear
screen) termcap entry is missing.

When repeating a "/" search command with a line offset, the "n" did use the
offset but didn't make the motion linewise. Made "d/pat/+2" and "dn" do the
same.

Win32: Trying to use ":tearoff" for a menu that doesn't exist caused a crash.

OpenPTY() didn't work on Sequent. Add a configure check for getpseudotty().

C-indenting: Indented a line starting with ")" with the matching "(", but not

a line starting with "x)" looks strange. Also compute the indent for aligning with items inside the () and use the lowest indent.

MS-DOS and Windows: ":n *.vim" also matched files ending in "~".
Moved mch_expandpath() from os_win16.c and os_msdos.c to misc1.c, they are equal.

Macintosh: (Dany St-Amant)
- In Vi-compatible mode didn't read files with CR line separators.
- Fixed a bug in the handling of Activate/Deactivate Event
- Fixed a bug in gui_mch_dialog (using wrong pointer)

Multibyte GDK XIM: While composing a multibyte-word, if user presses a mouse button, then the word is removed. It should remain and composing end. (Sung-Hyun Nam)

MS-DOS, MS-Windows and OS/2: When reading from stdin, automatic CR-LF conversion by the C library got in the way of detecting a "dos" 'fileformat'.

When 'smartcase' is set, patterns with "\S" would also make 'ignorecase' reset.

When clicking the mouse in a column larger than 222, it moved to the first column. Can't encode a larger number in a character. Now limit the number to 222, don't jump back to the first column.

GUI: In some versions CSI would cause trouble, either when typed directly or when part of a multi-byte sequence.

When using multibyte characters in a ":normal" command, a trailing byte that is CSI or K_SPECIAL caused problems.

Wildmenu didn't handle multi-byte characters.

":sleep 10" could not be interrupted on Windows, while "gs" could. Made them both work the same.

Unix: When waiting for a character is interrupted by an X-windows event (e.g., to obtain the contents of the selection), the wait time would not be honored. A message could be overwritten quickly. Now compute the remaining waiting time.

Windows: Completing "\\share\c$\S" inserted a backslash before the $ and then the name is invalid. Don't insert the backslash.

When doing an auto-write before ":make", IObuff was overwritten and the wrong text displayed later.

On the Mac the directories "c:/tmp" and "c:/temp" were used in the defaults for 'backupdir' and 'directory', they don't exist.

The check for a new file not to be on an MS-DOS filesystem created the file temporarily, which can be slow. Don't do this if there is another check for the swap file being on an MS-DOS filesystem.

Don't give the "Changing a readonly file" warning when reading from stdin.

When using the "Save As" menu entry and not entering a file name, would get an error message for the trailing ":edit #". Now only do that when the alternate file name was changed.

When Vim owns the X11 selection and is being suspended, an application that tries to use the selection hangs. When Vim continues it could no longer obtain the selection. Now give up the selection when suspending.

option.h and globals.h were included in some files, while they were already included in vim.h. Moved the definition of EXTERN to vim.h to avoid doing it twice.

When repeating an operator that used a search pattern and the search pattern contained characters that have a special meaning on the cmdline (e.g., CTRL-U) it didn't work.

Fixed various problems with using K_SPECIAL (0x80) and CSI (0x9b) as a byte in a (multibyte) character. For example, the "r" command could not be repeated.

The DOS/Windows install program didn't always work from a directory with a long filename, because $VIM and the executable name would not have the same path.

Multi-byte:
- Using an any-but character range [^x] in a regexp didn't work for UTF-8. (Muraoka Taro)
- When backspacing over inserted characters in Replace mode multi-byte characters were not handled correctly. (Muraoka Taro)
- Search commands "#" and "*" didn't work with multibyte characters. (Muraoka Taro)
- Word completion in Insert mode didn't work with multibyte characters. (Muraoka Taro)
- Athena/Motif GUI: when 'linespace' is non-zero the cursor would be drawn too wide (number of bytes instead of cell width).
- When changing 'encoding' to "euc-jp" and inserting a character Vim would crash.
- For euc-jp characters positioning the cursor would sometimes be wrong. Also, with two characters with 0x8e leading byte only the first one would be displayed.
- When using DYNAMIC_ICONV on Win32 conversion might fail because of using the wrong error number. (Muraoka Taro)
- Using Alt-x in the GUI while 'encoding' was set to "utf-8" didn't produce the right character.
- When using Visual block selection and only the left halve of a double-wide character is selected, the highlighting continued to the end of the line.
- Visual-block delete didn't work properly when deleting the right halve of a double-wide character.
- Overstrike mode for the cmdline replaced only the first byte of a multibyte character.
- The cursor in Replace mode (also in the cmdline) was to small on a double-wide character.

- When a multibyte character contained a 0x80 byte, it didn't work (was using
  a CSI byte instead). (Muraoka Taro)
- Wordwise selection with the mouse didn't work.
- Yanking a modeless selection of multi-byte characters didn't work.
- When 'selection' is "exclusive", selecting a word that ends in a multi-byte
  character used wrong highlighting for the following character.

Win32 with Make_mvc.mak: Didn't compile for debugging. (Craig Barkhouse)

Win32 GUI: When "vimrun.exe" is used to execute an external command, don't
give a message box with the return value, it was already printed by vimrun.
Also avoid printing the return value of the shell when ":silent!" is used.

Win32: selecting a lot of text and using the "find/replace" dialog caused a
crash.

X11 GUI: When typing a character with the 8th bit set and the Meta/Alt
modifier, the modifier was removed without changing the character.

Truncating a message to make it fit on the command line, using "..." for the
middle, didn't always compute the space correctly.

Could not imap <C-@>. Now it works like <Nul>.

VMS:
- Fixed a few things for VAXC. os_vms_fix.com had some strange CTRL-M
  characters. (Zoltan Arpadffy and John W. Hamill)
- Added VMS-specific defaults for the 'isfname' and 'isprint' options.
  (Zoltan Arpadffy)
- Removed os_vms_osdef.h, it's no longer used.

The gzip plugin used a ":normal" command, this doesn't work when dropping a
compressed file on Vim.

In very rare situations a binary search for a tag would fail, because an
uninitialized value happens to be half the size of the tag file. (Narendran)

When using BufEnter and BufLeave autocommands to enable/disable a menu, it
wasn't updated right away.

When doing a replace with the "c"onfirm flag, the cursor was positioned after
the ruler, instead of after the question. With a long replacement string the
screen could scroll up and cause a "more" prompt. Now the message is
truncated to make it fit.

Motif: The autoconf check for the Xp library didn't work.

When 'verbose' is set to list lines of a sourced file, defining a function
would reset the counter used for the "more" prompt.

In the Win32 find/replace dialog, a '/' character caused problems. Escape it
with a backslash.

Starting a shell with ":sh" was different from starting a shell for CTRL-Z

when suspending doesn't work. They now work the same way.

Jumping to a file mark while in a changed buffer gave a "mark not set" error.

":execute histget("cmd")" causes an endless loop and crashed Vim. Now catch all commands that cause too much recursiveness.

Removed "Failed to open input method" error message, too many people got this when they didn't want to use a XIM.

GUI: When compiled without the +windows feature, the scrollbar would start below line one.

Removed the trick with redefining character class functions from regexp.c.

Win32 GUI: Find dialog gives focus back to main window, when typing a character mouse pointer is blanked, it didn't reappear when moving it in the dialog window. (Vince Negri)

When recording and typing a CTRL-C, no character was recorded. When in Insert mode or cancelling half a command, playing back the recorded sequence wouldn't work. Now record the CTRL-C.

When the GUI was started, mouse codes for DEC and netterm were still checked for.

GUI: When scrolling and 'writedelay' is non-zero, the character under the cursor was displayed in the wrong position (one line above/below with CTRL-E/CTRL-Y).

A ":normal" command would reset the 'scrollbind' info. Causes problems when using a ":normal" command in an autocommand for opening a file.

Windows GUI: a point size with a dot, like "7.5", wasn't recognized. (Muraoka Taro)

When 'scrollbind' wasn't set would still remember the current position, wasting time.

GTK: Crash when 'shell' doesn't exist and doing":!ls". Use _exit() instead of exit() when the child couldn't execute the shell.

Multi-byte:
- GUI with double-byte encoding: a mouse click in left halve of double-wide character put the cursor in previous char.
- Using double-byte encoding and 'selection' is "exclusive": "vey" and "^Vey" included the character after the word.
- When using a double-byte encoding and there is a lead byte at the end of the line, the preceding line would be displayed. "ga" also showed wrong info.
- "gf" didn't include multi-byte characters before the cursor properly. (Muraoka Taro)

GUI: The cursor was sometimes not removed when scrolling. Changed the policy from redrawing the cursor after each call to gui_write() to only update it at

the end of update_screen() or when setting the cursor position. Also only
update the scrollbars at the end of update_screen(), that's the only place
where the window text may have been scrolled.

Formatting "/*<Tab>long text", produced "* <Tab>" in the next line. Now
remove the space before the Tab.
Formatting "/*<Tab> long text", produced "* <Tab> long text" in the next
line. Now keep the space after the Tab.

In some places non-ASCII alphabetical characters were accepted, which could
cause problems. For example, ":X" (X being such a character).

When a pattern matches the end of the line, the last character in the line was
highlighted for 'hlsearch'. That looks wrong for "/\%3c". Now highlight the
character just after the line.

Motif: If a dialog was closed by clicking on the "X" of the window frame Vim
would no longer respond.

When using CTRL-X or CTRL-A on a number with many leading zeros, Vim would
crash. (Matsumoto)

When 'insertmode' is set, the mapping in mswin.vim for CTRL-V didn't work in
Select mode. Insert mode wasn't restarted after overwriting the text.
Now allow nesting Insert mode with insert and change commands. CTRL-O
cwfoo<Esc> now also works.

Clicking with the right mouse button in another window started Visual mode,
but used the start position of the current window. Caused ml_get errors when
the line number was invalid. Now stay in the same window.

When 'selection' is "exclusive", "gv" sometimes selected one character fewer.

When 'comments' contains more than one start/middle/end triplet, the optional
flags could be mixed up. Also didn't align the end with the middle part.

Double-right-click in Visual mode didn't update the shown mode.

When the Normal group has a font name, it was never used when starting up.
Now use it when 'guifont' and 'guifontset' are empty.
Setting a font name to a highlight group before the GUI was started didn't
work.

"make test" didn't use the name of the generated Vim executable.

'cindent' problems:
- Aligned with an "else" inside a do-while loop for a line below that loop.
  (Meikel Brandmeyer)
- A line before a function would be indented even when terminated with a
  semicolon. (Meikel Brandmeyer)
- 'cindent' gave too much indent to a line after a "};" that ends an array
  init.
- Support declaration lines ending in "," and "\". (Meikel Brandmeyer)
- A case statement inside a do-while loop was used for indenting a line after

  the do-while loop. (Meikel Brandmeyer)
- When skipping a string in a line with one double quote it could continue in
  the previous line. (Meikel Brandmeyer)

When 'list' is set, 'hlsearch' didn't highlight a match at the end of the
line. Now highlight the '$'.

The Paste menu item in the menu bar, the popup menu and the toolbar were all
different. Now made them all equal to how it was done in mswin.vim.

st_dev can be smaller than "unsigned". The compiler may give an overflow
warning. Added a configure check for dev_t.

Athena: closing a confirm() dialog killed Vim.

Various typos in the documentation. (Matt Dunford)

Python interface: The definition of _DEBUG could cause trouble, undefine it.
The error message for not being able to load the shared library wasn't
translated. (Muraoka Taro)

Mac: (Dany St-Amant and Axel Kielhorn)
- Several fixes.
- Vim was eating 80% of the CPU time.
- The project os_mac.pbxproj didn't work, Moved it to a subdirectory.
- Made the menu priority work for the menubar.
- Fixed a problem with dragging the scrollbar.
- Cleaned up the various #ifdefs.

Unix: When catching a deadly signal and we keep getting one use _exit() to
exit in a quick and dirty way.

Athena menu ordering didn't work correctly. (David Harrison)

A ":make" or ":grep" command with a long argument could cause a crash.

Doing ":new file" and using "Quit" for the ATTENTION dialog still opened a new
window.

GTK: When starting the GUI and there is an error in the .vimrc file, don't
present the wait-return prompt, since the message was given in the terminal.

When there was an error in a .vimrc file the terminal where gvim was started
could be cleared. Set msg_row in main.c before writing any messages.

GTK and X11 GUI: When trying to read characters from the user (e.g. with
input()) before the Vim window was opened caused Vim to hang when it was
started from the desktop.

OS/390 uses 31 bit pointers. That broke some computations with MAX_COL.
Reduce MAX_COL by one bit for OS/390. (Ralf Schandl)

When defining a function and it already exists, Vim didn't say it existed
until after typing it. Now do this right away when typing it.

The message remembered for displaying later (keep_msg) was sometimes pointing into a generic buffer, which might be changed by the time the message is displayed. Now make a copy of the message.

When using multi-byte characters in a menu and a trailing byte is a backslash, the menu would not be created correctly. (Muraoka Taro)
Using a multibyte character in the substitute string where a trail byte is a backslash didn't work. (Muraoka Taro)

When setting "t_Co" in a vimrc file, then setting it automatically from an xterm termresponse and then setting it again manually caused a crash.

When getting the value of a string option that is not supported, the number zero was returned. This breaks a check like "&enc == "asdf". Now an empty string is returned for string options.

Crashed when starting the GTK GUI while using 'notitle' in the vimrc, setting 'title' in the gvimrc and starting the GUI with ":gui". Closed the connection to the X server accidentally.

Had to hit return after selecting an entry for ":ts".

The message from ":cn" message was sometimes cleared. Now display it after redrawing if it doesn't cause a scroll (truncated when necessary).

hangulin.c didn't compile when the GUI was disabled. Disable it when it won't work.

When setting a termcap option like "t_CO", the value could be displayed as being for a normal key with a modifier, like "<M-=>".

When expanding the argument list, entries which are a directory name did not get included. This stopped "vim c:/" from opening the file explorer.

":syn match sd "^" nextgroup=asdf" skipped the first column and matched the nextgroup in the second column.

GUI: When 'lazyredraw' is set, 'showmatch' didn't work. Required flushing the output.

Don't define the <NetMouse> termcode in an xterm, reduces the problem when someone types <Esc> } in Insert mode.

Made slash_adjust() work correctly for multi-byte characters. (Yasuhiro Matsumoto)
Using a filename in Big5 encoding for autocommands didn't work (backslash in trailbyte). (Yasuhiro Matsumoto)

DOS and Windows: Expanding *.vim also matched file.vimfoo. Expand path like Unix to avoid problems with Windows dir functions. Merged the DOS and Win32 functions.

Win32: GvimExt could not edit more than a few files at once, the length of the

argument was fixed.

"ls -1 * | xargs vim" worked, but the input was in cooked mode. Now switch to raw mode when needed. Use dup() to copy the stderr file descriptor to stdin to make shell commands work. No longer requires an external program to do this.

When using ":filetype off", ftplugin and indent usage would be switched off at the same time. Don't do this, setting 'filetype' manually can still use them.

GUI: When writing a double-byte character, it could be split up in two calls to gui_write(), which doesn't work. Now flush before the output buffer becomes full.

When 'laststatus' is set and 'cmdheight' is two or bigger, the intro message would be written over the status line.
The ":intro" command didn't work when there wasn't enough room.

Configuring for Ruby failed with a recent version of Ruby. (Akinori Musha)

Athena: When deleting the directory in which Vim was started, using the file browser made Vim exit. Removed the use of XtAppError().

When using autoconf 2.50, UNIX was not defined. Moved the comment for "#undef UNIX" to a separate line.

Win32: Disabled _OnWindowPosChanging() to make maximize work better.

Win32: Compiling with VC 4.0 didn't work. (Walter Briscoe)

Athena:
- Finally fixed the problems with deleting a menu. (David Harrison)
- Athena: When closing the confirm() dialog, worked like OK was pressed,
  instead of Cancel.

The file explorer didn't work in compatible mode, because of line continuation.

Didn't give an error message for ":digraph a".

When using Ex mode in the GUI and typing a special key, <BS> didn't delete it correctly. Now display '?' for a special key.

When an operator is pending, clicking in another window made it apply to that window, even though the line numbers could be beyond the end of the buffer.

When a function call doesn't have a terminating ")" Vim could crash.

Perl interface: could crash on exit with perl 5.6.1. (Anduin Withers)

Using %P in 'errorformat' wasn't handled correctly. (Tomas Zellerin)

Using a syntax cluster that includes itself made Vim crash.

GUI: With 'ls' set to 2, dragging the status line all the way up, then making the Vim window smaller: Could not the drag status line anymore.

"vim -c startinsert! file" placed cursor on last char of a line, instead of after it. A ":set" command in the buffer menu set w_set_curswant. Now don't do this when w_curswant is MAXCOL.

Win32: When the gvim window was maximized and selecting another font, the window would no longer fill the screen.

The line with 'pastetoggle' in ":options" didn't show the right value when it is a special key. Hitting <CR> didn't work either.

Formatting text, resulting in a % landing in the first line, repeated the % in the following lines, like it's the start of a comment.

GTK: When adding a toolbar item while gvim is already running, it wasn't possible to use the tooltip. Now it works by adding the tooltip first.

The output of "g CTRL-G" mentioned "Char" but it's actually bytes.

Searching for the end of a oneline region didn't work correctly when there is an offset for the highlighting.

Syntax highlighting: When synchronizing on C-comments, //*/ was seen as the start of a comment.

Win32: Without scrollbars present, the MS mouse scroll wheel didn't work. Also handle the scrollbars when they are not visible.

Motif: When there is no right scrollbar, the bottom scrollbar would still leave room for it. (Marcin Dalecki)

When changing 'guicursor' and the value is invalid, some of the effects would still take place. Now first check for errors and only make the new value effective when it's OK.

Using "A" In Visual block mode, appending to lines that don't extend into the block, padding was wrong.

When pasting a block of text, a character that occupies more than one screen column could be deleted and spaces inserted instead. Now only do that with a tab.

Fixed conversion of documentation to HTML using Perl. (Dan Sharp)

Give an error message when a menu name starts with a dot.

Avoid a hang when executing a shell from the GUI on HP-UX by pushing "ptem" even when sys/ptem.h isn't present.

When creating the temp directory, make sure umask is 077, otherwise the directory is not accessible when it was set to 0177.

Unix: When resizing the window and a redraw is a bit slow, could get a window resize event while redrawing, resulting in a messed up window. Any input (e.g., a mouse click) would redraw.

The "%B" item in the status line became zero in Insert mode (that's normal) for another than the current window.

The menu entries to convert to xxd and back didn't work in Insert mode.

When ":vglobal" didn't find a line where the pattern doesn't match, the error message would be the wrong way around.

When ignoring a multi-line error message with "%-A", the continuation lines would be used anyway. (Servatius Brandt)

"grx" on a double-wide character inserted "x", instead of replacing the character with "x ". "gR" on <xx> ('display' set the "uhex") didn't replace at all. When doing "gRxx" on a control character the first "x" would be inserted, breaking the alignment.

Added "0)" to 'cinkeys', so that when typing a) it is put in the same place as where "==" would put it.

Win32: When maximized, adding/removing toolbar didn't resize the text area.

When using <C-RightMouse> a count was discarded.

When typing CTRL-V and <RightMouse> in the command line, would insert <LeftMouse>.

Using "vis" or "vas" when 'selection' is exclusive didn't include the last character.

When adding to an option like 'grepprg', leading space would be lost. Don't expand environment variables when there is no comma separating the items.

GUI: When using a bold-italic font, would still use the bold trick and underlining.

Motif: The default button didn't work in dialogs, the first one was always used. Had to give input focus to the default button.

When using CTRL-T to jump within the same file, the '' mark wasn't set.

Undo wasn't Vi compatible when using the 'c' flag for ":s". Now it undoes the whole ":s" command instead of each confirmed replacement.

The Buffers menu, when torn-off, disappeared when being refreshed. Add a dummy item to avoid this.

Removed calling msg_start() in main(), it should not be needed.

vim_strpbrk() did not support multibyte characters. (Muraoka Taro)

The Amiga version didn't compile, the code was too big for relative jumps.
Moved a few files from ex_docmd.c to ex_cmds2.c

When evaluating the "= register resulted in the "= register being changed, Vim
would crash.

When doing ":view file" and it fails, the current buffer was made read-only.

Motif: For some people the separators in the toolbar disappeared when resizing
the Vim window. (Marcin Dalecki)

Win32 GUI: when setting 'lines' to a huge number, would not compute the
available space correctly. Was counting the menu height twice.

Conversion of the docs to HTML didn't handle the line with the +quickfix tag
correctly. (Antonio Colombo)

Win32: fname_case() didn't handle multi-byte characters correctly. (Yasuhiro
Matsumoto)

The Cygwin version had trouble with fchdir(). Don't use that function for
Cygwin.

The generic check in scripts.vim for "conf" syntax was done before some checks
in filetype.vim, resulting in "conf" syntax too often.

Dos32: Typing lagged behind. Would wait for one biostick when checking if a
character is available.

GTK: When setting 'columns' while starting up "gvim", would set the width of
the terminal it was started in.

When using ESC in Insert mode, an autoindent that wraps to the next line
caused the cursor to move to the end of the line temporarily. When the
character before the cursor was a double-wide multi-byte character the cursor
would be on the right halve, which causes problems with some terminals.

Didn't handle multi-byte characters correctly when expanding a file name.
(Yasuhiro Matsumoto)

Win32 GUI: Errors generated before the GUI is decided to start were not
reported.

globpath() didn't reserve enough room for concatenated results. (Anduin
Withers)

When expanding an option that is very long already, don't do the expansion, it
would be truncated to MAXPATHL. (Anduin Withers)

When 'selection' is "exclusive", using "Fx" in Visual mode only moved until
just after the character.

When using IME on the console to enter a file name, the screen may scroll up.
Redraw the screen then. (Yasuhiro Matsumoto)

Motif: In the find/replace dialog the "Replace" button didn't work first time,
second time it replaced all matches. Removed the use of ":s///c".
GTK: Similar problems with the find/replace dialog, moved the code to a common
function.

X11: Use shared GC's for text. (Marcin Dalecki)

"]i" found the match under the cursor, instead of the first one below it.
Same for "]I", "] CTRL-I", "]d", "]D" and "] CTRL-D".

Win16: When maximized and the font is changed, don't change the window size.
(Vince Negri)

When 'lbr' is set, deleting a block of text could leave the cursor in the
wrong position.

Win32: When opening a file with the "Edit with Vim" popup menu entry,
wildcards would cause trouble. Added the "--literal" argument to avoid
expanding file names.

When using "gv", it didn't restore that "$" was used in Visual block mode.

Win32 GUI: While waiting for a shell command to finish, the window wasn't
redrawn at all. (Yasuhiro Matsumoto)

Syntax highlighting: A match that continues on a next line because of a
contained region didn't end when that region ended.

The ":s" command didn't allow flags like 'e' and 'i' right after it.

When using ":s" to split a line, marks were moved to the next line. Vi keeps
them in the first line.

When using ":n" ":rew", the previous context mark was at the top of the file,
while Vi puts it in the same place as the cursor. Made it Vi compatible.

Fixed Vi incompatibility: Text was not put in register 1 when using "c" and
"d" with a motion character, when deleting within one line with one of the
commands: % ( ) `<character> / ? N n { }

Win32 GUI: The tooltip for tear-off items remained when the tear-off item was
no longer selected.

GUI: When typing ":" at the more prompt, would return to Normal mode and not
redraw the screen.

When starting Vim with an argument "-c g/at/p" the printed lines would
overwrite each other.

BeOS: Didn't compile. Configure didn't add the os_beos files, the QNX check
removed them. Various changes to os_beos.cc. (Joshua Haberman)
Removed the check for the hardware platform, the BeBox has not been produced
for a long time now.

Win32 GUI: don't use a message box when the shell returns an error code,
display the message in the Vim window.

Make_mvc.mak always included "/debug" for linking. "GUI=no" argument didn't
work. Use "DEBUG=yes" instead of "DEBUG=1" to make it consistent. (Dan Sharp)

When a line in the tags file ended in ;" (no TAB following) the command would
not be recognized as a search command.

X11: The inputMethod resource never worked. Don't use the "none" input method
for SGI, it apparently makes the first character in Input method dropped.

Fixed incorrect tests in os_mac.h. (Axel Kielhorn)

Win32 console: When the console where Vim runs in is closed, Vim could hang in
trying to restore the window icon. (Yasuhiro Matsumoto)

When using ":3call func()" or ":3,3call func() the line number was ignored.

When 'showbreak' and 'linebreak' were both set, Visual highlighting sometimes
continued until the end of the line.

GTK GUI: Tearoff items were added even when 'guioptions' didn't contain 't'
when starting up.

MS-Windows: When the current directory includes a "~", searching files with
"gf" or ":find" didn't work. A "$" in the directory had the same problem.
Added mch_has_exp_wildcard() functions.

When reducing the Vim window height while starting up, would get an
out-of-memory error message.

When editing a very long search pattern, 'incsearch' caused the redraw of the
command line to fail.

Motif GUI: On some systems the "Help" menu would not be on the far right, as
it should be. On some other systems (esp. IRIX) the command line would not
completely show. Solution is to only resize the menubar for Lesstif.

Using "%" in a line that contains "\\" twice didn't take care of the quotes
properly. Now make a difference between \" and \\".

For non-Unix systems a dummy file is created when finding a swap name to
detect a 8.3 filesystem. When there is an existing swap file, would get a
warning for the file being created outside of Vim. Also, when closing the Vim
window the file would remain.

Motif: The menu height was always computed, using a "-menuheight" argument
was setting the room for the command line. Now make clear the argument is not
supported.

For some (EBCDIC) systems, POUND was equal to '#'. Added an #if for that to
avoid a duplicate case in a switch.

The GUI may have problems when forking. Always call _exit() instead of exit()
in the parent, the child will call exit().

Win32 GUI: Accented characters were often wrong in dialogs and tearoff menus.
Now use CP_ACP instead of CP_OEMCP. (Vince Negri)

When displaying text with syntax highlighting causes an error (e.g., running
out of stack) the syntax highlighting is disabled to avoid further messages.

When a command in a .vimrc or .gvimrc causes an ATTENTION prompt, and Vim was
started from the desktop (no place to display messages) it would hang. Now
open the GUI window early to be able to display the messages and pop up the
dialog.

"r<CR>" on a multi-byte character deleted only the first byte of the
character. "3r<CR>" deleted three bytes instead of three characters.

When interrupting reading a file, Vi considers the buffer modified. Added the
'i' flag in 'cpoptions' flag for this (we don't want it modified to be able to
do ":q").

When using an item in 'guicursor' that starts with a colon, Vim would get
stuck or crash.

When putting a file mark in a help file and later jumping back to it, the
options would not be set. Extended the modeline in all help files to make
this work better.

When a modeline contained "::" the local option values would be printed. Now
ignore it.

Some help files did not use a 8.3 names, which causes problems when using
MS-DOS unzip. Renamed "multibyte.txt" to "mbyte.txt", "rightleft.txt" to
"rileft.txt", "tagsearch.txt" to "tagsrch.txt", "os_riscos.txt" to
"os_risc.txt".

When Visual mode is blockwise, using "iw" or "aw" made it characterwise. That
doesn't seem right, only do this when in linewise mode. But then do it
always, not only when start and end of Visual mode are equal.

When using "viw" on a single-letter word and 'selection' is exclusive, would
not include the word.

When formatting text from Insert mode, using CTRL-O, could mess up undo
information.

While writing a file (also for the backup file) there was no check for an
interrupt (hitting CTRL-C). Vim could hang when writing a large file over a
slow network, and moving the mouse didn't make it appear (when 'mousehide' is
set) and the screen wasn't updated in the GUI. Also allow interrupting when
syncing the swap file, it can take a long time.

When using ":mksession" while there is help window, it would later be restored

to the right file but not marked as a help buffer. ":help" would then open another window. Now use the value "help" for 'buftype' to mark a help buffer.

The session file contained absolute path names in option values, that doesn't work when the home directory depends on the situation. Replace the home directory with ~/ when possible.

When using 'showbreak' a TAB just after the shown break would not be counted correctly, the cursor would be positioned wrong.

With 'showbreak' set to "--->" or "------->" and 'sts' set to 4, inserting tabs did not work right. Could cause a crash. Backspacing was also wrong, could get stuck at a line break.

Win32: crashed when tearing off a menu with over 300 items.

GUI: A menu or toolbar item would appear when only a tooltip was defined for it.

When 'scrolloff' is non-zero and "$" is in 'cpoptions', using "s" while the last line of the file is the first line on screen, the text wasn't displayed.

When running "autoconf", delete the configure cache to force starting cleanly when configure is run again.

When changing the Normal colors for cterm, the value of 'background' was changed even when the GUI was used.

The warning for a missing vimrun.exe was always given on startup, but some people just editing a file don't need to be bothered by it. Only show it when vimrun would be used.

When using "%" in a multibyte text it could get confused by trailbytes that match. (Muraoka Taro)

Termcap entry for RiscOS was wrong, using 7 and 8 in octal codes.

Athena: The title of a dialog window and the file selector window were not set. (David Harrison)

The "htmlLink" highlight group specified colors, which gives problems when using a color scheme. Added the "Underlined" highlight group for this.

After using ":insert" or ":change" the '[mark would be one line too low.

When looking for the file name after a match with 'include' one character was skipped. Same for 'define'.

Win32 and DJGPP: When editing a file with a short name in a directory, and editing the same file but using the long name, would end up with two buffers on the same file.

"gf" on a filename that starts with "../" only worked when the file being edited is in the current directory. An include file search didn't work

properly for files starting with "../" or ".". Now search both relative to the file and to the current directory.

When 'printheader', 'titlestring', 'iconstring', 'rulerformat' or 'statusline' contained "%{" but no following "}" memory was corrupted and a crash could happen.

":0append" and then inserting two lines did not redraw the blank lines that were scrolled back down.

When using insert mode completion in a narrow window, the message caused a scroll up. Now shorten the message if it doesn't fit and avoid writing the ruler over the message.

XIM still didn't work correctly on some systems, especially SGI/IRIX. Added the 'imdisable' option, which is set by default for that system.

Patch 6.0aw.008
Problem: When the first character of a file name is over 127, the Buffers
            menu entry would get a negative priority and cause problems.
Solution: Reduce the multiplier for the first character when computing
            the hash value for a Buffers menu entry.
Files: runtime/menu.vim

Patch 6.0aw.010
Problem: Win32: ":browse edit dir/dir" didn't work. (Vikas)
Solution: Change slashes to backslashes in the directory passed to the file
            browser.
Files: src/gui_w48.c

Athena file browser: On some systems wcstombs() can't be used to get the length of a multi-byte string. Use the maximum length then. (Yasuhiro Matsumoto)

Patch 6.0ax.001
Problem: When 'patchmode' is set, appending to a file gives an empty
            original file. (Ed Ralston)
Solution: Also make a backup copy when appending and 'patchmode' is set.
Files: src/fileio.c

Patch 6.0ax.002
Problem: When 'patchmode' is set, appending to a compressed file gives an
            uncompressed original file. (Ed Ralston)
Solution: Create the original file before decompressing.
Files: runtime/plugin/gzip.vim

Patch 6.0ax.005
Problem: Athena file selector keeps the title of the first invocation.
Solution: Set the title each time the file selector is opened. (David
            Harrison)
Files: src/gui_at_fs.c

Patch 6.0ax.007
Problem: When using GPM (mouse driver in a Linux console) a double click is

            interpreted as a scroll wheel click.
Solution: Check if GPM is being used when deciding if a mouse event is for
            the scroll wheel.
Files: src/term.c

Patch 6.0ax.010
Problem: The Edit.Save menu and the Save toolbar button didn't work when
            the buffer has no file name.
Solution: Use a file browser to ask for a file name. Also fix the toolbar
            Find item in Visual mode.
Files: runtime/menu.vim

Patch 6.0ax.012
Problem: When 'cpoptions' contains "$", breaking a line for 'textwidth'
            doesn't redraw properly. (Stefan Schulze)
Solution: Remove the dollar before breaking the line.
Files: src/edit.c

Patch 6.0ax.014
Problem: Win32: On Windows 98 ":make -f file" doesn't work when 'shell' is
            "command.com" and 'makeprg' is "nmake". The environment isn't
            passed on to "nmake".
Solution: Also use vimrun.exe when redirecting the output of a command.
Files: src/os_win32.c

Patch 6.0ax.016
Problem: The version number was reported wrong in the intro screen.
Solution: Check for a version number with two additional letters.
Files: src/version.c

Patch 6.0ax.019
Problem: When scrolling a window with folds upwards, switching to another
            vertically split window and back may not update the scrollbar.
Solution: Limit w_botline to the number of lines in the buffer plus one.
Files: src/move.c

==
VERSION 6.1   version-6.1

This section is about improvements made between version 6.0 and 6.1.

This is a bug-fix release, there are not really any new features.

Changed   changed-6.1

'iminsert' and 'imsearch' are no longer set as a side effect of defining a
language-mapping using ":lmap".

Added   added-6.1

Syntax files:
ampl   AMPL (David Krief)
ant   Ant (Johannes Zellner)
baan   Baan (Her van de Vliert)
cs   C# (Johannes Zellner)
lifelines   Lifelines (Patrick Texier)
lscript   LotusScript (Taryn East)
moo   MOO (Timo Frenay)
nsis   NSIS (Alex Jakushev)
ppd   Postscript Printer Description (Bjoern Jacke)
rpl   RPL/2 (Joel Bertrand)
scilab   Scilab (Benoit Hamelin)
splint   Splint (Ralf Wildenhues)
sqlj   SQLJ (Andreas Fischbach)
wvdial   WvDial (Prahlad Vaidyanathan)
xf86conf   XFree86 config (Nikolai Weibull)
xmodmap   Xmodmap (Nikolai Weibull)
xslt   Xslt (Johannes Zellner)
monk   Monk (Mike Litherland)
xsd   Xsd (Johannes Zellner)
cdl   CDL (Raul Segura Acevedo)
sendpr   Send-pr (Hendrik Scholz)

Added indent file for Scheme. (Dorai Sitaram)
Added indent file for Prolog. (Kontra Gergely)
Added indent file for Povray (David Necas)
Added indent file for IDL (Aleksandar Jelenak)
Added C# indent and ftplugin scripts.

Added Ukrainian menu translations. (Bohdan Vlasyuk)
Added ASCII version of the Czech menus. (Jiri Brezina)

Added Simplified Chinese translation of the tutor. (Mendel L Chan)

Added Russian keymap for yawerty keyboard.

Added an explanation of using the vimrc file in the tutor.
Changed tutor.vim to get the right encoding for the Taiwainese tutor.

Added Russian tutor. (Andrey Kiselev)
Added Polish tutor. (Mikolaj Machowski)

Added darkblue color scheme. (Bohdan Vlasyuk)

When packing the dos language archive automatically generate the .mo files
that are required.

Improved NSIS script to support NSIS 180. Added icons for the
enabled/disabled status. (Mirek Pruchnik)

cp1250 version of the Slovak message translations.

Compiler plugins for IRIX compilers. (David Harrison)

Fixed fixed-6.1

The license text was updated to make the meaning clearer and make it
compatible with the GNU GPL. Otherwise distributors have a problem when
linking Vim with a GPL'ed library.

When installing the "less.sh" script it was not made executable. (Chuck Berg)

Win32: The "9" key on the numpad wasn't working. (Julian Kinraid)

The NSIS install script didn't work with NSIS 1.80 or later. Also add
Vim-specific icons. (Pruchnik)

The script for conversion to HTML contained an "if" in the wrong place.
(Michael Geddes)

Allow using ":ascii" in the sandbox, it's harmless.

Removed creat() from osdef2.h.in, it wasn't used and may cause a problem when
it's redefined to creat64().

The text files in the VisVim directory were in "dos" format. This caused
problems when applying a patch. Now keep them in "unix" format and convert
them to "dos" format only for the PC archives.

Add ruby files to the dos source archive, they can be used by Make_mvc.mak.
(Mirek Pruchnik)

"cp -f" doesn't work on all systems. Change "cp -f" in the Makefile to "rm
-f" and "cp".

Didn't compile on a Compaq Tandem Himalaya OSS. (Michael A. Benzinger)

The GTK file selection dialog didn't include the "Create Dir", "Delete File"
and "Rename File" buttons.

When doing ":browse source" the dialog has the title "Run Macro". Better
would be "Source Vim script". (Yegappan Lakshmanan)

Win32: Don't use the printer font as default for the font dialog.

"make doslang" didn't work when configure didn't run (yet). Set $MAKEMO to
"yes". (Mirek Pruchnik)

The ToolBar TagJump item used "g]", which prompts for a selection even when
there is only one matching tag. Use "g<C-]>" instead.

The ming makefile for message translations didn't have the right list of
files.

The MS-Windows 3.1 version complains about LIBINTL.DLL not found. Compile

this version without message translations.

The Borland 5 makefile contained a check for Ruby which is no longer needed.
The URLs for the TCL library was outdated. (Dan Sharp)

The eviso.ps file was missing from the DOS runtime archive, it's needed for
printing PostScript in the 32bit DOS version.

In menu files ":scriptencoding" was used in a wrong way after patch 6.1a.032
Now use ":scriptencoding" in the file where the translations are given. Do
the same for all menus in latin1 encoding.

Included a lot of fixes for the Macintosh, mostly to make it work with Carbon.
(Dany StAmant, Axel Kielhorn, Benji Fisher)

Improved the vimtutor shell script to use $TMPDIR when it exists, and delete
the copied file when exiting in an abnormal way. (Max Ischenko)

When "iconv.dll" can't be found, try using "libiconv.dll".

When encryption is used, filtering with a shell command wasn't possible.

DJGPP: ":cd c:" always failed, can't get permissions for "c:".
Win32: ":cd c:/" failed if the previous current directory on c: had become
invalid.

DJGPP: Shift-Del and Del both produce \316\123. Default mapping for Del is
wrong. Disabled it.

Dependencies on header files in MingW makefile was wrong.

Win32: Don't use ACL stuff for MSVC 4.2, it's not supported. (Walter Briscoe)

Win32 with Borland: bcc.cfg was caching the value for $(BOR), but providing a
different argument to make didn't regenerate it.

Win32 with MSVC: Make_ivc.mak generates a new if_ole.h in a different
directory, the if_ole.h in the src directory may be used instead. Delete the
distributed file.

When a window is vertically split and then ":ball" is used, the window layout
is messed up, can cause a crash. (Muraoka Taro)

When 'insertmode' is set, using File/New menu and then double clicking, "i" is
soon inserted. (Merlin Hansen)

When Select mode is active and using the Buffers menu to switch to another
buffer, an old selection comes back. Reset VIsual_reselect for a ":buffer"
command.

When Select mode is active and 'insertmode' is set, using the Buffers menu to
switch to another buffer, did not return to Insert mode. Make sure
"restart_edit" is set.

When double clicking on the first character of a word while 'selection' is
"exclusive" didn't select that word.

Patch 6.0.001
Problem: Loading the sh.vim syntax file causes error messages. (Corinna
            Vinschen)
Solution: Add an "if". (Charles Campbell)
Files: runtime/syntax/sh.vim

Patch 6.0.002
Problem: Using a '@' item in 'viminfo' doesn't work. (Marko Leipert)
Solution: Add '@' to the list of accepted items.
Files: src/option.c

Patch 6.0.003
Problem: The configure check for ACLs on AIX doesn't work.
Solution: Fix the test program so that it compiles. (Tomas Ogren)
Files: src/configure.in, src/auto/configure

Patch 6.0.004
Problem: The find/replace dialog doesn't reuse a previous argument
            properly.
Solution: After removing a "\V" terminate the string. (Zwane Mwaikambo)
Files: src/gui.c

Patch 6.0.005
Problem: In Insert mode, "CTRL-O :ls" has a delay before redrawing.
Solution: Don't delay just after wait_return() was called. Added the
            did_wait_return flag.
Files: src/globals.h, src/message.c, src/normal.c, src/screen.c

Patch 6.0.006
Problem: With a vertical split, 'number' set and 'scrolloff' non-zero,
            making the window width very small causes a crash. (Niklas
            Lindstrom)
Solution: Check for a zero width.
Files: src/move.c

Patch 6.0.007
Problem: When setting 'filetype' while there is no FileType autocommand, a
            following ":setfiletype" would set 'filetype' again. (Kobus
            Retief)
Solution: Set did_filetype always when 'filetype' has been set.
Files: src/option.c

Patch 6.0.008
Problem: 'imdisable' is missing from the options window. (Michael Naumann)
Solution: Add an entry for it.
Files: runtime/optwin.vim

Patch 6.0.009
Problem: Nextstep doesn't have S_ISBLK. (John Beppu)
Solution: Define S_ISBLK using S_IFBLK.

```
Files:      src/os_unix.h

Patch 6.0.010
Problem:    Using "gf" on a file name starting with "./" or "../" in a buffer
            without a name causes a crash. (Roy Lewis)
Solution:   Check for a NULL file name.
Files:      src/misc2.c

Patch 6.0.011
Problem:    Python: After replacing or deleting lines get an ml_get error.
            (Leo Lipelis)
Solution:   Adjust the cursor position for deleted or added lines.
Files:      src/if_python.c

Patch 6.0.012
Problem:    Polish translations contain printf format errors, this can result
            in a crash when using one of them.
Solution:   Fix for translated messages. (Michal Politowski)
Files:      src/po/pl.po

Patch 6.0.013
Problem:    Using ":silent! cmd" still gives some error messages, like for an
            invalid range. (Salman Halim)
Solution:   Reset emsg_silent after calling emsg() in do_one_cmd().
Files:      src/ex_docmd.c

Patch 6.0.014
Problem:    When 'modifiable' is off and 'virtualedit' is "all", "rx" on a TAB
            still changes the buffer. (Muraoka Taro)
Solution:   Check if saving the line for undo fails.
Files:      src/normal.c

Patch 6.0.015
Problem:    When 'cpoptions' includes "S" and "filetype plugin on" has been
            used, can get an error for deleting the b:did_ftplugin variable.
            (Ralph Henderson)
Solution:   Only delete the variable when it exists.
Files:      runtime/ftplugin.vim

Patch 6.0.016
Problem:    bufnr(), bufname() and bufwinnr() don't find unlisted buffers when
            the argument is a string. (Hari Krishna Dara)
            Also for setbufvar() and getbufvar().
Solution:   Also find unlisted buffers.
Files:      src/eval.c

Patch 6.0.017
Problem:    When 'ttybuiltin' is set and a builtin termcap entry defines t_Co
            and the external one doesn't, it gets reset to empty. (David
            Harrison)
Solution:   Only set t_Co when it wasn't set yet.
Files:      src/term.c

Patch 6.0.018
```

```
Problem:    Initializing 'encoding' may cause a crash when setlocale() is not
            used. (Dany St-Amant)
Solution:   Check for a NULL pointer.
Files:      src/mbyte.c

Patch 6.0.019
Problem:    Converting a string with multi-byte characters to a printable
            string, e.g., with strtrans(), may cause a crash. (Tomas Zellerin)
Solution:   Correctly compute the length of the result in transstr().
Files:      src/charset.c

Patch 6.0.020
Problem:    When obtaining the value of a global variable internally, could
            get the function-local value instead.  Applies to using <Leader>
            and <LocalLeader> and resetting highlighting in a function.
Solution:   Prepend "g:" to the variable name. (Aric Blumer)
Files:      src/syntax.c, src/term.c

Patch 6.0.021
Problem:    The 'cscopepathcomp' option didn't work.
Solution:   Change USE_CSCOPE to FEAT_CSCOPE. (Mark Feng)
Files:      src/option.c

Patch 6.0.022
Problem:    When using the 'langmap' option, the second character of a command
            starting with "g" isn't adjusted.
Solution:   Apply 'langmap' to the second character. (Alex Kapranoff)
Files:      src/normal.c

Patch 6.0.023
Problem:    Loading the lhaskell syntax doesn't work. (Thore B. Karlsen)
Solution:   Use ":runtime" instead of "source" to load haskell.vim.
Files:      runtime/syntax/lhaskell.vim

Patch 6.0.024
Problem:    Using "CTRL-V u 9900" in Insert mode may cause a crash. (Noah
            Levitt)
Solution:   Don't insert a NUL byte in the text, use a newline.
Files:      src/misc1.c

Patch 6.0.025
Problem:    The pattern "\vx(.|$)" doesn't match "x" at the end of a line.
            (Preben Peppe Guldberg)
Solution:   Always see a "$" as end-of-line after "\v".  Do the same for "^".
Files:      src/regexp.c

Patch 6.0.026
Problem:    GTK: When using arrow keys to navigate through the menus, the
            separators are selected.
Solution:   Set the separators "insensitive". (Pavel Kankovsky)
Files:      src/gui_gtk.c, src/gui_gtk_x11.c

Patch 6.0.027
Problem:    VMS: Printing doesn't work, the file is deleted too quickly.
```

```
            No longer need the VMS specific printing menu.
            gethostname() is not available with VAXC.
            The makefile was lacking selection of the tiny-huge feature set.
Solution:   Adjust the 'printexpr' option default.  Fix the other problems and
            update the documentation.  (Zoltan Arpadffy)
Files:      runtime/doc/os_vms.txt, runtime/menu.vim, src/INSTALLvms.txt,
            src/Make_vms.mms, src/option.c, src/os_unix.c, src/os_vms_conf.h

Patch 6.0.028
Problem:    Can't compile without +virtualedit and with +visualextra. (Geza
            Lakner)
Solution:   Add an #ifdef for +virtualedit.
Files:      src/ops.c

Patch 6.0.029
Problem:    When making a change in line 1, then in line 2 and then deleting
            line 1, undo info could be wrong.  Only when the changes are undone
            at once. (Gerhard Hochholzer)
Solution:   When not saving a line for undo because it was already done
            before, remember for which entry the last line must be computed.
            Added ue_getbot_entry pointer for this.  When the number of lines
            changes, adjust the position of newer undo entries.
Files:      src/structs.h, src/undo.c

Patch 6.0.030
Problem:    Using ":source! file" doesn't work inside a loop or after
            ":argdo". (Pavol Juhas)
Solution:   Execute the commands in the file right away, do not let the main
            loop do it.
Files:      src/ex_cmds2.c, src/ex_docmd.c, src/getchar.c, src/globals.h,
            src/proto/ex_docmd.pro, src/proto/getchar.pro

Patch 6.0.031
Problem:    Nextstep doesn't have setenv() or putenv().  (John Beppu)
Solution:   Move putenv() from pty.c to misc2.c
Files:      src/misc2.c, src/pty.c

Patch 6.0.032
Problem:    When changing a setting that affects all folds, they are not
            displayed immediately.
Solution:   Set the redraw flag in foldUpdateAll().
Files:      src/fold.c

Patch 6.0.033
Problem:    Using 'wildmenu' on MS-Windows, file names that include a space
            are only displayed starting with that space. (Xie Yuheng)
Solution:   Don't recognize a backslash before a space as a path separator.
Files:      src/screen.c

Patch 6.0.034
Problem:    Calling searchpair() with three arguments could result in a crash
            or strange error message. (Kalle Bjorklid)
Solution:   Don't use the fifth argument when there is no fourth argument.
Files:      src/eval.c
```

Patch 6.0.035
Problem: The menu item Edit/Global_Settings/Toggle_Toolbar doesn't work
            when 'ignorecase' is set. (Allen Castaban)
Solution: Always match case when checking if a flag is already present in
            'guioptions'.
Files: runtime/menu.vim

Patch 6.0.036
Problem: OS/2, MS-DOS and MS-Windows: Using a path that starts with a
            slash in 'tags' doesn't work as expected. (Mathias Koehrer)
Solution: Only use the drive, not the whole path to the current directory.
            Also make it work for "c:dir/file".
Files: src/misc2.c

Patch 6.0.037
Problem: When the user has set "did_install_syntax_menu" to avoid the
            default Syntax menu it still appears. (Virgilio)
Solution: Don't add the three default items when "did_install_syntax_menu"
            is set.
Files: runtime/menu.vim

Patch 6.0.038
Problem: When 'selection' is "exclusive", deleting a block of text at the
            end of a line can leave the cursor beyond the end of the line.
Solution: Correct the cursor position.
Files: src/ops.c

Patch 6.0.039
Problem: "gP" leaves the cursor in the wrong position when 'virtualedit' is
            used. Using "c" in blockwise Visual mode leaves the cursor in a
            strange position.
Solution: For "gP" reset the "coladd" field for the '] mark. For "c" leave
            the cursor on the last inserted character.
Files: src/ops.c

Patch 6.0.040
Problem: When 'fileencoding' is invalid and writing fails because of
            this, the original file is gone. (Eric Carlier)
Solution: Restore the original file from the backup.
Files: src/fileio.c

Patch 6.0.041
Problem: Using ":language messages en" when LC_MESSAGES is undefined
            results in setting LC_CTYPE. (Eric Carlier)
Solution: Set $LC_MESSAGES instead.
Files: src/ex_cmds2.c

Patch 6.0.042
Problem: ":mksession" can't handle file names with a space.
Solution: Escape special characters in file names with a backslash.
Files: src/ex_docmd.c

Patch 6.0.043

```
Problem:    Patch 6.0.041 was wrong.
Solution:   Use mch_getenv() instead of vim_getenv().
Files:      src/ex_cmds2.c

Patch 6.0.044
Problem:    Using a "containedin" list for a syntax item doesn't work for an
            item that doesn't have a "contains" argument.  Also, "containedin"
            doesn't ignore a transparent item. (Timo Frenay)
Solution:   When there is a "containedin" argument somewhere, always check for
            contained items.  Don't check for the transparent item but the
            item it's contained in.
Files:      src/structs.h, src/syntax.c

Patch 6.0.045
Problem:    After creating a fold with a Visual selection, another window
            with the same buffer still has inverted text. (Sami Salonen)
Solution:   Redraw the inverted text.
Files:      src/normal.c

Patch 6.0.046
Problem:    When getrlimit() returns an 8 byte number the check for running
            out of stack may fail. (Anthony Meijer)
Solution:   Skip the stack check if the limit doesn't fit in a long.
Files:      src/auto/configure, src/config.h.in, src/configure.in,
            src/os_unix.c

Patch 6.0.047
Problem:    Using a regexp with "\(\)" inside a "\%[]" item causes a crash.
            (Samuel Lacas)
Solution:   Don't allow nested atoms inside "\%[]".
Files:      src/regexp.c

Patch 6.0.048
Problem:    Win32: In the console the mouse doesn't always work correctly.
            Sometimes after getting focus a mouse movement is interpreted like
            a button click.
Solution:   Use a different function to obtain the number of mouse buttons.
            Avoid recognizing a button press from undefined bits. (Vince Negri)
Files:      src/os_win32.c

Patch 6.0.049
Problem:    When using evim the intro screen is misleading. (Adrian Nagle)
Solution:   Mention whether 'insertmode' is set and the menus to be used.
Files:      runtime/menu.vim, src/version.c

Patch 6.0.050
Problem:    UTF-8: "viw" doesn't include non-ASCII characters before the
            cursor. (Bertilo Wennergren)
Solution:   Use dec_cursor() instead of decrementing the column number.
Files:      src/search.c

Patch 6.0.051
Problem:    UTF-8: Using CTRL-R on the command line doesn't insert composing
            characters. (Ron Aaron)
```

```
Solution:   Also include the composing characters and fix redrawing them.
Files:      src/ex_getln.c, src/ops.c

Patch 6.0.052
Problem:    The check for rlim_t in patch 6.0.046 does not work on some
            systems. (Zdenek Sekera)
Solution:   Also look in sys/resource.h for rlim_t.
Files:      src/auto/configure, src/configure.in

Patch 6.0.053 (extra)
Problem:    Various problems with QNX.
Solution:   Minor fix for configure.  Switch on terminal clipboard support in
            main.c.  Fix "pterm" mouse support.  os_qnx.c didn't build without
            photon. (Julian Kinraid)
Files:      src/auto/configure, src/configure.in, src/gui_photon.c,
            src/main.c, src/misc2.c, src/option.h, src/os_qnx.c, src/os_qnx.h,
            src/syntax.c

Patch 6.0.054
Problem:    When using mswin.vim, CTRL-V pastes a block of text like it is
            normal text.  Using CTRL-V in blockwise Visual mode leaves "x"
            characters behind.
Solution:   Make CTRL-V work as it should.  Do the same for the Paste menu
            entries.
Files:      runtime/menu.vim, runtime/mswin.vim

Patch 6.0.055
Problem:    GTK: The selection isn't copied the first time.
Solution:   Own the selection at the right moment.
Files:      src/gui_gtk_x11.c

Patch 6.0.056
Problem:    Using "CTRL-O cw" in Insert mode results in a nested Insert mode.
            <Esc> doesn't leave Insert mode then.
Solution:   Only use nested Insert mode when 'insertmode' is set or when a
            mapping is used.
Files:      src/normal.c

Patch 6.0.057
Problem:    Using ":wincmd g}" in a function doesn't work.  (Gary Holloway)
Solution:   Execute the command directly, instead of putting it in the
            typeahead buffer.
Files:      src/normal.c, src/proto/normal.pro, src/window.c

Patch 6.0.058
Problem:    When a Cursorhold autocommand moved the cursor, the ruler wasn't
            updated. (Bohdan Vlasyuk)
Solution:   Update the ruler after executing the autocommands.
Files:      src/gui.c

Patch 6.0.059
Problem:    Highlighting for 'hlsearch' isn't visible in lines that are
            highlighted for diff highlighting.  (Gary Holloway)
Solution:   Let 'hlsearch' highlighting overrule diff highlighting.
```

```
Files:      src/screen.c

Patch 6.0.060
Problem:    Motif: When the tooltip is to be popped up, Vim crashes.
            (Gary Holloway)
Solution:   Check for a NULL return value from gui_motif_fontset2fontlist().
Files:      src/gui_beval.c

Patch 6.0.061
Problem:    The toolbar buttons to load and save a session do not correctly
            use v:this_session.
Solution:   Check for v:this_session to be empty instead of existing.
Files:      runtime/menu.vim

Patch 6.0.062
Problem:    Crash when 'verbose' is > 3 and using ":shell". (Yegappan
            Lakshmanan)
Solution:   Avoid giving a NULL pointer to printf().  Also output a newline
            and switch the cursor on.
Files:      src/misc2.c

Patch 6.0.063
Problem:    When 'cpoptions' includes "$", using "cw" to type a ')' on top of
            the "$" doesn't update syntax highlighting after it.
Solution:   Stop displaying the "$" when typing a ')' in its position.
Files:      src/search.c

Patch 6.0.064 (extra)
Problem:    The NSIS install script doesn't work with newer versions of NSIS.
            The diff feature doesn't work when there isn't a good diff.exe on
            the system.
Solution:   Replace the GetParentDir instruction by a user function.
            Fix a few cosmetic problems.  Use defined constants for the
            version number, so that it's defined in one place only.
            Only accept the install directory when it ends in "vim".
            (Eduardo Fernandez)
            Add a diff.exe and use it from the default _vimrc.
Files:      nsis/gvim.nsi, nsis/README.txt, src/dosinst.c

Patch 6.0.065
Problem:    When using ":normal" in 'indentexpr' it may use redo characters
            before its argument.  (Neil Bird)
Solution:   Save and restore the stuff buffer in ex_normal().
Files:      src/ex_docmd.c, src/getchar.c, src/globals.h, src/structs.h

Patch 6.0.066
Problem:    Sometimes undo for one command is split into two undo actions.
            (Halim Salman)
Solution:   Don't set the undo-synced flag when reusing a line that was
            already saved for undo.
Files:      src/undo.c

Patch 6.0.067
Problem:    if_xcmdsrv.c doesn't compile on systems where fd_set isn't defined
```

```
            in the usual header file (e.g., AIX). (Mark Waggoner)
Solution:   Include sys/select.h in if_xcmdsrv.c for systems that have it.
Files:      src/if_xcmdsrv.c

Patch 6.0.068
Problem:    When formatting a Visually selected area with "gq" and the number
            of lines increases the last line may not be redrawn correctly.
            (Yegappan Lakshmanan)
Solution:   Correct the area to be redrawn for inserted/deleted lines.
Files:      src/ops.c

Patch 6.0.069
Problem:    Using "K" on a word that includes a "!" causes a "No previous
            command" error, because the "!" is expanded. (Craig Jeffries)
Solution:   Put a backslash before the "!".
Files:      src/normal.c

Patch 6.0.070
Problem:    Win32: The error message for a failed dynamic linking of a Perl,
            Ruby, Tcl and Python library is unclear about what went wrong.
Solution:   Give the name of the library or function that could not be loaded.
            Also for the iconv and gettext libraries when 'verbose' is set.
Files:      src/eval.c, src/if_perl.xs, src/if_python.c, src/if_ruby.c,
            src/if_tcl.c, src/mbyte.c, src/os_win32.c, src/proto/if_perl.pro,
            src/proto/if_python.pro, src/proto/if_ruby.pro,
            src/proto/if_tcl.pro, src/proto/mbyte.pro

Patch 6.0.071
Problem:    The "iris-ansi" builtin termcap isn't very good.
Solution:   Fix the wrong entries. (David Harrison)
Files:      src/term.c

Patch 6.0.072
Problem:    When 'lazyredraw' is set, a mapping that stops Visual mode, moves
            the cursor and starts Visual mode again causes a redraw problem.
            (Brian Silverman)
Solution:   Redraw both the old and the new Visual area when necessary.
Files:      src/normal.c, src/screen.c

Patch 6.0.073 (extra)
Problem:    DJGPP: When using CTRL-Z to start a shell, the prompt is halfway
            the text. (Volker Kiefel)
Solution:   Position the system cursor before starting the shell.
Files:      src/os_msdos.c

Patch 6.0.074
Problem:    When using "&" in a substitute string a multi-byte character with
            a trailbyte 0x5c is not handled correctly.
Solution:   Recognize multi-byte characters inside the "&" part. (Muraoka Taro)
Files:      src/regexp.c

Patch 6.0.075
Problem:    When closing a horizontally split window while 'eadirection' is
            "hor" another horizontally split window is still resized. (Aron
```

```
            Griffis)
Solution:   Only resize windows in the same top frame as the window that is
            split or closed.
Files:      src/main.c, src/proto/window.pro, src/window.c

Patch 6.0.076
Problem:    Warning for wrong pointer type when compiling.
Solution:   Use char instead of char_u pointer.
Files:      src/version.c

Patch 6.0.077
Problem:    Patch 6.0.075 was incomplete.
Solution:   Fix another call to win_equal().
Files:      src/option.c

Patch 6.0.078
Problem:    Using "daw" at the end of a line on a single-character word didn't
            include the white space before it.  At the end of the file it
            didn't work at all.  (Gavin Sinclair)
Solution:   Include the white space before the word.
Files:      src/search.c

Patch 6.0.079
Problem:    When "W" is in 'cpoptions' and 'backupcopy' is "no" or "auto", can
            still overwrite a read-only file, because it's renamed. (Gary
            Holloway)
Solution:   Add a check for a read-only file before renaming the file to
            become the backup.
Files:      src/fileio.c

Patch 6.0.080
Problem:    When using a session file that has the same file in two windows,
            the fileinfo() call in do_ecmd() causes a scroll and a hit-enter
            prompt. (Robert Webb)
Solution:   Don't scroll this message when 'shortmess' contains 'O'.
Files:      src/ex_cmds.c

Patch 6.0.081
Problem:    After using ":saveas" the new buffer name is added to the Buffers
            menu with a wrong number. (Chauk-Mean Proum)
Solution:   Trigger BufFilePre and BufFilePost events for the renamed buffer
            and BufAdd for the old name (which is with a new buffer).
Files:      src/ex_cmds.c

Patch 6.0.082
Problem:    When swapping screens in an xterm and there is an (error) message
            from the vimrc script, the shell prompt is after the message.
Solution:   Output a newline when there was output on the alternate screen.
            Also when starting the GUI.
Files:      src/main.c

Patch 6.0.083
Problem:    GTK: When compiled without menu support the buttons in a dialog
            don't have any text. (Erik Edelmann)
```

Solution: Add the text also when GTK_USE_ACCEL isn't defined. And define
            GTK_USE_ACCEL also when not using menus.
Files: src/gui_gtk.c

Patch 6.0.084
Problem: UTF-8: a "r" command with an argument that is a keymap for a
            character with a composing character can't be repeated with ".".
            (Raphael Finkel)
Solution: Add the composing characters to the redo buffer.
Files: src/normal.c

Patch 6.0.085
Problem: When 'mousefocus' is set, using "s" to go to Insert mode and then
            moving the mouse pointer to another window stops Insert mode,
            while this doesn't happen with "a" or "i". (Robert Webb)
Solution: Reset finish_op before calling edit().
Files: src/normal.c

Patch 6.0.086
Problem: When using "gu" the message says "~ed".
Solution: Make the message say "changed".
Files: src/ops.c

Patch 6.0.087 (lang)
Problem: Message translations are incorrect, which may cause a crash.
            (Peter Figura)
            The Turkish translations needed more work and the maintainer
            didn't have time.
Solution: Fix order of printf arguments. Remove %2$d constructs.
            Add "-v" to msgfmt to get a warning for wrong translations.
            Don't install the Turkish translations for now.
            Update a few more translations.
Files: src/po/Makefile, src/po/af.po, src/po/cs.po, src/po/cs.cp1250.po,
            src/po/de.po, src/po/es.po, src/po/fr.po, src/po/it.po,
            src/po/ja.po, src/po/ja.sjis.po, src/po/ko.po, src/po/pl.po,
            src/po/sk.po, src/po/uk.po, src/po/zh_CN.UTF-8.po,
            src/po/zh_CN.cp936.po, src/po/zh_CN.po, src/po/zh_TW.po

Patch 6.0.088
Problem: "." doesn't work after using "rx" in Visual mode. (Charles
            Campbell)
Solution: Also store the replacement character in the redo buffer.
Files: src/normal.c

Patch 6.0.089
Problem: In a C file, using "==" to align a line starting with "* " after
            a line with "* -" indents one space too few. (Piet Delport)
Solution: Align with the previous line if the comment-start-string matches
            there.
Files: src/misc1.c

Patch 6.0.090
Problem: When a wrapping line does not fit in a window and 'scrolloff' is
            bigger than half the window height, moving the cursor left or

```
            right causes the screen to flash badly. (Lubomir Host)
Solution:   When there is not enough room to show 'scrolloff' screen lines and
            near the end of the line, show the end of the line.
Files:      src/move.c

Patch 6.0.091
Problem:    Using CTRL-O in Insert mode, while 'virtualedit' is "all" and the
            cursor is after the end-of-line, moves the cursor left. (Yegappan
            Lakshmanan)
Solution:   Keep the cursor in the same position.
Files:      src/edit.c

Patch 6.0.092
Problem:    The explorer plugin doesn't ignore case of 'suffixes' on
            MS-Windows. (Mike Williams)
Solution:   Match or ignore case as appropriate for the OS.
Files:      runtime/plugin/explorer.vim

Patch 6.0.093
Problem:    When the Tcl library couldn't be loaded dynamically, get an error
            message when closing a buffer or window. (Muraoka Taro)
Solution:   Only free structures if already using the Tcl interpreter.
Files:      src/if_tcl.c

Patch 6.0.094
Problem:    Athena: When clicking in the horizontal scrollbar Vim crashes.
            (Paul Ackersviller)
Solution:   Use the thumb size instead of the window pointer of the scrollbar
            (which is NULL). (David Harrison)
            Also avoid that scrolling goes the wrong way in a narrow window.
Files:      src/gui_athena.c

Patch 6.0.095
Problem:    Perl: Deleting lines may leave the cursor beyond the end of the
            file.
Solution:   Check the cursor position after deleting a line. (Serguei)
Files:      src/if_perl.xs

Patch 6.0.096
Problem:    When ":saveas fname" fails because the file already exists, the
            file name is changed anyway and a following ":w" will overwrite
            the file. (Eric Carlier)
Solution:   Don't change the file name if the file already exists.
Files:      src/ex_cmds.c

Patch 6.0.097
Problem:    Re-indenting in Insert mode with CTRL-F may cause a crash with a
            multi-byte encoding.
Solution:   Avoid using a character before the start of a line. (Sergey
            Vlasov)
Files:      src/edit.c

Patch 6.0.098
Problem:    GTK: When using Gnome the "Search" and "Search and Replace" dialog
```

boxes are not translated.
Solution: Define ENABLE_NLS before including gnome.h. (Eduardo Fernandez)
Files: src/gui_gtk.c, src/gui_gtk_x11.c

Patch 6.0.099
Problem: Cygwin: When running Vi compatible MS-DOS line endings cause
            trouble.
Solution: Make the default for 'fileformats' "unix,dos" in Vi compatible
            mode. (Michael Schaap)
Files: src/option.h

Patch 6.0.100
Problem: ":badd +0 test%file" causes a crash.
Solution: Take into account that the "+0" is NUL terminated when allocating
            room for replacing the "%".
Files: src/ex_docmd.c

Patch 6.0.101
Problem: ":mksession" doesn't restore editing a file that has a '#' or '%'
            in its name. (Wolfgang Blankenburg)
Solution: Put a backslash before the '#' and '%'.
Files: src/ex_docmd.c

Patch 6.0.102
Problem: When changing folds the cursor may appear halfway a closed fold.
            (Nam SungHyun)
Solution: Set w_cline_folded correctly. (Yasuhiro Matsumoto)
Files: src/move.c

Patch 6.0.103
Problem: When using 'scrollbind' a large value of 'scrolloff' will make the
            scroll binding stop near the end of the file. (Coen Engelbarts)
Solution: Don't use 'scrolloff' when limiting the topline for scroll
            binding. (Dany StAmant)
Files: src/normal.c

Patch 6.0.104
Problem: Multi-byte: When '$' is in 'cpoptions', typing a double-wide
            character that overwrites the left halve of an old double-wide
            character causes a redraw problem and the cursor stops blinking.
Solution: Clear the right half of the old character. (Yasuhiro Matsumoto)
Files: src/edit.c, src/screen.c

Patch 6.0.105
Problem: Multi-byte: In a window of one column wide, with syntax
            highlighting enabled a crash might happen.
Solution: Skip getting the syntax attribute when the character doesn't fit
            anyway. (Yasuhiro Matsumoto)
Files: src/screen.c

Patch 6.0.106 (extra)
Problem: Win32: When the printer font is wrong, there is no error message.
Solution: Give an appropriate error message. (Yasuhiro Matsumoto)
Files: src/os_mswin.c

```
Patch 6.0.107 (extra)
Problem:    VisVim: When editing another file, a modified file may be written
            unexpectedly and without warning.
Solution:   Split the window if a file was modified.
Files:      VisVim/Commands.cpp

Patch 6.0.108
Problem:    When using folding could try displaying line zero, resulting in an
            error for a NULL pointer.
Solution:   Stop decrementing w_topline when the first line of a window is in
            a closed fold.
Files:      src/window.c

Patch 6.0.109
Problem:    XIM: When the input method is enabled, repeating an insertion with
            "." disables it. (Marcel Svitalsky)
Solution:   Don't store the input method status when a command comes from the
            stuff buffer.
Files:      src/ui.c

Patch 6.0.110
Problem:    Using undo after executing "Ox?jAx?kdd" from a register in
            an empty buffer gives an error message.  (Gerhard Hochholzer)
Solution:   Don't adjust the bottom line number of an undo block when it's
            zero.  Add a test for this problem.
Files:      src/undo.c, src/testdir/test20.in, src/testdir/test20.ok

Patch 6.0.111
Problem:    The virtcol() function doesn't take care of 'virtualedit'.
Solution:   Add the column offset when needed. (Yegappan Lakshmanan)
Files:      src/eval.c

Patch 6.0.112
Problem:    The explorer plugin doesn't sort directories with a space or
            special character after a directory with a shorter name.
Solution:   Ignore the trailing slash when comparing directory names.  (Mike
            Williams)
Files:      runtime/plugin/explorer.vim

Patch 6.0.113
Problem:    ":edit ~/fname" doesn't work if $HOME includes a space.  Also,
            expanding wildcards with the shell may fail. (John Daniel)
Solution:   Escape spaces with a backslash when needed.
Files:      src/ex_docmd.c, src/misc1.c, src/proto/misc1.pro, src/os_unix.c

Patch 6.0.114
Problem:    Using ":p" with fnamemodify() didn't expand "~/" or "~user/" to a
            full path.  For Win32 the current directory was prepended.
            (Michael Geddes)
Solution:   Expand the home directory.
Files:      src/eval.c

Patch 6.0.115 (extra)
```

```
Problem:    Win32: When using a dialog with a textfield it cannot scroll the
            text.
Solution:   Add ES_AUTOHSCROLL to the textfield style. (Pedro Gomes)
Files:      src/gui_w32.c

Patch 6.0.116 (extra)
Problem:    MS-Windows NT/2000/XP: filewritable() doesn't work correctly for
            filesystems that use ACLs.
Solution:   Use ACL functions to check if a file is writable. (Mike Williams)
Files:      src/eval.c, src/macros.h, src/os_win32.c, src/proto/os_win32.pro

Patch 6.0.117 (extra)
Problem:    Win32: when disabling the menu, "set lines=999" doesn't use all
            the available screen space.
Solution:   Don't subtract the fixed caption height but the real menu height
            from the available screen space.  Also: Avoid recursion in
            gui_mswin_get_menu_height().
Files:      src/gui_w32.c, src/gui_w48.c

Patch 6.0.118
Problem:    When $TMPDIR is a relative path, the temp directory is missing a
            trailing slash and isn't deleted when Vim exits. (Peter Holm)
Solution:   Add the slash after expanding the directory to an absolute path.
Files:      src/fileio.c

Patch 6.0.119 (depends on patch 6.0.116)
Problem:    VMS: filewritable() doesn't work properly.
Solution:   Use the same method as for Unix. (Zoltan Arpadffy)
Files:      src/eval.c

Patch 6.0.120
Problem:    The conversion to html isn't compatible with XHTML.
Solution:   Quote the values. (Jess Thrysoee)
Files:      runtime/syntax/2html.vim

Patch 6.0.121 (extra) (depends on patch 6.0.116)
Problem:    Win32: After patch 6.0.116 Vim doesn't compile with mingw32.
Solution:   Add an #ifdef HAVE_ACL.
Files:      src/os_win32.c

Patch 6.0.122 (extra)
Problem:    Win16: Same resize problems as patch 6.0.117 fixed for Win32.  And
            dialog textfield problem from patch 6.0.115.
Solution:   Set old_menu_height only when used.  Add ES_AUTOHSCROLL flag.
            (Vince Negri)
Files:      src/gui_w16.c

Patch 6.0.123 (depends on patch 6.0.119)
Problem:    Win16: Compilation problems.
Solution:   Move "&&" to other lines. (Vince Negri)
Files:      src/eval.c

Patch 6.0.124
Problem:    When using a ":substitute" command that starts with "\="
```

```
            (evaluated as an expression), "~" was still replaced with the
            previous substitute string.
Solution:   Skip the replacement when the substitute string starts with "\=".
            Also adjust the documentation about doubling backslashes.
Files:      src/ex_cmds.c, runtime/doc/change.txt

Patch 6.0.125 (extra)
Problem:    Win32: When using the multi_byte_ime feature pressing the shift
            key would be handled as if a character was entered, thus mappings
            with a shifted key didn't work. (Charles Campbell)
Solution:   Ignore pressing the shift, control and alt keys.
Files:      src/os_win32.c

Patch 6.0.126
Problem:    The python library was always statically linked.
Solution:   Link the python library dynamically. (Matthias Klose)
Files:      src/auto/configure, src/configure.in

Patch 6.0.127
Problem:    When using a terminal that swaps screens and the Normal background
            color has a different background, using an external command may
            cause the color of the wrong screen to be changed. (Mark Waggoner)
Solution:   Don't call screen_stop_highlight() in stoptermcap().
Files:      src/term.c

Patch 6.0.128
Problem:    When moving a vertically split window to the far left or right,
            the scrollbars are not adjusted. (Scott E Lee)  When 'mousefocus'
            is set the mouse pointer wasn't adjusted.
Solution:   Adjust the scrollbars and the mouse pointer.
Files:      src/window.c

Patch 6.0.129
Problem:    When using a very long file name, ":ls" (repeated a few times)
            causes a crash.  Test with "vim `perl -e 'print "A"x1000'`".
            (Tejeda)
Solution:   Terminate a string before getting its length in buflist_list().
Files:      src/buffer.c

Patch 6.0.130
Problem:    When using ":cprev" while the error window is open, and the new
            line at the top wraps, the window isn't correctly drawn.
            (Yegappan Lakshmanan)
Solution:   When redrawing the topline don't scroll twice.
Files:      src/screen.c

Patch 6.0.131
Problem:    When using bufname() and there are two matches for listed buffers
            and one match for an unlisted buffer, the unlisted buffer is used.
            (Aric Blumer)
Solution:   When there is a match with a listed buffer, don't check for
            unlisted buffers.
Files:      src/buffer.c
```

Patch 6.0.132
Problem: When setting 'iminsert' in the vimrc and using an xterm with two
            screens the ruler is drawn in the wrong screen. (Igor Goldenberg)
Solution: Only draw the ruler when using the right screen.
Files: src/option.c

Patch 6.0.133
Problem: When opening another buffer while 'keymap' is set and 'iminsert'
            is zero, 'iminsert' is set to one unexpectedly. (Igor Goldenberg)
Solution: Don't set 'iminsert' as a side effect of defining a ":lmap"
            mapping. Only do that when 'keymap' is set.
Files: src/getchar.c, src/option.c

Patch 6.0.134
Problem: When completing ":set tags=" a path with an embedded space causes
            the completion to stop. (Sektor van Skijlen)
Solution: Escape spaces with backslashes, like for ":set path=". Also take
            backslashes into account when searching for the start of the path
            to complete (e.g., for 'backupdir' and 'cscopeprg').
Files: src/ex_docmd.c, src/ex_getln.c, src/option.c, src/structs.h

Patch 6.0.135
Problem: Menus that are not supposed to do anything used "<Nul>", which
            still produced an error beep.
            When CTRL-O is mapped for Insert mode, ":amenu" commands didn't
            work in Insert mode.
            Menu language falls back to English when $LANG ends in "@euro".
Solution: Use "<Nop>" for a menu item that doesn't do anything, just like
            mappings.
            Use ":anoremenu" instead of ":amenu".
            Ignore "@euro" in the locale name.
Files: runtime/makemenu.vim, runtime/menu.vim, src/menu.c

Patch 6.0.136
Problem: When completing in Insert mode, a mapping could be unexpectedly
            applied.
Solution: Don't use mappings when checking for a typed character.
Files: src/edit.c

Patch 6.0.137
Problem: GUI: When using the find or find/replace dialog from Insert mode,
            the input mode is stopped.
Solution: Don't use the input method status when the main window doesn't
            have focus.
Files: src/ui.c

Patch 6.0.138
Problem: GUI: When using the find or find/replace dialog from Insert mode,
            the text is inserted when CTRL-O is mapped. (Andre Pang)
            When opening the dialog again, a whole word search isn't
            recognized.
            When doing "replace all" a whole word search was never done.
Solution: Don't put a search or replace command in the input buffer,
            execute it directly.

```
            Recognize "\<" and "\>" after removing "\V".
            Add "\<" and "\>" also for "replace all".
Files:      src/gui.c

Patch 6.0.139
Problem:    When stopping 'wildmenu' completion, the statusline of the
            bottom-left vertically split window isn't redrawn. (Yegappan
            Lakshmanan)
Solution:   Redraw all the bottom statuslines.
Files:      src/ex_getln.c, src/proto/screen.pro, src/screen.c

Patch 6.0.140
Problem:    Memory allocated for local mappings and abbreviations is leaked
            when the buffer is wiped out.
Solution:   Clear the local mappings when deleting a buffer.
Files:      src/buffer.c, src/getchar.c, src/proto/getchar.pro, src/vim.h

Patch 6.0.141
Problem:    When using ":enew" in an empty buffer, some buffer-local things
            are not cleared.  b:keymap_name is not set.
Solution:   Clear user commands and mappings local to the buffer when re-using
            the current buffer.  Reload the keymap.
Files:      src/buffer.c

Patch 6.0.142
Problem:    When Python is linked statically, loading dynamic extensions might
            fail.
Solution:   Add an extra linking flag when needed. (Andrew Rodionoff)
Files:      src/configure.in, src/auto/configure

Patch 6.0.143
Problem:    When a syntax item includes a line break in a pattern, the syntax
            may not be updated properly when making a change.
Solution:   Add the "linebreaks" argument to ":syn sync".
Files:      runtime/doc/syntax.txt, src/screen.c, src/structs.h, src/syntax.c

Patch 6.0.144
Problem:    After patch 6.0.088 redoing "veU" doesn't work.
Solution:   Don't add the "U" to the redo buffer, it will be used as an undo
            command.
Files:      src/normal.c

Patch 6.0.145
Problem:    When Vim can't read any input it might get stuck.  When
            redirecting stdin and stderr Vim would not read commands from a
            file.  (Servatius Brandt)
Solution:   When repeatedly trying to read a character when it's not possible,
            exit Vim.  When stdin and stderr are not a tty, still try reading
            from them, but don't do a blocking wait.
Files:      src/ui.c

Patch 6.0.146
Problem:    When 'statusline' contains "%{'-'}" this results in a zero.
            (Milan Vancura)
```

```
Solution:   Don't handle numbers with a minus as a number, they were not
            displayed anyway.
Files:      src/buffer.c

Patch 6.0.147
Problem:    It's not easy to mark a Vim version as being modified.  The new
            license requires this.
Solution:   Add the --modified-by argument to configure and the MODIFIED_BY
            define.  It's used in the intro screen and the ":version" output.
Files:      src/auto/configure, src/configure.in, src/config.h.in,
            src/feature.h, src/version.c

Patch 6.0.148
Problem:    After "p" in an empty line, `[ goes to the second character.
            (Kontra Gergely)
Solution:   Don't increment the column number in an empty line.
Files:      src/ops.c

Patch 6.0.149
Problem:    The pattern "\(.\{-}\)*" causes a hang.  When using a search
            pattern that causes a stack overflow to be detected Vim could
            still hang.
Solution:   Correctly report "operand could be empty" when using "\{-}".
            Check for "out_of_stack" inside loops to avoid a hang.
Files:      src/regexp.c

Patch 6.0.150
Problem:    When using a multi-byte encoding, patch 6.0.148 causes "p" to work
            like "P". (Sung-Hyun Nam)
Solution:   Compute the byte length of a multi-byte character.
Files:      src/ops.c

Patch 6.0.151
Problem:    Redrawing the status line and ruler can be wrong when it contains
            multi-byte characters.
Solution:   Use character width and byte length correctly. (Yasuhiro Matsumoto)
Files:      src/screen.c

Patch 6.0.152
Problem:    strtrans() could hang on an illegal UTF-8 byte sequence.
Solution:   Skip over illegal bytes. (Yasuhiro Matsumoto)
Files:      src/charset.c

Patch 6.0.153
Problem:    When using (illegal) double-byte characters and Vim syntax
            highlighting Vim can crash. (Yasuhiro Matsumoto)
Solution:   Increase a pointer over a character instead of a byte.
Files:      src/regexp.c

Patch 6.0.154
Problem:    MS-DOS and MS-Windows: The menu entries for xxd don't work when
            there is no xxd in the path.
            When converting back from Hex the filetype may remain "xxd" if it
            is not detected.
```

```
Solution:   When xxd is not in the path use the one in the runtime directory,
            where the install program has put it.
            Clear the 'filetype' option before detecting the new value.
Files:      runtime/menu.vim

Patch 6.0.155
Problem:    Mac: compilation problems in ui.c after patch 6.0.145. (Axel
            Kielhorn)
Solution:   Don't call mch_inchar() when NO_CONSOLE is defined.
Files:      src/ui.c

Patch 6.0.156
Problem:    Starting Vim with the -b argument and two files, ":next" doesn't
            set 'binary' in the second file, like Vim 5.7. (Norman Diamond)
Solution:   Set the global value for 'binary'.
Files:      src/option.c

Patch 6.0.157
Problem:    When defining a user command with "-complete=dir" files will also
            be expanded.  Also, "-complete=mapping" doesn't appear to work.
            (Michael Naumann)
Solution:   Use the expansion flags defined with the user command.
            Handle expanding mappings specifically.
Files:      src/ex_docmd.c

Patch 6.0.158
Problem:    When getting the warning for a file being changed outside of Vim
            and reloading the file, the 'readonly' option is reset, even when
            the permissions didn't change. (Marcel Svitalsky)
Solution:   Keep 'readonly' set when reloading a file and the permissions
            didn't change.
Files:      src/fileio.c

Patch 6.0.159
Problem:    Wildcard expansion for ":emenu" also shows separators.
Solution:   Skip menu separators for ":emenu", ":popup" and ":tearoff".
            Also, don't handle ":tmenu" as if it was ":tearoff".  And leave
            out the alternatives with "&" included.
Files:      src/menu.c

Patch 6.0.160
Problem:    When compiling with GCC 3.0.2 and using the "-O2" argument, the
            optimizer causes a problem that makes Vim crash.
Solution:   Add a configure check to avoid "-O2" for this version of gcc.
Files:      src/configure.in, src/auto/configure

Patch 6.0.161 (extra)
Problem:    Win32: Bitmaps don't work with signs.
Solution:   Make it possible to use bitmaps with signs. (Muraoka Taro)
Files:      src/ex_cmds.c, src/feature.h, src/gui_w32.c, src/gui_x11.c,
            src/proto/gui_w32.pro, src/proto/gui_x11.pro

Patch 6.0.162
Problem:    Client-server: An error message for a wrong expression appears in
```

            the server instead of the client.
Solution: Pass the error message from the server to the client. Also
            adjust the example code. (Flemming Madsen)
Files: src/globals.h, src/if_xcmdsrv.c, src/main.c, src/os_mswin.c,
            src/proto/if_xcmdsrv.pro, src/proto/os_mswin.pro,
            runtime/doc/eval.txt, runtime/tools/xcmdsrv_client.c

Patch 6.0.163
Problem: When using a GUI dialog, a file name is sometimes used like it was
            a directory.
Solution: Separate path and file name properly.
            For GTK, Motif and Athena concatenate directory and file name for
            the default selection.
Files: src/diff.c, src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c,
            src/gui_athena.c, src/gui_gtk.c, src/gui_motif.c, src/message.c

Patch 6.0.164
Problem: After patch 6.0.135 the menu entries for pasting don't work in
            Insert and Visual mode. (Muraoka Taro)
Solution: Add <script> to allow script-local mappings.
Files: runtime/menu.vim

Patch 6.0.165
Problem: Using --remote and executing locally gives unavoidable error
            messages.
Solution: Add --remote-silent and --remote-wait-silent to silently execute
            locally.
            For Win32 there was no error message when a server didn't exist.
Files: src/eval.c, src/if_xcmdsrv.c, src/main.c, src/os_mswin.c,
            src/proto/if_xcmdsrv.pro, src/proto/os_mswin.pro

Patch 6.0.166
Problem: GUI: There is no way to avoid dialogs to pop up.
Solution: Add the 'c' flag to 'guioptions': Use console dialogs. (Yegappan
            Lakshmanan)
Files: runtime/doc/options.txt, src/option.h, src/message.c

Patch 6.0.167
Problem: When 'fileencodings' is "latin2" some characters in the help files
            are displayed wrong.
Solution: Force the 'fileencoding' for the help files to be "latin1".
Files: src/fileio.c

Patch 6.0.168
Problem: ":%s/\n/#/" doesn't replace at an empty line. (Bruce DeVisser)
Solution: Don't skip matches after joining two lines.
Files: src/ex_cmds.c

Patch 6.0.169
Problem: When run as evim and the GUI can't be started we get stuck in a
            terminal without menus in Insert mode.
Solution: Exit when using "evim" and "gvim -y" when the GUI can't be
            started.
Files: src/main.c

Patch 6.0.170
Problem: When printing double-width characters the size of tabs after them
            is wrong. (Muraoka Taro)
Solution: Correctly compute the column after a double-width character.
Files: src/ex_cmds2.c

Patch 6.0.171
Problem: With 'keymodel' including "startsel", in Insert mode after the end
            of a line, shift-Left does not move the cursor. (Steve Hall)
Solution: CTRL-O doesn't move the cursor left, need to do that explicitly.
Files: src/edit.c

Patch 6.0.172
Problem: CTRL-Q doesn't replace CTRL-V after CTRL-X in Insert mode while it
            does in most other situations.
Solution: Make CTRL-X CTRL-Q work like CTRL-X CTRL-V in Insert mode.
Files: src/edit.c

Patch 6.0.173
Problem: When using "P" to insert a line break the cursor remains past the
            end of the line.
Solution: Check for the cursor being beyond the end of the line.
Files: src/ops.c

Patch 6.0.174
Problem: After using "gd" or "gD" the search direction for "n" may still be
            backwards. (Servatius Brandt)
Solution: Reset the search direction to forward.
Files: src/normal.c, src/search.c, src/proto/search.pro

Patch 6.0.175
Problem: ":help /\z(\)" doesn't work. (Thomas Koehler)
Solution: Double the backslashes.
Files: src/ex_cmds.c

Patch 6.0.176
Problem: When killed by a signal autocommands are still triggered as if
            nothing happened.
Solution: Add the v:dying variable to allow autocommands to work differently
            when a deadly signal has been trapped.
Files: src/eval.c, src/os_unix.c, src/vim.h

Patch 6.0.177
Problem: When 'commentstring' is empty and 'foldmethod' is "marker", "zf"
            doesn't work. (Thomas S. Urban)
Solution: Add the marker even when 'commentstring' is empty.
Files: src/fold.c, src/normal.c

Patch 6.0.178
Problem: Uninitialized memory read from xp_backslash field.
Solution: Initialize xp_backslash field properly.
Files: src/eval.c, src/ex_docmd.c, src/ex_getln.c, src/misc1.c, src/tag.c

```
Patch 6.0.179
Problem:    Win32: When displaying UTF-8 characters may read uninitialized
            memory.
Solution:   Add utfc_ptr2len_check_len() to avoid reading past the end of a
            string.
Files:      src/mbyte.c, src/proto/mbyte.pro, src/gui_w32.c

Patch 6.0.180
Problem:    Expanding environment variables in a string that ends in a
            backslash could go past the end of the string.
Solution:   Detect the trailing backslash.
Files:      src/misc1.c

Patch 6.0.181
Problem:    When using ":cd dir" memory was leaked.
Solution:   Free the allocated memory.  Also avoid an uninitialized memory
            read.
Files:      src/misc2.c

Patch 6.0.182
Problem:    When using a regexp on multi-byte characters, could try to read a
            character before the start of the line.
Solution:   Don't decrement a pointer to before the start of the line.
Files:      src/regexp.c

Patch 6.0.183
Problem:    Leaking memory when ":func!" redefines a function.
Solution:   Free the function name when it's not used.
Files:      src/eval.c

Patch 6.0.184
Problem:    Leaking memory when expanding option values.
Solution:   Don't always copy the expanded option into allocated memory.
Files:      src/option.c

Patch 6.0.185
Problem:    Crash in Vim when pasting a selection in another application, on a
            64 bit machine.
Solution:   Fix the format for an Atom to 32 bits. (Peter Derr)
Files:      src/ui.c

Patch 6.0.186
Problem:    X11: Three warnings when compiling the client-server code.
Solution:   Add a typecast to unsigned char.
Files:      src/if_xcmdsrv.c

Patch 6.0.187
Problem:    "I" in Visual mode and then "u" reports too many changes. (Andrew
            Stryker)
            "I" in Visual linewise mode adjusts the indent for no apparent
            reason.
Solution:   Only save those lines for undo that are changed.
            Don't change the indent after inserting in Visual linewise mode.
Files:      src/ops.c
```

Patch 6.0.188
Problem: Win32: After patch 6.0.161 signs defined in the vimrc file don't
            work.
Solution: Initialize the sign icons after initializing the GUI. (Vince
            Negri)
Files: src/gui.c, src/gui_x11.c

Patch 6.0.189
Problem: The size of the Visual area isn't always displayed when scrolling
            ('ruler' off, 'showcmd' on). Also not when using a search
            command. (Sylvain Hitier)
Solution: Redisplay the size of the selection after showing the mode.
Files: src/screen.c

Patch 6.0.190
Problem: GUI: when 'mouse' is empty a click with the middle button still
            moves the cursor.
Solution: Paste at the cursor position instead of the mouse position.
Files: src/normal.c

Patch 6.0.191
Problem: When no servers are available serverlist() gives an error instead
            of returning an empty string. (Hari Krishna)
Solution: Don't give an error message.
Files: src/eval.c

Patch 6.0.192
Problem: When 'virtualedit' is set, "ylj" goes to the wrong column. (Andrew
            Nikitin)
Solution: Reset the flag that w_virtcol is valid when moving the cursor back
            to the start of the operated area.
Files: src/normal.c

Patch 6.0.193
Problem: When 'virtualedit' is set, col(".") after the end of the line
            should return one extra.
Solution: Add one to the column.
Files: src/eval.c

Patch 6.0.194
Problem: "--remote-silent" tries to send a reply to the client, like it was
            "--remote-wait".
Solution: Properly check for the argument.
Files: src/main.c

Patch 6.0.195
Problem: When 'virtualedit' is set and a search starts in virtual space
            ":call search('x')" goes to the wrong position. (Eric Long)
Solution: Reset coladd when finding a match.
Files: src/search.c

Patch 6.0.196
Problem: When 'virtualedit' is set, 'selection' is "exclusive" and visually

            selecting part of a tab at the start of a line, "x" joins it with
            the previous line. Also, when the selection spans more than one
            line the whole tab is deleted.
Solution: Take coladd into account when adjusting for 'selection' being
            "exclusive". Also expand a tab into spaces when deleting more
            than one line.
Files: src/normal.c, src/ops.c

Patch 6.0.197
Problem: When 'virtualedit' is set and 'selection' is "exclusive", "v$x"
            doesn't delete the last character in the line. (Eric Long)
Solution: Don't reset the inclusive flag. (Helmut Stiegler)
Files: src/normal.c

Patch 6.0.198
Problem: When 'virtualedit' is set and 'showbreak' is not empty, moving the
            cursor over the line break doesn't work properly. (Eric Long)
Solution: Make getviscol() and getviscol2() use getvvcol() to obtain the
            virtual cursor position. Adjust coladvance() and oneleft() to
            skip over the 'showbreak' characters.
Files: src/edit.c, src/misc2.c

Patch 6.0.199
Problem: Multi-byte: could use iconv() after calling iconv_end().
            (Yasuhiro Matsumoto)
Solution: Stop converting input and output stream after calling iconv_end().
Files: src/mbyte.c

Patch 6.0.200
Problem: A script that starts with "#!perl" isn't recognized as a Perl
            filetype.
Solution: Ignore a missing path in a script header. Also, speed up
            recognizing scripts by simplifying the patterns used.
Files: runtime/scripts.vim

Patch 6.0.201
Problem: When scrollbinding and doing a long jump, switching windows jumps
            to another position in the file. Scrolling a few lines at a time
            is OK. (Johannes Zellner)
Solution: When setting w_topline reset the flag that indicates w_botline is
            valid.
Files: src/diff.c

Patch 6.0.202
Problem: The "icon=" argument for the menu command to define a toolbar icon
            with a file didn't work for GTK. (Christian J. Robinson)
            For Motif and Athena a full path was required.
Solution: Search the icon file using the specified path. Expand environment
            variables in the file name.
Files: src/gui_gtk.c, src/gui_x11.c

Patch 6.0.203
Problem: Can change 'fileformat' even though 'modifiable' is off.
            (Servatius Brandt)

```
Solution:   Correct check for kind of set command.
Files:      src/option.c

Patch 6.0.204
Problem:    ":unlet" doesn't work for variables with curly braces. (Thomas
            Scott Urban)
Solution:   Handle variable names with curly braces properly. (Vince Negri)
Files:      src/eval.c

Patch 6.0.205 (extra)
Problem:    "gvim -f" still forks when using the batch script to start Vim.
Solution:   Add an argument to "start" to use a foreground session (Michael
            Geddes)
Files:      src/dosinst.c

Patch 6.0.206
Problem:    Unix: if expanding a wildcard in a file name results in a
            wildcard character and there are more parts in the path with a
            wildcard, it is expanded again.
            Windows: ":edit \[abc]" could never edit the file "[abc]".
Solution:   Don't expand wildcards in already expanded parts.
            Don't remove backslashes used to escape the special meaning of a
            wildcard; can edit "[abc]" if '[' is removed from 'isfname'.
Files:      src/misc1.c, src/os_unix.c

Patch 6.0.207 (extra)
Problem:    Win32: The shortcuts and start menu entries let Vim startup in the
            desktop directory, which is not very useful.
Solution:   Let shortcuts start Vim in $HOME or $HOMEDIR$HOMEPATH.
Files:      src/dosinst.c

Patch 6.0.208
Problem:    GUI: When using a keymap and the cursor is not blinking, CTRL-^ in
            Insert mode doesn't directly change the cursor color.  (Alex
            Solow)
Solution:   Force a redraw of the cursor after CTRL-^.
Files:      src/edit.c

Patch 6.0.209
Problem:    GUI GTK: After selecting a 'guifont' with the font dialog there
            are redraw problems for multi-byte characters.
Solution:   Separate the font dialog from setting the new font name to avoid
            that "*" is used to find wide and bold fonts.
            When redrawing extra characters for the bold trick, take care of
            UTF-8 characters.
Files:      src/gui.c, src/gui_gtk_x11.c, src/option.c, src/proto/gui.pro,
            src/proto/gui_gtk_x11.pro

Patch 6.0.210
Problem:    After patch 6.0.167 it's no longer possible to edit a help file in
            another encoding than latin1.
Solution:   Let the "++enc=" argument overrule the encoding.
Files:      src/fileio.c
```

```
Patch 6.0.211
Problem:    When reading a file fails, the buffer is empty, but it might still
            be possible to write it with ":w" later.  The original file is
            lost then. (Steve Amerige)
Solution:   Set the 'readonly' option for the buffer.
Files:      src/fileio.c

Patch 6.0.212
Problem:    GUI GTK: confirm("foo", "") causes a crash.
Solution:   Don't make a non-existing button the default.  Add a default "OK"
            button if none is specified.
Files:      src/eval.c, src/gui_gtk.c

Patch 6.0.213
Problem:    When a file name contains unprintable characters, CTRL-G and other
            commands don't work well.
Solution:   Turn unprintable into printable characters. (Yasuhiro Matsumoto)
Files:      src/buffer.c, src/charset.c

Patch 6.0.214
Problem:    When there is a buffer without a name, empty entries appear in the
            jumplist saved in the viminfo file.
Solution:   Don't write jumplist entries without a file name.
Files:      src/mark.c

Patch 6.0.215
Problem:    After using "/" from Visual mode the Paste menu and Toolbar
            entries don't work.  Pasting with the middle mouse doesn't work
            and modeless selection doesn't work.
Solution:   Use the command line mode menus and use the mouse like in the
            command line.
Files:      src/gui.c, src/menu.c, src/ui.c

Patch 6.0.216
Problem:    After reloading a file, displayed in another window than the
            current one, which was changed outside of Vim the part of the file
            around the cursor set by autocommands may be displayed, but
            jumping back to the original cursor position when entering the
            window again.
Solution:   Restore the topline of the window.
Files:      src/fileio.c

Patch 6.0.217
Problem:    When getting help from a help file that was used before, an empty
            unlisted buffer remains in the buffer list. (Eric Long)
Solution:   Wipe out the buffer used to do the tag jump from.
Files:      src/buffer.c, src/ex_cmds.c, src/proto/buffer.pro

Patch 6.0.218
Problem:    With explorer plugin: "vim -o filename dirname" doesn't load the
            explorer window until entering the window.
Solution:   Call s:EditDir() for each window after starting up.
Files:      runtime/plugin/explorer.vim
```

```
Patch 6.0.219
Problem:    ":setlocal" and ":setglobal", without arguments, display terminal
            options. (Zdenek Sekera)
Solution:   Skip terminal options for these two commands.
Files:      src/option.c

Patch 6.0.220
Problem:    After patch 6.0.218 get a beep on startup. (Muraoka Taro)
Solution:   Don't try going to another window when there isn't one.
Files:      runtime/plugin/explorer.vim

Patch 6.0.221
Problem:    When using ":bdel" and all other buffers are unloaded the lowest
            numbered buffer is jumped to instead of the most recent one. (Dave
            Cecil)
Solution:   Prefer an unloaded buffer from the jumplist.
Files:      src/buffer.c

Patch 6.0.222
Problem:    When 'virtualedit' is set and using autoindent, pressing Esc after
            starting a new line leaves behind part of the autoindent. (Helmut
            Stiegler)
Solution:   After deleting the last char in the line adjust the cursor
            position in del_bytes().
Files:      src/misc1.c, src/ops.c

Patch 6.0.223
Problem:    When splitting a window that contains the explorer, hitting CR on
            a file name gives error messages.
Solution:   Set the window variables after splitting the window.
Files:      runtime/plugin/explorer.vim

Patch 6.0.224
Problem:    When 'sidescroll' and 'sidescrolloff' are set in a narrow window
            the text may jump left-right and the cursor is displayed in the
            wrong position. (Aric Blumer)
Solution:   When there is not enough room, compute the left column for the
            window to put the cursor in the middle.
Files:      src/move.c

Patch 6.0.225
Problem:    In Visual mode "gk" gets stuck in a closed fold. (Srinath
            Avadhanula)
Solution:   Behave differently in a closed fold.
Files:      src/normal.c

Patch 6.0.226
Problem:    When doing ":recover file" get the ATTENTION prompt.
            After recovering the same file five times get a read error or a
            crash.  (Alex Davis)
Solution:   Set the recoverymode flag before setting the file name.
            Correct the amount of used memory for the size of block zero.
Files:      src/ex_docmd.c
```

```
Patch 6.0.227 (extra)
Problem:    The RISC OS port has several problems.
Solution:   Update the makefile and fix some of the problems. (Andy Wingate)
Files:      src/Make_ro.mak, src/os_riscos.c, src/os_riscos.h,
            src/proto/os_riscos.pro, src/search.c

Patch 6.0.228
Problem:    After putting text in Visual mode the '] mark is not at the end of
            the put text.
            Undo doesn't work properly when putting a word into a Visual
            selection that spans more than one line.
Solution:   Correct the '] mark for the deleting the Visually selected text.
            #ifdef code that depends on FEAT_VISUAL properly.
            Also fix that "d" crossing line boundary puts '[ just before
            deleted text.
            Fix undo by saving all deleted lines at once.
Files:      src/ex_docmd.c, src/globals.h, src/normal.c, src/ops.c,
            src/structs.h, src/vim.h

Patch 6.0.229
Problem:    Multi-byte: With 'm' in 'formatoptions', formatting doesn't break
            at a multi-byte char followed by an ASCII char, and the other way
            around. (Muraoka Taro)
            When joining lines a space is inserted between multi-byte
            characters, which is not always wanted.
Solution:   Check for multi-byte character before and after the breakpoint.
            Don't insert a space before or after a multi-byte character when
            joining lines and the 'M' flag is in 'formatoptions'.  Don't
            insert a space between multi-byte characters when the 'B' flag is
            in 'formatoptions'.
Files:      src/edit.c, src/ops.c, src/option.h

Patch 6.0.230
Problem:    The ":" used as a motion after an operator is exclusive, but
            sometimes it should be inclusive.
Solution:   Make the "v" in between an operator and motion toggle
            inclusive/exclusive. (Servatius Brandt)
Files:      runtime/doc/motion.txt, src/normal.c

Patch 6.0.231
Problem:    "gd" and "gD" don't work when the variable matches in a comment
            just above the match to be found. (Servatius Brandt)
Solution:   Continue searching in the first column below the comment.
Files:      src/normal.c

Patch 6.0.232
Problem:    "vim --version" prints on stderr while "vim --help" prints on
            stdout.
Solution:   Make "vim --version" use stdout.
Files:      runtime/doc/starting.txt, src/globals.h, src/main.c, src/message.c

Patch 6.0.233
Problem:    "\1\{,8}" in a regexp is not allowed, but it should work, because
            there is an upper limit.  (Jim Battle)
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Solution:   Allow using "\{min,max}" after an atom that can be empty if there
            is an upper limit.
Files:      src/regexp.c

Patch 6.0.234
Problem:    It's not easy to set the cursor position without modifying marks.
Solution:   Add the cursor() function. (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/eval.c

Patch 6.0.235
Problem:    When writing a file and renaming the original file to make the
            backup, permissions could change when setting the owner.
Solution:   Only set the owner when it's needed and set the permissions again
            afterwards.
            When 'backupcopy' is "auto" check that the owner and permissions
            of a newly created file can be set properly.
Files:      src/fileio.c

Patch 6.0.236
Problem:    ":edit" without argument should move cursor to line 1 in Vi
            compatible mode.
Solution:   Add 'g' flag to 'cpoptions'.
Files:      runtime/doc/options.txt, src/ex_docmd.c, src/option.h

Patch 6.0.237
Problem:    In a C file, using the filetype plugin, re-indenting a comment
            with two spaces after the middle "*" doesn't align properly.
Solution:   Don't use a middle entry from a start/middle/end to line up with
            the start of the comment when the start part doesn't match with
            the actual comment start.
Files:      src/misc1.c

Patch 6.0.238
Problem:    Using a ":substitute" command with a substitute() call in the
            substitution expression causes errors. (Srinath Avadhanula)
Solution:   Save and restore pointers when doing substitution recursively.
Files:      src/regexp.c

Patch 6.0.239
Problem:    Using "A" to append after a Visually selected block which is after
            the end of the line, spaces are inserted in the wrong line and
            other unexpected effects. (Michael Naumann)
Solution:   Don't advance the cursor to the next line.
Files:      src/ops.c

Patch 6.0.240
Problem:    Win32: building with Python 2.2 doesn't work.
Solution:   Add support for Python 2.2 with dynamic linking. (Paul Moore)
Files:      src/if_python.c

Patch 6.0.241
Problem:    Win32: Expanding the old value of an option that is a path that
            starts with a backslash, an extra backslash is inserted.
Solution:   Only insert backslashes where needed.
```

```
            Also handle multi-byte characters properly when removing
            backslashes.
Files:      src/option.c

Patch 6.0.242
Problem:    GUI: On a system with an Exceed X server sometimes get a "Bad
            Window" error. (Tommi Maekitalo)
Solution:   When forking, use a pipe to wait in the parent for the child to
            have done the setsid() call.
Files:      src/gui.c

Patch 6.0.243
Problem:    Unix: "vim --version" outputs a NL before the last line instead of
            after it. (Charles Campbell)
Solution:   Send the NL to the same output stream as the text.
Files:      src/message.c, src/os_unix.c, src/proto/message.pro

Patch 6.0.244
Problem:    Multi-byte: Problems with (illegal) UTF-8 characters in menu and
            file name (e.g., icon text, status line).
Solution:   Correctly handle unprintable characters.  Catch illegal UTF-8
            characters and replace them with <xx>.  Truncating the status line
            wasn't done correctly at a multi-byte character. (Yasuhiro
            Matsumoto)
            Added correct_cmdspos() and transchar_byte().
Files:      src/buffer.c, src/charset.c, src/ex_getln.c, src/gui.c,
            src/message.c, src/screen.c, src/vim.h

Patch 6.0.245
Problem:    After using a color scheme, setting the 'background' option might
            not work. (Peter Horst)
Solution:   Disable the color scheme if it switches 'background' back to the
            wrong value.
Files:      src/option.c

Patch 6.0.246
Problem:    ":echomsg" didn't use the highlighting set by ":echohl". (Gary
            Holloway)
Solution:   Use the specified attributes for the message. (Yegappan
            Lakshmanan)
Files:      src/eval.c

Patch 6.0.247
Problem:    GTK GUI: Can't use gvim in a kpart widget.
Solution:   Add the "--echo-wid" argument to let Vim echo the window ID on
            stdout. (Philippe Fremy)
Files:      runtime/doc/starting.txt, src/globals.h, src/gui_gtk_x11.c,
            src/main.c

Patch 6.0.248
Problem:    When using compressed help files and 'encoding' isn't "latin1",
            Vim converts the help file before decompressing. (David Reviejo)
Solution:   Don't convert a help file when 'binary' is set.
Files:      src/fileio.c
```

```
Patch 6.0.249
Problem:    "vim -t edit -c 'sta ex_help'" doesn't move cursor to edit().
Solution:   Don't set the cursor on the first line for "-c" arguments when
            there also is a "-t" argument.
Files:      src/main.c

Patch 6.0.250 (extra)
Problem:    Macintosh: Various problems when compiling.
Solution:   Various fixes, mostly #ifdefs. (Dany St. Amant)
Files:      src/gui_mac.c, src/main.c, src/misc2.c, src/os_mac.h,
            src/os_mac.pbproj/project.pbxproj, src/os_unix.c

Patch 6.0.251 (extra)
Problem:    Macintosh: menu shortcuts are not very clear.
Solution:   Show the shortcut with the Mac clover symbol. (raindog)
Files:      src/gui_mac.c

Patch 6.0.252
Problem:    When a user function was defined with "abort", an error that is
            not inside if/endif or while/endwhile doesn't abort the function.
            (Servatius Brandt)
Solution:   Don't reset did_emsg when the function is to be aborted.
Files:      src/ex_docmd.c

Patch 6.0.253
Problem:    When 'insertmode' is set, after "<C-O>:edit file" the next <C-O>
            doesn't work. (Benji Fisher)  <C-L> has the same problem.
Solution:   Reset need_start_insertmode once in edit().
Files:      src/edit.c

Patch 6.0.254 (extra)
Problem:    Borland C++ 5.5: Checking for stack overflow doesn't work
            correctly.  Matters when using a complicated regexp.
Solution:   Remove -N- from Make_bc5.mak. (Yasuhiro Matsumoto)
Files:      src/Make_bc5.mak

Patch 6.0.255 (extra) (depends on patch 6.0.116 and 6.0.121)
Problem:    Win32: ACL support doesn't work well on Samba drives.
Solution:   Add a check for working ACL support. (Mike Williams)
Files:      src/os_win32.c

Patch 6.0.256 (extra)
Problem:    Win32: ":highlight Comment guifg=asdf" does not give an error
            message. (Randall W. Morris)  Also for other systems.
Solution:   Add gui_get_color() to give one error message for all systems.
Files:      src/gui.c, src/gui_amiga.c, src/gui_athena.c, src/gui_motif.c,
            src/gui_riscos.c, src/gui_x11.c, src/gui_gtk_x11.c,
            src/proto/gui.pro, src/syntax.c

Patch 6.0.257
Problem:    Win32: When 'mousefocus' is set and there is a BufRead
            autocommand, after the dialog for permissions changed outside of
            Vim: 'mousefocus' stops working. (Robert Webb)
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Solution:   Reset need_mouse_correct after checking timestamps.
Files:      src/fileio.c

Patch 6.0.258
Problem:    When 'scrolloff' is 999 and there are folds, the text can jump up
            and down when moving the cursor down near the end of the file.
            (Lubomir Host)
Solution:   When putting the cursor halfway the window start counting lines at
            the end of a fold.
Files:      src/move.c

Patch 6.0.259
Problem:    MS-DOS: after editing the command line the cursor shape may remain
            like in Insert mode. (Volker Kiefel)
Solution:   Reset the cursor shape after editing the command line.
Files:      src/ex_getln.c

Patch 6.0.260
Problem:    GUI: May crash while starting up when giving an error message for
            missing color. (Servatius Brandt)
Solution:   Don't call gui_write() when still starting up.  Don't give error
            message for empty color name.  Don't use 't_vb' while the GUI is
            still starting up.
Files:      src/fileio.c, src/gui.c, src/misc1.c, src/ui.c

Patch 6.0.261
Problem:    nr2char() and char2nr() don't work with multi-byte characters.
Solution:   Use 'encoding' for these functions. (Yasuhiro Matsumoto)
Files:      runtime/doc/eval.txt, src/eval.c

Patch 6.0.262 (extra)
Problem:    Win32: IME doesn't work properly.  OnImeComposition() isn't used
            at all.
Solution:   Adjust various things for IME.
Files:      src/globals.h, src/gui_w32.c, src/mbyte.c, src/proto/ui.pro,
            src/structs.h, src/ui.c

Patch 6.0.263
Problem:    GTK: When a dialog is closed by the window manager, Vim hangs.
            (Christian J. Robinson)
Solution:   Use GTK_WIDGET_DRAWABLE() instead of GTK_WIDGET_VISIBLE().
Files:      src/gui_gtk.c, src/gui_gtk_x11.c

Patch 6.0.264
Problem:    The amount of virtual memory is used to initialize 'maxmemtot',
            which may be much more than the amount of physical memory,
            resulting in a lot of swapping.
Solution:   Get the amount of physical memory with sysctl(), sysconf() or
            sysinfo() when possible.
Files:      src/auto/configure, src/configure.in, src/config.h.in,
            src/os_unix.c, src/os_unix.h

Patch 6.0.265
Problem:    Win32: Using backspace while 'fkmap' is set causes a crash.
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            (Jamshid Oasjmoha)
Solution:   Don't try mapping special keys.
Files:      src/farsi.c

Patch 6.0.266
Problem:    The rename() function deletes the file if the old and the new name
            are the same. (Volker Kiefel)
Solution:   Don't do anything if the names are equal.
Files:      src/fileio.c

Patch 6.0.267
Problem:    UTF-8: Although 'isprint' says a character is printable,
            utf_char2cells() still considers it unprintable.
Solution:   Use vim_isprintc() for characters upto 0x100. (Yasuhiro Matsumoto)
Files:      src/mbyte.c

Patch 6.0.268 (extra) (depends on patch 6.0.255)
Problem:    Win32: ACL check crashes when using forward slash in file name.
Solution:   Improve the check for the path in the file name.
Files:      src/os_win32.c

Patch 6.0.269
Problem:    Unprintable characters in a file name may cause problems when
            using the 'statusline' option or when 'buftype' is "nofile".
Solution:   call trans_characters() for the resulting statusline. (Yasuhiro
            Matsumoto)
Files:      src/buffer.c, src/screen.c, src/charset.c

Patch 6.0.270 (depends on patch 6.0.267)
Problem:    A tab causes UTF-8 text to be displayed in the wrong position.
            (Ron Aaron)
Solution:   Correct utf_char2cells() again.
Files:      src/mbyte.c

Patch 6.1a.001 (extra)
Problem:    32bit DOS: copying text to the clipboard may cause a crash.
            (Jonathan D Johnston)
Solution:   Don't copy one byte too much in SetClipboardData().
Files:      src/os_msdos.c

Patch 6.1a.002
Problem:    GTK: On some configurations, when closing a dialog from the window
            manager, Vim hangs.
Solution:   Catch the "destroy" signal. (Aric Blumer)
Files:      src/gui_gtk.c

Patch 6.1a.003
Problem:    Multi-byte: With UTF-8 double-wide char and 'virtualedit' set:
            yanking in Visual mode doesn't include the last byte. (Eric Long)
Solution:   Don't add a space for a double-wide character.
Files:      src/ops.c

Patch 6.1a.004 (extra)
Problem:    MINGW: undefined type. (Ron Aaron)
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Solution:   Make GetCompositionString_inUCS2() static.
Files:      src/gui_w32.c, src/gui_w48.c, src/proto/gui_w32.pro

Patch 6.1a.005 (extra)
Problem:    Win32: ":hardcopy" doesn't work after ":hardcopy!". (Jonathan
            Johnston)
Solution:   Don't keep the driver context when using ":hardcopy!". (Vince
            Negri)
Files:      src/os_mswin.c

Patch 6.1a.006
Problem:    multi-byte: after setting 'encoding' the window title might be
            wrong.
Solution:   Force resetting the title. (Yasuhiro Matsumoto)
Files:      src/option.c

Patch 6.1a.007
Problem:    Filetype detection for "*.inc" doesn't work.
Solution:   Use a ":let" command. (David Schweikert)
Files:      runtime/filetype.vim

Patch 6.1a.008 (extra)
Problem:    Win32: ACL detection for network shares doesn't work.
Solution:   Include the trailing (back)slash in the root path. (Mike Williams)
Files:      src/os_win32.c

Patch 6.1a.009
Problem:    When using "\@<=" or "\@<!" in a pattern, a "\1" may refer to a ()
            part that follows, but it generates an error message.
Solution:   Allow a forward reference when there is a following "\@<=" or
            "\@<!".
Files:      runtime/doc/pattern.txt, src/regexp.c

Patch 6.1a.010
Problem:    When using ":help" and opening a new window, the alternate file
            isn't set.
Solution:   Set the alternate file to the previously edited file.
Files:      src/ex_cmds.c

Patch 6.1a.011
Problem:    GTK: ":set co=77", change width with the mouse, ":set co=77"
            doesn't resize the window. (Darren Hiebert)
Solution:   Set the form size after handling a resize event.
Files:      src/gui_gtk_x11.c

Patch 6.1a.012
Problem:    GTK: The file browser always returns a full path. (Lohner)
Solution:   Shorten the file name if possible.
Files:      src/gui_gtk.c

Patch 6.1a.013
Problem:    When using "=~word" in 'cinkeys' or 'indentkeys', the case of the
            last character of the word isn't ignored. (Raul Segura Acevedo)
Solution:   Ignore case when checking the last typed character.
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Files:      src/edit.c

Patch 6.1a.014
Problem:    After patch 6.1a.006 can't compile without the title feature.
Solution:   Add an #ifdef.
Files:      src/option.c

Patch 6.1a.015
Problem:    MS-Windows: When expanding a file name that contains a '[' or '{'
            an extra backslash is inserted. (Raul Segura Acevedo)
Solution:   Avoid adding the backslash.
Files:      src/ex_getln.c

Patch 6.1a.016
Problem:    Completion after ":language" doesn't include "time". (Raul Segura
            Acevedo)
Solution:   Add the alternative to the completions.
Files:      src/ex_cmds2.c

Patch 6.1a.017
Problem:    Clicking the mouse in the top row of a window where the first line
            doesn't fit moves the cursor to the wrong column.
Solution:   Add the skipcol also for the top row of a window.
Files:      src/ui.c

Patch 6.1a.018
Problem:    When 'scrolloff' is one and the window height is one, "gj" can put
            the cursor above the window. (Raul Segura Acevedo)
Solution:   Don't let skipcol become bigger than the cursor column.
Files:      src/move.c

Patch 6.1a.019
Problem:    When using a composing character on top of an ASCII character, the
            "l" command clears the composing character.  Only when 'ruler' and
            'showcmd' are off. (Raphael Finkel)
Solution:   Don't move the cursor by displaying characters when there are
            composing characters.
Files:      src/screen.c

Patch 6.1a.020
Problem:    GTK: after patch 6.1a.011 resizing with the mouse doesn't always
            work well for small sizes. (Adrien Beau)
Solution:   Use another way to avoid the problem with ":set co=77".
Files:      src/gui_gtk_x11.c

Patch 6.1a.021
Problem:    Several Syntax menu entries are wrong or confusing.
Solution:   Rephrase and correct the menu entries. (Adrien Beau)
Files:      runtime/makemenu.vim, runtime/menu.vim

Patch 6.1a.022
Problem:    A tags file might be used twice on case insensitive systems.
            (Rick Swanton)
Solution:   Don't use the same file name twice in the default for the 'tags'
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            option.  Ignore case when comparing names of already visited
            files.
Files:      src/misc2.c, src/option.c

Patch 6.1a.023
Problem:    When starting the GUI get "C" characters echoed in the terminal.
Solution:   Don't try sending a clear-screen command while the GUI is starting
            up.
Files:      src/screen.c

Patch 6.1a.024
Problem:    In other editors CTRL-F is often used for a find dialog.
Solution:   In evim use CTRL-F for the find dialog.
Files:      runtime/evim.vim

Patch 6.1a.025
Problem:    The choices for the fileformat dialog can't be translated.
Solution:   Add g:menutrans_fileformat_choices. (Adrien Beau)
Files:      runtime/menu.vim

Patch 6.1a.026
Problem:    Indenting Java files is wrong with "throws", "extends" and
            "implements" clauses.
Solution:   Update the Java indent script.
Files:      runtime/indent/java.vim

Patch 6.1a.027
Problem:    A few Syntax menu entries missing or incorrect.
Solution:   Add and correct the menu entries. (Adrien Beau)
            Shorten a few menus to avoid they become too long.
Files:      runtime/makemenu.vim, runtime/menu.vim

Patch 6.1a.028
Problem:    XIM: problems with feedback and some input methods.
Solution:   Use iconv for calculating the cells.  Remove the queue for
            key_press_event only when text was changed. (Yasuhiro Matsumoto)
Files:      src/globals.h, src/mbyte.c, src/screen.c

Patch 6.1a.029
Problem:    After patch 6.1a.028 can't compile GTK version with XIM but
            without multi-byte chars.
Solution:   Add an #ifdef. (Aschwin Marsman)
Files:      src/mbyte.c

Patch 6.1a.030
Problem:    With double-byte encodings toupper() and tolower() may have wrong
            results.
Solution:   Skip double-byte characters. (Eric Long)
Files:      src/eval.c

Patch 6.1a.031
Problem:    Accessing the 'balloondelay' variable may cause a crash.
Solution:   Make the variable for 'balloondelay' a long. (Olaf Seibert)
Files:      src/option.h
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Patch 6.1a.032 (extra)
Problem:    Some menu files used a wrong encoding name for "scriptencoding".
Solution:   Move the translations to a separate file, which is sourced after
            setting "scriptencoding".
            Also add Czech menu translations in ASCII and update the other
            encodings.
Files:      runtime/lang/menu_cs_cz.iso_8859-1.vim,
            runtime/lang/menu_cs_cz.iso_8859-2.vim,
            runtime/lang/menu_czech_czech_republic.1250.vim,
            runtime/lang/menu_czech_czech_republic.1252.vim,
            runtime/lang/menu_czech_czech_republic.ascii.vim,
            runtime/lang/menu_de_de.iso_8859-1.vim,
            runtime/lang/menu_de_de.latin1.vim,
            runtime/lang/menu_fr_fr.iso_8859-1.vim,
            runtime/lang/menu_fr_fr.latin1.vim,
            runtime/lang/menu_french_france.1252.vim,
            runtime/lang/menu_german_germany.1252.vim,
            runtime/lang/menu_ja_jp.euc-jp.vim,
            runtime/lang/menu_ja_jp.utf-8.vim,
            runtime/lang/menu_japanese_japan.932.vim

Patch 6.1a.033
Problem:    XIM: doesn't reset input context.
Solution:   call xim_reset() with im_set_active(FALSE). (Takuhiro Nishioka)
Files:      src/mbyte.c

Patch 6.1a.034 (extra)
Problem:    Win32: The ACL checks for a readonly file still don't work well.
Solution:   Remove the ACL checks, go back to how it worked in Vim 6.0.
Files:      src/os_win32.c

Patch 6.1a.035
Problem:    multi-byte: When using ":sh" in the GUI, typed and displayed
            multi-byte characters are not handled correctly.
Solution:   Deal with multi-byte characters to and from the shell. (Yasuhiro
            Matsumoto)  Also handle UTF-8 composing characters.
Files:      src/os_unix.c

Patch 6.1a.036
Problem:    GTK: the save-yourself event was not handled.
Solution:   Catch the save-yourself event and preserve swap files. (Neil Bird)
Files:      src/gui_gtk_x11.c

Patch 6.1a.037
Problem:    The MS-Windows key mapping doesn't include CTRL-S for saving.
            (Vlad Sandrini)
Solution:   Map CTRL-S to ":update".
Files:      runtime/mswin.vim

Patch 6.1a.038
Problem:    Solaris: Including both sys/sysctl.h and sys/sysinfo.h doesn't
            work. (Antonio Colombo)
Solution:   Don't include sys/sysinfo.h when not calling sysinfo().
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Files:      src/os_unix.c

Patch 6.1a.039
Problem:    Not all visual basic files are recognized.
Solution:   Add checks to catch *.ctl files. (Raul Segura Acevedo)
Files:      runtime/filetype.vim

Patch 6.1a.040
Problem:    A *.pl file is recognized as Perl, but it could be a prolog file.
Solution:   Check the first non-empty line. (Kontra Gergely)
Files:      runtime/filetype.vim

Patch 6.1a.041
Problem:    When pressing the left mouse button in the command line and them
            moving the mouse upwards, nearly all the text is selected.
Solution:   Don't try extending a modeless selection when there isn't one.
Files:      src/ui.c

Patch 6.1a.042
Problem:    When merging files, ":diffput" and ":diffget" are used a lot, but
            they require a lot of typing.
Solution:   Add "dp" for ":diffput" and "do" for ":diffget".
Files:      runtime/doc/diff.txt, src/diff.c, src/normal.c, src/proto/diff.pro


Patch 6.1b.001 (extra)
Problem:    Checking for wildcards in a path does not handle multi-byte
            characters with a trail byte which is a wildcard.
Solution:   Handle multi-byte characters correctly. (Muraoka Taro)
Files:      src/os_amiga.c, src/os_mac.c, src/os_msdos.c, src/os_mswin.c,
            src/os_unix.c

Patch 6.1b.002
Problem:    A regexp that ends in "\{" is not flagged as an error.  May cause
            a stack overflow when 'incsearch' is set. (Gerhard Hochholzer)
Solution:   Handle a missing "}" as an error.
Files:      src/regexp.c

Patch 6.1b.003 (extra)
Problem:    The RISC OS GUI doesn't compile.
Solution:   Include changes since Vim 5.7. (Andy Wingate)
Files:      src/Make_ro.mak, src/gui_riscos.c, src/os_riscos.c,
            src/os_riscos.h, src/proto/gui_riscos.pro

Patch 6.1b.004
Problem:    col("'>") returns a negative number for linewise selection. (Neil
            Bird)
Solution:   Don't add one to MAXCOL.
Files:      src/eval.c

Patch 6.1b.005
Problem:    Using a search pattern that causes an out-of-stack error while
            'hlsearch' is set keeps giving the hit-Enter prompt.
            A search pattern that takes a long time delays typing when
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            'incsearch' is set.
Solution:   Stop 'hlsearch' highlighting when the regexp causes an error.
            Stop searching for 'incsearch' when a character is typed.
Files:      src/globals.h, src/message.c, src/screen.c, src/search.c,
            src/vim.h

Patch 6.1b.006
Problem:    When entering a composing character on the command line with
            CTRL-V, the text isn't redrawn correctly.
Solution:   Redraw the text under and after the cursor.
Files:      src/ex_getln.c

Patch 6.1b.007
Problem:    When the cursor is in the white space between two sentences, "dis"
            deletes the first character of the following sentence, "das"
            deletes a space after the sentence.
Solution:   Backup the cursor one character in these situations.
Files:      src/search.c

Patch 6.1b.008
Problem:    *.xsl files are not recognized as xslt but xml.
            Monk files are not recognized.
Solution:   Delete the duplicate line for *.xsl. (Johannes Zellner)
            Recognize monk files.
Files:      runtime/filetype.vim

Patch 6.1b.009
Problem:    Can't always compile small features and then adding eval feature,
            "sandbox" is undefined. (Axel Kielhorn)
Solution:   Always define "sandbox" when the eval feature is used.
Files:      src/globals.h

Patch 6.1b.010 (extra)
Problem:    When compiling gvimext.cpp with MSVC 4.2 get a number of warnings.
Solution:   Change "true" to "TRUE". (Walter Briscoe)
Files:      GvimExt/gvimext.cpp

Patch 6.1b.011
Problem:    When using a very long string for confirm(), can't quit the
            displaying at the more prompt. (Hari Krishna Dara)
Solution:   Jump to the end of the message to show the choices.
Files:      src/message.c

Patch 6.1b.012
Problem:    Multi-byte: When 'showbreak' is set and a double-wide character
            doesn't fit at the right window edge the cursor gets stuck there.
            Using cursor-left gets stuck when 'virtualedit' is set.  (Eric
            Long)
Solution:   Fix the way the extra ">" character is counted when 'showbreak' is
            set.  Don't correct cursor for virtual editing on a double-wide
            character.
Files:      src/charset.c, src/edit.c

Patch 6.1b.013
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Problem:    A user command that partly matches with a buffer-local user
            command and matches full with a global user command unnecessarily
            gives an 'ambiguous command' error.
Solution:   Find the full global match even after a partly local match.
Files:      src/ex_docmd.c

Patch 6.1b.014
Problem:    EBCDIC: switching mouse events off causes garbage on screen.
            Positioning the cursor in the GUI causes garbage.
Solution:   Insert an ESC in the terminal code. (Ralf Schandl)
            Use "\b" instead of "\010" for KS_LE.
Files:      src/os_unix.c, src/term.c

Patch 6.1b.015
Problem:    Vimtutor has a typo.  Get a warning for "tempfile" if it
            doesn't exist.
Solution:   Move a quote to the end of a line. (Max Ischenko)
            Use "mktemp" first, more systems have it.
Files:      src/vimtutor

Patch 6.1b.016
Problem:    GTK: loading a fontset that works partly, Vim might hang or crash.
Solution:   Avoid that char_width becomes zero. (Yasuhiro Matsumoto)
Files:      src/gui_gtk_x11.c

Patch 6.1b.017
Problem:    GUI: When using ":shell" and there is a beep, nothing happens.
Solution:   Call vim_beep() to produce the beep from the shell. (Yasuhiro
            Matsumoto)
Files:      src/message.c

Patch 6.1b.018 (depends on 6.1b.006)
Problem:    When entering the encryption key, special keys may still reveal
            the typed characters.
Solution:   Make sure stars are used or nothing is shown in all cases.
Files:      src/digraph.c, src/getchar.c, src/ex_getln.c

Patch 6.1b.019 (depends on 6.1b.005)
Problem:    A search pattern that takes a long time slows down typing when
            'incsearch' is set.
Solution:   Pass SEARCH_PEEK to dosearch().
Files:      src/ex_getln.c

Patch 6.1b.020
Problem:    When using the matchit plugin, "%" finds a match on the "end" of a
            ":syntax region" command in Vim scripts.
Solution:   Skip over ":syntax region" commands by setting b:match_skip.
Files:      runtime/ftplugin/vim.vim

Patch 6.1b.021
Problem:    when 'mousefocus' is set, CTRL-W CTRL-] sometimes doesn't warp the
            pointer to the new window. (Robert Webb)
Solution:   Don't reset need_mouse_correct when checking the timestamp of a
            file.
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Files:      src/fileio.c

Patch 6.1b.022
Problem:    With lots of folds "j" does not obey 'scrolloff' properly.
            (Srinath Avadhanula)
Solution:   Go to end of the fold before counting context lines.
Files:      src/move.c

Patch 6.1b.023
Problem:    On MS-Windows system() may cause checking timestamps, because Vim
            loses and gains input focus, while this doesn't happen on Unix.
Solution:   Don't check timestamps while system() is busy.
Files:      src/ex_cmds2.c, src/fileio.c, src/globals.h, src/misc1.c

Patch 6.1b.024 (extra)
Problem:    Gettext 0.11 complains that "sjis" is not a standard name.
Solution:   Use "cp932" instead.
Files:      src/po/sjiscorr.c

Patch 6.1b.025 (extra)
Problem:    Win32: When closing gvim while it is minimized  and has a changed
            file, the file-changed dialog pops up in a corner of the screen.
Solution:   Put the dialog in the middle of the screen.
Files:      src/gui_w48.c

Patch 6.1b.026
Problem:    When 'diffopt' contains 'iwhite' but not 'icase': differences in
            case are not highlighted properly. (Gerhard Hochholzer)
Solution:   Don't ignore case when ignoring white space differences.
Files:      src/diff.c

Patch 6.1b.027
Problem:    "vim --remote +" may cause a crash.
Solution:   Check for missing file name argument. (Martin Kahlert)
Files:      src/main.c

Patch 6.1b.028 (extra)
Problem:    Win16: Can't compile after patch 6.1b.025.
Solution:   Add code specifically for Win16. (Vince Negri)
Files:      src/gui_w48.c

Patch 6.1b.029
Problem:    Win32: When a directory on an NTFS partition is read/execute (no
            delete,modify,write) and the file has modify rights, trying to
            write the file deletes it.  Making the file read/write/execute
            (not delete) solves it. (Mark Canup)
Solution:   Use the Unix code to check for a writable directory.  If not, then
            make a backup copy and overwrite the file.
Files:      src/fileio.c

Patch 6.1b.030 (extra)
Problem:    Mac: small mistake in the build script and prototypes.
Solution:   Fix the build script and add the prototypes. (Axel Kielhorn)
Files:      src/os_mac.build, src/gui_mac.c
```

```
Patch 6.1b.031 (extra)
Problem:    Win32 GUI: ":set guifont=*" doesn't set 'guifont' to the resulting
            font name. (Vlad Sandrini)
Solution:   Put the code back in gui_mch_init_font() to form the font name out
            of the logfont.
Files:      src/gui_w48.c

Patch 6.1b.032
Problem:    Athena: Setting a color scheme before the GUI has started causes a
            crash. (Todd Blumer)
Solution:   Don't try using color names that haven't been set yet.
Files:      src/gui_athena.c

Patch 6.1b.033
Problem:    When using a count after a ":s" command may get ml_get errors.
            (Dietmar Lang)
Solution:   Check that the resulting range does not go past the end of the
            buffer.
Files:      src/ex_cmds.c

Patch 6.1b.034
Problem:    After sourcing mswin.vim, when using <C-S-Right> after
            auto-indenting and then <Del>, get warning for allocating
            ridiculous amount of memory. (Dave Delgreco)
Solution:   Adjust the start of the Visual area when deleting the auto-indent.
Files:      src/edit.c

Patch 6.1b.035
Problem:    When using evim, dropping a file on Vim and then double clicking
            on a word, it is changed to "i". (Merlin Hansen)
Solution:   Reset need_start_insertmode after editing the file.
Files:      src/ex_docmd.c


==============================================================================
VERSION 6.2                                                  version-6.2

This section is about improvements made between version 6.1 and 6.2.

This is mainly a bug-fix release.  There are also a few new features.

Main new features:
- Support for GTK 2. (Daniel Elstner)
- Support for editing Arabic text. (Nadim Shaikli & Isam Bayazidi)
- ":try" command and exception handling. (Servatius Brandt)
- Support for the neXtaw GUI toolkit (mostly like Athena). (Alexey Froloff)
- Cscope support for Win32. (Khorev Sergey)
- Support for PostScript printing in various 8-bit encodings. (Mike Williams)


Changed                                                      changed-6.2
-------
```

Removed the scheme indent file, the internal Lisp indenting works well now.

Moved the GvimEXt, OleVim and VisVim directories into the "src" directory.
This is more consistent with how xxd is handled.

The VisVim.dll file is installed in the top directory, next to gvimext.dll,
instead of in a subdirectory "VisVim". Fixes that NSIS was uninstalling it
from the wrong directory.

Removed the art indent file, it didn't do anything.

submatch() returned line breaks with CR instead of LF.

Changed the Win32 Makefiles to become more uniform and compile gvimext.dll.
(Dan Sharp)

'cindent': Align a "//" comment with a "//" comment in a previous line.
(Helmut Stiegler)

Previously only for xterm-like terminals parent widgets were followed to find
the title and icon label. Now do this for all terminal emulators.

Made it possible to recognize backslashes for "%" matching. The 'M' flag in
'cpoptions' disables it. (Haakon Riiser)

Removed the Make_tcc.mak makefile for Turbo C. It didn't work and we probably
can't make it work (the compiler runs out of memory).

Even though the documentation refers to keywords, "[CTRL-D" was using
'isident' to find matches. Changed it to use 'iskeyword'. Also applies to
other commands that search for defined words in included files such as
":dsearch", "[D" and "[d".

Made 'keywordprg' global-local. (Christian Robinson)

Enabled the Netbeans interface by default. Reversed the configure argument
from "--enable-netbeans" to "--disable-netbeans".

Added   added-6.2

New options:
	'arabic'
	'arabicshape'
	'ambiwidth'
	'autochdir'
	'casemap'
	'copyindent'
	'cscopequickfix'
	'preserveindent'
	'printencoding'
	'rightleftcmd'
	'termbidi'

```
        'toolbariconsize'
        'winfixheight'

New keymaps:
        Serbian (Aleksandar Veselinovic)
        Chinese Pinyin (Fredrik Roubert)
        Esperanto (Antoine J. Mechelynck)

New syntax files:
        Valgrind (Roger Luethi)
        Smarty template (Manfred Stienstra)
        MySQL (Kenneth Pronovici)
        RockLinux package description (Piotr Esden-Tempski)
        MMIX (Dirk Huesken)
        gkrellmrc (David Necas)
        Tilde (Tobias Rundtrom)
        Logtalk (Paulo Moura)
        PLP (Juerd Waalboer)
        fvwm2m4 (David Necas)
        IPfilter (Hendrik Scholz)
        fstab (Radu Dineiu)
        Quake (Nikolai Weibull)
        Occam (Mario Schweigler)
        lpc (Shizhu Pan)
        Exim conf (David Necas)
        EDIF (Artem Zankovich)
        .cvsrc (Nikolai Weibull)
        .fetchmailrc (Nikolai Weibull)
        GNU gpg (Nikolai Weibull)
        Grub (Nikolai Weibull)
        Modconf (Nikolai Weibull)
        RCS (Dmitry Vasiliev)
        Art (Dorai Sitaram)
        Renderman Interface Bytestream (Andrew J Bromage)
        Mailcap (Doug Kearns)
        Subversion commit file (Dmitry Vasiliev)
        Microsoft IDL (Vadim Zeitlin)
        WildPackets EtherPeek Decoder (Christopher Shinn)
        Spyce (Rimon Barr)
        Resolv.conf (Radu Dineiu)
        A65 (Clemens Kirchgatterer)
        sshconfig and sshdconfig (David Necas)
        Cheetah and HTMLCheetah (Max Ischenko)
        Packet filter (Camiel Dobbelaar)

New indent files:
        Eiffel (David Clarke)
        Tilde (Tobias Rundtrom)
        Occam (Mario Schweigler)
        Art (Dorai Sitaram)
        PHP (Miles Lott)
        Dylan (Brent Fulgham)

New tutor translations:
```

```
        Slovak (Lubos Celko)
        Greek (Christos Kontas)
        German (Joachim Hofmann)
        Norwegian (Øyvind Holm)

New filetype plugins:
        Occam (Mario Schweigler)
        Art (Dorai Sitaram)
        ant.vim, aspvbs.vim, config.vim, csc.vim, csh.vim, dtd.vim, html.vim,
        jsp.vim, pascal.vim, php.vim, sgml.vim, sh.vim, svg.vim, tcsh.vim,
        xhtml.vim, xml.vim, xsd.vim.  (Dan Sharp)

New compiler plugins:
        Checkstyle (Doug Kearns)
        g77 (Ralf Wildenhues)
        fortran (Johann-Guenter Simon)
        Xmllint (Doug Kearns)
        Ruby (Tim Hammerquist)
        Modelsim vcom (Paul Baleme)

New menu translations:
        Brazilian (José de Paula)
        British (Mike Williams)
        Korean in UTF-8. (Nam SungHyun)
        Norwegian (Øyvind Holm)
        Serbian (Aleksandar Jelenak)

New message translation for Norwegian. (Øyvind Holm)

New color scheme:
        desert (Hans Fugal)

Arabic specific features.  'arabicshape', 'termbidi', 'arabic' and
'rightleftcmd' options.  (Nadim Shaikli & Isam Bayazidi)

Support for neXtaw GUI toolkit, mostly like Athena. (Alexey Froloff)

Win32: cscope support. (Khorev Sergey)

VMS: various improvements to documentation and makefiles.  (Zoltan Arpadffy)

Added "x" key to the explorer plugin: execute the default action. (Yasuhiro
Matsumoto)

Compile gvimext.dll with MingW. (Rene de Zwart)

Add the "tohtml.vim" plugin.  It defines the ":TOhtml" user command, an easy
way to convert text to HTML.

Added ":try" / ":catch" / ":finally" / ":endtry" commands.  Add E999 numbers
to all error messages, so that they can be caught by the number.
(Servatius Brandt)
Moved part of ex_docmd.c to the new ex_eval.c source file.
```

Include support for GTK+ 2.2.x (Daniel Elstner)
Adds the "~" register: drag & drop text.
Adds the 'toolbariconsize' option.
Add -Dalloca when running lint to work around a problem with alloca()
prototype.

When selecting an item in the error window to jump to, take some effort to
find an ordinary window to show the file in (not a preview window).

Support for PostScript printing of various 8-bit encodings. (Mike Williams)

inputdialog() accepts a third argument that is used when the dialog is
cancelled. Makes it possible to see a difference between cancelling and
entering nothing.

Included Aap recipes. Can be used to update Vim to the latest version,
building and installing.

"/" option in 'cinoptions': extra indent for comment lines. (Helmut Stiegler)

Vim variable "v:register" and functions setreg(), getreg() and getregtype().
(Michael Geddes)

"v" flag in 'cpoptions': Leave text on screen with backspace in Insert mode.
(Phillip Vandry)

Dosinst.exe also finds gvimext.dll in the "GvimExt" directory. Useful when
running install in the "src" directory for testing.

Support tag files that were sorted with case ignored. (Flemming Madsen)

When completing a wildcard in a leading path element, as in "../*/Makefile",
only the last part ("Makefile") was listed. Support custom defined
command line completion. (Flemming Madsen)

Also recognize "rxvt" as an xterm-like terminal. (Tomas Styblo)

Proper X11 session management. Fixes that the WM_SAVE_YOURSELF event was not
used by popular desktops. (Neil Bird)
Not used for Gnome 2, it has its own handling.

Support BOR, DEBUG and SPAWNO arguments for the Borland 3 Makefile. (Walter
Briscoe)

Support page breaks for printing. Adds the "formfeed" field in
'printoptions'. (Mike Williams)

Mac OSX: multi-language support: iconv and gettext. (Muraoka Taro, Axel
Kielhorn)

"\Z" flag in patterns: ignore differences in combining characters. (Ron Aaron)

Added 'preserveindent' and 'copyindent' options. They use existing white
space characters instead of using Tabs as much as possible. (Chris Leishman)

Updated Unicode tables to Unicode 4.0. (Raphael Finkel)

Support for the mouse wheel in rxvt. (AIDA Shinra)

Win32: Added ":8" file modifier to get short filename. Test50 tests the ":8"
expansion on Win32 systems. (Michael Geddes)

'cscopequickfix' option: Open quickfix window for Cscope commands. Also
cleanup the code for giving messages. (Khorev Sergey)

GUI: Support more than 222 columns for mouse positions.

":stopinsert" command: Don't return to Insert mode.

"interrupt" command for debug mode. Useful for simulating CTRL-C. (Servatius
Brandt)

Fixed   fixed-6.2

Removed a few unused #defines from config.h.in, os_os2_cfg.h and os_vms_conf.h.

The Vim icons in PNG format didn't have a transparent background. (Greg
Roelofs)

Fixed a large number of spelling mistakes in the docs. (Adri Verhoef)

The #defines for prototype generation were causing trouble. Changed them to
typedefs.

A new version of libintl.h uses __asm__, which confuses cproto. Define a
dummy __asm__ macro.

When 'virtualedit' is set can't move to halfway an unprintable character.
Cripples CTRL-V selection. (Taro Muraoka)
Allow moving to halfway an unprintable character. Don't let getvvcol() change
the pos->coladd argument.

When a tab wraps to the next line, 'listchars' is set and 'foldcolumn' is
non-zero, only one character of the foldcolumn is highlighted. (Muraoka Taro)

When using ":catch" without an argument Vim crashes. (Yasuhiro Matsumoto)
When no argument given use the ".*" pattern.

Win32: When gvim.exe is started from a shortcut with the window style property
set to maximize Vim doesn't start with a maximized window. (Yasuhiro
Matsumoto) Open the window with the default size and don't call ShowWindow()
again when it's already visible. (Helmut Stiegler)

gui_gtk.c used MAX, but it's undefined to avoid a conflict with system header
files.

Win32: When closing a window from a mapping some pixels remain on the statusline. (Yasuhiro Matsumoto)

A column number in an errorformat that goes beyond the end of the line may cause a crash.

":throw 'test'" crashes Vim. (Yasuhiro Matsumoto)

The file selector's scrollbar colors are not set after doing a ":hi Scrollbar guifg=color". And the file selector's colors are not changed by the colorscheme command. (David Harrison)

Motif: When compiling with FEAT_FOOTER defined, the text area gets a few pixels extra space on the right. Remove the special case in gui_get_base_width(). (David Harrison)

Using CTRL-R CTRL-P in Insert mode puts the '] mark in the wrong position. (Helmut Stiegler)

When 'formatoptions' includes "awct" a non-comment wasn't auto-formatted.

Using a "--cmd" argument more than 10 times caused a crash.

DEC style mouse support didn't work if the page field is not empty. (Uribarri)

"vim -l one two" did only set 'lisp' in the first file. Vi does it for every file.

":set tw<" didn't work. Was checking for '^' instead of '<'.

In ":hardcopy > %.ps" the "%" was not expanded to the current filename.

Made ":redraw" also update the Visual area.

When a not implemented command, such as ":perl", has wrong arguments the less important error was reported, giving the user the idea the command could work.

On non-Unix systems autocommands for writing did not attempt a match with the short file name, causing a pattern like "a/b" to fail.

VMS: e_screenmode was not defined and a few other fixes for VMS. (Zoltan Arpadffy)

redraw_msg() depended on FEAT_ARABIC instead of FEAT_RIGHTLEFT. (Walter Briscoe)

Various changes for the PC Makefiles. (Walter Briscoe)

Use _truename() instead of our own code to expand a file name into a full path. (Walter Briscoe)

Error in filetype check for /etc/modutils. (Lubomir Host)

Cscope interface: allocated a buffer too small.

Win16: remove a trailing backslash from a path when obtaining the permission flags. (Vince Negri)

When searching for tags with case ignored Vim could hang.

When searching directories with a stopdir could get a crash. Did not re-allocate enough memory. (Vince Negri)

A user command may cause a crash. Don't use the command index when it's negative. (Vince Negri)

putenv() didn't work for MingW and Cygwin. (Dan Sharp)

Many functions were common between os_msdos.c and os_win16.c. Use os_msdos.c for compiling the Win16 version and remove the functions from os_win16.c. (Vince Negri)

For terminals that behave like an xterm but didn't have a name that is recognized, the window title would not always be set.

When syntax highlighting is off ":hardcopy" could still attempt printing colors.

Crash when using ":catch" without an argument. (Servatius Brandt)

Win32: ":n #" doubled the backslashes.

Fixed Arabic shaping for the command line. (Nadim Shaikli)

Avoid splitting up a string displayed on the command line into individual characters, it breaks Arabic shaping.

Updated Cygwin and MingW makefiles to use more dependencies. (Dan Sharp)

2html.vim didn't work with 'nomagic' set.

When a local argument list is used and doing ":only" Vim could crash later. (Muraoka Taro)

When using "%P" in 'statusline' and the fillchar is "-", a percentage of 3% could result in "-3%". Also avoid changing a space inside a filename to the fill character.

MSwin: Handling of backslashes and double quotes for command line arguments was not like what other applications do. (Walter Briscoe)

Test32 sometimes didn't work, because test11.out was written as TEST11.OUT.

Avoid pointer conversions warnings for Borland C 5.5 in dosinst.c and uninstal.c.

More improvements for Make_bc3.mak file. (Walter Briscoe)

When ":syn sync linebreaks=1" is used, editing the first line caused a redraw of the whole screen.

Making translated messages didn't work, if_perl.xs wasn't found. (Vlad Sandrini)

Motif and Athena: moving Vim to the foreground didn't uniconify it. Use XMapRaised() instead of XRaiseWindow(). (Srikanth Sankaran)

When using ":ptag" in a window where 'scrollbind' is set the preview window would also have 'scrollbind' set. Also reset 'foldcolumn' and 'diff'.

Various commands that split a window took over 'scrollbind', which is hardly ever desired. Esp. for "q:" and ":copen". Mostly reset 'scrollbind' when splitting a window.

When 'shellslash' is set in the vimrc file the first entry of ":scriptnames" would still have backslashes. Entries in the quickfix list could also have wrong (back)slashes.

Win32: printer dialog texts were not translated. (Yasuhiro Matsumoto)

When using a multi-byte character with a K_SPECIAL byte or a special key code with "--remote-send" the received byte sequence was mangled. Put it in the typeahead buffer instead of the input buffer.

Win32: The cursor position was incorrect after changing cursor shape. (Yasuhiro Matsumoto).

Win32: When 'encoding' is not the current codepage the title could not be set to non-ascii characters.

"vim -d scp://machine/file1 scp://machine/file2" did not work, there was only one window. Fixed the netrw plugin not to wipe out the buffer if it is displayed in other windows.

"/$" caused "e" in last column of screen to disappear, a highlighted blank was displayed instead.

":s/ *\ze\n//e" removed the line break and introduced arbitrary text. Was using the line count including what matched after the "\ze".

Using the "c" flag with ":s" changed the behavior when a line break is replaced and "\@<=" is used. Without "c" a following match was not found.

":%s/\vA@<=\nB@=//gce" got stuck on "A\nB" when entering "n".

VMS: add HAVE_STRFTIME in the config file. (Zoltan Arpadffy)

When a delete prompts if a delete should continue when yanking is not possible, restore msg_silent afterwards.

":sign" did not complain about a missing argument.

When adding or deleting a sign 'hlsearch' highlighting could disappear.
Use the generic functions for updating signs.

On MS-Windows NT, 2K and XP don't use command.com but cmd.exe for testing.
Makes the tests work on more systems.

In the DOS tests don't create "/tmp" to avoid an error.

Mac classic: Problems with reading files with CR vs CR/LF. Rely on the
library version of fgets() to work correctly for Metrowerks 2.2. (Axel
Kielhorn)

When typing a password a "*" was shown for each byte instead of for each
character. Added multi-byte handling to displaying the stars. (Yasuhiro
Matsumoto)

When using Perl 5.6 accessing $curbuf doesn't work. Add an #ifdef to use
different code for 5.6 and 5.8. (Dan Sharp)

MingW and Cygwin: Don't strip the debug executable. (Dan Sharp)

An assignment to a variable with curlies that includes "==" doesn't work.
Skip over the curlies before searching for an "=". (Vince Negri)

When cancelling the selection of alternate matching tags the tag stack index
could be advanced too far, resulting in an error message when using CTRL-T.

Patch 6.1.001
Problem: When formatting UTF-8 text it might be wrapped at a space that is
            followed by a composing character. (Raphael Finkel)
            Also correct a display error for removing a composing char on top
            of a space.
Solution: Check for a composing character on a space.
Files: src/edit.c, src/misc1.c, src/screen.c

Patch 6.1.002 (extra)
Problem: Win32: after a ":popup" command the mouse pointer stays hidden.
Solution: Unhide the mouse pointer before showing the menu.
Files: src/gui_w48.c

Patch 6.1.003
Problem: When 'laststatus' is zero and there is a vertical split, the
            vertical separator is drawn in the command line. (Srikant
            Sankaran)
Solution: Don't draw the vertical separator where there is no statusline.
Files: src/screen.c

Patch 6.1.004
Problem: Unicode 3.2 changes width and composing of a few characters.
            (Markus Kuhn)
Solution: Adjust the Unicode functions for the character width and composing
            characters.

```
Files:      src/mbyte.c

Patch 6.1.005
Problem:    When using more than 50 items in 'statusline' Vim might crash.
            (Steve Hall)
Solution:   Increment itemcnt in check_stl_option(). (Flemming Madsen)
Files:      src/option.c

Patch 6.1.006
Problem:    When using "P" in Visual mode to put linewise selected text, the
            wrong text is deleted. (Jakub Turski)
Solution:   Put the text before the Visual area and correct the text to be
            deleted for the inserted lines.
            Also fix that "p" of linewise text in Visual block mode doesn't
            work correctly.
Files:      src/normal.c, src/ops.c

Patch 6.1.007
Problem:    Using ":filetype plugin off" when filetype plugins were never
            enabled causes an error message. (Yiu Wing)
Solution:   Use ":silent!" to avoid the error message.
Files:      runtime/ftplugof.vim

Patch 6.1.008
Problem:    The "%" command doesn't ignore \" inside a string, it's seen as
            the end of the string. (Ken Clark)
Solution:   Skip a double quote preceded by an odd number of backslashes.
Files:      src/search.c

Patch 6.1.009
Problem:    Vim crashes when using a huge number for the maxwid value in a
            statusline. (Robert M. Nowotniak)
Solution:   Check for an overflow that makes maxwid negative.
Files:      src/buffer.c

Patch 6.1.010
Problem:    Searching backwards for a question mark with "?\?" doesn't work.
            (Alan Isaac)  Same problem in ":s?\??" and ":g?\??".
Solution:   Change the "\?" in a pattern to "?" when using "?" as delimiter.
Files:      src/ex_cmds.c, src/ex_docmd.c, src/proto/regexp.pro, src/regexp.c,
            src/search.c, src/syntax.c, src/tag.c

Patch 6.1.011
Problem:    XIM: doesn't work correctly when 'number' is set.  Also, a focus
            problem when selecting candidates.
Solution:   Fix the XIM problems. (Yasuhiro Matsumoto)
Files:      src/mbyte.c, src/screen.c

Patch 6.1.012
Problem:    A system() call might fail if fread() does CR-LF to LF
            translation.
Solution:   Open the output file in binary mode. (Pavol Huhas)
Files:      src/misc1.c
```

```
Patch 6.1.013
Problem:    Win32: The default for 'printexpr' doesn't work when there are
            special characters in 'printdevice'.
Solution:   Add double quotes around the device name. (Mike Williams)
Files:      runtime/doc/option.txt, src/option.c

Patch 6.1.014
Problem:    An operator like "r" used in Visual block mode doesn't use
            'virtualedit' when it's set to "block".
Solution:   Check for 'virtualedit' being active in Visual block mode when the
            operator was started.
Files:      src/ex_docmd.c, src/globals.h, src/misc2.c, src/normal.c,
            src/ops.c, src/undo.c

Patch 6.1.015
Problem:    After patch 6.1.014 can't compile with tiny features. (Christian
            J. Robinson)
Solution:   Add the missing define of virtual_op.
Files:      src/vim.h

Patch 6.1.016 (extra)
Problem:    Win32: Outputting Hebrew or Arabic text might have a problem with
            reversing.
Solution:   Replace the RevOut() function with ETO_IGNORELANGUAGE. (Ron Aaron)
Files:      src/gui_w32.c

Patch 6.1.017
Problem:    Cygwin: After patch 6.1.012 Still doesn't do binary file I/O.
            (Pavol Juhas)
Solution:   Define BINARY_FILE_IO for Cygwin.
Files:      src/os_unix.h

Patch 6.1.018
Problem:    Error message when using cterm highlighting. (Leonardo Di Lella)
Solution:   Remove a backslash before a question mark.
Files:      runtime/syntax/cterm.vim

Patch 6.1.019 (extra)
Problem:    Win32: File name is messed up when editing just a drive name.
            (Walter Briscoe)
Solution:   Append a NUL after the drive name. (Vince Negri)
Files:      src/os_win32.c

Patch 6.1.020
Problem:    col("'>") returns a huge number after using Visual line mode.
Solution:   Return the length of the line instead.
Files:      src/eval.c

Patch 6.1.021 (depends on patch 6.1.009)
Problem:    Vim crashes when using a huge number for the minwid value in a
            statusline. (Robert M. Nowotniak)
Solution:   Check for an overflow that makes minwid negative.
Files:      src/buffer.c
```

```
Patch 6.1.022
Problem:    Grabbing the status line above the command-line window works like
            the bottom status line was grabbed. (Jim Battle)
Solution:   Make it possible to grab the status line above the command-line
            window, so that it can be resized.
Files:      src/ui.c

Patch 6.1.023 (extra)
Problem:    VMS: running tests doesn't work properly.
Solution:   Adjust the makefile. (Zoltan Arpadffy)
Files:      src/testdir/Make_vms.mms

Patch 6.1.024
Problem:    When header files use a new syntax for declaring functions, Vim
            can't figure out missing prototypes properly.
Solution:   Accept braces around a function name. (M. Warner Losh)
Files:      src/osdef.sh

Patch 6.1.025
Problem:    Five messages for "vim --help" don't start with a capital. (Vlad
            Sandrini)
Solution:   Make the messages consistent.
Files:      src/main.c

Patch 6.1.026
Problem:    *.patch files are not recognized as diff files.  In a script a
            "VAR=val" argument after "env" isn't ignored.  PHP scripts are not
            recognized.
Solution:   Add *.patch for diff filetypes.  Ignore "VAR=val".  Recognize PHP
            scripts. (Roman Neuhauser)
Files:      runtime/filetype.vim, runtime/scripts.vim

Patch 6.1.027
Problem:    When 'foldcolumn' is non-zero, a special character that wraps to
            the next line disturbs the foldcolumn highlighting.  (Yasuhiro
            Matsumoto)
Solution:   Only use the special highlighting when drawing text characters.
Files:      src/screen.c

Patch 6.1.028
Problem:    Client-server: When a --remote-expr fails, Vim still exits with
            status zero.
Solution:   Exit Vim with a non-zero status to indicate the --remote-expr
            failed. (Thomas Scott Urban)
Files:      src/main.c

Patch 6.1.029
Problem:    When 'encoding' is an 8-bit encoding other than "latin1", editing
            a utf-8 or other Unicode file uses the wrong conversion. (Jan
            Fedak)
Solution:   Don't use Unicode to latin1 conversion for 8-bit encodings other
            than "latin1".
Files:      src/fileio.c
```

```
Patch 6.1.030
Problem:    When CTRL-N is mapped in Insert mode, it is also mapped after
            CTRL-X CTRL-N, while it is not mapped after CTRL-X CTRL-F.
            (Kontra Gergely)
Solution:   Don't map CTRL-N after CTRL-X CTRL-N.  Same for CTRL-P.
Files:      src/getchar.c

Patch 6.1.031
Problem:    Cygwin: Xxd could read a file in text mode instead of binary mode.
Solution:   Use "rb" or "rt" when needed. (Pavol Juhas)
Files:      src/xxd/xxd.c

Patch 6.1.032
Problem:    Can't specify a quickfix file without jumping to the first error.
Solution:   Add the ":cgetfile" command. (Yegappan Lakshmanan)
Files:      runtime/doc/index.txt, runtime/doc/quickfix.txt, src/ex_cmds.h,
            src/quickfix.c

Patch 6.1.033
Problem:    GUI: When the selection is lost and the Visual highlighting is
            changed to underlining, the cursor is left in a different
            position. (Christian Michon)
Solution:   Update the cursor position after redrawing the selection.
Files:      src/ui.c

Patch 6.1.034
Problem:    A CVS diff file isn't recognized as diff filetype.
Solution:   Skip lines starting with "? " before checking for an "Index:" line.
Files:      runtime/scripts.vim

Patch 6.1.035 (extra, depends on 6.1.016)
Problem:    Win32: Outputting Hebrew or Arabic text might have a problem with
            reversing on MS-Windows 95/98/ME.
Solution:   Restore the RevOut() function and use it in specific situations
            only. (Ron Aaron)
Files:      src/gui_w32.c

Patch 6.1.036
Problem:    This command may cause a crash: ":v/./,//-j". (Ralf Arens)
Solution:   Compute the right length of the regexp when it's empty.
Files:      src/search.c

Patch 6.1.037
Problem:    When 'lazyredraw' is set, pressing "q" at the hit-enter prompt
            causes an incomplete redraw and the cursor isn't positioned.
            (Lubomir Host)
Solution:   Overrule 'lazyredraw' when do_redraw is set.
Files:      src/main.c, src/screen.c

Patch 6.1.038
Problem:    Multi-byte: When a ":s" command contains a multi-byte character
            where the trail byte is '~' the text is messed up.
Solution:   Properly skip multi-byte characters in regtilde() (Muraoka Taro)
Files:      src/regexp.c
```

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Patch 6.1.039
Problem:    When folds are defined and the file is changed outside of Vim,
            reloading the file doesn't update the folds. (Anders
            Schack-Nielsen)
Solution:   Recompute the folds after reloading the file.
Files:      src/fileio.c

Patch 6.1.040
Problem:    When changing directory for expanding a file name fails there is
            no error message.
Solution:   Give an error message for this situation.  Don't change directory
            if we can't return to the original directory.
Files:      src/diff.c, src/ex_docmd.c, src/globals.h, src/misc1.c,
            src/os_unix.c

Patch 6.1.041
Problem:    ":mkvimrc" doesn't handle a mapping that has a leading space in
            the rhs. (Davyd Ondrejko)
Solution:   Insert a CTRL-V before the leading space.  Also display leading
            and trailing white space in <> form.
Files:      src/getchar.c, src/message.c

Patch 6.1.042
Problem:    "vim -r" doesn't show all matches when 'wildignore' removes swap
            files. (Steve Talley)
Solution:   Keep all matching swap file names.
Files:      src/memline.c

Patch 6.1.043
Problem:    After patch 6.1.040 a few warnings are produced.
Solution:   Add a type cast to "char *" for mch_chdir(). (Axel Kielhorn)
Files:      src/diff.c, src/ex_docmd.c.c, src/misc1.c, src/os_unix.c

Patch 6.1.044 (extra)
Problem:    GUI: When using the find/replace dialog with text that contains a
            slash, an invalid substitute command is generated.
            On Win32 a find doesn't work when 'insertmode' is set.
Solution:   Escape slashes with a backslash.
            Make the Win32, Motif and GTK gui use common code for the
            find/replace dialog.
            Add the "match case" option for Motif and GTK.
Files:      src/feature.h, src/proto/gui.pro, src/gui.c, src/gui.h,
            src/gui_motif.c, src/gui_gtk.c, src/gui_w48.c

Patch 6.1.045
Problem:    In Visual mode, with lots of folds and 'scrolloff' set to 999,
            moving the cursor down near the end of the file causes the text to
            jump up and down. (Lubomir Host)
Solution:   Take into account that the cursor may be on the last line of a
            closed fold.
Files:      src/move.c

Patch 6.1.046
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Problem:    X11 GUI: ":set lsp=2 gcr=n-v-i:hor1-blinkon0" draws a black
            rectangle.  ":set lsp=2 gcr=n-v-i:hor10-blinkon0" makes the cursor
            disappear.  (Nam SungHyun)
Solution:   Correctly compute the height of the horizontal cursor.
Files:      src/gui_gtk_x11.c, src/gui_x11.c

Patch 6.1.047
Problem:    When skipping commands after an error was encountered, expressions
            for ":if", ";elseif" and ":while" are still evaluated.
Solution:   Skip the expression after an error. (Servatius Brandt)
Files:      src/ex_docmd.c

Patch 6.1.048
Problem:    Unicode 3.2 changes were missing a few Hangul Jamo characters.
Solution:   Recognize more characters as composing characters. (Jungshik Shin)
Files:      src/mbyte.c

Patch 6.1.049 (extra)
Problem:    On a 32 bit display a valid color may cause an error message,
            because its pixel value is negative. (Chris Paulson-Ellis)
Solution:   Check for -11111 instead of the color being negative.
            Don't add one to the pixel value, -1 may be used for white.
Files:      src/globals.h, src/gui.c, src/gui.h, src/gui_amiga.c,
            src/gui_athena.c, src/gui_beos.cc, src/gui_gtk_x11.c,
            src/gui_mac.c, src/gui_motif.c, src/gui_photon.c,
            src/gui_riscos.c, src/gui_w16.c, src/gui_w32.c, src/gui_w48.c,
            src/gui_x11.c, src/mbyte.c, src/syntax.c

Patch 6.1.050 (depends on 6.1.049)
Problem:    After patch 6.1.049 the non-GUI version doesn't compile.
Solution:   Add an #ifdef FEAT_GUI.  (Robert Stanton)
Files:      src/syntax.c

Patch 6.1.051 (depends on 6.1.044)
Problem:    Doesn't compile with GUI and small features.
Solution:   Adjust the #if for ga_append().
Files:      src/misc2.c

Patch 6.1.052
Problem:    Unix: The executable() function doesn't work when the "which"
            command isn't available.
Solution:   Go through $PATH manually.  Also makes it work for VMS.
Files:      src/os_unix.c

Patch 6.1.053
Problem:    When 'sessionoptions' contains "globals", or "localoptions" and an
            option value contains a line break, the resulting script is wrong.
Solution:   Use "\n" and "\r" for a line break. (Srinath Avadhanula)
Files:      src/eval.c

Patch 6.1.054
Problem:    GUI: A mouse click is not recognized at the more prompt, even when
            'mouse' includes 'r'.
Solution:   Recognize a mouse click at the more prompt.
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            Also accept a mouse click in the last line in the GUI.
            Add "ml" entry in 'mouseshape'.
Files:      src/gui.c, src/message.c, src/misc1.c, src/misc2.c, src/option.c,
            src/structs.h

Patch 6.1.055
Problem:    When editing a compressed file, Vim will inspect the contents to
            guess the filetype.
Solution:   Don't source scripts.vim for .Z, .gz, .bz2, .zip and .tgz files.
Files:      runtime/filetype.vim, runtime/plugin/gzip.vim

Patch 6.1.056
Problem:    Loading the Syntax menu can take quite a bit of time.
Solution:   Add the "skip_syntax_sel_menu" variable.  When it's defined the
            available syntax files are not in the Syntax menu.
Files:      runtime/doc/gui.txt, runtime/menu.vim

Patch 6.1.057
Problem:    An ESC inside a mapping doesn't work as documented when
            'insertmode' is set, it does go from Visual or Normal mode to
            Insert mode. (Benji Fisher)
Solution:   Make it work as documented.
Files:      src/normal.c

Patch 6.1.058
Problem:    When there is a closed fold just above the first line in the
            window, using CTRL-X CTRL-Y in Insert mode will show only one line
            of the fold. (Alexey Marinichev)
Solution:   Correct the topline by putting it at the start of the fold.
Files:      src/move.c

Patch 6.1.059
Problem:    ":redir > ~/file" doesn't work. (Stephen Rasku)
Solution:   Expand environment variables in the ":redir >" argument.
Files:      src/ex_docmd.c

Patch 6.1.060
Problem:    When 'virtualedit' is set and 'selection' is "exclusive", deleting
            a character just before a tab changes the tab into spaces.  Undo
            doesn't restore the tab. (Helmut Stiegler)
Solution:   Don't replace the tab by spaces when it's not needed.  Correctly
            save the line before it's changed.
Files:      src/ops.c

Patch 6.1.061
Problem:    When 'virtualedit' is set and 'selection' is "exclusive", a Visual
            selection that ends just after a tab doesn't include that tab in
            the highlighting.  (Helmut Stiegler)
Solution:   Use a different way to exclude the character under the cursor.
Files:      src/screen.c

Patch 6.1.062
Problem:    The "man" filetype plugin doesn't work properly on Solaris 5.
Solution:   Use a different way to detect that "man -s" should be used. (Hugh
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            Sasse)
Files:      runtime/ftplugin/man.vim

Patch 6.1.063
Problem:    Java indenting doesn't work properly.
Solution:   Ignore comments when checking if the indent doesn't increase after
            a "}".
Files:      runtime/indent/java.vim

Patch 6.1.064
Problem:    The URLs that the netrw plugin recognized for ftp and rcp did not
            conform to the standard method://[user@]host[:port]/path.
Solution:   Use ftp://[user@]host[[:#]port]/path, which supports both the new
            and the previous style.  Also added a bit of dav/cadaver support.
            (Charles Campbell)
Files:      runtime/plugin/netrw.vim

Patch 6.1.065
Problem:    VMS: The colorscheme, keymap and compiler menus are not filled in.
Solution:   Ignore case when looking for ".vim" files. (Coen Engelbarts)
Files:      runtime/menu.vim

Patch 6.1.066 (extra)
Problem:    When calling system() in a plugin reading stdin hangs.
Solution:   Don't set the terminal to RAW mode when it wasn't in RAW mode
            before the system() call.
Files:      src/os_amiga.c, src/os_msdos.c, src/os_riscos.c, src/os_unix.c,
            src/os_win16.c, src/os_win32.c

Patch 6.1.067
Problem:    ":set viminfo+=f0" is not working. (Benji Fisher)
Solution:   Check the "f" flag instead of "'" in 'viminfo'.
Files:      src/mark.c

Patch 6.1.068
Problem:    When a file is reloaded after it was changed outside of Vim, diff
            mode isn't updated. (Michael Naumann)
Solution:   Invalidate the diff info so that it's updated when needed.
Files:      src/fileio.c

Patch 6.1.069
Problem:    When 'showmatch' is set and "$" is in 'cpoptions', using
            "C}<Esc>" may forget to remove the "$". (Preben Guldberg)
Solution:   Restore dollar_vcol after displaying the matching cursor position.
Files:      src/search.c

Patch 6.1.070 (depends on 6.1.060)
Problem:    Compiler warning for signed/unsigned mismatch. (Mike Williams)
Solution:   Add a typecast to int.
Files:      src/ops.c

Patch 6.1.071
Problem:    When 'selection' is exclusive, g CTRL-G in Visual mode counts one
            character too much. (David Necas)
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Solution:   Subtract one from the end position.
Files:      src/ops.c

Patch 6.1.072
Problem:    When a file name in a tags file starts with http:// or something
            else for which there is a BufReadCmd autocommand, the file isn't
            opened anyway.
Solution:   Check if there is a matching BufReadCmd autocommand and try to
            open the file.
Files:      src/fileio.c, src/proto/fileio.pro, src/tag.c

Patch 6.1.073 (extra)
Problem:    BC5: Can't easily specify a tiny, small, normal, big or huge
            version.
Solution:   Allow selecting the version with the FEATURES variable. (Ajit
            Thakkar)
Files:      src/Make_bc5.mak

Patch 6.1.074
Problem:    When 'cdpath' includes "../..", changing to a directory in which
            we currently already are doesn't work.  ff_check_visited() adds
            the directory both when using it as the root for searching and for
            the actual matches. (Stephen Rasku)
Solution:   Use a separate list for the already searched directories.
Files:      src/misc2.c

Patch 6.1.075 (depends on 6.1.072)
Problem:    Can't compile fileio.c on MS-Windows.
Solution:   Add a declaration for the "p" pointer. (Madoka Machitani)
Files:      src/fileio.c

Patch 6.1.076 (extra)
Problem:    Macintosh: explorer plugin doesn't work on Mac Classic.
            IME doesn't work.  Dialog boxes don't work on Mac OS X
Solution:   Fix explorer plugin and key modifiers. (Axel Kielhorn)
            Fix IME support. (Muraoka Taro)
            Disable dialog boxes. (Benji Fisher)
Files:      src/edit.c, src/feature.h, src/gui_mac.c, src/os_mac.c

Patch 6.1.077
Problem:    On a Debian system with ACL linking fails. (Lubomir Host)
Solution:   When the "acl" library is used, check if the "attr" library is
            present and use it.
Files:      src/auto/configure, src/configure.in, src/link.sh

Patch 6.1.078
Problem:    When using 'foldmethod' "marker" and the end marker appears before
            the start marker in the file, no fold is found. (Nazri Ramliy)
Solution:   Don't let the fold depth go negative.
Files:      src/fold.c

Patch 6.1.079
Problem:    When using "s" in Visual block mode with 'virtualedit' set, when
            the selected block is after the end of some lines the wrong text
```

            is inserted and some lines are skipped. (Servatius Brandt)
Solution: Insert the right text and extend short lines.
Files: src/ops.c

Patch 6.1.080
Problem: When using gcc with /usr/local already in the search path, adding
            it again causes problems.
Solution: Adjust configure.in to avoid adding /usr/local/include and
            /usr/local/lib when using GCC and they are already used. (Johannes
            Zellner)
Files: src/auto/configure, src/configure.in

Patch 6.1.081
Problem: ":help CTRL-_CTRL-N" doesn't work. (Christian J. Robinson)
Solution: Double the backslash to avoid the special meaning of "_".
Files: src/ex_cmds.c

Patch 6.1.082
Problem: On MS-Windows the vimrc_example.vim script is sourced and then
            mswin.vim. This enables using select mode, but since "p" is
            mapped it doesn't replace the selection.
Solution: Remove the mapping of "p" from vimrc_example.vim, it's obsolete.
            (Vlad Sandrini)
Files: runtime/vimrc_example.vim

Patch 6.1.083
Problem: When $LANG is "sk" or "sk_sk", the Slovak menu file isn't found.
            (Martin Lacko)
Solution: Guess the right menu file based on the system.
Files: runtime/lang/menu_sk_sk.vim

Patch 6.1.084 (depends on 6.1.080)
Problem: "include" and "lib" are mixed up when checking the directories gcc
            already searches.
Solution: Swap the variable names. (SunHo Kim)
Files: src/auto/configure, src/configure.in

Patch 6.1.085
Problem: When using CTRL-O CTRL-\ CTRL-N from Insert mode, the displayed
            mode "(insert)" isn't removed. (Benji Fisher)
Solution: Clear the command line.
Files: src/normal.c

Patch 6.1.086 (depends on 6.1.049)
Problem: The guifg color for CursorIM doesn't take effect.
Solution: Use the foreground color when it's defined. (Muraoka Taro)
Files: src/gui.c

Patch 6.1.087
Problem: A thesaurus with Japanese characters has problems with characters
            in different word classes.
Solution: Only separate words with single-byte non-word characters.
            (Muraoka Taro)
Files: src/edit.c

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Patch 6.1.088 (extra)
Problem:    Win32: no debugging info is generated.  Tags file excludes .cpp
            files.
Solution:   Add "/map" to compiler flags.  Add "*.cpp" to ctags command.
            (Muraoka Taro)
Files:      src/Make_mvc.mak

Patch 6.1.089
Problem:    On BSDI systems there is no ss_sp field in stack_t. (Robert Jan)
Solution:   Use ss_base instead.
Files:      src/auto/configure, src/configure.in, src/config.h.in,
            src/os_unix.c

Patch 6.1.090
Problem:    CTRL-F gets stuck when 'scrolloff' is non-zero and there is a mix
            of long wrapping lines and a non-wrapping line.
Solution:   Check that CTRL-F scrolls at least one line.
Files:      src/move.c

Patch 6.1.091
Problem:    GTK: Can't change preeditstate without setting 'imactivatekey'.
Solution:   Add some code to change preeditstate for OnTheSpot. (Yasuhiro
            Matsumoto)
Files:      src/mbyte.c

Patch 6.1.092
Problem:    ":mapclear <buffer>" doesn't work. (Srikanth Adayapalam)
Solution:   Allow an argument for ":mapclear".
Files:      src/ex_cmds.h

Patch 6.1.093 (extra)
Problem:    Mac and MS-Windows GUI: when scrolling while ":s" is working the
            results can be messed up, because the cursor is moved.
Solution:   Disallow direct scrolling when not waiting for a character.
Files:      src/gui_mac.c, src/gui_w16.c, src/gui_w32.c, src/gui_w48.c

Patch 6.1.094
Problem:    Cygwin: Passing a file name that has backslashes isn't handled
            very well.
Solution:   Convert file name arguments to Posix.  (Chris Metcalf)
Files:      src/main.c

Patch 6.1.095
Problem:    When using signs can free an item on the stack.
            Overruling sign colors doesn't work. (Srikanth Sankaran)
Solution:   Don't free the item on the stack.  Use NULL instead of "none" for
            the value of the color.
Files:      src/gui_x11.c

Patch 6.1.096
Problem:    When erasing the right halve of a double-byte character, it may
            cause further characters to be erased. (Yasuhiro Matsumoto)
Solution:   Make sure only one character is erased.
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Files:      src/screen.c

Patch 6.1.097 (depends on 6.1.090)
Problem:    When 'scrolloff' is set to a huge value, CTRL-F at the end of the
            file scrolls one line. (Lubomir Host)
Solution:   Don't scroll when CTRL-F detects the end-of-file.
Files:      src/move.c

Patch 6.1.098
Problem:    MS-Windows: When the xxd program is under "c:\program files" the
            "Convert to Hex" menu doesn't work. (Brian Mathis)
Solution:   Put the path to xxd in double quotes.
Files:      runtime/menu.vim

Patch 6.1.099
Problem:    Memory corrupted when closing a fold with more than 99999 lines.
Solution:   Allocate more space for the fold text. (Walter Briscoe)
Files:      src/eval.c

Patch 6.1.100 (extra, depends on 6.1.088)
Problem:    Win32: VC5 and earlier don't support the /mapinfo option.
Solution:   Add "/mapinfo" only when "MAP=lines" is specified. (Muraoka Taro)
Files:      src/Make_mvc.mak

Patch 6.1.101
Problem:    After using ":options" the tabstop of a new window is 15.  Entry
            in ":options" window for 'autowriteall' is wrong. (Antoine J
            Mechelynck)  Can't insert a space in an option value.
Solution:   Use ":setlocal" instead of ":set".  Change "aw" to "awa".
            Don't map space in Insert mode.
Files:      runtime/optwin.vim

Patch 6.1.102
Problem:    Unprintable and multi-byte characters in a statusline item are not
            truncated correctly. (Yasuhiro Matsumoto)
Solution:   Count the width of characters instead of the number of bytes.
Files:      src/buffer.c

Patch 6.1.103
Problem:    A function returning from a while loop, with 'verbose' set to 12
            or higher, doesn't mention the return value.  A function with the
            'abort' attribute may return -1 while the verbose message says
            something else.
Solution:   Move the verbose message about returning from a function to
            call_func(). (Servatius Brandt)
Files:      src/eval.c

Patch 6.1.104
Problem:    GCC 3.1 appears to have an optimizer problem that makes test 3
            crash.
Solution:   For GCC 3.1 add -fno-strength-reduce to avoid the optimizer bug.
            Filter out extra info from "gcc --version".
Files:      src/auto/configure, src/configure.in
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Patch 6.1.105
Problem:    Win32: The default for 'shellpipe' doesn't redirect stderr. (Dion
            Nicolaas)
Solution:   Redirect stderr, depending on the shell (like for 'shellredir').
Files:      src/option.c

Patch 6.1.106
Problem:    The maze program crashes.
Solution:   Change "11" to "27" and it works. (Greg Roelofs)
Files:      runtime/macros/maze/mazeansi.c

Patch 6.1.107
Problem:    When 'list' is set the current line in the error window may be
            displayed wrong. (Muraoka Taro)
Solution:   Don't continue the line after the $ has been displayed and the
            rightmost column is reached.
Files:      src/screen.c

Patch 6.1.108
Problem:    When interrupting a filter command such as "!!sleep 20" the file
            becomes read-only. (Mark Brader)
Solution:   Only set the read-only flag when opening a buffer is interrupted.
            When the shell command was interrupted, read the output that was
            produced so far.
Files:      src/ex_cmds.c, src/fileio.c

Patch 6.1.109
Problem:    When 'eadirection' is "hor", using CTRL-W = doesn't equalize the
            window heights. (Roman Neuhauser)
Solution:   Ignore 'eadirection' for CTRL-W =
Files:      src/window.c

Patch 6.1.110
Problem:    When using ":badd file" when "file" is already present but not
            listed, it stays unlisted. (David Frey)
Solution:   Set 'buflisted'.
Files:      src/buffer.c

Patch 6.1.111
Problem:    It's not possible to detect using the Unix sources on Win32 or Mac.
Solution:   Add has("macunix") and has("win32unix").
Files:      runtime/doc/eval.txt, src/eval.c

Patch 6.1.112
Problem:    When using ":argdo", ":bufdo" or ":windo", CTRL-O doesn't go to
            the cursor position from before this command but every position
            where the argument was executed.
Solution:   Only remember the cursor position from before the ":argdo",
            ":bufdo" and ":windo".
Files:      src/ex_cmds2.c, src/mark.c

Patch 6.1.113
Problem:    ":bufdo bwipe" only wipes out half the buffers.  (Roman Neuhauser)
Solution:   Decide what buffer to go to next before executing the command.
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Files:      src/ex_cmds2.c

Patch 6.1.114
Problem:    ":python import vim", ":python vim.current.buffer[0:0] = []" gives
            a lalloc(0) error. (Chris Southern)
Solution:   Don't allocate an array when it's size is zero.
Files:      src/if_python.c

Patch 6.1.115
Problem:    "das" on the white space at the end of a paragraph does not delete
            the "." the sentence ends with.
Solution:   Don't exclude the last character when it is not white space.
Files:      src/search.c

Patch 6.1.116
Problem:    When 'endofline' is changed while 'binary' is set a file should be
            considered modified. (Olaf Buddenhagen)
Solution:   Remember the 'eol' value when editing started and consider the
            file changed when the current value is different and 'binary' is
            set.  Also fix that the window title isn't updated when 'ff' or
            'bin' changes.
Files:      src/option.c, src/structs.h

Patch 6.1.117
Problem:    Small problem with editing a file over ftp: and with Cygwin.
Solution:   Remove a dot from a ":normal" command.  Use "cygdrive" where
            appropriate.  (Charles Campbell)
Files:      runtime/plugin/netrw.vim

Patch 6.1.118
Problem:    When a file in diff mode is reloaded because it changed outside
            of Vim, other windows in diff mode are not always updated.
            (Michael Naumann)
Solution:   After reloading a file in diff mode mark all windows in diff mode
            for redraw.
Files:      src/diff.c

Patch 6.1.119 (extra)
Problem:    With the Sniff interface, using Sniff 4.0.X on HP-UX, there may be
            a crash when connecting to Sniff.
Solution:   Initialize sniff_rq_sep such that its value can be changed.
            (Martin Egloff)
Files:      src/if_sniff.c

Patch 6.1.120 (depends on 6.1.097)
Problem:    When 'scrolloff' is non-zero and there are folds, CTRL-F at the
            end of the file scrolls part of a closed fold.  (Lubomir Host)
Solution:   Adjust the first line to the start of a fold.
Files:      src/move.c

Patch 6.1.121 (depends on 6.1.098)
Problem:    When starting Select mode from Insert mode, then using the Paste
            menu entry, the cursor is left before the last pasted character.
            (Mario Schweigler)
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Solution:   Set the cursor for Insert mode one character to the right.
Files:      runtime/menu.vim

Patch 6.1.122
Problem:    ":file name" creates a new buffer to hold the old buffer name,
            which becomes the alternate file.  This buffer is unexpectedly
            listed.
Solution:   Create the buffer for the alternate name unlisted.
Files:      src/ex_cmds.c

Patch 6.1.123
Problem:    A ":match" command with more than one argument doesn't report an
            error.
Solution:   Check for extra characters. (Servatius Brandt)
Files:      src/ex_docmd.c

Patch 6.1.124
Problem:    When trying to exit and there is a hidden buffer that had 'eol'
            off and 'bin' set exiting isn't possible. (John McGowan)
Solution:   Set b_start_eol when clearing the buffer.
Files:      src/buffer.c

Patch 6.1.125
Problem:    Explorer plugin asks for saving a modified buffer even when it's
            open in another window as well.
Solution:   Count the number of windows using the buffer.
Files:      runtime/plugin/explorer.vim

Patch 6.1.126
Problem:    Adding the choices in the syntax menu is consuming much of the
            startup time of the GUI while it's not often used.
Solution:   Only add the choices when the user wants to use them.
Files:      Makefile, runtime/makemenu.vim, runtime/menu.vim,
            runtime/synmenu.vim, src/Makefile

Patch 6.1.127
Problem:    When using "--remote file" and the server has 'insertmode' set,
            commands are inserted instead of being executed. (Niklas Volbers)
Solution:   Go to Normal mode again after the ":drop" command.
Files:      src/main.c

Patch 6.1.128
Problem:    The expression "input('very long prompt')" puts the cursor in the
            wrong line (column is OK).
Solution:   Add the wrapped lines to the indent. (Yasuhiro Matsumoto)
Files:      src/ex_getln.c

Patch 6.1.129
Problem:    On Solaris editing "file/" and then "file" results in using the
            same buffer.  (Jim Battle)
Solution:   Before using stat(), check that there is no illegal trailing
            slash.
Files:      src/auto/configure, src/config.h.in, src/configure.in,
            src/macros.h src/misc2.c, src/proto/misc2.pro
```

Patch 6.1.130
Problem: The documentation for some of the 'errorformat' items is unclear.
Solution: Add more examples and explain hard to understand items. (Stefan
            Roemer)
Files: runtime/doc/quickfix.txt

Patch 6.1.131
Problem: X11 GUI: when expanding a CSI byte in the input stream to K_CSI,
            the CSI byte itself isn't copied.
Solution: Copy the CSI byte.
Files: src/gui_x11.c

Patch 6.1.132
Problem: Executing a register in Ex mode may cause commands to be skipped.
            (John McGowan)
Solution: In Ex mode use an extra check if the register contents was
            consumed, to avoid input goes into the typeahead buffer.
Files: src/ex_docmd.c

Patch 6.1.133
Problem: When drawing double-wide characters in the statusline, may clear
            half of a character. (Yasuhiro Matsumoto)
Solution: Force redraw of the next character by setting the attributes
            instead of putting a NUL in ScreenLines[]. Do put a NUL in
            ScreenLines[] when overwriting half of a double-wide character.
Files: src/screen.c

Patch 6.1.134
Problem: An error for a trailing argument of ":match" should not be given
            after ":if 0". (Servatius Brandt)
Solution: Only do the check when executing commands.
Files: src/ex_docmd.c

Patch 6.1.135
Problem: Passing a command to the shell that includes a newline always has
            a backslash before the newline.
Solution: Remove one backslash before the newline. (Servatius Brandt)
Files: src/ex_docmd.c

Patch 6.1.136
Problem: When $TERM is "linux" the default for 'background' is "dark", even
            though the GUI uses a light background. (Hugh Allen)
Solution: Don't mark the option as set when defaulting to "dark" for the
            linux console. Also reset 'background' to "light" when the GUI
            has a light background.
Files: src/option.c

Patch 6.1.137
Problem: Converting to HTML has a clumsy way of dealing with tabs which may
            change the highlighting.
Solution: Replace tabs with spaces after converting a line to HTML. (Preben
            Guldberg)
Files: runtime/syntax/2html.vim

```
Patch 6.1.138 (depends on 6.1.126)
Problem:    Adding extra items to the Syntax menu can't be done when the "Show
            individual choices" menu is used.
Solution:   Use ":runtime!" instead of ":source", so that all synmenu.vim
            files in the runtime path are loaded. (Servatius Brandt)
            Also fix that a translated menu can't be removed.
Files:      runtime/menu.vim

Patch 6.1.139
Problem:    Cygwin: PATH_MAX is not defined.
Solution:   Include limits.h. (Dan Sharp)
Files:      src/main.c

Patch 6.1.140
Problem:    Cygwin: ":args `ls *.c`" does not work if the shell command
            produces CR NL line separators.
Solution:   Remove the CR characters ourselves. (Pavol Juhas)
Files:      src/os_unix.c

Patch 6.1.141
Problem:    ":wincmd gx" may cause problems when mixed with other commands.
            ":wincmd c" doesn't close the window immediately. (Benji Fisher)
Solution:   Pass the extra command character directly instead of using the
            stuff buffer and call ex_close() directly.
Files:      src/ex_docmd.c, src/normal.c, src/proto/normal.pro,
            src/proto/window.pro, src/window.c

Patch 6.1.142
Problem:    Defining paragraphs without a separating blank line isn't
            possible.  Paragraphs can't be formatted automatically.
Solution:   Allow defining paragraphs with lines that end in white space.
            Added the 'w' and 'a' flags in 'formatoptions'.
Files:      runtime/doc/change.txt, src/edit.c, src/misc1.c, src/normal.c,
            src/option.h, src/ops.c, src/proto/edit.pro, src/proto/ops.pro,
            src/vim.h

Patch 6.1.143 (depends on 6.1.142)
Problem:    Auto formatting near the end of the file moves the cursor to a
            wrong position.  In Insert mode some lines are made one char too
            narrow.  When deleting a line undo might not always work properly.
Solution:   Don't always move to the end of the line in the last line.  Don't
            position the cursor past the end of the line in Insert mode.
            After deleting a line save the cursor line for undo.
Files:      src/edit.c, src/ops.c, src/normal.c

Patch 6.1.144
Problem:    Obtaining the size of a line in screen characters can be wrong.
            A pointer may wrap around zero.
Solution:   In win_linetabsize() check for a MAXCOL length argument. (Jim
            Dunleavy)
Files:      src/charset.c

Patch 6.1.145
```

```
Problem:    GTK: Drag&drop with more than 3 files may cause a crash. (Mickael
            Marchand)
Solution:   Rewrite the code that parses the received list of files to be more
            robust.
Files:      src/charset.c, src/gui_gtk_x11.c

Patch 6.1.146
Problem:    MS-Windows: When $HOME is constructed from $HOMEDRIVE and
            $HOMEPATH, it is not used for storing the _viminfo file.  (Normal
            Diamond)
Solution:   Set $HOME with the value obtained from $HOMEDRIVE and $HOMEPATH.
Files:      src/misc1.c

Patch 6.1.147 (extra)
Problem:    MS-Windows: When a dialog has no default button, pressing Enter
            ends it anyway and all buttons are selected.
Solution:   Don't end a dialog when there is no default button.  Don't select
            all button when there is no default. (Vince Negri)
Files:      src/gui_w32.c

Patch 6.1.148 (extra)
Problem:    MS-Windows: ACL is not properly supported.
Solution:   Add an access() replacement that also works for ACL. (Mike
            Williams)
Files:      runtime/doc/editing.txt, src/os_win32.c

Patch 6.1.149 (extra)
Problem:    MS-Windows: Can't use diff mode from the file explorer.
Solution:   Add a "diff with Vim" context menu entry. (Dan Sharp)
Files:      GvimExt/gvimext.cpp, GvimExt/gvimext.h

Patch 6.1.150
Problem:    OS/2, MS-Windows and MS-DOS: When 'shellslash' is set getcwd()
            still uses backslash. (Yegappan Lakshmanan)
Solution:   Adjust slashes in getcwd().
Files:      src/eval.c

Patch 6.1.151 (extra)
Problem:    Win32: The NTFS substream isn't copied.
Solution:   Copy the substream when making a backup copy. (Muraoka Taro)
Files:      src/fileio.c, src/os_win32.c, src/proto/os_win32.pro

Patch 6.1.152
Problem:    When $LANG is iso8859-1 translated menus are not used.
Solution:   Change iso8859 to iso_8859.
Files:      runtime/menu.vim

Patch 6.1.153
Problem:    Searching in included files may search recursively when the path
            starts with "../".  (Sven Berkvens-Matthijsse)
Solution:   Compare full file names, use inode/device when possible.
Files:      src/search.c

Patch 6.1.154 (extra)
```

```
Problem:    DJGPP: "vim -h" leaves the cursor in a wrong position.
Solution:   Don't position the cursor using uninitialized variables. (Jim
            Dunleavy)
Files:      src/os_msdos.c

Patch 6.1.155
Problem:    Win32: Cursor may sometimes disappear in Insert mode.
Solution:   Change "hor10" in 'guicursor' to "hor15". (Walter Briscoe)
Files:      src/option.c

Patch 6.1.156
Problem:    Conversion between DBCS and UCS-2 isn't implemented cleanly.
Solution:   Clean up a few things.
Files:      src/mbyte.c, src/structs.h

Patch 6.1.157
Problem:    'hlsearch' highlights only the second comma in ",,,,," with
            "/,\@<=[^,]*". (Preben Guldberg)
Solution:   Also check for an empty match to start just after a previous
            match.
Files:      src/screen.c

Patch 6.1.158
Problem:    "zs" and "ze" don't work correctly with ":set nowrap siso=1".
            (Preben Guldberg)
Solution:   Take 'siso' into account when computing the horizontal scroll
            position for "zs" and "ze".
Files:      src/normal.c

Patch 6.1.159
Problem:    When expanding an abbreviation that includes a multi-byte
            character too many characters are deleted. (Andrey Urazov)
Solution:   Delete the abbreviation counting characters instead of bytes.
Files:      src/getchar.c

Patch 6.1.160
Problem:    ":$read file.gz" doesn't work. (Preben Guldberg)
Solution:   Don't use the '[ mark after it has become invalid.
Files:      runtime/plugin/gzip.vim

Patch 6.1.161 (depends on 6.1.158)
Problem:    Warning for signed/unsigned compare.  Can set 'siso' to a negative
            value. (Mike Williams)
Solution:   Add a typecast.  Add a check for 'siso' being negative.
Files:      src/normal.c, src/option.c

Patch 6.1.162
Problem:    Python interface: Didn't initialize threads properly.
Solution:   Call PyEval_InitThreads() when starting up.
Files:      src/if_python.c

Patch 6.1.163
Problem:    Win32: Can't compile with Python after 6.1.162.
Solution:   Dynamically load  PyEval_InitThreads(). (Dan Sharp)
```

```
Files:      src/if_python.c

Patch 6.1.164
Problem:    If 'modifiable' is off, converting to xxd fails and 'filetype' is
            changed to "xxd" anyway.
Solution:   Don't change 'filetype' when conversion failed.
Files:      runtime/menu.vim

Patch 6.1.165
Problem:    Making changes in several lines and then a change in one of these
            lines that splits it in two or more lines, undo information was
            corrupted.  May cause a crash. (Dave Fishburn)
Solution:   When skipping to save a line for undo because it was already
            saved, move it to become the last saved line, so that when the
            command changes the line count other saved lines are not involved.
Files:      src/undo.c

Patch 6.1.166
Problem:    When 'autoindent' is set and mswin.vim has been sourced, pasting
            with CTRL-V just after auto-indenting removes the indent. (Shlomi
            Fish)
Solution:   First insert an "x" and delete it again, so that the auto-indent
            remains.
Files:      runtime/mswin.vim

Patch 6.1.167
Problem:    When giving a negative argument to ":retab" strange things start
            happening. (Hans Ginzel)
Solution:   Check for a negative value.
Files:      src/ex_cmds.c

Patch 6.1.168
Problem:    Pressing CTRL-C at the hit-enter prompt doesn't end the prompt.
Solution:   Make CTRL-C stop the hit-enter prompt.
Files:      src/message.c

Patch 6.1.169
Problem:    bufexists() finds a buffer by using the name of a symbolic link to
            it, but bufnr() doesn't. (Yegappan Lakshmanan)
Solution:   When bufnr() can't find a buffer, try using the same method as
            bufexists().
Files:      src/eval.c

Patch 6.1.170
Problem:    Using ":mksession" uses the default session file name, but "vim
            -S" doesn't. (Hans Ginzel)
Solution:   Use the default session file name if "-S" is the last command
            line argument or another option follows.
Files:      runtime/doc/starting.txt, src/main.c

Patch 6.1.171
Problem:    When opening a line just above a closed fold with "O" and the
            comment leader is automatically inserted, the cursor is displayed
            in the first column. (Sung-Hyun Nam)
```

```
Solution:   Update the flag that indicates the cursor is in a closed fold.
Files:      src/misc1.c

Patch 6.1.172
Problem:    Command line completion of ":tag /pat" does not show the same
            results as the tags the command actually finds. (Gilles Roy)
Solution:   Don't modify the pattern to make it a regexp.
Files:      src/ex_getln.c, src/tag.c

Patch 6.1.173
Problem:    When using remote control to edit a position in a file and this
            file is the current buffer and it's modified, the window is split
            and the ":drop" command fails.
Solution:   Don't split the window, keep editing the same buffer.
            Use the ":drop" command in VisVim to avoid the problem there.
Files:      src/ex_cmds.c, src/ex_cmds2.c, src/proto/ex_cmds2.pro,
            VisVim/Commands.cpp

Patch 6.1.174
Problem:    It is difficult to know in a script whether an option not only
            exists but really works.
Solution:   Add "exists('+option')".
Files:      runtime/doc/eval.txt, src/eval.c

Patch 6.1.175
Problem:    When reading commands from a pipe and a CTRL-C is pressed, Vim
            will hang. (Piet Delport)
Solution:   Don't keep reading characters to clear typeahead when an interrupt
            was detected, stop when a single CTRL-C is read.
Files:      src/getchar.c, src/ui.c

Patch 6.1.176
Problem:    When the stack limit is very big a false out-of-stack error may
            be detected.
Solution:   Add a check for overflow of the stack limit computation. (Jim
            Dunleavy)
Files:      src/os_unix.c

Patch 6.1.177 (depends on 6.1.141)
Problem:    ":wincmd" does not allow a following command. (Gary Johnson)
Solution:   Check for a following " | cmd".  Also give an error for trailing
            characters.
Files:      src/ex_docmd.c

Patch 6.1.178
Problem:    When 'expandtab' is set "r<C-V><Tab>" still expands the Tab.
            (Bruce deVisser)
Solution:   Replace with a literal Tab.
Files:      src/normal.c

Patch 6.1.179 (depends on 6.1.091)
Problem:    When using X11R5 XIMPreserveState is undefined. (Albert Chin)
Solution:   Include the missing definitions.
Files:      src/mbyte.c
```

```
Patch 6.1.180
Problem:    Use of the GUI code for forking is inconsistent.
Solution:   Define MAY_FORK and use it for later #ifdefs. (Ben Fowlwer)
Files:      src/gui.c

Patch 6.1.181
Problem:    If the terminal doesn't wrap from the last char in a line to the
            next line, the last column is blanked out. (Peter Karp)
Solution:   Don't output a space to mark the wrap, but the same character
            again.
Files:      src/screen.c

Patch 6.1.182 (depends on 6.1.142)
Problem:    It is not possible to auto-format comments only. (Moshe Kaminsky)
Solution:   When the 'a' and 'c' flags are in 'formatoptions' only auto-format
            comments.
Files:      runtime/doc/change.txt, src/edit.c

Patch 6.1.183
Problem:    When 'fencs' is empty and 'enc' is utf-8, reading a file with
            illegal bytes gives "CONVERSION ERROR" even though no conversion
            is done.  'readonly' is set, even though writing the file results
            in an unmodified file.
Solution:   For this specific error use "ILLEGAL BYTE" and don't set
            'readonly'.
Files:      src/fileio.c

Patch 6.1.184 (extra)
Problem:    The extra mouse buttons found on some mice don't work.
Solution:   Support two extra buttons for MS-Windows. (Michael Geddes)
Files:      runtime/doc/term.txt, src/edit.c, src/ex_getln.c, src/gui.c,
            src/gui_w32.c, src/gui_w48.c, src/keymap.h, src/message.c,
            src/misc1.c, src/misc2.c, src/normal.c, src/vim.h

Patch 6.1.185 (depends on 6.1.182)
Problem:    Can't compile without +comments feature.
Solution:   Add #ifdef FEAT_COMMENTS. (Christian J. Robinson)
Files:      src/edit.c

Patch 6.1.186 (depends on 6.1.177)
Problem:    ":wincmd" does not allow a following comment. (Aric Blumer)
Solution:   Check for a following double quote.
Files:      src/ex_docmd.c

Patch 6.1.187
Problem:    Using ":doarg" with 'hidden' set and the current file is the only
            argument and was modified gives an error message. (Preben
            Guldberg)
Solution:   Don't try re-editing the same file.
Files:      src/ex_cmds2.c

Patch 6.1.188 (depends on 6.1.173)
Problem:    Unused variable in the small version.
```

```
Solution:   Move the declaration for "p" inside #ifdef FEAT_LISTCMDS.
Files:      src/ex_cmds2.c

Patch 6.1.189
Problem:    inputdialog() doesn't work when 'c' is in 'guioptions'. (Aric
            Blumer)
Solution:   Fall back to the input() function in this situation.
Files:      src/eval.c

Patch 6.1.190 (extra)
Problem:    VMS: doesn't build with GTK GUI.  Various other problems.
Solution:   Fix building for GTK.  Improved Perl, Python and TCL support.
            Improved VMS documentation. (Zoltan Arpadffy)
            Added Vimtutor for VMS (T. R. Wyant)
Files:      runtime/doc/os_vms.txt, src/INSTALLvms.txt, src/gui_gtk_f.h,
            src/if_tcl.c, src/main.c, src/gui_gtk_vms.h, src/Make_vms.mms,
            src/os_vms.opt, src/proto/if_tcl.pro, vimtutor.com,
            src/testdir/Make_vms.mms

Patch 6.1.191
Problem:    When using "vim -s script" and redirecting the output, the delay
            for the "Output is not to a terminal" warning slows Vim down too
            much.
Solution:   Don't delay when reading commands from a script.
Files:      src/main.c

Patch 6.1.192
Problem:    ":diffsplit" doesn't add "hor" to 'scrollopt'. (Gary Johnson)
Solution:   Add "hor" to 'scrollopt' each time ":diffsplit" is used.
Files:      src/diff.c, src/main.c

Patch 6.1.193
Problem:    Crash in in_id_list() for an item with a "containedin" list. (Dave
            Fishburn)
Solution:   Check for a negative syntax id, used for keywords.
Files:      src/syntax.c

Patch 6.1.194
Problem:    When "t_ti" is set but it doesn't cause swapping terminal pages,
            "ZZ" may cause the shell prompt to appear on top of the file-write
            message.
Solution:   Scroll the text up in the Vim page before swapping to the terminal
            page. (Michael Schroeder)
Files:      src/os_unix.c

Patch 6.1.195
Problem:    The quickfix and preview windows always keep their height, while
            other windows can't fix their height.
Solution:   Add the 'winfixheight' option, so that a fixed height can be
            specified for any window.  Also fix that the wildmenu may resize a
            one-line window to a two-line window if 'ls' is zero.
Files:      runtime/doc/options.txt, runtime/optwin.vim, src/ex_cmds.c,
            src/ex_getln.c, src/globals.h, src/option.c, src/quickfix.c,
            src/screen.c, src/structs.h, src/window.c
```

```
Patch 6.1.196  (depends on 6.1.084)
Problem:    On Mac OS X 10.2 generating osdef.h fails.
Solution:   Add -no-cpp-precomp to avoid using precompiled header files, which
            disables printing the search path. (Ben Fowler)
Files:      src/auto/configure, src/configure.in

Patch 6.1.197
Problem:    ":help <C-V><C-\><C-V><C-N>" (resulting in <1c><0e>) gives an
            error message. (Servatius Brandt)
Solution:   Double the backslash in "CTRL-\".
Files:      src/ex_cmds.c

Patch 6.1.198 (extra) (depends on 6.1.076)
Problem:    Mac OS X: Dialogues don't work.
Solution:   Fix a crashing problem for some GUI dialogues.  Fix a problem when
            saving to a new file from the GUI. (Peter Cucka)
Files:      src/feature.h, src/gui_mac.c

Patch 6.1.199
Problem:    'guifontwide' doesn't work on Win32.
Solution:   Output each wide character separately. (Michael Geddes)
Files:      src/gui.c

Patch 6.1.200
Problem:    ":syn sync fromstart" is not skipped after ":if 0".  This can make
            syntax highlighting very slow.
Solution:   Check "eap->skip" appropriately. (Rob West)
Files:      src/syntax.c

Patch 6.1.201 (depends on 6.1.192)
Problem:    Warning for illegal pointer combination. (Zoltan Arpadffy)
Solution:   Add a typecast.
Files:      src/diff.c

Patch 6.1.202  (extra)(depends on 6.1.148)
Problem:    Win32: filewritable() doesn't work properly on directories.
Solution:   fix filewritable(). (Mike Williams)
Files:      src/os_win32.c

Patch 6.1.203
Problem:    ":%s/~//" causes a crash after ":%s/x//". (Gary Holloway)
Solution:   Avoid reading past the end of a line when "~" is empty.
Files:      src/regexp.c

Patch 6.1.204 (depends on 6.1.129)
Problem:    Warning for an illegal pointer on Solaris.
Solution:   Add a typecast. (Derek Wyatt)
Files:      src/misc2.c

Patch 6.1.205
Problem:    The gzip plugin changes the alternate file when editing a
            compressed file. (Oliver Fuchs)
Solution:   Temporarily remove the 'a' and 'A' flags from 'cpo'.
```

```
Files:      runtime/plugin/gzip.vim

Patch 6.1.206
Problem:    The script generated with ":mksession" doesn't work properly when
            some commands are mapped.
Solution:   Use ":normal!" instead of ":normal".  And use ":wincmd" where
            possible. (Muraoka Taro)
Files:      src/ex_docmd.c, src/fold.c

Patch 6.1.207
Problem:    Indenting a Java file hangs below a line with a comment after a
            command.
Solution:   Break out of a loop. (Andre Pang)
            Also line up } with matching {.
Files:      runtime/indent/java.vim

Patch 6.1.208
Problem:    Can't use the buffer number from the Python interface.
Solution:   Add buffer.number. (Michal Vitecek)
Files:      src/if_python.c

Patch 6.1.209
Problem:    Printing doesn't work on Mac OS classic.
Solution:   Use a ":" for path separator when opening the resource file. (Axel
            Kielhorn)
Files:      src/ex_cmds2.c

Patch 6.1.210
Problem:    When there is an iconv() conversion error when reading a file
            there can be an error the next time iconv() is used.
Solution:   Reset the state of the iconv() descriptor. (Yasuhiro Matsumoto)
Files:      src/fileio.c

Patch 6.1.211
Problem:    The message "use ! to override" is confusing.
Solution:   Make it "add ! to override".
Files:      src/buffer.c, src/eval.c, src/ex_docmd.c, src/fileio.c,
            src/globals.h

Patch 6.1.212
Problem:    When Vim was started with "-R" ":new" creates a buffer
            'noreadonly' while ":enew" has 'readonly' set. (Preben Guldberg)
Solution:   Don't set 'readonly' in a new empty buffer for ":enew".
Files:      src/ex_docmd.c

Patch 6.1.213
Problem:    Using CTRL-W H may cause a big gap to appear below the last
            window. (Aric Blumer)
Solution:   Don't set the window height when there is a vertical split.
            (Yasuhiro Matsumoto)
Files:      src/window.c

Patch 6.1.214
Problem:    When installing Vim and the runtime files were checked out from
```

            CVS the CVS directories will also be installed.
Solution: Avoid installing the CVS dirs and their contents.
Files: src/Makefile

Patch 6.1.215
Problem: Win32: ":pwd" uses backslashes even when 'shellslash' is set.
            (Xiangjiang Ma)
Solution: Adjust backslashes before printing the message.
Files: src/ex_docmd.c

Patch 6.1.216
Problem: When dynamically loading the iconv library, the error codes may be
            confused.
Solution: Use specific error codes for iconv and redefine them for dynamic
            loading. (Yasuhiro Matsumoto)
Files: src/fileio.c, src/mbyte.c, src/vim.h

Patch 6.1.217
Problem: When sourcing the same Vim script using a different name (symbolic
            link or MS-Windows 8.3 name) it is listed twice with
            ":scriptnames". (Tony Mechelynck)
Solution: Turn the script name into a full path before using it. On Unix
            compare inode/device numbers.
Files: src/ex_cmds2.c

Patch 6.1.218
Problem: No error message for using the function argument "5+". (Servatius
            Brandt)
Solution: Give an error message if a function or variable is expected but is
            not found.
Files: src/eval.c

Patch 6.1.219
Problem: When using ":amenu :b 1<CR>" with a Visual selection and
            'insertmode' is set, Vim does not return to Insert mode. (Mickael
            Marchand)
Solution: Add the command CTRL-\ CTRL-G that goes to Insert mode if
            'insertmode' is set and to Normal mode otherwise. Append this to
            menus defined with ":amenu".
Files: src/edit.c, src/ex_getln.c, src/normal.c

Patch 6.1.220
Problem: When using a BufReadPost autocommand that changes the line count,
            e.g., "$-1join", reloading a file that was changed outside Vim
            does not work properly. (Alan G Isaac)
Solution: Make the buffer empty before reading the new version of the file.
            Save the lines in a dummy buffer, so that they can be put back
            when reading the file fails.
Files: src/buffer.c, src/ex_cmds.c, src/fileio.c, src/globals.h,
            src/proto/buffer.pro

Patch 6.1.221
Problem: Changing case may not work properly, depending on the current
            locale.

```
Solution:   Add the 'casemap' option to let the user chose how changing case
            is to be done.
            Also fix lowering case when an UTF-8 character doesn't keep the
            same byte length.
Files:      runtime/doc/options.txt, src/ascii.h, src/auto/configure,
            src/buffer.c, src/charset.c, src/config.h.in, src/configure.in,
            src/diff.c, src/edit.c, src/eval.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/fileio.c, src/gui_amiga.c
            src/gui_mac.c, src/gui_photon.c, src/gui_w48.c, src/gui_beos.cc,
            src/macros.h, src/main.c, src/mbyte.c, src/menu.c, src/message.c,
            src/misc1.c, src/misc2.c, src/option.c, src/os_msdos.c,
            src/os_mswin.c, src/proto/charset.pro, src/regexp.c, src/option.h,
            src/syntax.c

Patch 6.1.222 (depends on 6.1.219)
Problem:    Patch 6.1.219 was incomplete.
Solution:   Add the changes for ":amenu".
Files:      src/menu.c

Patch 6.1.223 (extra)
Problem:    Win32: When IME is activated 'iminsert' is set, but it might never
            be reset when IME is disabled. (Muraoka Taro)
            All systems: 'iminsert' is set to 2 when leaving Insert mode, even
            when langmap is being used. (Peter Valach)
Solution:   Don't set "b_p_iminsert" in _OnImeNotify(). (Muraoka Taro)
            Don't store the status of the input method in 'iminsert' when
            'iminsert' is one.  Also for editing the command line and for
            arguments to Normal mode commands.
Files:      src/edit.c, src/ex_getln.c, src/gui_w32.c, src/normal.c

Patch 6.1.224
Problem:    "expand('$VAR')" returns an empty string when the expanded $VAR
            is not an existing file. (Aric Blumer)
Solution:   Included non-existing files, as documented.
Files:      src/eval.c

Patch 6.1.225
Problem:    Using <C-O><C-^> in Insert mode has a delay when starting "vim -u
            NONE" and ":set nocp hidden". (Emmanuel)  do_ecmd() uses
            fileinfo(), the redraw is done after a delay to give the user time
            to read the message.
Solution:   Put the message from fileio() in "keep_msg", so that the redraw is
            done before the delay (still needed to avoid the mode message
            overwrites the fileinfo() message).
Files:      src/buffer.c

Patch 6.1.226
Problem:    Using ":debug" with a ":normal" command may cause a hang.  (Colin
            Keith)
Solution:   Save the typeahead buffer when obtaining a debug command.
Files:      src/ex_cmds2.c, src/getchar.c, src/proto/getchar.pro

Patch 6.1.227
Problem:    It is possible to use a variable name "asdf:asdf" and ":let j:asdf
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            = 5" does not give an error message. (Mikolaj Machowski)
Solution:   Check for a ":" inside the variable name.
Files:      src/eval.c

Patch 6.1.228 (extra)
Problem:    Win32: The special output function for Hangul is used too often,
            causing special handling for other situations to be skipped.
            bInComposition is always FALSE, causing ImeGetTempComposition()
            always to return NULL.
Solution:   Remove HanExtTextOut().  Delete the dead code around
            bInComposition and ImeGetTempComposition().
Files:      src/gui_w16.c, src/gui_w32.c, src/gui_w48.c

Patch 6.1.229
Problem:    Win32: Conversion to/from often used codepages requires the iconv
            library, which is not always available.
Solution:   Use standard MS-Windows functions for the conversion when
            possible. (mostly by Glenn Maynard)
            Also fixes missing declaration for patch 6.1.220.
Files:      src/fileio.c

Patch 6.1.230 (extra)
Problem:    Win16: building doesn't work.
Solution:   Exclude the XBUTTON handling. (Vince Negri)
Files:      src/gui_w48.c

Patch 6.1.231
Problem:    Double clicking with the mouse to select a word does not work for
            multi-byte characters.
Solution:   Use vim_iswordc() instead of vim_isIDc().  This means 'iskeyword'
            is used instead of 'isident'.  Also fix that mixing ASCII with
            multi-byte word characters doesn't work, the mouse class for
            punctuation and word characters was mixed up.
Files:      src/normal.c

Patch 6.1.232 (depends on 6.1.226)
Problem:    Using ex_normal_busy while it might not be available. (Axel
            Kielhorn)
Solution:   Only use ex_normal_busy when FEAT_EX_EXTRA is defined.
Files:      src/ex_cmds2.c

Patch 6.1.233
Problem:    ":help expr-||" does not work.
Solution:   Don't use the '|' as a command separator
Files:      src/ex_cmds.c

Patch 6.1.234 (depends on 6.1.217)
Problem:    Get a warning for using a negative value for st_dev.
Solution:   Don't assign a negative value to st_dev.
Files:      src/ex_cmds2.c

Patch 6.1.235 (depends on 6.1.223)
Problem:    'iminsert' is changed from 1 to 2 when leaving Insert mode. (Peter
            Valach)
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Solution:   Check "State" before resetting it to NORMAL.
Files:      src/edit.c

Patch 6.1.236
Problem:    Memory leaks when appending lines for ":diffget" or ":diffput" and
            when reloading a changed buffer.
Solution:   Free a line after calling ml_append().
Files:      src/diff.c, src/fileio.c

Patch 6.1.237
Problem:    Putting in Visual block mode does not work correctly when "$" was
            used or when the first line is short.  (Christian Michon)
Solution:   First delete the selected text and then put the new text.  Save
            and restore registers as necessary.
Files:      src/globals.h, src/normal.c, src/ops.c, src/proto/ops.pro,
            src/vim.h

Patch 6.1.238 (extra)
Problem:    Win32: The "icon=" argument for the ":menu" command does not
            search for the bitmap file.
Solution:   Expand environment variables and search for the bitmap file.
            (Vince Negri)
            Make it consistent, use the same mechanism for X11 and GTK.
Files:      src/gui.c src/gui_gtk.c, src/gui_w32.c, src/gui_x11.c,
            src/proto/gui.pro

Patch 6.1.239
Problem:    Giving an error for missing :endif or :endwhile when being
            interrupted.
Solution:   Don't give these messages when interrupted.
Files:      src/ex_docmd.c, src/os_unix.c

Patch 6.1.240 (extra)
Problem:    Win32 with BCC 5: CPU may be defined in the environment, which
            causes a wrong argument for the compiler. (Walter Briscoe)
Solution:   Use CPUNR instead of CPU.
Files:      src/Make_bc5.mak

Patch 6.1.241
Problem:    Something goes wrong when drawing or undrawing the cursor.
Solution:   Remember when the cursor invalid in a better way.
Files:      src/gui.c

Patch 6.1.242
Problem:    When pasting a large number of lines on the command line it is not
            possible to interrupt. (Jean Jordaan)
Solution:   Check for an interrupt after each pasted line.
Files:      src/ops.c

Patch 6.1.243 (extra)
Problem:    Win32: When the OLE version is started and wasn't registered, a
            message pops up to suggest registering, even when this isn't
            possible (when the registry is not writable).
Solution:   Check if registering is possible before asking whether it should
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            be done. (Walter Briscoe)
            Also avoid restarting Vim after registering.
Files:      src/if_ole.cpp

Patch 6.1.244
Problem:    Patch 6.1.237 was missing the diff for vim.h. (Igor Goldenberg)
Solution:   Include it here.
Files:      src/vim.h

Patch 6.1.245
Problem:    Comparing with ignored case does not work properly for Unicode
            with a locale where case folding an ASCII character results in a
            multi-byte character. (Glenn Maynard)
Solution:   Handle ignore-case compare for Unicode differently.
Files:      src/mbyte.c

Patch 6.1.246
Problem:    ":blast" goes to the first buffer if the last one is unlisted.
            (Andrew Stryker)
Solution:   From the last buffer search backwards for the first listed buffer
            instead of forwards.
Files:      src/ex_docmd.c

Patch 6.1.247
Problem:    ACL support doesn't always work properly.
Solution:   Add a configure argument to disable ACL "--disable-acl". (Thierry
            Vignaud)
Files:      src/auto/configure, src/configure.in

Patch 6.1.248
Problem:    Typing 'q' at the more-prompt for ":let" does not quit the
            listing. (Hari Krishna Dara)
Solution:   Quit the listing when got_int is set.
Files:      src/eval.c

Patch 6.1.249
Problem:    Can't expand a path on the command line if it includes a "|" as a
            trail byte of a multi-byte character.
Solution:   Check for multi-byte characters. (Yasuhiro Matsumoto)
Files:      src/ex_docmd.c

Patch 6.1.250
Problem:    When changing the value of 'lines' inside the expression set with
            'diffexpr' Vim might crash. (Dave Fishburn)
Solution:   Don't allow changing the screen size while updating the screen.
Files:      src/globals.h, src/option.c, src/screen.c

Patch 6.1.251
Problem:    Can't use completion for ":lcd" and ":lchdir" like ":cd".
Solution:   Expand directory names for these commands. (Servatius Brandt)
Files:      src/ex_docmd.c

Patch 6.1.252
Problem:    "vi}" does not include a line break when the "}" is at the start
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            of a following line. (Kamil Burzynski)
Solution:   Include the line break.
Files:      src/search.c

Patch 6.1.253 (extra)
Problem:    Win32 with Cygwin: Changes the path of arguments in a wrong way.
            (Xiangjiang Ma)
Solution:   Don't use cygwin_conv_to_posix_path() for the Win32 version.
            Update the Cygwin makefile to support more features.  (Dan Sharp)
Files:      src/Make_cyg.mak, src/if_ole.cpp, src/main.c

Patch 6.1.254
Problem:    exists("foo{bar}") does not work.  ':unlet v{"a"}r' does not work.
            ":let v{a}r1 v{a}r2" does not work. ":func F{(1)}" does not work.
            ":delfunc F{" does not give an error message.  ':delfunc F{"F"}'
            does not work.
Solution:   Support magic braces for the exists() argument. (Vince Negri)
            Check for trailing comments explicitly for ":unlet".  Add support
            for magic braces in further arguments of ":let".  Look for a
            parenthesis only after the function name.  (Servatius Brandt)
            Also expand magic braces for "exists('*expr')".  Give an error
            message for an invalid ":delfunc" argument.  Allow quotes in the
            ":delfunc" argument.
Files:      src/eval.c, src/ex_cmds.h, src/ex_docmd.c

Patch 6.1.255 (depends on 6.1.254)
Problem:    Crash when loading menu.vim a second time. (Christian Robinson)
            ":unlet garbage foo" tries unletting "foo" after an error message.
            (Servatius Brandt)
            Very long function arguments cause very long messages when
            'verbose' is 14 or higher.
Solution:   Avoid reading from uninitialized memory.
            Break out of a loop after an invalid argument for ":unlet".
            Truncate long function arguments to 80 characters.
Files:      src/eval.c

Patch 6.1.256 (depends on 6.1.255)
Problem:    Defining a function after ":if 0" could still cause an error
            message for an existing function.
            Leaking memory when there are trailing characters for ":delfunc".
Solution:   Check the "skip" flag.  Free the memory. (Servatius Brandt)
Files:      src/eval.c

Patch 6.1.257
Problem:    ":cwindow" always sets the previous window to the last but one
            window.  (Benji Fisher)
Solution:   Set the previous window properly.
Files:      src/globals.c, src/quickfix.c, src/window.c

Patch 6.1.258
Problem:    Buffers menu doesn't work properly for multibyte buffer names.
Solution:   Use a pattern to get the left and right part of the name.
            (Yasuhiro Matsumoto)
Files:      runtime/menu.vim
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Patch 6.1.259 (extra)
Problem:    Mac: with 'patchmode' is used filenames are truncated.
Solution:   Increase the BASENAMELEN for Mac OS X. (Ed Ralston)
Files:      src/os_mac.h

Patch 6.1.260 (depends on 6.1.104)
Problem:    GCC 3.2 still seems to have an optimizer problem. (Zvi Har'El)
Solution:   Use the same configure check as used for GCC 3.1.
Files:      src/auto/configure, src/configure.in

Patch 6.1.261
Problem:    When deleting a line in a buffer which is not the current buffer,
            using the Perl interface Delete(), the cursor in the current
            window may move. (Chris Houser)
Solution:   Don't adjust the cursor position when changing another buffer.
Files:      src/if_perl.xs

Patch 6.1.262
Problem:    When jumping over folds with "z[", "zj" and "zk" the previous
            position is not remembered. (Hari Krishna Dara)
Solution:   Set the previous context mark before jumping.
Files:      src/fold.c

Patch 6.1.263
Problem:    When typing a multi-byte character that triggers an abbreviation
            it is not inserted properly.
Solution:   Handle adding the typed multi-byte character. (Yasuhiro Matsumoto)
Files:      src/getchar.c

Patch 6.1.264 (depends on patch 6.1.254)
Problem:    exists() does not work for built-in functions. (Steve Wall)
Solution:   Don't check for the function name to start with a capital.
Files:      src/eval.c

Patch 6.1.265
Problem:    libcall() can be used in 'foldexpr' to call any system function.
            rename(), delete() and remote_send() can also be used in
            'foldexpr'.  These are security problems. (Georgi Guninski)
Solution:   Don't allow using libcall(), rename(), delete(), remote_send() and
            similar functions in the sandbox.
Files:      src/eval.c

Patch 6.1.266 (depends on 6.1.265)
Problem:    Win32: compile error in eval.c. (Bill McCarthy)
Solution:   Move a variable declaration.
Files:      src/eval.c

Patch 6.1.267
Problem:    Using "p" to paste into a Visual selected area may cause a crash.
Solution:   Allocate enough memory for saving the register contents. (Muraoka
            Taro)
Files:      src/ops.c
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Patch 6.1.268
Problem:    When triggering an abbreviation with a multi-byte character, this
            character is not correctly inserted after expanding the
            abbreviation. (Taro Muraoka)
Solution:   Add ABBR_OFF to all characters above 0xff.
Files:      src/edit.c, src/ex_getln.c, src/getchar.c

Patch 6.1.269
Problem:    After using input() text written with ":redir" gets extra indent.
            (David Fishburn)
Solution:   Restore msg_col after using input().
Files:      src/ex_getln.c

Patch 6.1.270 (depends on 6.1.260)
Problem:    GCC 3.2.1 still seems to have an optimizer problem.
Solution:   Use the same configure check as used for GCC 3.1.
Files:      src/auto/configure, src/configure.in

Patch 6.1.271
Problem:    When compiling without the +syntax feature there are errors.
Solution:   Don't use some code for syntax highlighting. (Roger Cornelius)
            Make test 45 work without syntax highlighting.
            Also fix an error in a pattern matching: "\%(" was not supported.
Files:      src/ex_cmds2.c, src/regexp.c, src/testdir/test45.in

Patch 6.1.272
Problem:    After using ":set define<" a crash may happen. (Christian Robinson)
Solution:   Make a copy of the option value in allocated memory.
Files:      src/option.c

Patch 6.1.273
Problem:    When the cursor doesn't blink, redrawing an exposed area may hide
            the cursor.
Solution:   Always draw the cursor, also when it didn't move. (Muraoka Taro)
Files:      src/gui.c

Patch 6.1.274 (depends on 6.1.210)
Problem:    Resetting the iconv() state after each error is wrong for an
            incomplete sequence.
Solution:   Don't reset the iconv() state.
Files:      src/fileio.c

Patch 6.1.275
Problem:    When using "v" in a startup script, get warning message that
            terminal cannot highlight. (Charles Campbell)
Solution:   Only give the message after the terminal has been initialized.
Files:      src/normal.c

Patch 6.1.276
Problem:    "gvim --remote file" doesn't prompt for an encryption key.
Solution:   The further characters the client sends to the server are used.
            Added inputsave() and inputrestore() to allow prompting the
            user directly and not using typeahead.
            Also fix possible memory leak for ":normal".
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Files:      src/eval.c, src/ex_cmds2.c, src/ex_docmd.c, src/getchar.c,
            src/main.c, src/proto/getchar.pro, src/proto/ui.pro,
            src/runtime/doc/eval.txt, src/structs.h, src/ui.c, src/vim.h

Patch 6.1.277 (depends on 6.1.276)
Problem:    Compilation error when building with small features.
Solution:   Define trash_input_buf() when needed. (Kelvin Lee)
Files:      src/ui.c

Patch 6.1.278
Problem:    When using signs the line number of a closed fold doesn't line up
            with the other line numbers. (Kamil Burzynski)
Solution:   Insert two spaces for the sign column.
Files:      src/screen.c

Patch 6.1.279
Problem:    The prototype for smsg() and smsg_attr() do not match the function
            definition.  This may cause trouble for some compilers. (Nix)
Solution:   Use va_list for systems that have stdarg.h.  Use "int" instead of
            "void" for the return type.
Files:      src/auto/configure, src/config.h.in, src/configure.in,
            src/proto.h, src/message.c

Patch 6.1.280
Problem:    It's possible to use an argument "firstline" or "lastline" for a
            function but using "a:firstline" or "a:lastline" in the function
            won't work.  (Benji Fisher)
Solution:   Give an error message for these arguments.
            Also avoid that the following function body causes a whole row of
            errors, skip over it after an error in the first line.
Files:      src/eval.c

Patch 6.1.281
Problem:    In Insert mode CTRL-X CTRL-G leaves the cursor after the ruler.
Solution:   Set the cursor position before waiting for the argument of CTRL-G.
            (Yasuhiro Matsumoto)
Files:      src/edit.c

Patch 6.1.282
Problem:    Elvis uses "se" in a modeline, Vim doesn't recognize this.
Solution:   Also accept "se " where "set " is accepted in a modeline.
            (Yasuhiro Matsumoto)
Files:      src/buffer.c

Patch 6.1.283
Problem:    For ":sign" the icon file name cannot contain a space.
Solution:   Handle backslashes in the file name.  (Yasuhiro Matsumoto)
Files:      src/ex_cmds.c

Patch 6.1.284
Problem:    On Solaris there is a warning for "struct utimbuf".
Solution:   Move including "utime.h" to outside the function. (Derek Wyatt)
Files:      src/fileio.c
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Patch 6.1.285
Problem:    Can't wipe out a buffer with 'bufhide' option.
Solution:   Add "wipe" value to 'bufhide'. (Yegappan Lakshmanan)
Files:      runtime/doc/options.txt, src/buffer.c, src/option.c,
            src/quickfix.c

Patch 6.1.286
Problem:    'showbreak' cannot contain multi-byte characters.
Solution:   Allow using all printable characters for 'showbreak'.
Files:      src/charset.c, src/move.c, src/option.c

Patch 6.1.287 (depends on 6.1.285)
Problem:    Effect of "delete" and "wipe" in 'bufhide' were mixed up.
Solution:   Wipe out when wiping out is asked for.
Files:      src/buffer.c

Patch 6.1.288
Problem:    ":silent function F" hangs. (Hari Krishna Dara)
Solution:   Don't use msg_col, it is not incremented when using ":silent".
            Also made the function output look a bit better.  Don't translate
            "function".
Files:      src/eval.c

Patch 6.1.289 (depends on 6.1.278)
Problem:    Compiler warning for pointer. (Axel Kielhorn)
Solution:   Add a typecast for "  ".
Files:      src/screen.c

Patch 6.1.290 (extra)
Problem:    Truncating long text for message box may break multi-byte
            character.
Solution:   Adjust to start of multi-byte character. (Yasuhiro Matsumoto)
Files:      src/os_mswin.c

Patch 6.1.291 (extra)
Problem:    Win32: CTRL-@ doesn't work.  Don't even get a message for it.
Solution:   Recognize the keycode for CTRL-@. (Yasuhiro Matsumoto)
Files:      src/gui_w48.c

Patch 6.1.292 (extra, depends on 6.1.253)
Problem:    Win32: Can't compile with new MingW compiler.
            Borland 5 makefile doesn't generate pathdef.c.
Solution:   Remove -wwide-multiply argument. (Rene de Zwart)
            Various fixes for other problems in Win32 makefiles. (Dan Sharp)
Files:      src/Make_bc5.mak, src/Make_cyg.mak, src/Make_ming.mak,
            src/Make_mvc.mak

Patch 6.1.293
Problem:    byte2line() returns a wrong result for some values.
Solution:   Change ">=" to ">" in ml_find_line_or_offset(). (Bradford C Smith)
            Add one to the line number when at the end of a block.
Files:      src/memline.c

Patch 6.1.294
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Problem:    Can't include a multi-byte character in a string by its hex value.
            (Benji Fisher)
Solution:   Add "\u....": a character specified with up to four hex numbers
            and stored according to the value of 'encoding'.
Files:      src/eval.c

Patch 6.1.295 (extra)
Problem:    Processing the cs.po file generates an error. (Rahul Agrawal)
Solution:   Fix the printf format characters in the translation.
Files:      src/po/cs.po

Patch 6.1.296
Problem:    Win32: When cancelling the font dialog 'guifont' remains set to
            "*".
Solution:   Restore the old value of 'guifont' (Yasuhiro Matsumoto)
Files:      src/option.c

Patch 6.1.297
Problem:    "make test" fails in test6 in an UTF-8 environment. (Benji Fisher)
Solution:   Before executing the BufReadPost autocommands save the current
            fileencoding, so that the file isn't marked changed.
Files:      src/fileio.c

Patch 6.1.298
Problem:    When using signs and the first line of a closed fold has a sign
            it can be redrawn as if the fold was open.  (Kamil Burzynski)
Solution:   Don't redraw a sign inside a closed fold.
Files:      src/screen.c

Patch 6.1.299
Problem:    ":edit +set\ ro file" doesn't work.
Solution:   Halve the number of backslashes in the "+cmd" argument.
Files:      src/ex_docmd.c

Patch 6.1.300 (extra)
Problem:    Handling of ETO_IGNORELANGUAGE is confusing.
Solution:   Clean up the handling of ETO_IGNORELANGUAGE. (Glenn Maynard)
Files:      src/gui_w32.c

Patch 6.1.301 (extra)
Problem:    French translation of file-save dialog doesn't show file name.
Solution:   Insert a star in the printf string. (Francois Terrot)
Files:      src/po/fr.po

Patch 6.1.302
Problem:    Counting lines of the Visual area is incorrect for closed folds.
            (Mikolaj Machowski)
Solution:   Correct the start and end for the closed fold.
Files:      src/normal.c

Patch 6.1.303 (extra)
Problem:    The Top/Bottom/All text does not always fit in the ruler when
            translated to Japanese.  Problem with a character being wider when
            in a bold font.
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Solution:   Use ETO_PDY to specify the width of each character. (Yasuhiro
            Matsumoto)
Files:      src/gui_w32.c

Patch 6.1.304 (extra, depends on 6.1.292)
Problem:    Win32: Postscript is always enabled in the MingW Makefile.
            Pathdef.c isn't generated properly with Make_bc5.mak. (Yasuhiro
            Matsumoto)
Solution:   Change an ifdef to an ifeq. (Madoka Machitani)
            Use the Borland make redirection to generate pathdef.c. (Maurice
            Barnum)
Files:      src/Make_bc5.mak, src/Make_ming.mak

Patch 6.1.305
Problem:    When 'verbose' is 14 or higher, a function call may cause reading
            uninitialized data. (Walter Briscoe)
Solution:   Check for end-of-string in trunc_string().
Files:      src/message.c

Patch 6.1.306
Problem:    The AIX VisualAge cc compiler doesn't define __STDC__.
Solution:   Use __EXTENDED__ like __STDC__. (Jess Thrysoee)
Files:      src/os_unix.h

Patch 6.1.307
Problem:    When a double-byte character has an illegal tail byte the display
            is messed up. (Yasuhiro Matsumoto)
Solution:   Draw "XX" instead of the wrong character.
Files:      src/screen.c

Patch 6.1.308
Problem:    Can't reset the Visual mode returned by visualmode().
Solution:   Use an optional argument to visualmode(). (Charles Campbell)
Files:      runtime/doc/eval.txt, src/eval.c, src/normal.c,
            src/structs.h

Patch 6.1.309
Problem:    The tutor doesn't select German if the locale name is
            "German_Germany.1252". (Joachim Hofmann)
Solution:   Check for "German" in the locale name.  Also check for
            ".ge".  And include the German and Greek tutors.
Files:      runtime/tutor/tutor.de, runtime/tutor/tutor.vim,
            runtime/tutor/tutor.gr, runtime/tutor/tutor.gr.cp737

Patch 6.1.310 (depends on 6.1.307)
Problem:    All double-byte characters are displayed as "XX".
Solution:   Use ">= 32" instead of "< 32".  (Yasuhiro Matsumoto)
Files:      src/screen.c

Patch 6.1.311 (extra)
Problem:    VMS: path in window title doesn't include necessary separator.
            file version doesn't always work properly with Unix.
            Crashes because of memory overwrite in GUI.
            Didn't always handle files with lowercase and correct path.
```

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Solution:   Fix the problems.  Remove unnecessary file name translations.
            (Zoltan Arpadffy)
Files:      src/buffer.c, src/ex_cmds2.c, src/fileio.c, src/memline.c,
            src/misc1.c, src/misc2.c, src/os_unix.c, src/os_vms.c, src/tag.c

Patch 6.1.312
Problem:    When using ":silent" debugging is also done silently.
Solution:   Disable silence while at the debug prompt.
Files:      src/ex_cmds2.c

Patch 6.1.313
Problem:    When a ":drop fname" command is used and "fname" is open in
            another window, it is also opened in the current window.
Solution:   Change to the window with "fname" instead.
            Don't redefine the argument list when dropping only one file.
Files:      runtime/doc/windows.txt, src/ex_cmds2.c, src/ex_cmds.c,
            src/ex_docmd.c, src/proto/ex_cmds2.pro, src/proto/ex_docmd.pro

Patch 6.1.314 (depends on 6.1.126)
Problem:    Missing backslash in "Generic Config file" syntax menu.
Solution:   Insert the backslash. (Zak Beck)
Files:      runtime/makemenu.vim, runtime/synmenu.vim

Patch 6.1.315 (extra)
Problem:    A very long hostname may lead to an unterminated string.  Failing
            to obtain a hostname may result in garbage.  (Walter Briscoe)
Solution:   Add a NUL at the end of the hostname buffer.
Files:      src/os_mac.c, src/os_msdos.c, src/os_unix.c, src/os_win16.c,
            src/os_win32.c

Patch 6.1.316
Problem:    When exiting with "wq" and there is a hidden buffer, after the
            "file changed" dialog there is a warning for a changed buffer.
            (Ajit Thakkar)
Solution:   Do update the buffer timestamps when exiting.
Files:      src/fileio.c

Patch 6.1.317
Problem:    Closing a window may cause some of the remaining windows to be
            positioned wrong if there is a mix of horizontal and vertical
            splits. (Stefan Ingi Valdimarsson)
Solution:   Update the frame sizes before updating the window positions.
Files:      src/window.c

Patch 6.1.318
Problem:    auto/pathdef.c can include wrong quotes when a compiler flag
            includes quotes.
Solution:   Put a backslash before the quotes in compiler flags. (Shinra Aida)
Files:      src/Makefile

Patch 6.1.319 (depends on 6.1.276)
Problem:    Using "--remote +cmd file" does not execute "cmd".
Solution:   Call inputrestore() in the same command line as inputsave(),
            otherwise it will never get executed.
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Files:      src/main.c

Patch 6.1.320 (depends on 6.1.313)
Problem:    When a ":drop one\ file" command is used the file "one\ file" is
            opened, the backslash is not removed. (Taro Muraoka)
Solution:   Handle backslashes correctly.  Always set the argument list to
            keep it simple.
Files:      runtime/doc/windows.txt, src/ex_cmds.c

Patch 6.1.321
Problem:    When 'mouse' includes 'n' but not 'v', don't allow starting Visual
            mode with the mouse.
Solution:   Don't use MOUSE_MAY_VIS when there is no 'v' in 'mouse'. (Flemming
            Madsen)
Files:      src/normal.c

Patch 6.1.322 (extra, depends on 6.1.315)
Problem:    Win32: The host name is always "PC " plus the real host name.
Solution:   Don't insert "PC " before the host name.
Files:      src/os_win32.c

Patch 6.1.323
Problem:    ":registers" doesn't stop listing for a "q" at the more prompt.
            (Hari Krishna Dara)
Solution:   Check for interrupt and got_int.
Files:      src/ops.c, src/proto/ops.pro

Patch 6.1.324
Problem:    Crash when dragging a vertical separator when <LeftMouse> is
            remapped to jump to another window.
Solution:   Pass the window pointer to the function doing the dragging instead
            of always using the current window. (Daniel Elstner)
            Also fix that starting a drag changes window focus.
Files:      src/normal.c, src/proto/window.pro, src/ui.c, src/vim.h,
            src/window.c

Patch 6.1.325
Problem:    Shift-Tab is not automatically recognized in an xterm.
Solution:   Add <Esc>[Z as the termcap code. (Andrew Pimlott)
Files:      src/term.c

Patch 6.1.326
Problem:    Using a search pattern may read from uninitialized data (Yasuhiro
            Matsumoto)
Solution:   Initialize pointers to NULL.
Files:      src/regexp.c

Patch 6.1.327
Problem:    When opening the "mbyte.txt" help file the utf-8 characters are
            unreadable, because the fileencoding is forced to be latin1.
Solution:   Check for utf-8 encoding first in help files. (Daniel Elstner)
Files:      runtime/doc/mbyte.txt, src/fileio.c

Patch 6.1.328
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Problem:    Prototype for enc_canon_search() is missing.
Solution:   Add the prototype. (Walter Briscoe)
Files:      src/mbyte.c

Patch 6.1.329
Problem:    When editing a file "a b c" replacing "%" in ":Cmd %" or ":next %"
            does not work properly.  (Hari Krishna Dara)
Solution:   Always escape spaces when expanding "%".  Don't split argument for
            <f-args> in a user command when only one argument is used.
Files:      src/ex_docmd.c

Patch 6.1.330
Problem:    GTK, Motif and Athena: Keypad keys produce the same code as
            non-keypad keys, making it impossible to map them separately.
Solution:   Use different termcap codes for the keypad keys. (Neil Bird)
Files:      src/gui_gtk_x11.c, src/gui_x11.c

Patch 6.1.331
Problem:    When translating the help files, "LOCAL ADDITIONS" no longer marks
            the spot where help files from plugins are to be listed.
Solution:   Add a "local-additions" tag and use that to find the right spot.
Files:      runtime/doc/help.txt, src/ex_cmds.c

Patch 6.1.332 (extra)
Problem:    Win32: Loading Perl dynamically doesn't work with Perl 5.8.
            Perl 5.8 also does not work with Cygwin and Ming.
Solution:   Adjust the function calls. (Taro Muraoka)
            Adjust the cyg and ming makefiles. (Dan Sharp)
Files:      src/Make_cyg.mak, src/Make_ming.mak, src/Make_mvc.mak,
            src/if_perl.xs

Patch 6.1.333 (extra)
Problem:    Win32: Can't handle Unicode text on the clipboard.
            Can't pass NUL byte, it becomes a line break.  (Bruce DeVisser)
Solution:   Support Unicode for the clipboard (Ron Aaron and Glenn Maynard)
            Also support copy/paste of NUL bytes.
Files:      src/os_mswin.c, src/os_win16.c src/os_win32.c

Patch 6.1.334 (extra, depends on 6.1.303)
Problem:    Problem with drawing Hebrew characters.
Solution:   Only use ETO_PDY for Windows NT and the like. (Yasuhiro Matsumoto)
Files:      src/gui_w32.c

Patch 6.1.335 (extra)
Problem:    Failure of obtaining the cursor position and window size is
            ignored.
Solution:   Remove a semicolon after an "if". (Walter Briscoe)
Files:      src/gui_w32.c

Patch 6.1.336 (extra)
Problem:    Warning for use of function prototypes of smsg().
Solution:   Define HAVE_STDARG_H. (Walter Briscoe)
Files:      src/os_win32.h
```

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Patch 6.1.337
Problem:    When using "finish" in debug mode in function B() for ":call
            A(B())" does not stop after B() is finished.
Solution:   Increase debug_level while evaluating a function.
Files:      src/ex_docmd.c

Patch 6.1.338
Problem:    When using a menu that checks out the current file from Insert
            mode, there is no warning for the changed file until exiting
            Insert mode.  (Srikanth Sankaran)
Solution:   Add a check for need_check_timestamps in the Insert mode loop.
Files:      src/edit.c

Patch 6.1.339
Problem:    Completion doesn't allow "g:" in ":let g:did_<Tab>". (Benji
            Fisher)
Solution:   Return "g:var" for global variables when that is what is being
            expanded. (Flemming Madsen)
Files:      src/eval.c

Patch 6.1.340 (extra, depends on 6.1.332)
Problem:    Win32: Can't compile the Perl interface with nmake.
Solution:   Don't compare the version number as a string but as a number.
            (Juergen Kraemer)
Files:      src/Make_mvc.mak

Patch 6.1.341
Problem:    In Insert mode with 'rightleft' set the cursor is drawn halfway a
            double-wide character.  For CTRL-R and CTRL-K in Insert mode the "
            or ? is not displayed.
Solution:   Draw the cursor in the next character cell.  Display the " or ?
            over the right half of the double-wide character. (Yasuhiro
            Matsumoto)  Also fix that cancelling a digraph doesn't redraw
            a double-byte character correctly.
Files:      src/edit.c, src/gui.c, src/mbyte.c

Patch 6.1.342 (depends on 6.1.341)
Problem:    With 'rightleft' set typing "c" on a double-wide character causes
            the cursor to be displayed one cell to the left.
Solution:   Draw the cursor in the next character cell.  (Yasuhiro Matsumoto)
Files:      src/gui.c

Patch 6.1.343 (depends on 6.1.342)
Problem:    Cannot compile with the +multi_byte feature but without +rightleft.
            Cannot compile without the GUI.
Solution:   Fix the #ifdefs.  (partly by Nam SungHyun)
Files:      src/gui.c, src/mbyte.c, src/ui.c

Patch 6.1.344
Problem:    When using ":silent filetype" the output is still put in the
            message history. (Hari Krishna Dara)
Solution:   Don't add messages in the history when ":silent" is used.
Files:      src/message.c
```

Patch 6.1.345 (extra)
Problem: Win32: 'imdisable' doesn't work.
Solution: Make 'imdisable' work. (Yasuhiro Matsumoto)
Files: src/gui_w32.c

Patch 6.1.346
Problem: The scroll wheel can only scroll the current window.
Solution: Make the scroll wheel scroll the window that the mouse points to.
            (Daniel Elstner)
Files: src/edit.c, src/gui.c, src/normal.c, src/term.c

Patch 6.1.347
Problem: When using cscope to list matching tags, the listed number is
            sometimes not equal to what cscope uses. (Vihren Milev)
Solution: For cscope tags use only one table, don't give tags in the current
            file a higher priority.
Files: src/tag.c

Patch 6.1.348
Problem: Wildmode with wildmenu: ":set wildmode=list,full", ":colorscheme
            <tab>" results in "zellner" instead of the first entry. (Anand
            Hariharan)
Solution: Don't call ExpandOne() from globpath(). (Flemming Madsen)
Files: src/ex_getln.c

Patch 6.1.349
Problem: "vim --serverlist" when no server was ever started gives an error
            message without "\n".
            "vim --serverlist" doesn't exit when the X server can't be
            contacted, it starts Vim unexpectedly. (Ricardo Signes)
Solution: Don't give an error when no Vim server was ever started.
            Treat failing of opening the display equal to errors inside the
            remote*() functions. (Flemming Madsen)
Files: src/if_xcmdsrv.c, src/main.c

Patch 6.1.350
Problem: When entering a buffer with ":bnext" for the first time, using an
            autocommand to restore the last used cursor position doesn't work.
            (Paolo Giarusso)
Solution: Don't use the last known cursor position of the current Vim
            invocation if an autocommand changed the position.
Files: src/buffer.c

Patch 6.1.351 (depends on 6.1.349)
Problem: Crash when starting Vim the first time in an X server. (John
            McGowan)
Solution: Don't call xFree() with a fixed string.
Files: src/if_xcmdsrv.c

Patch 6.1.352 (extra, depends on 6.1.345)
Problem: Win32: Crash when setting "imdisable" in _vimrc.
Solution: Don't call IME functions when imm32.dll was not loaded (yet).
            Also add typecasts to avoid Compiler warnings for
            ImmAssociateContext() argument.

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Files:      src/gui_w32.c

Patch 6.1.353 (extra, depends on 6.1.334)
Problem:    Problem with drawing Arabic characters.
Solution:   Don't use ETO_PDY, do use padding.
Files:      src/gui_w32.c

Patch 6.1.354 (extra, depends on 6.1.333)
Problem:    MS-Windows 98: Notepad can't paste text copied from Vim when
            'encoding' is "utf-8".
Solution:   Also make CF_TEXT available on the clipboard. (Ron Aaron)
Files:      src/os_mswin.c

Patch 6.1.355
Problem:    In a regexp '\n' will never match anything in a string.
Solution:   Make '\n' match a newline character.
Files:      src/buffer.c, src/edit.c, src/eval.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/fileio.c, src/misc1.c,
            src/option.c, src/os_mac.c, src/os_unix.c, src/quickfix.c,
            src/regexp.c, src/search.c, src/syntax.c, src/tag.c, src/vim.h

Patch 6.1.356 (extra, depends on, well, eh, several others)
Problem:    Compiler warnings for using convert_setup() and a few other
            things.
Solution:   Add typecasts.
Files:      src/mbyte.c, src/os_mswin.c, src/proto/os_win32.pro, src/os_win32.c

Patch 6.1.357
Problem:    CR in the quickfix window jumps to the error under the cursor, but
            this doesn't work in Insert mode. (Srikanth Sankaran)
Solution:   Handle CR in Insert mode in the quickfix window.
Files:      src/edit.c

Patch 6.1.358
Problem:    The tutor doesn't select another locale version properly.
Solution:   Insert the "let" command. (Yasuhiro Matsumoto)
Files:      runtime/tutor/tutor.vim

Patch 6.1.359 (extra)
Problem:    Mac Carbon: Vim doesn't get focus when started from the command
            line.  Crash when using horizontal scroll bar.
Solution:   Set Vim as the frontprocess.  Fix scrolling.  (Peter Cucka)
Files:      src/gui_mac.c

Patch 6.1.360 (depends on 6.1.341)
Problem:    In Insert mode CTRL-K ESC messes up a multi-byte character.
            (Anders Helmersson)
Solution:   Save all bytes of a character when displaying a character
            temporarily.
Files:      src/edit.c, src/proto/screen.pro, src/screen.c

Patch 6.1.361
Problem:    Cannot jump to a file mark with ":'M".
Solution:   Allow jumping to another file for a mark in an Ex address when it
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            is the only thing in the command line.
Files:      src/ex_docmd.c

Patch 6.1.362
Problem:    tgetent() may return zero for success. tgetflag() may return -1
            for an error.
Solution:   Check tgetflag() for returning a positive value.  Add an autoconf
            check for the value that tgetent() returns.
Files:      src/auto/configure, src/config.h.in, src/configure.in, src/term.c

Patch 6.1.363
Problem:    byte2line() can return one more than the number of lines.
Solution:   Return -1 if the offset is one byte past the end.
Files:      src/memline.c

Patch 6.1.364
Problem:    That the FileChangedShell autocommand event never nests makes it
            difficult to reload a file in a normal way.
Solution:   Allow nesting for the FileChangedShell event but do not allow
            triggering itself again.
            Also avoid autocommands for the cmdline window in rare cases.
Files:      src/ex_getln.c, src/fileio.c, src/window.c

Patch 6.1.365 (depends on 6.1.217)
Problem:    Setting a breakpoint in a sourced file with a relative path name
            doesn't work. (Servatius Brandt)
Solution:   Expand the file name to a full path.
Files:      src/ex_cmds2.c

Patch 6.1.366
Problem:    Can't use Vim with Netbeans.
Solution:   Add the Netbeans interface.  Includes support for sign icons and
            "-fg" and "-bg" arguments for GTK.  Add the 'autochdir'
            option.  (Gordon Prieur, George Hernandez, Dave Weatherford)
            Make it possible to display both a sign with a text and one with
            line highlighting in the same line.
            Add support for Agide, interface version 2.1.
            Also fix that when 'iskeyword' includes '?' the "*" command
            doesn't work properly on a word that includes "?" (Bill McCarthy):
            Don't escape "?" to "\?" when searching forward.
Files:      runtime/doc/Makefile, runtime/doc/netbeans.txt,
            runtime/doc/options.txt, runtime/doc/various.txt,
            src/Makefile, src/auto/configure, src/buffer.c, src/config.h.in,
            src/config.mk.in, src/configure.in, src/edit.c, src/ex_cmds.c,
            src/ex_docmd.c, src/feature.h, src/fileio.c, src/globals.h,
            src/gui.c, src/gui_beval.c, src/gui_gtk_x11.c, src/gui_x11.c,
            src/main.c, src/memline.c, src/misc1.c, src/misc2.c, src/move.c,
            src/nbdebug.c, src/nbdebug.h, src/netbeans.c, src/normal.c,
            src/ops.c, src/option.c, src/option.h, src/proto/buffer.pro,
            src/proto/gui_beval.pro, src/proto/gui_gtk_x11.pro,
            src/proto/gui_x11.pro, src/proto/misc2.pro,
            src/proto/netbeans.pro, src/proto/normal.pro, src/proto/ui.pro,
            src/proto.h, src/screen.c, src/structs.h, src/ui.c, src/undo.c,
            src/vim.h, src/window.c, src/workshop.c
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Patch 6.1.367 (depends on 6.1.365)
Problem:    Setting a breakpoint in a function doesn't work.  For a sourced
            file it doesn't work when symbolic links are involved.  (Servatius
            Brandt)
Solution:   Expand the file name in the same way as do_source() does.  Don't
            prepend the path to a function name.
Files:      src/ex_cmds2.c

Patch 6.1.368
Problem:    Completion for ":map" does not include <silent> and <script>.
            ":mkexrc" do not save the <silent> attribute of mappings.
Solution:   Add "<silent>" to the generated map commands when appropriate.
            (David Elstner)
            Add <silent> and <script> to command line completion.
Files:      src/getchar.c

Patch 6.1.369 (extra)
Problem:    VMS: Vim hangs when attempting to edit a read-only file in the
            terminal.  Problem with VMS filenames for quickfix.
Solution:   Rewrite low level input.  Remove version number from file name in
            a couple more places.  Fix crash after patch 6.1.362.  Correct
            return code for system().  (Zoltan Arpadffy, Tomas Stehlik)
Files:      src/misc1.c, src/os_unix.c, src/os_vms.c, src/proto/os_vms.pro,
            src/os_vms_conf.h, src/quickfix.c, src/ui.c

Patch 6.1.370
Problem:    #ifdef nesting is unclear.
Solution:   Insert spaces to indicate the nesting.
Files:      src/os_unix.c

Patch 6.1.371
Problem:    "%V" in 'statusline' doesn't show "0-1" in an empty line.
Solution:   Add one to the column when comparing with virtual column (Andrew
            Pimlott)
Files:      src/buffer.c

Patch 6.1.372
Problem:    With 16 bit ints there are compiler warnings. (Walter Briscoe)
Solution:   Change int into long.
Files:      src/structs.h, src/syntax.c

Patch 6.1.373
Problem:    The default page header for printing is not translated.
Solution:   Add _() around the two places where "Page" is used. (Mike
            Williams)  Translate the default value of the 'titleold' and
            'printheader' options.
Files:      src/ex_cmds2.c, src/option.c

Patch 6.1.374 (extra)
Problem:    MS-Windows: Cannot build GvimExt with MingW or Cygwin.
Solution:   Add makefile and modified resource files. (Rene de Zwart)
            Also support Cygwin. (Alejandro Lopez_Valencia)
Files:      GvimExt/Make_cyg.mak, GvimExt/Make_ming.mak, GvimExt/Makefile,
```

GvimExt/gvimext_ming.def, GvimExt/gvimext_ming.rc

Patch 6.1.375
Problem: MS-Windows: ':!dir "%"' does not work for a file name with spaces.
            (Xiangjiang Ma)
Solution: Don't insert backslashes for spaces in a shell command.
Files: src/ex_docmd.c

Patch 6.1.376
Problem: "vim --version" and "vim --help" have a non-zero exit code.
            That is unusual. (Petesea)
Solution: Use a zero exit code.
Files: src/main.c

Patch 6.1.377
Problem: Can't add words to 'lispwords' option.
Solution: Add P_COMMA and P_NODUP flags. (Haakon Riiser)
Files: src/option.c

Patch 6.1.378
Problem: When two buffer-local user commands are ambiguous, a full match
            with a global user command isn't found. (Hari Krishna Dara)
Solution: Detect this situation and accept the global command.
Files: src/ex_docmd.c

Patch 6.1.379
Problem: Linux with kernel 2.2 can't use the alternate stack in combination
            with threading, causes an infinite loop.
Solution: Don't use the alternate stack in this situation.
Files: src/os_unix.c

Patch 6.1.380
Problem: When 'winminheight' is zero and the quickfix window is zero lines,
            entering the window doesn't make it higher. (Christian J.
            Robinson)
Solution: Make sure the current window is at least one line high.
Files: src/window.c

Patch 6.1.381
Problem: When a BufWriteCmd is used and it leaves the buffer modified, the
            window may still be closed. (Hari Krishna Dara)
Solution: Return FAIL from buf_write() when the buffer is still modified
            after a BufWriteCmd autocommand was used.
Files: src/fileio.c

Patch 6.1.382 (extra)
Problem: Win32 GUI: When using two monitors, the code that checks/fixes the
            window size and position (e.g. when a font changes) doesn't work
            properly. (George Reilly)
Solution: Handle a double monitor situation. (Helmut Stiegler)
Files: src/gui_w32.c

Patch 6.1.383
Problem: The filling of the status line doesn't work properly for

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            multi-byte characters. (Nam SungHyun)
            There is no check for going past the end of the buffer.
Solution:   Properly distinguish characters and bytes.  Properly check for
            running out of buffer space.
Files:      src/buffer.c, src/ex_cmds2.c, src/proto/buffer.pro, src/screen.c

Patch 6.1.384
Problem:    It is not possible to find if a certain patch has been included.
            (Lubomir Host)
Solution:   Support using has() to check if a patch was included.
Files:      runtime/doc/eval.txt, src/eval.c, src/proto/version.pro,
            src/version.c

Patch 6.1.385 (depends on 6.1.383)
Problem:    Can't compile without the multi-byte feature.
Solution:   Move an #ifdef.  (Christian J. Robinson)
Files:      src/buffer.c

Patch 6.1.386
Problem:    Get duplicate tags when running ":helptags".
Solution:   Do the other halve of moving a section to another help file.
Files:      runtime/tagsrch.txt

Patch 6.1.387 (depends on 6.1.373)
Problem:    Compiler warning for pointer cast.
Solution:   Add (char_u *).
Files:      src/option.c

Patch 6.1.388 (depends on 6.1.384)
Problem:    Compiler warning for pointer cast.
Solution:   Add (char *).  Only include has_patch() when used.
Files:      src/eval.c, src/version.c

Patch 6.1.389 (depends on 6.1.366)
Problem:    Balloon evaluation doesn't work for GTK.
            has("balloon_eval") doesn't work.
Solution:   Add balloon evaluation for GTK.  Also improve displaying of signs.
            (Daniel Elstner)
            Also make ":gui" start the netbeans connection and avoid using
            netbeans functions when the connection is not open.
Files:      src/Makefile, src/feature.h, src/gui.c, src/gui.h,
            src/gui_beval.c, src/gui_beval.h, src/gui_gtk.c,
            src/gui_gtk_x11.c, src/eval.c, src/memline.c, src/menu.c,
            src/netbeans.c, src/proto/gui_beval.pro, src/proto/gui_gtk.pro,
            src/structs.h, src/syntax.c, src/ui.c, src/workshop.c

Patch 6.1.390 (depends on 6.1.389)
Problem:    It's not possible to tell Vim to save and exit through the
            Netbeans interface.  Would still try to send balloon eval text
            after the connection is closed.
            Can't use Unicode characters for sign text.
Solution:   Add functions "saveAndExit" and "getModified".  Check for a
            working connection before sending a balloonText event.
            various other cleanups.
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            Support any character for sign text. (Daniel Elstner)
Files:      runtime/doc/netbeans.txt, runtime/doc/sign.txt, src/ex_cmds.c,
            src/netbeans.c, src/screen.c

Patch 6.1.391
Problem:    ml_get() error when using virtualedit. (Charles Campbell)
Solution:   Get a line from a specific window, not the current one.
Files:      src/charset.c

Patch 6.1.392 (depends on 6.1.383)
Problem:    Highlighting in the 'statusline' is in the wrong position when an
            item is truncated. (Zak Beck)
Solution:   Correct the start of 'statusline' items properly for a truncated
            item.
Files:      src/buffer.c

Patch 6.1.393
Problem:    When compiled with Python and threads, detaching the terminal may
            cause Vim to loop forever.
Solution:   Add -pthread to $CFLAGS when using Python and gcc. (Daniel
            Elstner)
Files:      src/auto/configure,, src/configure.in

Patch 6.1.394 (depends on 6.1.390)
Problem:    The netbeans interface doesn't recognize multibyte glyph names.
Solution:   Check the number of cells rather than bytes to decide
            whether a glyph name is not a filename. (Daniel Elstner)
Files:      src/netbeans.c

Patch 6.1.395 (extra, depends on 6.1.369)
Problem:    VMS: OLD_VMS is never defined.  Missing function prototype.
Solution:   Define OLD_VMS in Make_vms.mms.  Add vms_sys_status() to
            os_vms.pro. (Zoltan Arpadffy)
Files:      src/Make_vms.mms, src/proto/os_vms.pro

Patch 6.1.396 (depends on 6.1.330)
Problem:    Compiler warnings for using enum.
Solution:   Add typecast to char_u.
Files:      src/gui_gtk_x11.c, src/gui_x11.c

Patch 6.1.397 (extra)
Problem:    The install program may use a wrong path for the diff command if
            there is a space in the install directory path.
Solution:   Use double quotes around the path if necessary. (Alejandro
            Lopez-Valencia)  Also use double quotes around the file name
            arguments.
Files:      src/dosinst.c

Patch 6.1.398
Problem:    Saving the typeahead for debug mode causes trouble for a test
            script. (Servatius Brandt)
Solution:   Add the ":debuggreedy" command to avoid saving the typeahead.
Files:      runtime/doc/repeat.txt, src/ex_cmds.h, src/ex_cmds2.c,
            src/ex_docmd.c, src/proto/ex_cmds2.pro
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Patch 6.1.399
Problem:    Warning for unused variable.
Solution:   Remove the variable two_or_more.
Files:      src/ex_cmds.c

Patch 6.1.400 (depends on 6.1.381)
Problem:    When a BufWriteCmd wipes out the buffer it may still be accessed.
Solution:   Don't try accessing a buffer that has been wiped out.
Files:      src/fileio.c

Patch 6.1.401 (extra)
Problem:    Building the Win16 version with Borland 5.01 doesn't work.
            "make test" doesn't work with Make_dos.mak. (Walter Briscoe)
Solution:   Various fixes to the w16 makefile. (Walter Briscoe)
            Don't use deltree.  Use "mkdir \tmp" instead of "mkdir /tmp".
Files:      src/Make_w16.mak, src/testdir/Make_dos.mak

Patch 6.1.402
Problem:    When evaluating a function name with curly braces, an error
            is not handled consistently.
Solution:   Accept the result of a curly braces expression when an
            error was encountered.  Skip evaluating an expression in curly
            braces when skipping.  (Servatius Brandt)
Files:      src/eval.c

Patch 6.1.403 (extra)
Problem:    MS-Windows 16 bit: compiler warnings.
Solution:   Add typecasts. (Walter Briscoe)
Files:      src/ex_cmds2.c, src/gui_w48.c, src/os_mswin.c, src/os_win16.c,
            src/syntax.c

Patch 6.1.404 (extra)
Problem:    Various small problems.
Solution:   Fix comments.  Various small additions, changes in indent, removal
            of unused items and fixes.
Files:      Makefile, README.txt, runtime/menu.vim, runtime/vimrc_example.vim,
            src/INSTALL, src/INSTALLole.txt, src/Make_bc5.mak,
            src/Make_cyg.mak, src/Make_ming.mak, src/Makefile,
            src/config.h.in, src/edit.c, src/eval.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/fileio.c, src/getchar.c,
            src/gui.c, src/gui_gtk.c, src/gui_photon.c, src/if_cscope.c,
            src/if_python.c, src/keymap.h, src/mark.c, src/mbyte.c,
            src/message.c, src/misc1.c, src/misc2.c, src/normal.c,
            src/option.c, src/os_os2_cfg.h, src/os_win32.c,
            src/proto/getchar.pro, src/proto/message.pro,
            src/proto/regexp.pro, src/screen.c, src/structs.h, src/syntax.c,
            src/term.c, src/testdir/test15.in, src/testdir/test15.ok,
            src/vim.rc, src/xxd/Make_cyg.mak, src/xxd/Makefile

Patch 6.1.405
Problem:    A few files are missing from the toplevel Makefile.
Solution:   Add the missing files.
Files:      Makefile
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Patch 6.1.406 (depends on 6.1.392)
Problem:    When a statusline item doesn't fit arbitrary text appears.
            (Christian J. Robinson)
Solution:   When there is just enough room but not for the "<" truncate the
            statusline item like there is no room.
Files:      src/buffer.c

Patch 6.1.407
Problem:    ":set scrollbind | help" scrollbinds the help window. (Andrew
            Pimlott)
Solution:   Reset 'scrollbind' when opening a help window.
Files:      src/ex_cmds.c

Patch 6.1.408
Problem:    When 'rightleft' is set unprintable character 0x0c is displayed as
            ">c0<".
Solution:   Reverse the text of the hex character.
Files:      src/screen.c

Patch 6.1.409
Problem:    Generating tags for the help doesn't work for some locales.
Solution:   Set LANG=C LC_ALL=C in the environment for "sort". (Daniel
            Elstner)
Files:      runtime/doc/Makefile

Patch 6.1.410 (depends on 6.1.390)
Problem:    Linking error when compiling with Netbeans but without sign icons.
            (Malte Neumann)
Solution:   Don't define buf_signcount() when sign icons are unavailable.
Files:      src/buffer.c

Patch 6.1.411
Problem:    When 'virtualedit' is set, highlighting a Visual block beyond the
            end of a line may be wrong.
Solution:   Correct the virtual column when the end of the line is before the
            displayed part of the line. (Muraoka Taro)
Files:      src/screen.c

Patch 6.1.412
Problem:    When swapping terminal screens and using ":gui" to start the GUI,
            the shell prompt may be after a hit-enter prompt.
Solution:   Output a newline in the terminal when starting the GUI and there
            was a hit-enter prompt..
Files:      src/gui.c

Patch 6.1.413
Problem:    When 'clipboard' contains "unnamed", "p" in Visual mode doesn't
            work correctly.
Solution:   Save the register before overwriting it and put the resulting text
            on the clipboard afterwards.  (Muraoka Taro)
Files:      src/normal.c, src/ops.c

Patch 6.1.414 (extra, depends on 6.1.369)
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Problem:    VMS: Vim busy waits when waiting for input.
Solution:   Delay for a short while before getting another character.  (Zoltan
            Arpadffy)
Files:      src/os_vms.c

Patch 6.1.415
Problem:    When there is a vertical split and a quickfix window, reducing the
            size of the Vim window may result in a wrong window layout and a
            crash.
Solution:   When reducing the window size and there is not enough space for
            'winfixheight' set the frame height to the larger height, so that
            there is a retry while ignoring 'winfixheight'. (Yasuhiro
            Matsumoto)
Files:      src/window.c

Patch 6.1.416 (depends on 6.1.366)
Problem:    When using the Netbeans interface, a line with a sign cannot be
            changed.
Solution:   Respect the GUARDEDOFFSET for sign IDs when checking for a guarded
            area.
Files:      src/netbeans.c

Patch 6.1.417
Problem:    Unprintable multi-byte characters are not handled correctly.
            Multi-byte characters above 0xffff are displayed as another
            character.
Solution:   Handle unprintable multi-byte characters.  Display multi-byte
            characters above 0xffff with a marker.  Recognize UTF-16 words and
            BOM words as unprintable.  (Daniel Elstner)
Files:      src/charset.c, src/mbyte.c, src/screen.c

Patch 6.1.418
Problem:    The result of strftime() is in the current locals.  Need to
            convert it to 'encoding'.
Solution:   Obtain the current locale and convert the argument for strftime()
            to it and the result back to 'encoding'.  (Daniel Elstner)
Files:      src/eval.c, src/ex_cmds.c, src/ex_cmds2.c, src/mbyte.c,
            src/proto/mbyte.pro, src/option.c, src/os_mswin.c

Patch 6.1.419
Problem:    Vim doesn't compile on AIX 5.1.
Solution:   Don't define _NO_PROTO on this system. (Uribarri)
Files:      src/auto/configure, src/configure.in

Patch 6.1.420 (extra)
Problem:    convert_input() has an unnecessary STRLEN().
            Conversion from UCS-2 to a codepage uses word count instead of
            byte count.
Solution:   Remove the STRLEN() call. (Daniel Elstner)
            Always use byte count for string_convert().
Files:      src/gui_w32.c, src/mbyte.c

Patch 6.1.421 (extra, depends on 6.1.354)
Problem:    MS-Windows 9x: When putting text on the clipboard it can be in
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            the wrong encoding.
Solution:   Convert text to the active codepage for CF_TEXT. (Glenn Maynard)
Files:      src/os_mswin.c

Patch 6.1.422
Problem:    Error in .vimrc doesn't cause hit-enter prompt when swapping
            screens. (Neil Bird)
Solution:   Set msg_didany also when sending a message to the terminal
            directly.
Files:      src/message.c

Patch 6.1.423
Problem:    Can't find arbitrary text in help files.
Solution:   Added the ":helpgrep" command.
Files:      runtime/doc/various.txt, src/ex_cmds.h, src/ex_docmd.c,
            src/proto/quickfix.pro, src/quickfix.c

Patch 6.1.424 (extra)
Problem:    Win32: gvim compiled with VC++ 7.0 run on Windows 95 does not show
            menu items.
Solution:   Define $WINVER to avoid an extra item is added to MENUITEMINFO.
            (Muraoka Taro)
Files:      src/Make_mvc.mak

Patch 6.1.425
Problem:    ":helptags $VIMRUNTIME/doc" does not add the "help-tags" tag.
Solution:   Do add the "help-tags" tag for that specific directory.
Files:      src/ex_cmds.c

Patch 6.1.426
Problem:    "--remote-wait +cmd file" waits forever. (Valery Kondakoff)
Solution:   Don't wait for the "+cmd" argument to have been edited.
Files:      src/main.c

Patch 6.1.427
Problem:    Several error messages for regexp patterns are not translated.
Solution:   Use _() properly. (Muraoka Taro)
Files:      src/regexp.c

Patch 6.1.428
Problem:    FreeBSD: wait() may hang when compiled with Python support and
            doing a system() call in a startup script.
Solution:   Use waitpid() instead of wait() and poll every 10 msec, just like
            what is done in the GUI.
Files:      src/os_unix.c

Patch 6.1.429 (depends on 6.1.390)
Problem:    Crash when using showmarks.vim plugin. (Charles Campbell)
Solution:   Check for sign_get_text() returning a NULL pointer.
Files:      src/screen.c

Patch 6.1.430
Problem:    In Lisp code backslashed parens should be ignored for "%". (Dorai)
Solution:   Skip over backslashed parens.
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Files:      src/search.c

Patch 6.1.431
Problem:    Debug commands end up in redirected text.
Solution:   Disable redirection while handling debug commands.
Files:      src/ex_cmds2.c

Patch 6.1.432 (depends on 6.1.375)
Problem:    MS-Windows: ":make %:p" inserts extra backslashes. (David Rennalls)
Solution:   Don't add backslashes, handle it like ":!cmd".
Files:      src/ex_docmd.c

Patch 6.1.433
Problem:    ":popup" only works for Win32.
Solution:   Add ":popup" support for GTK.  (Daniel Elstner)
Files:      runtime/doc/gui.txt, src/ex_docmd.c, src/gui_gtk.c, src/menu.c,
            src/proto/gui_gtk.pro

Patch 6.1.434 (extra)
Problem:    Win32: When there are more than 32767 lines, the scrollbar has a
            roundoff error.
Solution:   Make a click on an arrow move one line.  Also move the code to
            gui_w48.c, there is hardly any difference between the 16 bit and
            32 bit versions. (Walter Briscoe)
Files:      src/gui_w16.c, src/gui_w32.c, src/gui_w48.c

Patch 6.1.435
Problem:    ":winsize x" resizes the Vim window to the minimal size. (Andrew
            Pimlott)
Solution:   Give an error message for wrong arguments of ":winsize" and
            ":winpos".
Files:      src/ex_docmd.c

Patch 6.1.436
Problem:    When a long UTF-8 file contains an illegal byte it's hard to find
            out where it is. (Ron Aaron)
Solution:   Add the line number to the error message.
Files:      src/fileio.c

Patch 6.1.437 (extra, depends on 6.1.421)
Problem:    Using multi-byte functions when they are not available.
Solution:   Put the clipboard conversion inside an #ifdef. (Vince Negri)
            Also fix a pointer type mistake. (Walter Briscoe)
Files:      src/os_mswin.c

Patch 6.1.438
Problem:    When Perl has thread support Vim cannot use the Perl interface.
Solution:   Add a configure check and disable Perl when it will not work.
            (Aron Griffis)
Files:      src/auto/configure, src/configure.in

Patch 6.1.439
Problem:    Netbeans: A "create" function doesn't actually create a buffer,
            following functions may fail.
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Solution:   Create a Vim buffer without a name when "create" is called.
            (Gordon Prieur)
Files:      runtime/doc/netbeans.txt, src/netbeans.c

Patch 6.1.440
Problem:    The "@*" command doesn't obtain the actual contents of the
            clipboard. (Hari Krishna Dara)
Solution:   Obtain the clipboard text before executing the command.
Files:      src/ops.c

Patch 6.1.441
Problem:    "zj" and "zk" cannot be used as a motion command after an
            operator. (Ralf Hetzel)
Solution:   Accept these commands as motion commands.
Files:      src/normal.c

Patch 6.1.442
Problem:    Unicode 3.2 defines more space and punctuation characters.
Solution:   Add the new characters to the Unicode tables. (Raphael Finkel)
Files:      src/mbyte.c

Patch 6.1.443 (extra)
Problem:    Win32: The gvimext.dll build with Borland 5.5 requires another
            DLL.
Solution:   Build a statically linked version by default. (Dan Sharp)
Files:      GvimExt/Make_bc5.mak

Patch 6.1.444 (extra)
Problem:    Win32: Enabling a build with gettext support is not consistent.
Solution:   Use "GETTEXT" for Borland and msvc makefiles. (Dan Sharp)
Files:      src/Make_bc5.mak, src/Make_mvc.mak

Patch 6.1.445 (extra)
Problem:    DJGPP: get warning for argument of putenv()
Solution:   Define HAVE_PUTENV to use DJGPP's putenv(). (Walter Briscoe)
Files:      src/os_msdos.h

Patch 6.1.446 (extra)
Problem:    Win32: The MingW makefile uses a different style of arguments than
            other makefiles.
            Dynamic IME is not supported for Cygwin.
Solution:   Use "no" and "yes" style arguments.  Remove the use of the
            dyn-ming.h include file. (Dan Sharp)
            Do not include the ime.h file and adjust the makefile. (Alejandro
            Lopez-Valencia)
Files:      src/Make_cyg.mak, src/Make_ming.mak, src/gui_w32.c,
            src/if_perl.xs, src/if_python.c, src/if_ruby.c, src/os_win32.c

Patch 6.1.447
Problem:    "make install" uses "make" directly for generating help tags.
Solution:   Use $(MAKE) instead of "make". (Tim Mooney)
Files:      src/Makefile

Patch 6.1.448
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Problem:    'titlestring' has a default maximum width of 50 chars per item.
Solution:   Remove the default maximum (also for 'statusline').
Files:      src/buffer.c

Patch 6.1.449
Problem:    When "1" and "a" are in 'formatoptions', auto-formatting always
            moves a newly added character to the next line. (Servatius Brandt)
Solution:   Don't move a single character to the next line when it was just
            typed.
Files:      src/edit.c

Patch 6.1.450
Problem:    Termcap entry "kB" for back-tab is not recognized.
Solution:   Use back-tab as the shift-tab code.
Files:      src/keymap.h, src/misc2.c, src/term.c

Patch 6.1.451
Problem:    GUI: When text in the find dialog contains a slash, a backslash is
            inserted the next time it is opened. (Mezz)
Solution:   Remove escaped backslashes and question marks. (Daniel Elstner)
Files:      src/gui.c

Patch 6.1.452 (extra, after 6.1.446)
Problem:    Win32: IME support doesn't work for MSVC.
Solution:   Use _MSC_VER instead of __MSVC. (Alejandro Lopez-Valencia)
Files:      src/gui_w32.c

Patch 6.1.453 (after 6.1.429)
Problem:    When compiled without sign icons but with sign support, adding a
            sign may cause a crash.
Solution:   Check for the text sign to exist before using it. (Kamil
            Burzynski)
Files:      src/screen.c

Patch 6.1.454 (extra)
Problem:    Win32: pasting Russian text in Vim with 'enc' set to cp1251
            results in utf-8 bytes.  (Perelyubskiy)
            Conversion from DBCS to UCS2 does not work when 'encoding' is not
            the active codepage.
Solution:   Introduce enc_codepage and use it for conversion to 'encoding'
            (Glenn Maynard)
            Use MultiByteToWideChar() and WideCharToMultiByte() instead of
            iconv().  Should do most needed conversions without iconv.dll.
Files:      src/globals.h, src/gui_w32.c, src/mbyte.c, src/os_mswin.c,
            src/proto/mbyte.pro, src/proto/os_mswin.pro, src/structs.h

Patch 6.1.455
Problem:    Some Unicode characters can be one or two character cells wide.
Solution:   Add the 'ambiwidth' option to tell Vim how to display these
            characters. (Jungshik Shin)
            Also reset the script ID when setting an option to its default
            value, so that ":verbose set" won't give wrong info.
Files:      runtime/doc/options.txt, src/mbyte.c, src/option.c, src/option.h
```

Patch 6.1.456 (extra, after 6.1.454)
Problem: Win32: IME doesn't work.
Solution: ImmGetCompositionStringW() returns the size in bytes, not words.
            (Yasuhiro Matsumoto) Also fix typecast problem.
Files: src/gui_w32.c, src/os_mswin.c

Patch 6.1.457
Problem: An empty register in viminfo causes conversion to fail.
Solution: Don't convert an empty string. (Yasuhiro Matsumoto)
Files: src/ex_cmds.c, src/mbyte.c

Patch 6.1.458
Problem: Compiler warning for pointer.
Solution: Add a typecast.
Files: src/ex_cmds.c

Patch 6.1.459 (extra)
Problem: Win32: libcall() may return an invalid pointer and cause Vim to
            crash.
Solution: Add a strict check for the returned pointer. (Bruce Mellows)
Files: src/os_mswin.c

Patch 6.1.460
Problem: GTK: after scrolling the text one line with a key, clicking the
            arrow of the scrollbar does not always work. (Nam SungHyun)
Solution: Always update the scrollbar thumb when the value changed, even
            when it would not move, like for RISCOS. (Daniel Elstner)
Files: src/gui.c, src/gui.h

Patch 6.1.461
Problem: When a keymap is active, typing a character in Select mode does
            not use it. (Benji Fisher)
Solution: Apply Insert mode mapping to the character typed in Select mode.
Files: src/normal.c

Patch 6.1.462
Problem: When autocommands wipe out a buffer, a crash may happen. (Hari
            Krishna Dara)
Solution: Don't decrement the window count of a buffer before calling the
            autocommands for it. When re-using the current buffer, watch out
            for autocommands changing the current buffer.
Files: src/buffer.c, src/ex_cmds.c, src/proto/buffer.pro

Patch 6.1.463
Problem: When writing a compressed file, the file name that gzip stores in
            the file is the weird temporary file name. (David Rennalls)
Solution: Use the real file name when possible.
Files: runtime/plugin/gzip.vim

Patch 6.1.464
Problem: Crash when using C++ syntax highlighting. (Gerhard Hochholzer)
Solution: Check for a negative index.
Files: src/syntax.c

```
Patch 6.1.465 (after 6.1.454)
Problem:    Compile error when using cygwin.
Solution:   Change #ifdef WIN32 to #ifdef WIN3264. (Alejandro Lopez-Valencia)
            Undefine WIN32 after including windows.h
Files:      src/mbyte.c

Patch 6.1.466
Problem:    The "-f" argument is a bit obscure.
Solution:   Add the "--nofork" argument.  Improve the help text a bit.
Files:      runtime/doc/starting.txt, src/main.c

Patch 6.1.467
Problem:    Setting the window title doesn't work for Chinese.
Solution:   Use an X11 function to convert text to a text property. (Kentaro
            Nakazawa)
Files:      src/os_unix.c

Patch 6.1.468
Problem:    ":mksession" also stores folds for buffers which will not be
            restored.
Solution:   Only store folds for a buffer with 'buftype' empty and help files.
Files:      src/ex_docmd.c

Patch 6.1.469
Problem:    'listchars' cannot contain multi-byte characters.
Solution:   Handle multi-byte UTF-8 list characters. (Matthew Samsonoff)
Files:      src/message.c, src/option.c, src/screen.c

Patch 6.1.470 (lang)
Problem:    Polish messages don't show up correctly on MS-Windows.
Solution:   Convert messages to cp1250. (Mikolaj Machowski)
            Also add English message translations, because it got in the way
            of the patch.
Files:      Makefile, src/po/Makefile, src/po/en_gb.po, src/po/pl.po

Patch 6.1.471
Problem:    ":jumps" output continues after pressing "q" at the more-prompt.
            (Hari Krishna Dara)
Solution:   Check for "got_int" being set.
Files:      src/mark.c

Patch 6.1.472
Problem:    When there is an authentication error when connecting to the X
            server Vim exits.
Solution:   Use XSetIOErrorHandler() to catch the error and longjmp() to avoid
            the exit.  Also do this in the main loop, so that when the X
            server exits a Vim running in a console isn't killed.
Files:      src/globals.h, src/main.c, src/os_unix.c

Patch 6.1.473
Problem:    Referring to $curwin or $curbuf in Perl 5.6 causes a crash.
Solution:   Add "pTHX_" to cur_val(). (Yasuhiro Matsumoto)
Files:      src/if_perl.xs
```

```
Patch 6.1.474
Problem:    When opening the command-line window in Ex mode it's impossible to
            go back. (Pavol Juhas)
Solution:   Reset "exmode_active" and restore it when the command-line window
            is closed.
Files:      src/ex_getln.c


Patch 6.2f.001
Problem:    The configure check for Ruby didn't work properly for Ruby 1.8.0.
Solution:   Change the way the Ruby check is done. (Aron Griffis)
Files:      src/auto/configure, src/configure.in

Patch 6.2f.002
Problem:    The output of ":ls" doesn't show whether a buffer had read errors.
Solution:   Add the "x" flag in the ":ls" output.
Files:      runtime/doc/windows.txt, src/buffer.c

Patch 6.2f.003
Problem:    Test49 doesn't properly test the behavior of ":catch" without an
            argument.
Solution:   Update test49. (Servatius Brandt)
Files:      src/testdir/test49.ok, src/testdir/test49.vim

Patch 6.2f.004
Problem:    "vim --version" always uses CR/LF in the output.
Solution:   Omit the CR.
Files:      src/message.c, src/os_unix.c

Patch 6.2f.005
Problem:    Two error messages without a colon after the number.
Solution:   Add the colon. (Taro Muraoka)
Files:      src/if_cscope.c

Patch 6.2f.006
Problem:    When saving a file takes a while and Vim regains focus this can
            result in a "file changed outside of Vim" warning and ml_get()
            errors. (Mike Williams)
Solution:   Add the "b_saving" flag to avoid checking the timestamp while the
            buffer is being saved. (Michael Schaap)
Files:      src/fileio.c, src/structs.h

Patch 6.2f.007
Problem:    Irix compiler complains about multiple defined symbols.
            vsnprintf() is not available.  (Charles Campbell)
Solution:   Insert EXTERN for variables in globals.h.  Change the configure
            check for vsnprintf() from compiling to linking.
Files:      src/auto/configure, src/configure.in, src/globals.h

Patch 6.2f.008
Problem:    The Aap recipe doesn't work with Aap 0.149.
Solution:   Change targetarg to TARGETARG.  Update the mysign file.
Files:      src/main.aap, src/mysign
```

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Patch 6.2f.009 (extra)
Problem:    Small problem when building with Borland 5.01.
Solution:   Use mkdir() instead of _mkdir(). (Walter Briscoe)
Files:      src/dosinst.h

Patch 6.2f.010
Problem:    Warning for missing prototypes.
Solution:   Add missing prototypes. (Walter Briscoe)
Files:      src/if_cscope.c

Patch 6.2f.011
Problem:    The configure script doesn't work with autoconf 2.5x.
Solution:   Add square brackets around a header check. (Aron Griffis)
            Note: touch src/auto/configure after applying this patch.
Files:      src/configure.in

Patch 6.2f.012
Problem:    ":echoerr" doesn't work correctly inside try/endtry.
Solution:   Don't reset did_emsg inside a try/endtry. (Servatius Brandt)
Files:      src/eval.c

Patch 6.2f.013 (extra)
Problem:    Macintosh: Compiler warning for a trigraph.
Solution:   Insert a backslash before each question mark. (Peter Cucka)
Files:      src/os_mac.h

Patch 6.2f.014 (extra)
Problem:    Macintosh: ex_eval is not included in the project file.
Solution:   Add ex_eval. (Dany St-Amant)
Files:      src/os_mac.pbproj/project.pbxproj

Patch 6.2f.015 (extra)
Problem:    Win32: When changing header files not all source files involved
            are recompiled.
Solution:   Improve the dependency rules. (Dan Sharp)
Files:      src/Make_cyg.mak, src/Make_ming.mak

Patch 6.2f.016
Problem:    "vim --version > ff" on non-Unix systems results in a file with a
            missing line break at the end. (Bill McCArthy)
Solution:   Add a line break.
Files:      src/main.c

Patch 6.2f.017
Problem:    Unix: starting Vim in the background and then bringing it to the
            foreground may cause the terminal settings to be wrong.
Solution:   Check for tcsetattr() to return an error, retry when it does.
            (Paul Tapper)
Files:      src/os_unix.c

Patch 6.2f.018
Problem:    Mac OS X 10.2: OK is defined to zero in cursus.h while Vim uses
            one.  Redefining it causes a warning message.
Solution:   Undefine OK before defining it to one. (Taro Muraoka)
```

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Files:      src/vim.h

Patch 6.2f.019
Problem:    Mac OS X 10.2: COLOR_BLACK and COLOR_WHITE are defined in
            curses.h.
Solution:   Rename them to PRCOLOR_BLACK and PRCOLOR_WHITE.
Files:      src/ex_cmds2.c

Patch 6.2f.020
Problem:    Win32: test50 produces beeps and fails with some versions of diff.
Solution:   Remove empty lines and convert the output to dos fileformat.
Files:      src/testdir/test50.in

Patch 6.2f.021
Problem:    Running configure with "--enable-netbeans" disables Netbeans.
            (Gordon Prieur)
Solution:   Fix the tests in configure.in where the default is to enable a
            feature.  Fix that "--enable-acl" reported "yes" confusingly.
Files:      src/auto/configure, src/configure.in, src/mysign

Patch 6.2f.022
Problem:    A bogus value for 'foldmarker' is not rejected, possibly causing a
            hang. (Derek Wyatt)
Solution:   Check for a non-empty string before and after the comma.
Files:      src/option.c

Patch 6.2f.023
Problem:    When the help files are not in $VIMRUNTIME but 'helpfile' is
            correct Vim still can't find the help files.
Solution:   Also look for a tags file in the directory of 'helpfile'.
Files:      src/tag.c

Patch 6.2f.024
Problem:    When 'delcombine' is set and a character has more than two
            composing characters "x" deletes them all.
Solution:   Always delete only the last composing character.
Files:      src/misc1.c

Patch 6.2f.025
Problem:    When reading a file from stdin that has DOS line endings but a
            missing end-of-line for the last line 'fileformat' becomes "unix".
            (Bill McCarthy)
Solution:   Don't add the missing line break when re-reading the text from the
            buffer.
Files:      src/fileio.c

Patch 6.2f.026
Problem:    When typing new text at the command line, old composing characters
            may be displayed.
Solution:   Don't read composing characters from after the end of the
            text to be displayed.
Files:      src/ex_getln.c, src/mbyte.c, src/message.c, src/proto/mbyte.pro,
            src/screen.c
```

```
Patch 6.2f.027
Problem:    Compiler warnings for unsigned char pointers. (Tony Leneis)
Solution:   Add typecasts to char pointer.
Files:      src/quickfix.c

Patch 6.2f.028
Problem:    GTK: When 'imactivatekey' is empty and XIM is inactive it can't be
            made active again.  Cursor isn't updated immediately when changing
            XIM activation.  Japanese XIM may hang when using 'imactivatekey'.
            Can't activate XIM after typing fFtT command or ":sh".
Solution:   Properly set the flag that indicates the IM is active.  Update the
            cursor right away.  Do not send a key-release event.  Handle
            Normal mode and running an external command differently.
            (Yasuhiro Matsumoto)
Files:      src/mbyte.c

Patch 6.2f.029
Problem:    Mixing use of int and enum.
Solution:   Adjust argument type of cs_usage_msg().  Fix wrong typedef.
Files:      src/if_cscope.c, src/if_cscope.h

Patch 6.2f.030 (after 6.2f.028)
Problem:    Cursor moves up when using XIM.
Solution:   Reset im_preedit_cursor.  (Yasuhiro Matsumoto)
Files:      src/mbyte.c

Patch 6.2f.031
Problem:    Crash when listing a function argument in the debugger. (Ron Aaron)
Solution:   Init the name field of an argument to NULL.
Files:      src/eval.c

Patch 6.2f.032
Problem:    When a write fails for a ":silent!" while inside try/endtry the
            BufWritePost autocommands are not triggered.
Solution:   Check the emsg_silent flag in should_abort(). (Servatius Brandt)
Files:      src/ex_eval.c, src/testdir/test49.ok, src/testdir/test49.vim

Patch 6.2f.033
Problem:    Cscope: re-entrance problem for ":cscope" command.  Checking for
            duplicate database didn't work well for Win95.  Didn't check for
            duplicate databases after an empty entry.
Solution:   Don't set postponed_split too early.  Remember first empty
            database entry. (Sergey Khorev)
Files:      src/if_cscope.c

Patch 6.2f.034
Problem:    The netbeans interface cannot be used on systems without
            vsnprintf(). (Tony Leneis)
Solution:   Use EMSG(), EMSGN() and EMSG2() instead.
Files:      src/auto/configure, src/configure.in, src/netbeans.c

Patch 6.2f.035
Problem:    The configure check for the netbeans interface doesn't work if the
            socket and nsl libraries are required.
```

Solution: Check for the socket and nsl libraries before the netbeans check.
Files: src/auto/configure, src/configure.in

Patch 6.2f.036
Problem: Moving leftwards over text with an illegal UTF-8 byte moves one
            byte instead of one character.
Solution: Ignore an illegal byte after the cursor position.
Files: src/mbyte.c

Patch 6.2f.037
Problem: When receiving a Netbeans command at the hit-enter or more prompt
            the screen is redrawn but Vim is still waiting at the prompt.
Solution: Quit the prompt like a CTRL-C was typed.
Files: src/netbeans.c

Patch 6.2f.038
Problem: The dependency to run autoconf causes a patch for configure.in
            to run autoconf, even though the configure script was updated as
            well.
Solution: Only run autoconf with "make autoconf".
Files: src/Makefile

Patch 6.2f.039
Problem: CTRL-W K makes the new top window very high.
Solution: When 'equalalways' is set equalize the window heights.
Files: src/window.c

==
VERSION 6.3   version-6.3

This section is about improvements made between version 6.2 and 6.3.

This is mainly a bug-fix release. There are also a few new features.
The major number of new items is in the runtime files and translations.

Changed   changed-6.3

The intro message also displays a note about sponsoring Vim, mixed randomly
with the message about helping children in Uganda.

Included the translated menus, keymaps and tutors with the normal runtime
files. The separate "lang" archive now only contains translated messages.

Made the translated menu file names a bit more consistent. Use "latin1" for
"iso_8859-1" and "iso_8859-15".

Removed the "file_select.vim" script from the distribution. It's not more
useful than other scripts that can be downloaded from www.vim.org.

The "runtime/doc/tags" file is now always in unix fileformat. On MS-Windows
it used to be dos fileformat, but ":helptags" generates a unix format file.

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Added                                                   added-6.3
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New commands:
        :cNfile         go to last error in previous file
        :cpfile         idem
        :changes        print the change list
        :keepmarks      following command keeps marks where they are
        :keepjumps      following command keeps jumplist and marks
        :lockmarks      following command keeps marks where they are
        :redrawstatus   force a redraw of the status line(s)

New options:
        'antialias'     Mac OS X: use smooth, antialiased fonts
        'helplang'      preferred help languages

Syntax files:
        Arch inventory (Nikolai Weibull)
        Calendar (Nikolai Weibull)
        Ch (Wayne Cheng)
        Controllable Regex Mutilator (Nikolai Weibull)
        D (Jason Mills)
        Desktop (Mikolaj Machowski)
        Dircolors (Nikolai Weibull)
        Elinks configuration (Nikolai Weibull)
        FASM (Ron Aaron)
        GrADS scripts (Stefan Fronzek)
        Icewm menu (James Mahler)
        LDIF (Zak Johnson)
        Locale input, fdcc. (Dwayne Bailey)
        Pinfo config (Nikolai Weibull)
        Pyrex (Marco Barisione)
        Relax NG Compact (Nikolai Weibull)
        Slice (Morel Bodin)
        VAX Macro Assembly (Tom Uijldert)
        grads (Stefan Fronzek)
        libao (Nikolai Weibull)
        mplayer (Nikolai Weibull)
        rst (Nikolai Weibull)
        tcsh (Gautam Iyer)
        yaml (Nikolai Weibull)

Compiler plugins:
        ATT dot (Marcos Macedo)
        Apple Project Builder (Alexander von Below)
        Intel (David Harrison)
        bdf (Nikolai Weibull)
        icc (Peter Puck)
        javac (Doug Kearns)
        neato (Marcos Macedo)
        onsgmls (Robert B. Rowsome)
        perl (Christian J. Robinson)
```

```
        rst (Nikolai Weibull)
        se (SmartEiffel) (Doug Kearns)
        tcl (Doug Kearns)
        xmlwf (Robert B. Rowsome)

Filetype plugins:
        Aap (Bram Moolenaar)
        Ch (Wayne Cheng)
        Css (Nikolai Weibull)
        Pyrex (Marco Barisione)
        Rst (Nikolai Weibull)

Indent scripts:
        Aap (Bram Moolenaar)
        Ch (Wayne Cheng)
        DocBook (Nikolai Weibull)
        MetaPost (Eugene Minkovskii)
        Objective-C (Kazunobu Kuriyama)
        Pyrex (Marco Barisione)
        Rst (Nikolai Weibull)
        Tcsh (Gautam Iyer)
        XFree86 configuration file (Nikolai Weibull)
        Zsh (Nikolai Weibull)

Keymaps:
        Greek for cp1253 (Panagiotis Louridas)
        Hungarian (Magyar) (Laszlo Zavaleta)
        Persian-Iranian (Behnam Esfahbod)

Message translations:
        Catalan (Ernest Adrogue)
        Russian (Vassily Ragosin)
        Swedish (Johan Svedberg)

Menu translations:
        Catalan (Ernest Adrogue)
        Russian (Tim Alexeevsky)
        Swedish (Johan Svedberg)

Tutor translations:
        Catalan (Ernest Adrogue)
        Russian in cp1251 (Alexey Froloff)
        Slovak in cp1250 and iso8859-2 (Lubos Celko)
        Swedish (Johan Svedberg)
        Korean (Kee-Won Seo)
        UTF-8 version of the Japanese tutor (Yasuhiro Matsumoto) Use this as
                the original, create the other Japanese tutor by conversion.

Included "russian.txt" help file. (Vassily Ragosin)

Include Encapsulated PostScript and PDF versions of the Vim logo in the extra
archive.

The help highlighting finds the highlight groups and shows them in the color
```

that is actually being used. (idea from Yakov Lerner)

The big Win32 version is now compiled with Ruby interface, version 1.8. For
Python version 2.3 is used. For Perl version 5.8 is used.

The "ftdetect" directory is mentioned in the documentation. The DOS install
program creates it.

Fixed   fixed-6.3

Test 42 failed on MS-Windows. Set and reset 'fileformat' and 'binary' options
here and there. (Walter Briscoe)

The explorer plugin didn't work for double-byte 'encoding's.

Use "copy /y" in Make_bc5.mak to avoid a prompt for overwriting.

Patch 6.2.001
Problem: The ":stopinsert" command doesn't have a help tag.
Solution: Add the tag. (Antoine J. Mechelynck)
Files: runtime/doc/insert.txt, runtime/doc/tags

Patch 6.2.002
Problem: When compiled with the +multi_byte feature but without +eval,
            displaying UTF-8 characters may cause a crash. (Karsten Hopp)
Solution: Also set the default for 'ambiwidth' when compiled without the
            +eval feature.
Files: src/option.c

Patch 6.2.003
Problem: GTK 2: double-wide characters below 256 are not displayed
            correctly.
Solution: Check the cell width for characters above 127. (Yasuhiro
            Matsumoto)
Files: src/gui_gtk_x11.c

Patch 6.2.004
Problem: With a line-Visual selection at the end of the file a "p" command
            puts the text one line upwards.
Solution: Detect that the last line was deleted and put forward. (Taro
            Muraoka)
Files: src/normal.c

Patch 6.2.005
Problem: GTK: the "Find" and "Find and Replace" tools don't work. (Aschwin
            Marsman)
Solution: Show the dialog after creating it. (David Necas)
Files: src/gui_gtk.c

Patch 6.2.006
Problem: The Netbeans code contains an obsolete function that uses "vim61"
            and sets the fall-back value for $VIMRUNTIME.

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Solution:   Delete the obsolete function.
Files:      src/main.c, src/netbeans.c, src/proto/netbeans.pro

Patch 6.2.007
Problem:    Listing tags for Cscope doesn't always work.
Solution:   Avoid using smgs_attr(). (Sergey Khorev)
Files:      src/if_cscope.c

Patch 6.2.008
Problem:    XIM with GTK 2: After backspacing preedit characters are wrong.
Solution:   Reset the cursor position. (Yasuhiro Matsumoto)
Files:      src/mbyte.c

Patch 6.2.009
Problem:    Win32: The self-installing executable "Full" selection only
            selects some of the items to install. (Salman Mohsin)
Solution:   Change commas to spaces in between section numbers.
Files:      nsis/gvim.nsi

Patch 6.2.010
Problem:    When 'virtualedit' is effective and a line starts with a
            multi-byte character, moving the cursor right doesn't work.
Solution:   Obtain the right character to compute the column offset. (Taro
            Muraoka)
Files:      src/charset.c

Patch 6.2.011
Problem:    Alpha OSF1: stat() is a macro and doesn't allow an #ifdef halfway.
            (Moshe Kaminsky)
Solution:   Move the #ifdef outside of stat().
Files:      src/os_unix.c

Patch 6.2.012
Problem:    May hang when polling for a character.
Solution:   Break the wait loop when not waiting for a character.
Files:      src/os_unix.c

Patch 6.2.013 (extra)
Problem:    Win32: The registry key for uninstalling GvimExt still uses "6.1".
Solution:   Change the version number to "6.2". (Ajit Thakkar)
Files:      src/GvimExt/GvimExt.reg

Patch 6.2.014 (after 6.2.012)
Problem:    XSMP doesn't work when using poll().
Solution:   Use xsmp_idx instead of gpm_idx. (Neil Bird)
Files:      src/os_unix.c

Patch 6.2.015
Problem:    The +xsmp feature is never enabled.
Solution:   Move the #define for USE_XSMP to below where WANT_X11 is defined.
            (Alexey Froloff)
Files:      src/feature.h

Patch 6.2.016
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Problem:    Using ":scscope find" with 'cscopequickfix' does not always split
            the window. (Gary Johnson)
            Win32: ":cscope add" could make the script that contains it
            read-only until the corresponding ":cscope kill".
            Errors during ":cscope add" may not be handled properly.
Solution:   When using the quickfix window may need to split the window.
            Avoid file handle inheritance for the script.
            Check for a failed connection and/or process.  (Sergey Khorev)
Files:      src/ex_cmds2.c, src/if_cscope.c

Patch 6.2.017
Problem:    Test11 sometimes prompts the user, because a file would have been
            changed outside of Vim. (Antonio Colombo)
Solution:   Add a FileChangedShell autocommand to avoid the prompt.
Files:      src/testdir/test11.in

Patch 6.2.018
Problem:    When using the XSMP protocol and reading from stdin Vim may wait
            for a key to be pressed.
Solution:   Avoid that RealWaitForChar() is used recursively.
Files:      src/os_unix.c

Patch 6.2.019 (lang)
Problem:    Loading the Portuguese menu causes an error message.
Solution:   Join two lines.  (Jose Pedro Oliveira, José de Paula)
Files:      runtime/lang/menu_pt_br.vim

Patch 6.2.020
Problem:    The "Syntax/Set syntax only" menu item causes an error message.
            (Oyvind Holm)
Solution:   Set the script-local variable in a function. (Benji Fisher)
Files:      runtime/synmenu.vim

Patch 6.2.021
Problem:    The user manual section on exceptions contains small mistakes.
Solution:   Give a good example of an error that could be missed and other
            improvements. (Servatius Brandt)
Files:      runtime/doc/usr_41.txt

Patch 6.2.022 (extra)
Problem:    Win32: After deleting a menu item it still appears in a tear-off
            window.
Solution:   Set the mode to zero for the deleted item. (Yasuhiro Matsumoto)
Files:      src/gui_w32.c

Patch 6.2.023 (extra)
Problem:    Win32: Make_ivc.mak does not clean everything.
Solution:   Delete more files in the clean rule. (Walter Briscoe)
Files:      src/Make_ivc.mak

Patch 6.2.024 (extra)
Problem:    Win32: Compiler warnings for typecasts.
Solution:   Use DWORD instead of WORD. (Walter Briscoe)
Files:      src/gui_w32.c
```

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Patch 6.2.025
Problem:    Missing prototype for sigaltstack().
Solution:   Add the prototype when it is not found in a header file.
Files:      src/os_unix.c

Patch 6.2.026
Problem:    Warning for utimes() argument.
Solution:   Add a typecast.
Files:      src/fileio.c

Patch 6.2.027
Problem:    Warning for uninitialized variable.
Solution:   Set mb_l to one when not using multi-byte characters.
Files:      src/message.c

Patch 6.2.028
Problem:    Cscope connection may kill Vim process and others.
Solution:   Check for pid being larger than one. (Khorev Sergey)
Files:      src/if_cscope.c

Patch 6.2.029
Problem:    When using the remote server functionality Vim may leak memory.
            (Srikanth Sankaran)
Solution:   Free the result of XListProperties().
Files:      src/if_xcmdsrv.c

Patch 6.2.030
Problem:    Mac: Warning for not being able to use precompiled header files.
Solution:   Don't redefine select.  Use -no-cpp-precomp for compiling, so that
            function prototypes are still found.
Files:      src/os_unix.c, src/osdef.sh

Patch 6.2.031
Problem:    The langmenu entry in the options window doesn't work. (Rodolfo
            Lima)
            With GTK 1 the ":options" command causes an error message.
            (Michael Naumann)
Solution:   Change "lmenu" to "langmenu".  Only display the 'tbis' option for
            GTK 2.
Files:      runtime/optwin.vim

Patch 6.2.032
Problem:    The lpc filetype is never recognized. (Shizhu Pan)
Solution:   Check for g:lpc_syntax_for_c instead of the local variable
            lpc_syntax_for_c. (Benji Fisher)
Files:      runtime/filetype.vim

Patch 6.2.033 (extra)
Problem:    Mac: Various compiler warnings.
Solution:   Don't include Classic-only headers in Unix version.
            Remove references to several unused variables. (Ben Fowler)
            Fix double definition of DEFAULT_TERM.
            Use int instead of unsigned short for pixel values, so that the
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            negative error values are recognized.
Files:      src/gui_mac.c, src/term.c

Patch 6.2.034
Problem:    Mac: Compiler warning for redefining DEFAULT_TERM.
Solution:   Fix double definition of DEFAULT_TERM.
Files:      src/term.c

Patch 6.2.035
Problem:    Mac: Compiler warnings in Python interface.
Solution:   Make a difference between pure Mac and Unix-Mac. (Peter Cucka)
Files:      src/if_python.c

Patch 6.2.036 (extra)
Problem:    Mac Unix version: If foo is a directory, then ":e f<Tab>" should
            expand to ":e foo/" instead of ":e foo" .  (Vadim Zeitlin)
Solution:   Define DONT_ADD_PATHSEP_TO_DIR only for pure Mac. (Benji Fisher)
Files:      src/os_mac.h

Patch 6.2.037
Problem:    Win32: converting an encoding name to a codepage could result in
            an arbitrary number.
Solution:   make encname2codepage() return zero if the encoding name doesn't
            contain a codepage number.
Files:      src/mbyte.c

Patch 6.2.038 (extra)
Problem:    Warning messages when using the MingW compiler. (Bill McCarthy)
            Can't compile console version without +mouse feature.
Solution:   Initialize variables, add parenthesis.
            Add an #ifdef around g_nMouseClick. (Ajit Thakkar)
Files:      src/eval.c, src/os_win32.c, src/gui_w32.c, src/dosinst.c

Patch 6.2.039 (extra)
Problem:    More warning messages when using the MingW compiler.
Solution:   Initialize variables. (Bill McCarthy)
Files:      src/os_mswin.c

Patch 6.2.040
Problem:    FreeBSD: Crash while starting up when compiled with +xsmp feature.
Solution:   Pass a non-NULL argument to IceAddConnectionWatch().
Files:      src/os_unix.c

Patch 6.2.041 (extra, after 6.2.033)
Problem:    Mac: Compiler warnings for conversion types, missing prototype,
            missing return type.
Solution:   Change sscanf "%hd" to "%d", the argument is an int now.  Add
            gui_mch_init_check() prototype.  Add "int" to termlib functions.
Files:      src/gui_mac.c, src/proto/gui_mac.pro, src/termlib.c.

Patch 6.2.042 (extra)
Problem:    Cygwin: gcc 3.2 has an optimizer problem, sometimes causing a
            crash.
Solution:   Add -fno-strength-reduce to the compiler arguments. (Dan Sharp)
```

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Files:      src/Make_cyg.mak

Patch 6.2.043
Problem:    Compiling with both netbeans and workshop doesn't work.
Solution:   Move the shellRectangle() function to gui_x11.c. (Gordon Prieur)
Files:      src/gui_x11.c, src/integration.c, src/netbeans.c,
            src/proto/netbeans.pro

Patch 6.2.044
Problem:    ":au filetypedetect" gives an error for a non-existing event name,
            but it's actually a non-existing group name. (Antoine Mechelynck)
Solution:   Make the error message clearer.
Files:      src/fileio.c

Patch 6.2.045
Problem:    Obtaining the '( mark changes the '' mark. (Gary Holloway)
Solution:   Don't set the '' mark when searching for the start/end of the
            current sentence/paragraph.
Files:      src/mark.c

Patch 6.2.046
Problem:    When evaluating an argument of a function throws an exception the
            function is still called. (Hari Krishna Dara)
Solution:   Don't call the function when an exception was thrown.
Files:      src/eval.c

Patch 6.2.047 (extra)
Problem:    Compiler warnings when using MingW. (Bill McCarthy)
Solution:   Give the s_dwLastClickTime variable a type.  Initialize dwEndTime.
Files:      src/os_win32.c

Patch 6.2.048
Problem:    The Python interface doesn't compile with Python 2.3 when
            dynamically loaded.
Solution:   Use dll_PyObject_Malloc and dll_PyObject_Free. (Paul Moore)
Files:      src/if_python.c

Patch 6.2.049
Problem:    Using a "-range=" argument with ":command" doesn't work and
            doesn't generate an error message.
Solution:   Generate an error message.
Files:      src/ex_docmd.c

Patch 6.2.050
Problem:    Test 32 didn't work on MS-Windows.
Solution:   Write the temp file in Unix fileformat. (Walter Briscoe)
Files:      src/testdir/test32.in

Patch 6.2.051
Problem:    When using "\=submatch(0)" in a ":s" command, line breaks become
            NUL characters.
Solution:   Change NL to CR characters, so that they become line breaks.
Files:      src/regexp.c
```

```
Patch 6.2.052
Problem:    A few messages are not translated.
Solution:   Add _() to the messages. (Muraoka Taro)
Files:      src/ex_cmds.c

Patch 6.2.053
Problem:    Prototype for bzero() doesn't match most systems.
Solution:   Use "void *" instead of "char *" and "size_t" instead of "int".
Files:      src/osdef1.h.in

Patch 6.2.054
Problem:    A double-byte character with a second byte that is a backslash
            causes problems inside a string.
Solution:   Skip over multi-byte characters in a string properly. (Yasuhiro
            Matsumoto)
Files:      src/eval.c

Patch 6.2.055
Problem:    Using col('.') from CTRL-O in Insert mode does not return the
            correct value for multi-byte characters.
Solution:   Correct the cursor position when it is necessary, move to the
            first byte of a multi-byte character. (Yasuhiro Matsumoto)
Files:      src/edit.c

Patch 6.2.056 (extra)
Problem:    Building with Sniff++ doesn't work.
Solution:   Use the multi-threaded libc when needed. (Holger Ditting)
Files:      src/Make_mvc.mak

Patch 6.2.057 (extra)
Problem:    Mac: With -DMACOS_X putenv() is defined twice, it is in a system
            library.  Get a warning for redefining OK.  Unused variables in
            os_mac.c
Solution:   Define HAVE_PUTENV.  Undefine OK after including curses.h.
            Remove declarations for unused variables.
Files:      src/os_mac.c, src/os_mac.h, src/vim.h

Patch 6.2.058
Problem:    When 'autochdir' is set ":bnext" to a buffer without a name causes
            a crash.
Solution:   Don't call vim_chdirfile() when the file name is NULL. (Taro
            Muraoka)
Files:      src/buffer.c

Patch 6.2.059
Problem:    When 'scrolloff' is a large number and listing completion results
            on the command line, then executing a command that jumps close to
            where the cursor was before, part of the screen is not updated.
            (Yakov Lerner)
Solution:   Don't skip redrawing part of the window when it was scrolled.
Files:      src/screen.c

Patch 6.2.060 (extra)
Problem:    Win32: When 'encoding' is set to "iso-8859-7" copy/paste to/from
```

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            the clipboard gives a lalloc(0) error. (Kriton Kyrimis)
Solution:   When the string length is zero allocate one byte.  Also fix that
            when the length of the Unicode text is zero (conversion from
            'encoding' to UCS-2 was not possible) the normal text is used.
Files:      src/os_mswin.c

Patch 6.2.061
Problem:    GUI: Using the left mouse button with the shift key should work
            like "*" but it scrolls instead. (Martin Beller)
Solution:   Don't recognize an rxvt scroll wheel event when using the GUI.
Files:      src/term.c

Patch 6.2.062
Problem:    When one buffer uses a syntax with "containedin" and another
            buffer does not, redrawing depends on what the current buffer is.
            (Brett Pershing Stahlman)
Solution:   Use "syn_buf" instead of "curbuf" to get the b_syn_containedin
            flag.
Files:      src/syntax.c

Patch 6.2.063
Problem:    When using custom completion end up with no matches.
Solution:   Make cmd_numfiles and cmd_files local to completion to avoid that
            they are overwritten when ExpandOne() is called recursively by
            f_glob().
Files:      src/eval.c, src/ex_docmd.c, src/ex_getln.c, src/proto/ex_getln.pro,
            src/misc1.c, src/structs.h, src/tag.c

Patch 6.2.064
Problem:    resolve() only handles one symbolic link, need to repeat it to
            resolve all of them.  Then need to simplify the file name.
Solution:   Make resolve() resolve all symbolic links and simplify the result.
            Add simplify() to just simplify a file name.  Fix that test49
            doesn't work if /tmp is a symbolic link.  (Servatius Brandt)
Files:      runtime/doc/eval.txt, src/eval.c, src/tag.c,
            src/testdir/test49.vim

Patch 6.2.065
Problem:    ":windo 123" only updates other windows when entering them.
            (Walter Briscoe)
Solution:   Update the topline before going to the next window.
Files:      src/ex_cmds2.c

Patch 6.2.066 (extra)
Problem:    Ruby interface doesn't work with Ruby 1.8.0.
Solution:   Change "defout" to "stdout". (Aron Griffis)
            Change dynamic loading. (Taro Muraoka)
Files:      src/if_ruby.c, src/Make_mvc.mak

Patch 6.2.067
Problem:    When searching for a string that starts with a composing character
            the command line isn't drawn properly.
Solution:   Don't count the space to draw the composing character on and
            adjust the cursor column after drawing the string.
```

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Files:      src/message.c

Patch 6.2.068
Problem:    Events for the netbeans interface that include a file name with
            special characters don't work properly.
Solution:   Use nb_quote() on the file name. (Sergey Khorev)
Files:      src/netbeans.c

Patch 6.2.069 (after 6.2.064)
Problem:    Unused variables "limit" and "new_st" and unused label "fail" in
            some situation. (Bill McCarthy)
Solution:   Put the declarations inside an #ifdef. (Servatius Brandt)
Files:      src/eval.c, src/tag.c

Patch 6.2.070 (after 6.2.069)
Problem:    Still unused variable "new_st". (Bill McCarthy)
Solution:   Move the declaration to the right block this time.
Files:      src/tag.c

Patch 6.2.071
Problem:    'statusline' can only contain 50 % items. (Antony Scriven)
Solution:   Allow 80 items and mention it in the docs.
Files:      runtime/doc/option.txt, src/vim.h

Patch 6.2.072
Problem:    When using expression folding, foldexpr() mostly returns -1 for
            the previous line, which makes it difficult to write a fold
            expression.
Solution:   Make the level of the previous line available while still looking
            for the end of a fold.
Files:      src/fold.c

Patch 6.2.073
Problem:    When adding detection of a specific filetype for a plugin you need
            to edit "filetype.vim".
Solution:   Source files from the "ftdetect" directory, so that a filetype
            detection plugin only needs to be dropped in a directory.
Files:      runtime/doc/filetype.txt, runtime/doc/usr_05.txt,
            runtime/doc/usr_41.txt, runtime/filetype.vim

Patch 6.2.074
Problem:    Warnings when compiling the Python interface. (Ajit Thakkar)
Solution:   Use ANSI function declarations.
Files:      src/if_python.c

Patch 6.2.075
Problem:    When the temp file for writing viminfo can't be used "NULL"
            appears in the error message. (Ben Lavender)
Solution:   Print the original file name when there is no temp file name.
Files:      src/ex_cmds.c

Patch 6.2.076
Problem:    The tags listed for cscope are in the wrong order. (Johannes
            Stezenbach)
```

```
Solution:   Remove the reordering of tags for the current file. (Sergey
            Khorev)
Files:      src/if_cscope.c

Patch 6.2.077
Problem:    When a user function specifies custom completion, the function
            gets a zero argument instead of an empty string when there is no
            word before the cursor. (Preben Guldberg)
Solution:   Don't convert an empty string to a zero.
Files:      src/eval.c

Patch 6.2.078
Problem:    "make test" doesn't work if Vim wasn't compiled yet. (Ed Avis)
Solution:   Build Vim before running the tests.
Files:      src/Makefile

Patch 6.2.079
Problem:    ":w ++enc=utf-8 !cmd" doesn't work.
Solution:   Check for the "++" argument before the "!".
Files:      src/ex_docmd.c

Patch 6.2.080
Problem:    When 't_ti' is not empty but doesn't swap screens, using "ZZ" in
            an unmodified file doesn't clear the last line.
Solution:   Call msg_clr_eos() when needed. (Michael Schroeder)
Files:      src/os_unix.c

Patch 6.2.081
Problem:    Problem when using a long multibyte string for the statusline.
Solution:   Use the right pointer to get the cell size. (Taro Muraoka)
Files:      src/buffer.c

Patch 6.2.082
Problem:    Can't compile with Perl 5.8.1.
Solution:   Rename "e_number" to "e_number_exp". (Sascha Blank)
Files:      src/digraph.c, src/globals.h

Patch 6.2.083
Problem:    When a compiler uses ^^^^ to mark a word the information is not
            visible in the quickfix window. (Srikanth Sankaran)
Solution:   Don't remove the indent for a line that is not recognized as an
            error message.
Files:      src/quickfix.c

Patch 6.2.084
Problem:    "g_" in Visual mode always goes to the character after the line.
            (Jean-Rene David)
Solution:   Ignore the NUL at the end of the line.
Files:      src/normal.c

Patch 6.2.085
Problem:    ":verbose set ts" doesn't say an option was set with a "-c" or
            "--cmd" argument.
Solution:   Remember the option was set from a Vim argument.
```

```
Files:      src/main.c, src/ex_cmds2.c, src/vim.h

Patch 6.2.086
Problem:    "{" and "}" stop inside a closed fold.
Solution:   Only stop once inside a closed fold. (Stephen Riehm)
Files:      src/search.c

Patch 6.2.087
Problem:    CTRL-^ doesn't use the 'confirm' option.  Same problem with
            ":bnext". (Yakov Lerner)
Solution:   Put up a dialog for a changed file when 'confirm' is set in more
            situations.
Files:      src/buffer.c, src/ex_cmds.c

Patch 6.2.088
Problem:    When 'sidescrolloff' is set 'showmatch' doesn't work correctly if
            the match is less than 'sidescrolloff' off from the side of the
            window.  (Roland Stahn)
Solution:   Set 'sidescrolloff' to zero while displaying the match.
Files:      src/search.c

Patch 6.2.089
Problem:    ":set isk+=" adds a comma. (Mark Waggoner)
Solution:   Don't add a comma when the added value is empty.
Files:      src/option.c

Patch 6.2.090 (extra)
Problem:    Win32: MingW compiler complains about #pragmas. (Bill McCarthy)
Solution:   Put an #ifdef around the #pragmas.
Files:      src/os_win32.c

Patch 6.2.091
Problem:    When an autocommand is triggered when a file is dropped on Vim and
            it produces output, messages from a following command may be
            scrolled unexpectedly. (David Rennalls)
Solution:   Save and restore msg_scroll in handle_drop().
Files:      src/ex_docmd.c

Patch 6.2.092
Problem:    Invalid items appear in the help file tags. (Antonio Colombo)
Solution:   Only accept tags with white space before the first "*".
Files:      runtime/doc/doctags.c, src/ex_cmds.c

Patch 6.2.093
Problem:    ":nnoremenu" also defines menu for Visual mode. (Klaus Bosau)
Solution:   Check the second command character for an "o", not the third.
Files:      src/menu.c

Patch 6.2.094
Problem:    Can't compile with GTK and tiny features.
Solution:   Include handle_drop() and vim_chdirfile() when FEAT_DND is defined.
            Do not try to split the window.
Files:      src/ex_docmd.c, src/misc2.c
```

```
Patch 6.2.095
Problem:    The message "Cannot go to buffer x" is confusing for ":buf 6".
            (Frans Englich)
Solution:   Make it "Buffer x does not exist".
Files:      src/buffer.c

Patch 6.2.096
Problem:    Win32: ":let @* = ''" put a newline on the clipboard. (Klaus
            Bosau)
Solution:   Put zero bytes on the clipboard for an empty string.
Files:      src/ops.c

Patch 6.2.097
Problem:    Setting or resetting 'insertmode' in a BufEnter autocommand
            doesn't always have immediate effect. (Nagger)
Solution:   When 'insertmode' is set, set need_start_insertmode, when it's
            reset set stop_insert_mode.
Files:      src/option.c

Patch 6.2.098 (after 6.2.097)
Problem:    Can't build Vim with tiny features. (Christian J. Robinson)
Solution:   Declare stop_insert_mode always.
Files:      src/edit.c, src/globals.h

Patch 6.2.099 (extra)
Problem:    Test 49 fails. (Mikolaj Machowski)
Solution:   The Polish translation must not change "E116" to "R116".
Files:      src/po/pl.po

Patch 6.2.100
Problem:    "make proto" fails when compiled with the Perl interface.
Solution:   Remove "-fno.*" from PERL_CFLAGS, cproto sees it as its option.
Files:      src/auto/configure, src/configure.in

Patch 6.2.101
Problem:    When using syntax folding, opening a file slows down a lot when
            it's size increases by only 20%. (Gary Johnson)
Solution:   The array with cached syntax states is leaking entries.  After
            cleaning up the list obtain the current entry again.
Files:      src/syntax.c

Patch 6.2.102
Problem:    The macros equal() and CR conflict with a Carbon header file.
Solution:   Rename equal() to equalpos().  Rename CR to CAR.
            Do this in the non-extra files only.
Files:      src/ascii.h, src/buffer.c, src/charset.c, src/edit.c, src/eval.c,
            src/ex_cmds.c, src/ex_cmds2.c, src/ex_getln.c, src/fileio.c,
            src/getchar.c, src/gui.c, src/gui_athena.c, src/gui_gtk_x11.c,
            src/gui_motif.c, src/macros.h, src/mark.c, src/message.c,
            src/misc1.c, src/misc2.c, src/normal.c, src/ops.c, src/os_unix.c,
            src/regexp.c, src/search.c, src/ui.c, src/workshop.c

Patch 6.2.103 (extra)
Problem:    The macros equal() and CR conflict with a Carbon header file.
```

```
Solution:   Rename equal() to equalpos().  Rename CR to CAR.
            Do this in the extra files only.
Files:      src/gui_photon.c, src/gui_w48.c

Patch 6.2.104
Problem:    Unmatched braces in the table with options.
Solution:   Move the "}," outside of the #ifdef. (Yakov Lerner)
Files:      src/option.c

Patch 6.2.105
Problem:    When the cursor is past the end of the line when calling
            get_c_indent() a crash might occur.
Solution:   Don't look past the end of the line. (NJ Verenini)
Files:      src/misc1.c

Patch 6.2.106
Problem:    Tag searching gets stuck on a very long line in the tags file.
Solution:   When skipping back to search the first matching tag remember the
            offset where searching started looking for a line break.
Files:      src/tag.c

Patch 6.2.107 (extra)
Problem:    The NetBeans interface cannot be used on Win32.
Solution:   Add support for the NetBeans for Win32.  Add support for reading
            XPM files on Win32.  Also fixes that a sign icon with a space in
            the file name did not work through the NetBeans interface.
            (Sergey Khorev)
            Also: avoid repeating error messages when the connection is lost.
Files:      Makefile, runtime/doc/netbeans.txt, src/Make_bc5.mak,
            src/Make_cyg.mak, src/Make_ming.mak, src/Make_mvc.mak,
            src/bigvim.bat, src/feature.h, src/gui_beval.c, src/gui_beval.h,
            src/gui_w32.c, src/gui_w48.c, src/menu.c, src/nbdebug.c,
            src/nbdebug.h, src/netbeans.c, src/os_mswin.c, src/os_win32.h,
            src/proto/gui_beval.pro, src/proto/gui_w32.pro,
            src/proto/netbeans.pro, src/proto.h, src/version.c, src/vim.h,
            src/xpm_w32.c, src/xpm_w32.h

Patch 6.2.108
Problem:    Crash when giving a message about ignoring case in a tag. (Manfred
            Kuehn)
Solution:   Use a longer buffer for the message.
Files:      src/tag.c

Patch 6.2.109
Problem:    Compiler warnings with various Amiga compilers.
Solution:   Add typecast, prototypes, et al. that are also useful for other
            systems.  (Flavio Stanchina)
Files:      src/eval.c, src/ops.c

Patch 6.2.110
Problem:    When $LANG includes the encoding, a menu without an encoding name
            is not found.
Solution:   Also look for a menu file without any encoding.
Files:      runtime/menu.vim
```

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Patch 6.2.111
Problem:    Encoding "cp1251" is not recognized.
Solution:   Add "cp1251" to the table of encodings. (Alexey Froloff)
Files:      src/mbyte.c

Patch 6.2.112
Problem:    After applying patches test32 fails. (Antonio Colombo)
Solution:   Have "make clean" in the testdir delete *.rej and *.orig files.
            Use this when doing "make clean" in the src directory.
Files:      src/Makefile, src/testdir/Makefile

Patch 6.2.113
Problem:    Using ":startinsert" after "$" works like "a" instead of "i".
            (Ajit Thakkar)
Solution:   Reset "w_curswant" for ":startinsert" and reset o_eol in edit().
Files:      src/edit.c, src/ex_docmd.c

Patch 6.2.114
Problem:    When stdout is piped through "tee", the size of the screen may not
            be correct.
Solution:   Use stdin instead of stdout for ioctl() when stdin is a tty and
            stdout isn't.
Files:      src/os_unix.c

Patch 6.2.115 (extra)
Problem:    Compiler warnings with various Amiga compilers.
Solution:   Add typecast, prototypes, et al.  Those changes that are
            Amiga-specific. (Flavio Stanchina)
Files:      src/fileio.c, src/memfile.c, src/os_amiga.c, src/os_amiga.h,
            src/vim.h

Patch 6.2.116 (extra)
Problem:    German keyboard with Numlock set different from system startup
            causes problems.
Solution:   Ignore keys with code 0xff. (Helmut Stiegler)
Files:      src/gui_w48.c

Patch 6.2.117
Problem:    Breakpoints in loops of sourced files and functions are not
            detected. (Hari Krishna Dara)
Solution:   Check for breakpoints when using lines that were previously read.
            (Servatius Brandt)
Files:      src/eval.c, src/ex_cmds2.c, src/ex_docmd.c, src/proto/eval.pro,
            src/proto/ex_cmds2.pro

Patch 6.2.118 (extra)
Problem:    Mac: Compiling is done in a non-standard way.
Solution:   Use the Unix method for Mac OS X, with autoconf.  Add "CARBONGUI"
            to Makefile and configure. (Eric Kow)
            Move a few prototypes from os_mac.pro to gui_mac.pro.
Files:      src/Makefile, src/auto/configure, src/configure.in,
            src/config.mk.in, src/gui_mac.c, src/os_mac.h, src/os_macosx.c,
            src/proto/gui_mac.pro, src/proto/os_mac.pro,
```

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            src/infplist.xml, src/vim.h

Patch 6.2.119 (after 6.2.107)
Problem:    When packing the MS-Windows archives a few files are missing.
            (Guopeng Wen)
Solution:   Add gui_beval.* to the list of generic source files.
Files:      Makefile

Patch 6.2.120
Problem:    Win32 GUI: The console dialogs are not supported on MS-Windows,
            disabling the 'c' flag of 'guioptions'. (Servatius Brandt)
Solution:   Define FEAT_CON_DIALOG also for GUI-only builds.
Files:      src/feature.h

Patch 6.2.121 (after 6.2.118)
Problem:    Not all make programs support "+=". (Charles Campbell)
Solution:   Use a normal assignment.
Files:      src/Makefile

Patch 6.2.122 (after 6.2.119)
Problem:    Not all shells can expand [^~].  File missing.  (Guopeng Wen)
Solution:   Use a simpler pattern.  Add the Aap recipe for the maze program
            and a clean version of the source code.
Files:      Makefile, runtime/macros/maze/Makefile,
            runtime/macros/maze/README.txt, runtime/macros/maze/main.aap,
            runtime/macros/maze/mazeclean.c

Patch 6.2.123 (after 6.2.118)
Problem:    Running configure fails. (Tony Leneis)
Solution:   Change "==" to "=" for a test.
Files:      src/auto/configure, src/configure.in

Patch 6.2.124 (after 6.2.121)(extra)
Problem:    Mac: Recursive use of M4FLAGS causes problems.  When running Vim
            directly it can't find the runtime files.  (Emily Jackson)
            Using GNU constructs causes warnings with other make programs.
            (Ronald Schild)
Solution:   Use another name for the M4FLAGS variable.
            Don't remove "Vim.app" from the path.
            Update the explanation for compiling on the Mac. (Eric Kow)
            Don't use $(shell ) and $(addprefix ).
Files:      src/INSTALLmac.txt, src/Makefile, src/misc1.c

Patch 6.2.125 (after 6.2.107)
Problem:    The "winsock2.h" file isn't always available.
Solution:   Don't include this header file.
Files:      src/netbeans.c

Patch 6.2.126
Problem:    Typing CTRL-C at a confirm() prompt doesn't throw an exception.
Solution:   Reset "mapped_ctrl_c" in get_keystroke(), so that "got_int" is set
            in _OnChar().
Files:      src/misc1.c
```

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Patch 6.2.127 (extra)
Problem:    Win32 console: Typing CTRL-C doesn't throw an exception.
Solution:   Set got_int immediately when CTRL-C is typed, don't wait for
            mch_breakcheck() being called.
Files:      src/os_win32.c

Patch 6.2.128 (after 6.2.118)
Problem:    src/auto/configure is not consistent with src/configure.in.
Solution:   Use the newly generated configure script.
Files:      src/auto/configure

Patch 6.2.129
Problem:    When 'number' is set 'wrapmargin' does not work Vi-compatible.
            (Yasuhiro Matsumoto)
Solution:   Reduce the textwidth when 'number' is set.  Also for 'foldcolumn'
            and similar things.
Files:      src/edit.c

Patch 6.2.130 (extra)
Problem:    Win32 console: When 'restorescreen' is not set exiting Vim causes
            the screen to be cleared. (Michael A. Mangino)
Solution:   Don't clear the screen when exiting and 'restorescreen' isn't set.
Files:      src/os_win32.c

Patch 6.2.131 (extra)
Problem:    Win32: Font handles are leaked.
Solution:   Free italic, bold and bold-italic handles before overwriting them.
            (Michael Wookey)
Files:      src/gui_w48.c

Patch 6.2.132 (extra)
Problem:    Win32: console version doesn't work on latest Windows Server 2003.
Solution:   Copy 12000 instead of 15000 cells at a time to avoid running out
            of memory.
Files:      src/os_win32.c

Patch 6.2.133
Problem:    When starting the GUI a bogus error message about 'imactivatekey'
            may be given.
Solution:   Only check the value of 'imactivatekey' when the GUI is running.
Files:      src/gui.c, src/option.c

Patch 6.2.134 (extra)
Problem:    Win32: When scrolling parts of the window are redrawn when this
            isn't necessary.
Solution:   Only invalidate parts of the window when they are obscured by
            other windows. (Michael Wookey)
Files:      src/gui_w48.c

Patch 6.2.135
Problem:    An item <> in the ":command" argument is interpreted as <args>.
Solution:   Avoid that <> is recognized as <args>.
Files:      src/ex_docmd.c
```

Patch 6.2.136
Problem: ":e ++enc=latin1 newfile" doesn't set 'fenc' when the file doesn't
            exist. (Miroslaw Dobrzanski-Neumann)
Solution: Set 'fileencoding' to the specified encoding when editing a file
            that does not exist.
Files: src/fileio.c

Patch 6.2.137
Problem: "d:cmd<CR>" cannot be repeated with ".". Breaks repeating "d%"
            when using the matchit plugin.
Solution: Store the command to be repeated. This is restricted to
            single-line commands.
Files: src/ex_docmd.c, src/globals.h, src/normal.c, src/vim.h

Patch 6.2.138 (extra)
Problem: Compilation problem on VMS with dynamic buffer on the stack.
Solution: Read one byte less than the size of the buffer, so that we can
            check for the string length without an extra buffer.
Files: src/os_vms.c

Patch 6.2.139
Problem: Code is repeated in the two Perl files.
Solution: Move common code from if_perl.xs and if_perlsfio.c to vim.h.
            Also fix a problem with generating prototypes.
Files: src/if_perl.xs, src/if_perlsfio.c, src/vim.h

Patch 6.2.140 (after 6.2.121)
Problem: Mac: Compiling with Python and Perl doesn't work.
Solution: Adjust the configure check for Python to use "-framework Python"
            for Python 2.3 on Mac OS/X.
            Move "-ldl" after "DynaLoader.a" in the link command.
            Change "perllibs" to "PERL_LIBS".
Files: src/auto/configure, src/configure.in, src/config.mk.in

Patch 6.2.141 (extra)
Problem: Mac: The b_FSSpec field is sometimes unused.
Solution: Change the #ifdef to FEAT_CW_EDITOR and defined it in feature.h
Files: src/fileio.c, src/gui_mac.c, src/structs.h, src/feature.h

Patch 6.2.142 (after 6.2.124)
Problem: Mac: building without GUI through configure doesn't work.
            When the system is slow, unpacking the resource file takes too
            long.
Solution: Don't always define FEAT_GUI_MAC when MACOS is defined, define it
            in the Makefile.
            Add a configure option to skip Darwin detection.
            Use a Python script to unpack the resources to avoid a race
            condition. (Taro Muraoka)
Files: Makefile, src/Makefile, src/auto/configure, src/configure.in,
            src/dehqx.py, src/vim.h

Patch 6.2.143
Problem: Using "K" on Visually selected text doesn't work if it ends in
            a multi-byte character.

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Solution:   Include all the bytes of the last character. (Taro Muraoka)
Files:      src/normal.c

Patch 6.2.144
Problem:    When "g:html_use_css" is set the HTML header generated by the
            2html script is wrong.
Solution:   Add the header after adding HREF for links.
            Also use ":normal!" instead of ":normal" to avoid mappings
            getting in the way.
Files:      runtime/syntax/2html.vim

Patch 6.2.145 (after 6.2.139)
Problem:    Undefining "bool" doesn't work for older systems. (Wojtek Pilorz)
Solution:   Only undefine "bool" on Mac OS.
Files:      src/vim.h

Patch 6.2.146
Problem:    On some systems the prototype for iconv() is wrong, causing a
            warning message.
Solution:   Use a cast (void *) to avoid the warning. (Charles Campbell)
Files:      src/fileio.c, src/mbyte.c

Patch 6.2.147
Problem:    ":s/pat/\=col('.')" always replaces with "1".
Solution:   Set the cursor to the start of the match before substituting.
            (Helmut Stiegler)
Files:      src/ex_cmds.c

Patch 6.2.148
Problem:    Can't break an Insert into several undoable parts.
Solution:   Add the CTRL-G u command.
Files:      runtime/doc/insert.txt, src/edit.c

Patch 6.2.149
Problem:    When the cursor is on a line past 21,474,748 the indicated
            percentage of the position is invalid.  With that many lines
            "100%" causes a negative cursor line number, resulting in a crash.
            (Daniel Goujot)
Solution:   Divide by 100 instead of multiplying.  Avoid overflow when
            computing the line number for "100%".
Files:      src/buffer.c, src/ex_cmds2.c, src/normal.c

Patch 6.2.150
Problem:    When doing "vim - < file" lines are broken at NUL chars.
            (Daniel Goujot)
Solution:   Change NL characters back to NUL when reading from the temp
            buffer.
Files:      src/fileio.c

Patch 6.2.151
Problem:    When doing "vim --remote +startinsert file" some commands are
            inserted as text. (Klaus Bosau)
Solution:   Put all the init commands in one Ex line, not using a <CR>, so
            that Insert mode isn't started too early.
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Files:      src/main.c

Patch 6.2.152
Problem:    The cursor() function doesn't reset the column offset for
            'virtualedit'.
Solution:   Reset the offset to zero. (Helmut Stiegler)
Files:      src/eval.c

Patch 6.2.153
Problem:    Win32: ":lang german" doesn't use German messages.
Solution:   Add a table to translate the Win32 language names to two-letter
            language codes.
Files:      src/ex_cmds2.c

Patch 6.2.154
Problem:    Python bails out when giving a warning message. (Eugene
            Minkovskii)
Solution:   Set sys.argv[] to an empty string.
Files:      src/if_python.c

Patch 6.2.155
Problem:    Win32: Using ":tjump www" in a help file gives two results.
            (Dave Roberts)
Solution:   Ignore differences between slashes and backslashes when checking
            for identical tag matches.
Files:      src/tag.c

Patch 6.2.156 (after 6.2.125)
Problem:    Win32: Netbeans fails to build, EINTR is not defined.
Solution:   Redefine EINTR to WSAEINTR. (Mike Williams)
Files:      src/netbeans.c

Patch 6.2.157
Problem:    Using "%p" in 'errorformat' gives a column number that is too
            high.
Solution:   Set the flag to use the number as a virtual column.  (Lefteris
            Koutsoloukas)
Files:      src/quickfix.c

Patch 6.2.158
Problem:    The sed command on Solaris and HPUX doesn't work for a line that
            doesn't end in a newline.
Solution:   Add a newline when feeding text to sed. (Mark Waggoner)
Files:      src/configure.in, src/auto/configure

Patch 6.2.159
Problem:    When using expression folding and 'foldopen' is "undo" an undo
            command doesn't always open the fold.
Solution:   Save and restore the KeyTyped variable when evaluating 'foldexpr'.
            (Taro Muraoka)
Files:      src/fold.c

Patch 6.2.160
Problem:    When 'virtualedit' is "all" and 'selection' is "exclusive",
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            selecting a double-width character below a single-width character
            may cause a crash.
Solution:   Avoid overflow on unsigned integer decrement. (Taro Muraoka)
Files:      src/normal.c

Patch 6.2.161 (extra)
Problem:    VMS: Missing header file.  Reading input busy loops.
Solution:   Include termdef.h.  Avoid the use of a wait function in
            vms_read().  (Frank Ries)
Files:      src/os_unix.h, src/os_vms.c

Patch 6.2.162
Problem:    ":redraw" doesn't always display the text that includes the cursor
            position, e.g. after ":call cursor(1, 0)". (Eugene Minkovskii)
Solution:   Call update_topline() before redrawing.
Files:      src/ex_docmd.c

Patch 6.2.163
Problem:    "make install" may also copy AAPDIR directories.
Solution:   Delete AAPDIR directories, just like CVS directories.
Files:      src/Makefile

Patch 6.2.164 (after 6.2.144)
Problem:    When "g:html_use_css" is set the HTML header generated by the
            2html script is still wrong.
Solution:   Search for a string instead of jumping to a fixed line number.
            Go to the start of the line before inserting the header.
            (Jess Thrysoee)
Files:      runtime/syntax/2html.vim

Patch 6.2.165
Problem:    The configure checks hang when using autoconf 2.57.
Solution:   Invoke AC_PROGRAM_EGREP to set $EGREP. (Aron Griffis)
Files:      src/auto/configure, src/configure.in

Patch 6.2.166
Problem:    When $GZIP contains "-N" editing compressed files doesn't work
            properly.
Solution:   Add "-n" to "gzip -d" to avoid restoring the file name. (Oyvind
            Holm)
Files:      runtime/plugin/gzip.vim

Patch 6.2.167
Problem:    The Python interface leaks memory when assigning lines to a
            buffer. (Sergey Khorev)
Solution:   Do not copy the line when calling ml_replace().
Files:      src/if_python.c

Patch 6.2.168
Problem:    Python interface: There is no way to get the indices from a range
            object.
Solution:   Add the "start" and "end" attributes. (Maurice S. Barnum)
Files:      src/if_python.c, runtime/doc/if_pyth.txt
```

```
Patch 6.2.169
Problem:    The prototype for _Xmblen() appears in a recent XFree86 header
            file, causing a warning for our prototype. (Hisashi T Fujinaka)
Solution:   Move the prototype to an osdef file, so that it's filtered out.
Files:      src/mbyte.c, src/osdef2.h.in

Patch 6.2.170
Problem:    When using Sun WorkShop the current directory isn't changed to
            where the file is.
Solution:   Set the 'autochdir' option when using WorkShop.  And avoid using
            the basename when 'autochdir' is not set.
Files:      src/gui_x11.c, src/ex_cmds.c

Patch 6.2.171 (after 6.2.163)
Problem:    The "-or" argument of "find" doesn't work for SysV systems.
Solution:   Use "-o" instead. (Gordon Prieur)
Files:      src/Makefile

Patch 6.2.172 (after 6.2.169)
Problem:    The prototype for _Xmblen() still causes trouble.
Solution:   Include the X11 header file that defines the prototype.
Files:      src/osdef2.h.in, src/osdef.sh

Patch 6.2.173 (extra)
Problem:    Win32: Ruby interface doesn't work with Ruby 1.8.0 for other
            compilers than MSVC.
Solution:   Fix the BC5, Cygwin and Mingw makefiles. (Dan Sharp)
Files:      src/Make_bc5.mak, src/Make_cyg.mak, src/Make_ming.mak

Patch 6.2.174
Problem:    After the ":intro" message only a mouse click in the last line
            gets past the hit-return prompt.
Solution:   Accept a click at or below the hit-return prompt.
Files:      src/gui.c, src/message.c

Patch 6.2.175
Problem:    Changing 'backupext' in a *WritePre autocommand doesn't work.
            (William Natter)
Solution:   Move the use of p_bex to after executing the *WritePre
            autocommands.  Also avoids reading allocated memory after freeing.
Files:      src/fileio.c

Patch 6.2.176
Problem:    Accented characters in translated help files are not handled
            correctly. (Fabien Vayssiere)
Solution:   Include "192-255" in 'iskeyword' for the help window.
Files:      src/ex_cmds.c

Patch 6.2.177 (extra)
Problem:    VisVim: Opening a file with a space in the name doesn't work. (Rob
            Retter)  Arbitrary commands are being executed. (Neil Bird)
Solution:   Put a backslash in front of every space in the file name.
            (Gerard Blais)  Terminate the CTRL-\ CTRL-N command with a NUL.
Files:      src/VisVim/Commands.cpp, src/VisVim/VisVim.rc
```

```
Patch 6.2.178
Problem:    People who don't know how to exit Vim try pressing CTRL-C.
Solution:   Give a message how to exit Vim when CTRL-C is pressed and it
            doesn't cancel anything.
Files:      src/normal.c

Patch 6.2.179 (extra)
Problem:    The en_gb messages file isn't found on case sensitive systems.
Solution:   Rename en_gb to en_GB. (Mike Williams)
Files:      src/po/en_gb.po, src/po/en_GB.po, src/po/Make_ming.mak,
            src/po/Make_mvc.mak, src/po/Makefile, src/po/README_mvc.txt

Patch 6.2.180
Problem:    Compiling with GTK2 on Win32 doesn't work.
Solution:   Include gdkwin32.h instead of gdkx.h. (Srinath Avadhanula)
Files:      src/gui_gtk.c, src/gui_gtk_f.c, src/gui_gtk_x11.c, src/mbyte.c

Patch 6.2.181 (after 6.2.171)
Problem:    The "-o" argument of "find" has lower priority than the implied
            "and" with "-print".
Solution:   Add parenthesis around the "-o" expression. (Gordon Prieur)
Files:      src/Makefile

Patch 6.2.182 (after 6.2.094)
Problem:    Compilation with tiny features fails because of missing
            get_past_head() function.
Solution:   Adjust the #ifdef for get_past_head().
Files:      src/misc1.c

Patch 6.2.183 (after 6.2.178)
Problem:    Warning for char/unsigned char mixup.
Solution:   Use MSG() instead of msg(). (Tony Leneis)
Files:      src/normal.c

Patch 6.2.184
Problem:    With 'formatoptions' set to "1aw" inserting text may cause the
            paragraph to be ended. (Alan Schmitt)
Solution:   Temporarily add an extra space to make the paragraph continue
            after moving the word after the cursor to the next line.
            Also format when pressing Esc.
Files:      src/edit.c, src/normal.c, src/proto/edit.pro

Patch 6.2.185
Problem:    Restoring a session with zero-height windows does not work
            properly. (Charles Campbell)
Solution:   Accept a zero argument to ":resize" as intended.  Add a window
            number argument to ":resize" to be able to set the size of other
            windows, because the current window cannot be zero-height.
            Fix the explorer plugin to avoid changing the window sizes.  Add
            the winrestcmd() function for this.
Files:      runtime/doc/eval.txt, runtime/plugin/explorer.vim, src/eval.c,
            src/ex_cmds.h, src/ex_docmd.c, src/proto/window.pro, src/window.c
```

```
Patch 6.2.186 (after 6.2.185)
Problem:    Documentation file eval.txt contains examples without indent.
Solution:   Insert the indent.  Also fix other mistakes.
Files:      runtime/doc/eval.txt

Patch 6.2.187
Problem:    Using Insure++ reveals a number of bugs.  (Dominique Pelle)
Solution:   Initialize variables where needed.  Free allocated memory to avoid
            leaks.  Fix comparing tags to avoid reading past allocated memory.
Files:      src/buffer.c, src/diff.c, src/fileio.c, src/mark.c, src/misc1.c,
            src/misc2.c, src/ops.c, src/option.c, src/tag.c, src/ui.c

Patch 6.2.188 (extra)
Problem:    MS-Windows: Multi-byte characters in a filename cause trouble for
            the window title.
Solution:   Return when the wide function for setting the title did its work.
Files:      src/gui_w48.c

Patch 6.2.189
Problem:    When setting 'viminfo' after editing a new buffer its marks are
            not stored. (Keith Roberts)
Solution:   Set the "b_marks_read" flag when skipping to read marks from the
            viminfo file.
Files:      src/fileio.c

Patch 6.2.190
Problem:    When editing a compressed files, marks are lost.
Solution:   Add the ":lockmarks" modifier and use it in the gzip plugin.
            Make exists() also check for command modifiers, so that the
            existence of ":lockmarks" can be checked for.
            Also add ":keepmarks" to avoid that marks are deleted when
            filtering text.
            When deleting lines put marks 'A - 'Z and '0 - '9 at the first
            deleted line instead of clearing the mark.  They were kept in the
            viminfo file anyway.
            Avoid that the gzip plugin puts deleted text in registers.
Files:      runtime/doc/motion.txt, runtime/plugin/gzip.vim, src/ex_cmds.c,
            src/ex_docmd.c, src/mark.c, src/structs.h

Patch 6.2.191
Problem:    The intro message is outdated.  Information about sponsoring and
            registering is missing.
Solution:   Show info about sponsoring and registering Vim in the intro
            message now and then.  Add help file about sponsoring.
Files:      runtime/doc/help.txt, runtime/doc/sponsor.txt, runtime/doc/tags,
            runtime/menu.vim, src/version.c

Patch 6.2.192
Problem:    Using CTRL-T and CTRL-D with "gR" messes up the text.  (Jonathan
            Hankins)
Solution:   Avoid calling change_indent() recursively.
Files:      src/edit.c

Patch 6.2.193
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Problem:    When recalling a search pattern from the history from a ":s,a/c,"
            command the '/' ends the search string. (JC van Winkel)
Solution:   Store the separator character with the history entries.  Escape
            characters when needed, replace the old separator with the new one.
            Also fixes that recalling a "/" search for a "?" command messes up
            trailing flags.
Files:      src/eval.c, src/ex_getln.c, src/normal.c, src/proto/ex_getln.pro,
            src/search.c, src/tag.c

Patch 6.2.194 (after 6.2.068)
Problem:    For NetBeans, instead of writing the file and sending an event
            about it, tell NetBeans to write the file.
Solution:   Add the "save" command, "netbeansBuffer" command and
            "buttonRelease" event to the netbeans protocol.  Updated the
            interface to version 2.2.  (Gordon Prieur)
            Also: open a fold when the cursor has been positioned.
            Also: fix memory leak, free result of nb_quote().
Files:      runtime/doc/netbeans.txt, src/fileio.c, src/netbeans.c,
            src/normal.c, src/proto/netbeans.pro, src/structs.h

Patch 6.2.195 (after 6.2.190)
Problem:    Compiling fails for missing CPO_REMMARK symbol.
Solution:   Add the patch I forgot to include...
Files:      src/option.h

Patch 6.2.196 (after 6.2.191)
Problem:    Rebuilding the documentation doesn't use the sponsor.txt file.
Solution:   Add sponsor.txt to the Makefile. (Christian J. Robinson)
Files:      runtime/doc/Makefile

Patch 6.2.197
Problem:    It is not possible to force a redraw of status lines. (Gary
            Johnson)
Solution:   Add the ":redrawstatus" command.
Files:      runtime/doc/various.txt, src/ex_cmds.h, src/ex_docmd.c,
            src/screen.c

Patch 6.2.198
Problem:    A few messages are not translated. (Ernest Adrogue)
Solution:   Mark the messages to be translated.
Files:      src/ex_cmds.c

Patch 6.2.199 (after 6.2.194)
Problem:    Vim doesn't work perfectly well with NetBeans.
Solution:   When NetBeans saves the file, reset the timestamp to avoid "file
            changed" warnings.  Close a buffer in a proper way.  Don't try
            giving a debug message with an invalid pointer.  Send a
            newDotAndMark message when needed.  Report a change by the "r"
            command to NetBeans.  (Gordon Prieur)
Files:      src/netbeans.c, src/normal.c

Patch 6.2.200
Problem:    When recovering a file, 'fileformat' is always the default, thus
            writing the file may result in differences. (Penelope Fudd)
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Solution:   Before recovering the file try reading the original file to obtain
            the values of 'fileformat', 'fileencoding', etc.
Files:      src/memline.c

Patch 6.2.201
Problem:    When 'autowriteall' is set ":qall" still refuses to exit if there
            is a modified buffer. (Antoine Mechelynck)
Solution:   Attempt writing modified buffers as intended.
Files:      src/ex_cmds2.c

Patch 6.2.202
Problem:    Filetype names of CHILL and ch script are confusing.
Solution:   Rename "ch" to "chill" and "chscript" to "ch".
Files:      runtime/filetype.vim, runtime/makemenu.vim, runtime/synmenu.vim
            runtime/syntax/ch.vim, runtime/syntax/chill.vim

Patch 6.2.203
Problem:    With characterwise text that has more than one line, "3P" works
            wrong.  "3p" has the same problem.  There also is a display
            problem. (Daniel Goujot)
Solution:   Perform characterwise puts with a count in the right position.
Files:      src/ops.c

Patch 6.2.204 (after 6.2.086)
Problem:    "]]" in a file with closed folds moves to the end of the file.
            (Nam SungHyun)
Solution:   Find one position in each closed fold, then move to after the fold.
Files:      src/search.c

Patch 6.2.205 (extra)
Problem:    MS-Windows: When the taskbar is at the left or top of the screen,
            the Vim window placement is wrong.
Solution:   Compute the size and position of the window correctly. (Taro
            Muraoka)
Files:      src/gui_w32.c, src/gui_w48.c

Patch 6.2.206
Problem:    Multi-byte characters cannot be used as hotkeys in a console
            dialog.  (Mattias Erkisson)
Solution:   Handle multi-byte characters properly.  Also put () or [] around
            default hotkeys.
Files:      src/message.c, src/macros.h

Patch 6.2.207
Problem:    When 'encoding' is a multi-byte encoding, expanding an
            abbreviation that starts where insertion started results in
            characters before the insertion to be deleted.  (Xiangjiang Ma)
Solution:   Stop searching leftwards for the start of the word at the position
            where insertion started.
Files:      src/getchar.c

Patch 6.2.208
Problem:    When using fold markers, three lines in a row have the start
            marker and deleting the first one with "dd", a nested fold is not
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            deleted.  (Kamil Burzynski)
            Using marker folding, a level 1 fold doesn't stop when it is
            followed by "{{{2", starting a level 2 fold.
Solution:   Don't stop updating folds at the end of a change when the nesting
            level of folds is larger than the fold level.
            Correctly compute the number of folds that start at "{{{2".
            Also avoid a crash for a NULL pointer.
Files:      src/fold.c

Patch 6.2.209
Problem:    A bogus fold is created when using "P" while the cursor is in the
            middle of a closed fold. (Kamil Burzynski)
Solution:   Correct the line number where marks are modified for closed folds.
Files:      src/ops.c

Patch 6.2.210 (extra)
Problem:    Mac OSX: antialiased fonts are not supported.
Solution:   Add the 'antialias' option to switch on antialiasing on Mac OSX
            10.2 and later. (Peter Cucka)
Files:      runtime/doc/options.txt, src/gui_mac.c, src/option.h, src/option.c

Patch 6.2.211 (extra)
Problem:    Code for handling file dropped on Vim is duplicated.
Solution:   Move the common code to gui_handle_drop().
            Add code to drop the files in the window under the cursor.
            Support drag&drop on the Macintosh.  (Taro Muraoka)
            When dropping a directory name edit that directory (using the
            explorer plugin)
            Fix that changing directory with Shift pressed didn't work for
            relative path names.
Files:      src/fileio.c, src/gui.c, src/gui_gtk_x11.c, src/gui_mac.c,
            src/gui_w48.c, src/proto/fileio.pro, src/proto/gui.pro

Patch 6.2.212 (after 6.2.199)
Problem:    NetBeans: Replacing with a count is not handled correctly.
Solution:   Move reporting the change outside of the loop for the count.
            (Gordon Prieur)
Files:      src/normal.c

Patch 6.2.213 (after 6.2.208)
Problem:    Using marker folding, "{{{1" doesn't start a new fold when already
            at fold level 1. (Servatius Brandt)
Solution:   Correctly compute the number of folds that start at "{{{1".
Files:      src/fold.c

Patch 6.2.214 (after 6.2.211) (extra)
Problem:    Warning for an unused variable.
Solution:   Delete the declaration. (Bill McCarthy)
Files:      src/gui_w48.c

Patch 6.2.215
Problem:    NetBeans: problems saving an unmodified file.
Solution:   Add isNetbeansModified() function.  Disable netbeans_unmodified().
            (Gordon Prieur)
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Files:      src/fileio.c, src/netbeans.c, src/proto/netbeans.pro,
            runtime/doc/netbeans.txt, runtime/doc/tags

Patch 6.2.216 (after 6.2.206)
Problem:    Multi-byte characters still cannot be used as hotkeys in a console
            dialog.  (Mattias Erkisson)
Solution:   Make get_keystroke() handle multi-byte characters.
Files:      src/misc1.c

Patch 6.2.217
Problem:    GTK: setting the title doesn't always work correctly.
Solution:   Invoke gui_mch_settitle(). (Tomas Stehlik)
Files:      src/os_unix.c

Patch 6.2.218
Problem:    Warning for function without prototype.
Solution:   Add argument types to the msgCB field of the BalloonEval struct.
Files:      src/gui_beval.h

Patch 6.2.219
Problem:    Syntax highlighting hangs on an empty match of an item with a
            nextgroup.  (Charles Campbell)
Solution:   Remember that the item has already matched and don't match it
            again at the same position.
Files:      src/syntax.c

Patch 6.2.220
Problem:    When a Vim server runs in a console a remote command isn't handled
            before a key is typed.  (Joshua Neuheisel)
Solution:   Don't try reading more input when a client-server command has been
            received.
Files:      src/os_unix.c

Patch 6.2.221
Problem:    No file name completion for ":cscope add".
Solution:   Add the XFILE flag to ":cscope". (Gary Johnson)
Files:      src/ex_cmds.h

Patch 6.2.222
Problem:    Using "--remote" several times on a row only opens some of the
            files. (Dany St-Amant)
Solution:   Don't delete all typeahead when the server receives a command from
            a client, only delete typed characters.
Files:      src/main.c

Patch 6.2.223
Problem:    Cscope: Avoid a hang when cscope waits for a response while Vim
            waits for a prompt.
            Error messages from Cscope mess up the display.
Solution:   Detect the hit-enter message and respond by sending a return
            character to cscope. (Gary Johnson)
            Use EMSG() and strerror() when possible.  Replace perror() with
            PERROR() everywhere, add emsg3().
Files:      src/diff.c, src/if_cscope.c, src/integration.c, src/message.c,
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            src/proto/message.pro, src/misc2.c, src/netbeans.c, src/vim.h

Patch 6.2.224
Problem:    Mac: Can't compile with small features. (Axel Kielhorn)
Solution:   Also include vim_chdirfile() when compiling for the Mac.
Files:      src/misc2.c

Patch 6.2.225
Problem:    NetBeans: Reported modified state isn't exactly right.
Solution:   Report a file being modified in the NetBeans way.
Files:      src/netbeans.c

Patch 6.2.226 (after 6.2.107) (extra)
Problem:    The "ws2-32.lib" file isn't always available.
Solution:   Use "WSock32.lib" instead. (Taro Muraoka, Dan Sharp)
Files:      src/Make_cyg.mak, src/Make_ming.mak, src/Make_mvc.mak

Patch 6.2.227 (extra)
Problem:    The "PC" symbol is defined but not used anywhere.
Solution:   Remove "-DPC" from the makefiles.
Files:      src/Make_bc3.mak, src/Make_bc5.mak, src/Make_cyg.mak,
            src/Make_ming.mak

Patch 6.2.228
Problem:    Receiving CTRL-\ CTRL-N after typing "f" or "m" doesn't switch Vim
            back to Normal mode.  Same for CTRL-\ CTRL-G.
Solution:   Check if the character typed after a command is CTRL-\ and obtain
            another character to check for CTRL-N or CTRL-G, waiting up to
            'ttimeoutlen' msec.
Files:      src/normal.c

Patch 6.2.229
Problem:    ":function" with a name that uses magic curlies does not work
            inside a function.  (Servatius Brandt)
Solution:   Skip over the function name properly.
Files:      src/eval.c

Patch 6.2.230 (extra)
Problem:    Win32: a complex pattern may cause a crash.
Solution:   Use __try and __except to catch the exception and handle it
            gracefully, when possible.  Add myresetstkoflw() to reset the
            stack overflow. (Benjamin Peterson)
Files:      src/Make_bc5.mak, src/os_mswin.c src/os_win32.c, src/os_win32.h,
            src/proto/os_win32.pro, src/regexp.c

Patch 6.2.231 (after 6.2.046)
Problem:    Various problems when an error exception is raised from within a
            builtin function.  When it is invoked while evaluating arguments
            to a function following arguments are still evaluated.  When
            invoked with a line range it will be called for remaining lines.
Solution:   Update "force_abort" also after calling a builtin function, so
            that aborting() always returns the correct value. (Servatius
            Brandt)
Files:      src/eval.c, src/ex_eval.c, src/proto/ex_eval.pro,
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            src/testdir/test49.ok, src/testdir/test49.vim

Patch 6.2.232
Problem:    ":python vim.command('python print 2*2')" crashes Vim.  (Eugene
            Minkovskii)
Solution:   Disallow executing a Python command recursively and give an error
            message.
Files:      src/if_python.c

Patch 6.2.233
Problem:    On Mac OSX adding -pthread for Python only generates a warning.
            The test for Perl threads rejects Perl while it's OK.
            Tcl doesn't work at all.
            The test for Ruby fails if ruby exists but there are no header
            files.  The Ruby library isn't detected properly
Solution:   Avoid adding -pthread on Mac OSX.  Accept Perl threads when it's
            not the 5.5 threads.
            Use the Tcl framework for header files.  For Ruby rename cWindow
            to cVimWindow to avoid a name clash. (Ken Scott)
            Only enable Ruby when the header files can be found.  Use "-lruby"
            instead of "libruby.a" when it can't be found.
Files:      src/auto/configure, src/configure.in, src/if_ruby.c

Patch 6.2.234
Problem:    GTK 2 GUI: ":sp" and the ":q" leaves the cursor on the command
            line.
Solution:   Flush output before removing scrollbars.  Also do this in other
            places where gui_mch_*() functions are invoked.
Files:      src/ex_cmds.c, src/option.c, src/window.c

Patch 6.2.235 (extra)
Problem:    Win32: Cursor isn't removed with a 25x80 window and doing:
            "1830ia<Esc>400a-<Esc>0w0". (Yasuhiro Matsumoto)
Solution:   Remove the call to gui_undraw_cursor() from gui_mch_insert_lines().
Files:      src/gui_w48.c

Patch 6.2.236
Problem:    Using gvim with Agide gives "connection lost" error messages.
Solution:   Only give the "connection lost" message when the buffer was once
            owned by NetBeans.
Files:      src/netbeans.c, src/structs.h

Patch 6.2.237
Problem:    GTK 2: Thai text is drawn wrong.  It changes when moving the
            cursor over it.
Solution:   Disable the shaping engine, it moves combining characters to a
            wrong position and combines characters, while drawing the cursor
            doesn't combine characters.
Files:      src/gui_gtk_x11.c

Patch 6.2.238 (after 6.2.231)
Problem:    ":function" does not work inside a while loop. (Servatius Brandt)
Solution:   Add get_while_line() and pass it to do_one_cmd() when in a while
            loop, so that all lines are stored and can be used again when
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            repeating the loop.
            Adjust test 49 so that it checks for the fixed problems.
            (Servatius Brandt)
Files:      src/digraph.c, src/ex_cmds2.c, src/ex_docmd.c, src/ex_eval.c,
            src/proto/ex_cmds2.pro, src/proto/ex_docmd.pro,
            src/testdir/test49.in, src/testdir/test49.ok,
            src/testdir/test49.vim

Patch 6.2.239
Problem:    GTK 2: With closed folds the arrow buttons of a vertical scrollbar
            often doesn't scroll. (Moshe Kaminsky)
Solution:   Hackish solution: Detect that the button was pressed from the
            mouse pointer position.
Files:      src/gui_gtk.c, src/gui.c

Patch 6.2.240
Problem:    GTK 2: Searching for bitmaps for the toolbar doesn't work as with
            other systems.  Need to explicitly use "icon=name".  (Ned Konz,
            Christian J.  Robinson)
Solution:   Search for icons like done for Motif.
Files:      src/gui_gtk.c

Patch 6.2.241
Problem:    GTK 2: Search and Search/Replace dialogs are synced, that makes no
            sense.  Buttons are sometimes greyed-out. (Jeremy Messenger)
Solution:   Remove the code to sync the two dialogs.  Adjust the code to react
            to an empty search string to also work for GTK2. (David Necas)
Files:      src/gui_gtk.c

Patch 6.2.242
Problem:    Gnome: "vim --help" only shows the Gnome arguments, not the Vim
            arguments.
Solution:   Don't let the Gnome code remove the "--help" argument and don't
            exit at the end of usage().
Files:      src/gui_gtk_x11.c, src/main.c

Patch 6.2.243 (extra)
Problem:    Mac: Dropping a file on a Vim icon causes a hit-enter prompt.
Solution:   Move the dropped files to the global argument list, instead of the
            usual drop handling. (Eckehard Berns)
Files:      src/main.c, src/gui_mac.c

Patch 6.2.244
Problem:    ':echo "\xf7"' displays the illegal byte as if it was a character
            and leaves "cho" after it.
Solution:   When checking the length of a UTF-8 byte sequence and it's shorter
            than the number of bytes available, assume it's an illegal byte.
Files:      src/mbyte.c

Patch 6.2.245
Problem:    Completion doesn't work for ":keepmarks" and ":lockmarks".
Solution:   Add the command modifiers to the table of commands. (Madoka
            Machitani)
Files:      src/ex_cmds.h, src/ex_docmd.c
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Patch 6.2.246
Problem:    Mac: Starting Vim from Finder doesn't show error messages.
Solution:   Recognize that output is being displayed by stderr being
            "/dev/console".  (Eckehard Berns)
Files:      src/main.c, src/message.c

Patch 6.2.247 (after 6.2.193)
Problem:    When using a search pattern from the viminfo file the last
            character is replaced with a '/'.
Solution:   Store the separator character in the right place. (Kelvin Lee)
Files:      src/ex_getln.c

Patch 6.2.248
Problem:    GTK: When XIM is enabled normal "2" and keypad "2" cannot be
            distinguished.
Solution:   Detect that XIM changes the keypad key to the expected ASCII
            character and fall back to the non-XIM code. (Neil Bird)
Files:      src/gui_gtk_x11.c, src/mbyte.c, src/proto/mbyte.pro

Patch 6.2.249
Problem:    ":cnext" moves to the error in the next file, but there is no
            method to go back.
Solution:   Add ":cpfile" and ":cNfile".
Files:      src/ex_cmds.h, src/quickfix.c, src/vim.h, runtime/doc/quickfix.txt

Patch 6.2.250
Problem:    Memory leaks when using signs. (Xavier de Gaye)
Solution:   Delete the list of signs when unloading a buffer.
Files:      src/buffer.c

Patch 6.2.251
Problem:    GTK: The 'v' flag in 'guioptions' doesn't work. (Steve Hall)
            Order of buttons is reversed for GTK 2.2.4.  Don't always get
            focus back after handling a dialog.
Solution:   Make buttons appear vertically when desired.  Reverse the order in
            which buttons are added to a dialog.  Move mouse pointer around
            when the dialog is done and we don't have focus.
Files:      src/gui_gtk.c

Patch 6.2.252 (extra, after 6.2.243)
Problem:    Mac: Dropping a file on a Vim icon causes a hit-enter prompt for
            Mac OS classic.
Solution:   Remove the #ifdef from the code that fixes it for Mac OSX.
Files:      src/gui_mac.c

Patch 6.2.253
Problem:    When 'tagstack' is not set a ":tag id" command does not work after
            a ":tjump" command.
Solution:   Set "new_tag" when 'tagstack' isn't set. (G. Narendran)
Files:      src/tag.c

Patch 6.2.254
Problem:    May run out of space for error messages.
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Solution:   Keep room for two more bytes.
Files:      src/quickfix.c

Patch 6.2.255
Problem:    GTK: A new item in the popup menu is put just after instead of
            just before the right item. (Gabriel Zachmann)
Solution:   Don't increment the menu item index.
Files:      src/gui_gtk.c

Patch 6.2.256
Problem:    Mac: "macroman" encoding isn't recognized, need to use
            "8bit-macroman".
Solution:   Recognize "macroman" with an alias "mac". (Eckehard Berns)
Files:      src/mbyte.c

Patch 6.2.257 (after 6.2.250)
Problem:    Signs are deleted for ":bdel", but they could still be useful.
Solution:   Delete signs only for ":bwipe".
Files:      src/buffer.c

Patch 6.2.258
Problem:    GUI: can't disable (grey-out) a popup menu item.  (Ajit Thakkar)
Solution:   Loop over the popup menus for all modes.
Files:      src/menu.c

Patch 6.2.259
Problem:    If there are messages when exiting, on the console there is a
            hit-enter prompt while the message can be read; in the GUI the
            message may not be visible.
Solution:   Use the hit-enter prompt when there is an error message from
            writing the viminfo file or autocommands, or when there is any
            output in the GUI and 'verbose' is set.  Don't use a hit-enter
            prompt for the non-GUI version unless there is an error message.
Files:      src/main.c

Patch 6.2.260
Problem:    GTK 2: Can't quit a dialog with <Esc>.
            GTK 1 and 2: <Enter> always gives a result, even when the default
            button has been disabled.
Solution:   Handle these keys explicitly.  When no default button is specified
            use the first one (works mostly like it was before).
Files:      src/gui_gtk.c

Patch 6.2.261
Problem:    When 'autoindent' and 'cindent' are set and a line is recognized
            as a comment, starting a new line won't do 'cindent' formatting.
Solution:   Also use 'cindent' formatting for lines that are used as a
            comment. (Servatius Brandt)
Files:      src/misc1.c

Patch 6.2.262
Problem:    1 CTRL-W w beeps, even though going to the first window is
            possible. (Charles Campbell)
Solution:   Don't beep.
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Files:      src/window.c

Patch 6.2.263
Problem:    Lint warnings: Duplicate function prototypes, duplicate macros,
            use of a zero character instead of a zero pointer, unused
            variable.  Clearing allocated memory in a complicated way.
Solution:   Remove the function prototypes from farsi.h.  Remove the
            duplicated lines in keymap.h.  Change getvcol() argument from NUL
            to NULL.  Remove the "col" variable in regmatch().  Use
            lalloc_clear() instead of lalloc(). (Walter Briscoe)
Files:      src/farsi.h, src/keymap.h, src/ops.c, src/regexp.c, src/search.c

Patch 6.2.264 (after 6.2.247)
Problem:    Writing past allocated memory when using a command line from the
            viminfo file.
Solution:   Store the NUL in the right place.
Files:      src/ex_getln.c

Patch 6.2.265
Problem:    Although ":set" is not allowed in the sandbox, ":let &opt = val"
            works.
Solution:   Do allow changing options in the sandbox, but not the ones that
            can't be changed from a modeline.
Files:      src/ex_cmds.h, src/options.c

Patch 6.2.266
Problem:    When redirecting output and using ":silent", line breaks are
            missing from output of ":map" and ":tselect".  Alignment of
            columns is wrong.
Solution:   Insert a line break where "msg_didout" was tested.  Update msg_col
            when redirecting and using ":silent".
Files:      src/getchar.c, src/message.c

Patch 6.2.267 (extra)
Problem:    Win32: "&&" in a tearoff menu is not shown. (Luc Hermitte)
Solution:   Use the "name" item from the menu instead of the "dname" item.
Files:      src/gui_w32.c, src/menu.c

Patch 6.2.268
Problem:    GUI: When changing 'guioptions' part of the window may be off
            screen. (Randall Morris)
Solution:   Adjust the size of the window when changing 'guioptions', but only
            when adding something.
Files:      src/gui.c

Patch 6.2.269
Problem:    Diff mode does not highlight a change in a combining character.
            (Raphael Finkel)
Solution:   Make diff_find_change() multi-byte aware: find the start byte of
            a character that contains a change.
Files:      src/diff.c

Patch 6.2.270
Problem:    Completion in Insert mode, then repeating with ".", doesn't handle
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            composing characters in the completed text. (Raphael Finkel)
Solution:   Don't skip over composing chars when adding completed text to the
            redo buffer.
Files:      src/getchar.c

Patch 6.2.271
Problem:    NetBeans: Can't do "tail -f" on the log.  Passing socket info with
            an argument or environment variable is not secure.
Solution:   Wait after initializing the log.  Allow passing the socket info
            through a file. (Gordon Prieur)
Files:      runtime/doc/netbeans.txt, src/main.c, src/netbeans.c

Patch 6.2.272
Problem:    When the "po" directory exists, but "po/Makefile" doesn't,
            building fails.  Make loops when the "po" directory has been
            deleted after running configure.
Solution:   Check for the "po/Makefile" instead of just the "po" directory.
            Check this again before trying to run make with that Makefile.
Files:      src/auto/configure, src/configure.in, src/Makefile

Patch 6.2.273
Problem:    Changing the sort order in an explorer window for an empty
            directory produces error messages. (Doug Kearns)
Solution:   When an invalid range is used for a function that is not going to
            be executed, skip over the arguments anyway.
Files:      src/eval.c

Patch 6.2.274
Problem:    ":print" skips empty lines when 'list' is set and there is no
            "eol" in 'listchars'. (Yakov Lerner)
Solution:   Skip outputting a space for an empty line only when 'list' is set
            and the end-of-line character is not empty.
Files:      src/message.c

Patch 6.2.275 (extra, after 6.2.267)
Problem:    Warning for uninitialized variable when using gcc.
Solution:   Initialize "acLen" to zero. (Bill McCarthy)
Files:      src/gui_w32.c

Patch 6.2.276
Problem:    ":echo X()" does not put a line break between the message that X()
            displays and the text that X() returns. (Yakov Lerner)
Solution:   Invoke msg_start() after evaluating the argument.
Files:      src/eval.c

Patch 6.2.277
Problem:    Vim crashes when a ":runtime ftplugin/ada.vim" causes a recursive
            loop. (Robert Nowotniak)
Solution:   Restore "msg_list" before returning from do_cmdline().
Files:      src/ex_docmd.c

Patch 6.2.278
Problem:    Using "much" instead of "many".
Solution:   Correct the error message.
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Files:      src/eval.c

Patch 6.2.279
Problem:    There is no default choice for a confirm() dialog, now that it is
            possible not to have a default choice.
Solution:   Make the first choice the default choice.
Files:      runtime/doc/eval.txt, src/eval.c

Patch 6.2.280
Problem:    "do" and ":diffget" don't work in the first line and the last line
            of a buffer. (Aron Griffis)
Solution:   Find a difference above the first line and below the last line.
            Also fix a few display updating bugs.
Files:      src/diff.c, src/fold.c, src/move.c

Patch 6.2.281
Problem:    PostScript printing doesn't work on Mac OS X 10.3.2.
Solution:   Adjust the header file. (Mike Williams)
Files:      runtime/print/prolog.ps

Patch 6.2.282
Problem:    When using CTRL-O to go back to a help file, it becomes listed.
            (Andrew Nesbit)
            Using ":tag" or ":tjump" in a help file doesn't keep the help file
            settings (e.g. for 'iskeyword').
Solution:   Don't mark a buffer as listed when its help flag is set.  Put all
            the option settings for a help buffer together in do_ecmd().
Files:      src/ex_cmds.c

Patch 6.2.283
Problem:    The "local additions" in help.txt are used without conversion,
            causing latin1 characters showing up wrong when 'enc' is utf-8.
            (Antoine J. Mechelynck)
Solution:   Convert the text to 'encoding'.
Files:      src/ex_cmds.c

Patch 6.2.284
Problem:    Listing a function puts "endfunction" in the message history.
            Typing "q" at the more prompt isn't handled correctly when listing
            variables and functions.  (Hara Krishna Dara)
Solution:   Don't use msg() for "endfunction".  Check "got_int" regularly.
Files:      src/eval.c

Patch 6.2.285
Problem:    GUI: In a single wrapped line that fills the window, "gj" in the
            last screen line leaves the cursor behind. (Ivan Tarasov)
Solution:   Undraw the cursor before scrolling the text up.
Files:      src/gui.c

Patch 6.2.286
Problem:    When trying to rename a file and it doesn't exist, the destination
            file is deleted anyway. (Luc Deux)
Solution:   Don't delete the destination when the source doesn't exist. (Taro
            Muraoka)
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Files:      src/fileio.c

Patch 6.2.287 (after 6.2.264)
Problem:    Duplicate lines are added to the viminfo file.
Solution:   Compare with existing entries without an offset.  Also fixes
            reading very long history lines from viminfo.
Files:      src/ex_getln.c

Patch 6.2.288 (extra)
Problem:    Mac: An external program can't be interrupted.
Solution:   Don't use the 'c' key for backspace. (Eckehard Berns)
Files:      src/gui_mac.c

Patch 6.2.289
Problem:    Compiling the Tcl interface with thread support causes ":make" to
            fail.  (Juergen Salk)
Solution:   Use $TCL_DEFS from the Tcl config script to obtain the required
            compile flags for using the thread library.
Files:      src/auto/configure, src/configure.in

Patch 6.2.290 (extra)
Problem:    Mac: The mousewheel doesn't work.
Solution:   Add mousewheel support.  Also fix updating the thumb after a drag
            and then using another way to scroll.  (Eckehard Berns)
Files:      src/gui_mac.c

Patch 6.2.291 (extra)
Problem:    Mac: the plus button and close button don't do anything.
Solution:   Make the plus button maximize the window and the close button
            close Vim. (Eckehard Berns)
Files:      src/gui.c, src/gui_mac.c

Patch 6.2.292
Problem:    Motif: When removing GUI arguments from argv[] a "ps -ef" shows
            the last argument repeated.
Solution:   Set argv[argc] to NULL. (Michael Jarvis)
Files:      src/gui_x11.c

Patch 6.2.293 (after 6.2.255)
Problem:    GTK: A new item in a menu is put before the tearoff item.
Solution:   Do increment the menu item index for non-popup menu items.
Files:      src/gui_gtk.c

Patch 6.2.294 (extra)
Problem:    Mac: Cannot use modifiers with Space, Tab, Enter and Escape.
Solution:   Handle all modifiers for these keys.  (Eckehard Berns)
Files:      src/gui_mac.c

Patch 6.2.295
Problem:    When in debug mode, receiving a message from a remote client
            causes a crash.  Evaluating an expression causes Vim to wait for
            "cont" to be typed, without a prompt.  (Hari Krishna Dara)
Solution:   Disable debugging when evaluating an expression for a client.
            (Michael Geddes)  Don't try reading into the typeahead buffer when
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            it may have been filled in another way.
Files:      src/ex_getln.c, src/getchar.c, src/if_xcmdsrv.c, src/main.c,
            src/misc1.c, src/proto/getchar.pro, src/proto/main.pro,
            src/proto/os_unix.pro, src/proto/ui.pro, src/structs.h,
            src/os_unix.c, src/ui.c

Patch 6.2.296 (extra)
Problem:    Same as 6.2.295.
Solution:   Extra files for patch 6.2.295.
Files:      src/os_amiga.c, src/os_msdos.c, src/os_riscos.c, src/os_win32.c,
            src/proto/os_amiga.pro, src/proto/os_msdos.pro,
            src/proto/os_riscos.pro, src/proto/os_win32.pro

Patch 6.2.297 (after 6.2.232)
Problem:    Cannot invoke Python commands recursively.
Solution:   With Python 2.3 and later use the available mechanisms to invoke
            Python recursively. (Matthew Mueller)
Files:      src/if_python.c

Patch 6.2.298
Problem:    A change always sets the '. mark and an insert always sets the '^
            mark, even when this is not wanted.
            Cannot go back to the position of older changes without undoing
            those changes.
Solution:   Add the ":keepjumps" command modifier.
            Add the "g," and "g;" commands.
Files:      runtime/doc/motion.txt, src/ex_cmds.h, src/ex_docmd.c, src/edit.c,
            src/mark.c, src/misc1.c, src/normal.c, src/proto/mark.pro,
            src/structs.h, src/undo.c

Patch 6.2.299
Problem:    Can only use one language for help files.
Solution:   Add the 'helplang' option to select the preferred language(s).
            Make ":helptags" generate tags files for all languages.
Files:      runtime/doc/options.txt, runtime/doc/various.txt, src/Makefile,
            src/ex_cmds.c, src/ex_cmds2.c, src/ex_cmds.h, src/ex_getln.c,
            src/normal.c, src/option.c, src/option.h, src/proto/ex_cmds.pro,
            src/proto/ex_cmds2.pro, src/proto/option.pro, src/structs.h,
            src/tag.c, src/vim.h

Patch 6.2.300 (after 6.2.297)
Problem:    Cannot build Python interface with Python 2.2 or earlier.
Solution:   Add a semicolon.
Files:      src/if_python.c

Patch 6.2.301
Problem:    The "select all" item from the popup menu doesn't work for Select
            mode.
Solution:   Use the same commands as for the "Edit.select all" menu.
            (Benji Fisher)
Files:      runtime/menu.vim

Patch 6.2.302
Problem:    Using "CTRL-O ." in Insert mode doesn't work properly. (Benji
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            Fisher)
Solution:   Restore "restart_edit" after an insert command that was not typed.
            Avoid waiting with displaying the mode when there is no text to be
            overwritten.
            Fix that "CTRL-O ." sometimes doesn't put the cursor back after
            the end-of-line.  Only reset the flag that CTRL-O was used past
            the end of the line when restarting editing.  Update "o_lnum"
            number when inserting text and "o_eol" is set.
Files:      src/edit.c, src/normal.c

Patch 6.2.303
Problem:    Cannot use Unicode digraphs while 'encoding' is not Unicode.
Solution:   Convert the character from Unicode to 'encoding' when needed.
            Use the Unicode digraphs for the Macintosh. (Eckehard Berns)
Files:      src/digraph.c

Patch 6.2.304 (extra, after 6.2.256)
Problem:    Mac: No proper support for 'encoding'.  Conversion without iconv()
            is not possible.
Solution:   Convert input from 'termencoding' to 'encoding'.  Add
            mac_string_convert().  Convert text for the clipboard when needed.
            (Eckehard Berns)
Files:      src/gui_mac.c, src/mbyte.c, src/structs.h, src/vim.h

Patch 6.2.305 (after 6.2.300)
Problem:    Win32: Cannot build Python interface with Python 2.3. (Ajit
            Thakkar)
Solution:   Add two functions to the dynamic loading feature.
Files:      src/if_python.c

Patch 6.2.306 (extra)
Problem:    Win32: Building console version with BCC 5.5 gives a warning for
            get_cmd_args() prototype missing.  (Ajit Thakkar)
Solution:   Don't build os_w32exe.c for the console version.
Files:      src/Make_bc5.mak

Patch 6.2.307 (after 6.2.299)
Problem:    Installing help files fails.
Solution:   Expand wildcards for translated help files separately.
Files:      src/Makefile

Patch 6.2.308
Problem:    Not all systems have "whoami", resulting in an empty user name.
Solution:   Use "logname" when possible, "whoami" otherwise.  (David Boyce)
Files:      src/Makefile

Patch 6.2.309
Problem:    "3grx" waits for two ESC to be typed.  (Jens Paulus)
Solution:   Append the ESC to the stuff buffer when redoing the "gr" insert.
Files:      src/edit.c

Patch 6.2.310
Problem:    When setting 'undolevels' to -1, making a change and setting
            'undolevels' to a positive value an "undo list corrupt" error
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            occurs. (Madoka Machitani)
Solution:   Sync undo before changing 'undolevels'.
Files:      src/option.c

Patch 6.2.311 (after 6.2.298)
Problem:    When making several changes in one line the changelist grows
            quickly.  There is no error message for reaching the end of the
            changelist.  Reading changelist marks from viminfo doesn't work
            properly.
Solution:   Only make a new entry in the changelist when making a change in
            another line or 'textwidth' columns away.  Add E662, E663 and E664
            error messages.  Put a changelist mark from viminfo one position
            before the end.
Files:      runtime/doc/motion.txt, src/mark.c, src/misc1.c, src/normal.c

Patch 6.2.312 (after 6.2.299)
Problem:    "make install" clears the screen when installing the docs.
Solution:   Execute ":helptags" in silent mode.
Files:      runtime/doc/Makefile

Patch 6.2.313
Problem:    When opening folds in a diff window, other diff windows no longer
            show the same text.
Solution:   Sync the folds in diff windows.
Files:      src/diff.c, src/fold.c, src/move.c, src/proto/diff.pro,
            src/proto/move.pro

Patch 6.2.314
Problem:    When 'virtualedit' is set "rx" may cause a crash with a blockwise
            selection and using "$". (Moritz Orbach)
Solution:   Don't try replacing chars in a line that has no characters in the
            block.
Files:      src/ops.c

Patch 6.2.315
Problem:    Using CTRL-C in a Visual mode mapping while 'insertmode' is set
            stops Vim from returning to Insert mode.
Solution:   Don't reset "restart_edit" when a CTRL-C is found and 'insertmode'
            is set.
Files:      src/normal.c

Patch 6.2.316 (after 6.2.312)
Problem:    "make install" tries connecting to the X server when installing
            the docs. (Stephen Thomas)
Solution:   Add the "-X" argument.
Files:      runtime/doc/Makefile

Patch 6.2.317 (after 6.2.313)
Problem:    When using "zi" in a diff window, other diff windows are not
            adjusted. (Richard Curnow)
Solution:   Distribute a change in 'foldenable' to other diff windows.
Files:      src/normal.c

Patch 6.2.318
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Problem:    When compiling with _THREAD_SAFE external commands don't echo
            typed characters.
Solution:   Don't set the terminal mode to TMODE_SLEEP when it's already at
            TMODE_COOK.
Files:      src/os_unix.c

Patch 6.2.319 (extra)
Problem:    Building gvimext.dll with Mingw doesn't work properly.
Solution:   Use gcc instead of dllwrap.  Use long option names. (Alejandro
            Lopez-Valencia)
Files:      src/GvimExt/Make_ming.mak

Patch 6.2.320
Problem:    Win32: Adding and removing the menubar resizes the Vim window.
            (Jonathon Merz)
Solution:   Don't let a resize event change 'lines' unexpectedly.
Files:      src/gui.c

Patch 6.2.321
Problem:    When using modeless selection, wrapping lines are not recognized,
            a line break is always inserted.
Solution:   Add LineWraps[] to remember whether a line wrapped or not.
Files:      src/globals.h, src/screen.c, src/ui.c

Patch 6.2.322
Problem:    With 'showcmd' set, after typing "dd" the next "d" may not be
            displayed. (Jens Paulus)
Solution:   Redraw the command line after updating the screen, scrolling may
            have set "clear_cmdline".
Files:      src/screen.c

Patch 6.2.323
Problem:    Win32: expanding "~/file" in an autocommand pattern results in
            backslashes, while this pattern should only have forward slashes.
Solution:   Make expanding environment variables respect 'shellslash' and set
            p_ssl when expanding the autocommand pattern.
Files:      src/fileio.c, src/misc1.c, src/proto/fileio.pro

Patch 6.2.324 (extra)
Problem:    Win32: when "vimrun.exe" has a path with white space, such as
            "Program Files", executing external commands may fail.
Solution:   Put double quotes around the path to "vimrun".
Files:      src/os_win32.c

Patch 6.2.325
Problem:    When $HOME includes a space, doing ":set tags=~/tags" doesn't
            work, the space is used to separate file names.  (Brett Stahlman)
Solution:   Escape the space with a backslash.
Files:      src/option.c

Patch 6.2.326
Problem:    ":windo set syntax=foo" doesn't work.  (Tim Chase)
Solution:   Don't change 'eventignore' for ":windo".
Files:      src/ex_cmds2.c
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Patch 6.2.327
Problem: When formatting text all marks in the formatted lines are lost.
            A word is not joined to a previous line when this would be
            possible. (Mikolaj Machowski)
Solution: Try to keep marks in the same position as much as possible.
            Also keep mark positions when joining lines.
            Start auto-formatting in the previous line when appropriate.
            Add the "gw" operator: Like "gq" but keep the cursor where it is.
Files: runtime/doc/change.txt, src/edit.c, src/globals.h, src/mark.c,
            src/misc1.c, src/normal.c, src/ops.c, src/proto/edit.pro,
            src/proto/mark.pro, src/proto/ops.pro, src/structs.h, src/vim.h

Patch 6.2.328
Problem: XIM with GTK: It is hard to understand what XIM is doing.
Solution: Add xim_log() to log XIM events and help with debugging.
Files: src/mbyte.c

Patch 6.2.329
Problem: ":=" does not work Vi compatible. (Antony Scriven)
Solution: Print the last line number instead of the current line. Don't
            print "line".
Files: src/ex_cmds.h, src/ex_docmd.c

Patch 6.2.330 (extra, after 6.2.267)
Problem: Win32: Crash when tearing off a menu.
Solution: Terminate a string with a NUL. (Yasuhiro Matsumoto)
Files: src/gui_w32.c

Patch 6.2.331 (after 6.2.327)
Problem: "gwap" leaves cursor in the wrong line.
Solution: Remember the cursor position before finding the ends of the
            paragraph.
Files: src/normal.c, src/ops.c, src/structs.h

Patch 6.2.332 (extra)
Problem: Amiga: Compile error for string array. Compiling the Amiga GUI
            doesn't work.
Solution: Use a char pointer instead. Move including "gui_amiga.h" to after
            including "vim.h". Add a semicolon. (Ali Akcaagac)
Files: src/gui_amiga.c, src/os_amiga.c

Patch 6.2.333 (extra)
Problem: Win32: printing doesn't work with specified font charset.
Solution: Use the specified font charset. (Mike Williams)
Files: src/os_mswin.c

Patch 6.2.334 (extra, after 6.2.296)
Problem: Win32: evaluating client expression in debug mode requires typing
            "cont".
Solution: Use eval_client_expr_to_string().
Files: src/os_mswin.c

Patch 6.2.335

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Problem:    The ":sign" command cannot be followed by another command.
Solution:   Add TRLBAR to the command flags.
Files:      src/ex_cmds.h

Patch 6.2.336 (after 6.2.327)
Problem:    Mixup of items in an expression.
Solution:   Move "== NUL" to the right spot.
Files:      src/edit.c

Patch 6.2.337 (extra, after 6.2.319)
Problem:    Building gvimext.dll with Mingw doesn't work properly.
Solution:   Fix white space and other details. (Alejandro Lopez-Valencia)
Files:      src/GvimExt/Make_ming.mak

Patch 6.2.338 (after 6.2.331)
Problem:    When undoing "gwap" the cursor is always put at the start of the
            paragraph.  When undoing auto-formatting the cursor may be above
            the change.
Solution:   Try to move the cursor back to where it was or to the first line
            that actually changed.
Files:      src/normal.c, src/ops.c, src/undo.c

Patch 6.2.339
Problem:    Crash when using many different highlight groups and a User
            highlight group.  (Juergen Kraemer)
Solution:   Do not use the sg_name_u pointer when it is NULL.  Also simplify
            use of the highlight group table.
Files:      src/syntax.c

Patch 6.2.340
Problem:    ":reg" doesn't show the actual contents of the clipboard if it was
            filled outside of Vim. (Stuart MacDonald)
Solution:   Obtain the clipboard contents before displaying it.
Files:      src/ops.c

Patch 6.2.341 (extra)
Problem:    Win32: When the path to diff.exe contains a space and using the
            vimrc generated by the install program, diff mode does not work.
Solution:   Put the first double quote just before the space instead of before
            the path.
Files:      src/dosinst.c

Patch 6.2.342 (extra)
Problem:    Win32: macros are not always used as expected.
Solution:   Define WINVER to 0x0400 instead of 0x400. (Alejandro
            Lopez-Valencia)
Files:      src/Make_bc5.mak, src/Make_cyg.mak, src/Make_mvc.mak

Patch 6.2.343
Problem:    Title doesn't work with some window managers.  X11: Setting the
            text property for the window title is hard coded.
Solution:   Use STRING format when possible.  Use the UTF-8 function when
            it's available and 'encoding' is utf-8. Use
            XStringListToTextProperty().  Do the same for the icon name.
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            (David Harrison)
Files: src/os_unix.c

Patch 6.2.344 (extra, after 6.2.337)
Problem: Cannot build gvimext.dll with MingW on Linux.
Solution: Add support for cross compiling. (Ronald Hoellwarth)
Files: src/GvimExt/Make_ming.mak

Patch 6.2.345 (extra)
Problem: Win32: Copy/paste between two Vims fails if 'encoding' is not set
            properly or there are illegal bytes.
Solution: Use a raw byte format. Always set it when copying. When pasting
            use the raw format if 'encoding' is the same.
Files: src/os_mswin.c, src/os_win16.c, src/os_win32.c, src/vim.h

Patch 6.2.346
Problem: Win32 console: After using "chcp" Vim does not detect the
            different codepage.
Solution: Use GetConsoleCP() and when it is different from GetACP() set
            'termencoding'.
Files: src/option.c

Patch 6.2.347 (extra)
Problem: Win32: XP theme support is missing.
Solution: Add a manifest and refer to it from the resource file. (Michael
            Wookey)
Files: Makefile, src/gvim.exe.mnf, src/vim.rc

Patch 6.2.348
Problem: Win32: "vim c:\dir\(test)" doesn't work, because the 'isfname'
            default value doesn't contain parenthesis.
Solution: Temporarily add '(' and ')' to 'isfname' when expanding file name
            arguments.
Files: src/main.c

Patch 6.2.349
Problem: Finding a match using 'matchpairs' may cause a crash.
            'matchpairs' is not used for 'showmatch'.
Solution: Don't look past the NUL in 'matchpairs'. Use 'matchpairs' for
            'showmatch'. (Dave Olszewkski)
Files: src/misc1.c, src/normal.c, src/proto/search.pro, src/search.c

Patch 6.2.350
Problem: Not enough info about startup timing.
Solution: Add a few more TIME_MSG() calls.
Files: src/main.c

Patch 6.2.351
Problem: Win32: $HOME may be set to %USERPROFILE%.
Solution: Expand %VAR% at the start of $HOME.
Files: src/misc1.c

Patch 6.2.352 (after 6.2.335)
Problem: ":sign texthl=||" does not work.

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Solution:   Remove the check for a following command.  Give an error for extra
            arguments after "buff=1".
Files:      src/ex_cmds.c, src/ex_cmds.h

Patch 6.2.353 (extra)
Problem:    Win32: Supported server name length is limited. (Paul Bossi)
Solution:   Use MAX_PATH instead of 25.
Files:      src/os_mswin.c

Patch 6.2.354 (extra)
Problem:    Win32: When the mouse pointer is on a tear-off menu it is hidden
            when typing but is not redisplayed when moved. (Markx Hackmann)
Solution:   Handle the pointer move event for the tear-off menu window.
Files:      src/gui_w32.c

Patch 6.2.355 (after 6.2.303)
Problem:    When 'encoding' is a double-byte encoding different from the
            current locale, the width of characters is not correct.
            Possible failure and memory leak when using iconv, Unicode
            digraphs and 'encoding' is not "utf-8".
Solution:   Use iconv() to discover the actual width of characters.
            Add the "vc_fail" field to vimconv_T.
            When converting a digraph, init the conversion type to NONE and
            cleanup afterwards.
Files:      src/digraph.c, src/mbyte.c, src/structs.h

Patch 6.2.356
Problem:    When using a double-byte 'encoding' and 'selection' is
            "exclusive", "vy" only yanks the first byte of a double-byte
            character.  (Xiangjiang Ma)
Solution:   Correct the column in unadjust_for_sel() to position on the first
            byte, always include the trailing byte of the selected text.
Files:      src/normal.c

Patch 6.2.357 (after 6.2.321)
Problem:    Memory leak when resizing the Vim window.
Solution:   Free the LineWraps array.
Files:      src/screen.c

Patch 6.2.358 (after 6.2.299)
Problem:    Memory leak when using ":help" and the language doesn't match.
Solution:   Free the array with matching tags.
Files:      src/ex_cmds.c

Patch 6.2.359 (after 6.2.352)
Problem:    Compiler warning for long to int type cast.
Solution:   Add explicit type cast.
Files:      src/ex_cmds.c

Patch 6.2.360
Problem:    "100|" in an empty line results in a ruler "1,0-100". (Pavol
            Juhas)
Solution:   Recompute w_virtcol if the target column was not reached.
Files:      src/misc2.c
```

Patch 6.2.361 (extra)
Problem: Win32: Run gvim, ":set go-=m", use Alt-Tab, keep Alt pressed while
            pressing Esc, then release Alt: Cursor disappears and typing a key
            causes a beep. (Hari Krishna Dara)
Solution: Don't ignore the WM_SYSKEYUP event when the menu is disabled.
Files: src/gui_w32.c

Patch 6.2.362 (extra, after 6.2.347)
Problem: Win32: The manifest causes gvim not to work. (Dave Roberts)
Solution: Change "x86" to "X86". (Serge Pirotte)
Files: src/gvim.exe.mnf

Patch 6.2.363
Problem: In an empty file with 'showmode' off, "i" doesn't change the ruler
            from "0-1" to "1". Typing "x<BS>" does show "1", but then <Esc>
            doesn't make it "0-1" again. Same problem for ruler in
            statusline. (Andrew Pimlott)
Solution: Remember the "empty line" flag with Insert mode and'ed to it.
Files: src/screen.c

Patch 6.2.364
Problem: HTML version of the documentation doesn't mention the encoding,
            which is a problem for mbyte.txt.
Solution: Adjust the awk script. (Ilya Sher)
Files: runtime/doc/makehtml.awk

Patch 6.2.365
Problem: The configure checks for Perl and Python may add compile and link
            arguments that break building Vim.
Solution: Do a sanity check: try building with the arguments.
Files: src/auto/configure, src/configure.in

Patch 6.2.366
Problem: When the GUI can't start because no valid font is found, there is
            no error message. (Ugen)
Solution: Add an error message.
Files: src/gui.c

Patch 6.2.367
Problem: Building the help tags file while installing may fail if there is
            another Vim in $PATH.
Solution: Specify the just installed Vim executable. (Gordon Prieur)
Files: src/Makefile

Patch 6.2.368
Problem: When 'autochdir' is set, closing a window doesn't change to the
            directory of the new current window. (Salman Halim)
Solution: Handle 'autochdir' always when a window becomes the current one.
Files: src/window.c

Patch 6.2.369
Problem: Various memory leaks: when using globpath(), when searching for
            help tags files, when defining a function inside a function, when

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            giving an error message through an exception, for the final "."
            line in ":append", in expression "cond ? a : b" that fails and for
            missing ")" in an expression.  Using NULL pointer when adding
            first user command and for pointer computations with regexp.
            (tests by Dominique Pelle)
Solution:   Fix the leaks by freeing the allocated memory.  Don't use the
            array of user commands when there are no entries.  Use a macro
            instead of a function call for saving and restoring regexp states.
Files:      src/eval.c, src/ex_cmds.c, src/ex_docmd.c, src/ex_getln.c,
            src/misc2.c, src/regexp.c, src/screen.c, src/tag.c

Patch 6.2.370 (extra, after6.2.341)
Problem:    Win32: When the path to diff.exe contains a space and using the
            vimrc generated by the install program, diff mode may not work.
            (Alejandro Lopez-Valencia)
Solution:   Do not use double quotes for arguments that do not have a space.
Files:      src/dosinst.c

Patch 6.2.371
Problem:    When 'virtualedit' is set and there is a Tab before the next "x",
            "dtx" does not delete the whole Tab. (Ken Hashishi)
Solution:   Move the cursor to the last position of the Tab.  Also for
            "df<Tab>".
Files:      src/normal.c

Patch 6.2.372
Problem:    When using balloon evaluation, no value is displayed for members
            of structures and items of an array.
Solution:   Include "->", "." and "[*]" in the expression.
Files:      src/gui_beval.c, src/normal.c, src/vim.h

Patch 6.2.373
Problem:    When 'winminheight' is zero and a window is reduced to zero
            height, the ruler always says "Top" instead of the cursor
            position. (Antoine J. Mechelynck)
Solution:   Don't recompute w_topline for a zero-height window.
Files:      src/window.c

Patch 6.2.374
Problem:    ":echo "hello" | silent normal n" removes the "hello" message.
            (Servatius Brandt)
Solution:   Don't echo the search string when ":silent" was used.  Also don't
            show the mode.  In general: don't clear to the end of the screen.
Files:      src/gui.c, src/message.c, src/os_unix.c, src/proto/message.pro,
            src/screen.c, src/search.c, src/window.c

Patch 6.2.375
Problem:    When changing 'guioptions' the hit-enter prompt may be below the
            end of the Vim window.
Solution:   Call screen_alloc() before showing the prompt.
Files:      src/message.c

Patch 6.2.376
Problem:    Win32: Ruby interface cannot be dynamically linked with Ruby 1.6.
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Solution:   Add #ifdefs around use of rb_w32_snprintf().  (Benoît Cerrina)
Files:      src/if_ruby.c

Patch 6.2.377 (after 6.2.372)
Problem:    Compiler warnings for signed/unsigned compare. (Michael Wookey)
Solution:   Add type cast.
Files:      src/normal.c

Patch 6.2.378 (extra, after 6.2.118)
Problem:    Mac: cannot build with Project Builder.
Solution:   Add remove_tail_with_ext() to locate and remove the "build"
            directory from the runtime path.  Include os_unix.c when needed.
            (Dany St Amant)
Files:      src/misc1.c, src/os_macosx.c, src/vim.h

Patch 6.2.379
Problem:    Using ":mkvimrc" in the ":options" window sets 'bufhidden' to
            "delete". (Michael Naumann)
Solution:   Do not add buffer-specific option values to a global vimrc file.
Files:      src/option.c

Patch 6.2.380 (extra)
Problem:    DOS: "make test" fails when running it again.  Can't "make test"
            with Borland C.
Solution:   Make sure ".out" files are deleted when they get in the way.  Add
            a "test" target to the Borland C Makefile.
Files:      src/Make_bc5.mak, src/testdir/Make_dos.mak

Patch 6.2.381
Problem:    Setting 'fileencoding' to a comma separated list (confusing it
            with 'fileencodings') does not result in an error message.
            Setting 'fileencoding' in an empty file marks it as modified.
            There is no "+" in the title after setting 'fileencoding'.
Solution:   Check for a comma in 'fileencoding'.  Only consider a non-empty
            file modified by changing 'fileencoding'.  Update the title after
            changing 'fileencoding'.
Files:      src/option.c

Patch 6.2.382
Problem:    Running "make test" puts marks from test files in viminfo.
Solution:   Specify a different viminfo file to use.
Files:      src/testdir/test15.in, src/testdir/test49.in

Patch 6.2.383
Problem:    ":hi foo term='bla" crashes Vim. (Antony Scriven)
Solution:   Check that the closing ' is there.
Files:      src/syntax.c

Patch 6.2.384
Problem:    ":menu a.&b" ":unmenu a.b" only works if "&b" isn't translated.
Solution:   Also compare the names without '&' characters.
Files:      src/menu.c

Patch 6.2.385  (extra)
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Problem:    Win32: forward_slash() and trash_input_buf() are undefined when
            compiling with small features. (Ajit Thakkar)
Solution:   Change the #ifdefs for forward_slash().  Don't call
            trash_input_buf() if the input buffer isn't used.
Files:      src/fileio.c, src/os_win32.c

Patch 6.2.386
Problem:    Wasting time trying to read marks from the viminfo file for a
            buffer without a name.
Solution:   Skip reading marks when the buffer has no name.
Files:      src/fileio.c

Patch 6.2.387
Problem:    There is no highlighting of translated items in help files.
Solution:   Search for a "help_ab.vim" syntax file when the help file is
            called "*.abx".  Also improve the help highlighting a bit.
Files:      runtime/syntax/help.vim

Patch 6.2.388
Problem:    GTK: When displaying some double-width characters they are drawn
            as single-width, because of conversion to UTF-8.
Solution:   Check the width that GTK uses and add a space if it's one instead
            of two.
Files:      src/gui_gtk_x11.c

Patch 6.2.389
Problem:    When working over a slow connection, it's very annoying that the
            last line is partly drawn and then cleared for every change.
Solution:   Don't redraw the bottom line if no rows were inserted or deleted.
            Don't draw the line if we know "@" lines will be used.
Files:      src/screen.c

Patch 6.2.390
Problem:    Using "r*" in Visual mode on multi-byte characters only replaces
            every other character. (Tyson Roberts)
Solution:   Correct the cursor position after replacing each character.
Files:      src/ops.c

Patch 6.2.391 (extra)
Problem:    The ":highlight" command is not tested.
Solution:   Add a test script for ":highlight".
Files:      src/testdir/Makefile, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/test51.in,
            src/testdir/test51.ok

Patch 6.2.392 (after 6.2.384)
Problem:    Unused variable.
Solution:   Remove "dlen".
Files:      src/menu.c

Patch 6.2.393
Problem:    When using very long lines the viminfo file can become very big.
Solution:   Add the "s" flag to 'viminfo': skip registers with more than the
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            specified Kbyte of text.
Files:      runtime/doc/options.txt, src/ops.c, src/option.c

Patch 6.2.394  (after 6.2.391)
Problem:    Test 51 fails on a terminal with 8 colors. (Tony Leneis)
Solution:   Use "DarkBlue" instead of "Blue" to avoid the "bold" attribute.
Files:      src/testdir/test51.in

Patch 6.2.395
Problem:    When using ":tag" or ":pop" the previous matching tag is used.
            But since the current file is different, the ordering of the tags
            may change.
Solution:   Remember what the current buffer was for when re-using cur_match.
Files:      src/edit.c, src/ex_cmds.c, src/proto/tag.pro, src/structs.h,
            src/tag.c

Patch 6.2.396
Problem:    When CTRL-T jumps to another file and an autocommand moves the
            cursor to the '" mark, don't end up on the right line.  (Michal
            Malecki)
Solution:   Set the line number after loading the file.
Files:      src/tag.c

Patch 6.2.397
Problem:    When using a double-byte 'encoding' mapping <M-x> doesn't work.
            (Yasuhiro Matsumoto)
Solution:   Do not set the 8th bit of the character but use a modifier.
Files:      src/gui_gtk_x11.c, src/gui_x11.c, src/misc2.c

Patch 6.2.398 (extra)
Problem:    Win32 console: no extra key modifiers are supported.
Solution:   Encode the modifiers into the input stream.  Also fix that special
            keys are converted and stop working when 'tenc' is set.  Also fix
            that when 'tenc' is initialized the input and output conversion is
            not setup properly until 'enc' or 'tenc' is set.
Files:      src/getchar.c, src/option.c, src/os_win32.c

Patch 6.2.399
Problem:    A ":set" command that fails still writes a message when it is
            inside a try/catch block.
Solution:   Include all the text of the message in the error message.
Files:      src/charset.c, src/option.c

Patch 6.2.400
Problem:    Can't compile if_xcmdsrv.c on HP-UX 11.0.
Solution:   Include header file poll.h. (Malte Neumann)
Files:      src/if_xcmdsrv.c

Patch 6.2.401
Problem:    When opening a buffer that was previously opened, Vim does not
            restore the cursor position if the first line starts with white
            space.  (Gregory Margo)
Solution:   Don't skip restoring the cursor position if it is past the blanks
            in the first line.
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Files:      src/buffer.c

Patch 6.2.402
Problem:    Mac: "make install" doesn't generate help tags. (Benji Fisher)
Solution:   Generate help tags before copying the runtime files.
Files:      src/Makefile

Patch 6.2.403
Problem:    ":@y" checks stdin if there are more commands to execute.  This
            fails if stdin is not connected, e.g., when starting the GUI from
            KDE. (Ned Konz)
Solution:   Only check for a next command if there still is typeahead.
Files:      src/ex_docmd.c

Patch 6.2.404
Problem:    Our own function to determine width of Unicode characters may get
            outdated. (Markus Kuhn)
Solution:   Use wcwidth() when it is available.  Also use iswprint().
Files:      src/auto/configure, src/configure.in, src/config.h.in, src/mbyte.c

Patch 6.2.405
Problem:    Cannot map zero without breaking the count before a command.
            (Benji Fisher)
Solution:   Disable mapping zero when entering a count.
Files:      src/getchar.c, src/globals.h, src/normal.c

Patch 6.2.406
Problem:    ":help \zs", ":help \@=" and similar don't find useful help.
Solution:   Prepend "/\" to the arguments to find the desired help tag.
Files:      src/ex_cmds.c

Patch 6.2.407 (after 6.2.299)
Problem:    ":help \@<=" doesn't find help.
Solution:   Avoid that ":help \@<=" searches for the "<=" language.
Files:      src/tag.c

Patch 6.2.408
Problem:    ":compiler" is not consistent: Sets local options and a global
            variable. (Douglas Potts)  There is no error message when a
            compiler is not supported.
Solution:   Use ":compiler!" to set a compiler globally, otherwise it's local
            to the buffer and "b:current_compiler" is used.  Give an error
            when no compiler script could be found.
            Note: updated compiler plugins can be found at
            ftp://ftp.vim.org/pub/vim/runtime/compiler/
Files:      runtime/compiler/msvc.vim, runtime/doc/quickfix.txt, src/eval.c,
            src/ex_cmds2.c

Patch 6.2.409
Problem:    The cursor ends up in the last column instead of after the line
            when doing "i//<Esc>o" with 'indentexpr' set to "cindent(v:lnum)".
            (Toby Allsopp)
Solution:   Adjust the cursor as if in Insert mode.
Files:      src/misc1.c
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Patch 6.2.410 (after 6.2.389)
Problem:    In diff mode, when there are more filler lines than fit in the
            window, they are not drawn.
Solution:   Check for filler lines when skipping to draw a line that doesn't
            fit.
Files:      src/screen.c

Patch 6.2.411
Problem:    A "\n" inside a string is not seen as a line break by the regular
            expression matching. (Hari Krishna Dara)
Solution:   Add the vim_regexec_nl() function for strings where "\n" is to be
            matched with a line break.
Files:      src/eval.c, src/ex_eval.c, src/proto/regexp.c, src/regexp.c

Patch 6.2.412
Problem:    Ruby: "ruby << EOF" inside a function doesn't always work.  Also
            for ":python", ":tcl" and ":perl".
Solution:   Check for "<< marker" and skip until "marker" before checking for
            "endfunction".
Files:      src/eval.c

Patch 6.2.413 (after 6.2.411)
Problem:    Missing prototype for vim_regexec_nl(). (Marcel Svitalsky)
Solution:   Now really include the prototype.
Files:      src/proto/regexp.pro

Patch 6.2.414
Problem:    The function used for custom completion of user commands cannot
            have <SID> to make it local. (Hari Krishna Dara)
Solution:   Pass the SID of the script where the user command was defined on
            to the completion.  Also clean up #ifdefs.
Files:      src/ex_docmd.c, src/eval.c, src/ex_getln.c, src/structs.h

Patch 6.2.415
Problem:    Vim may crash after a sequence of events that change the window
            size.  The window layout assumes a larger window than is actually
            available. (Servatius Brandt)
Solution:   Invoke win_new_shellsize() from screenalloc() instead of from
            set_shellsize().
Files:      src/screen.c, src/term.c

Patch 6.2.416
Problem:    Compiler warning for incompatible pointer.
Solution:   Remove the "&" in the call to poll(). (Xavier de Gaye)
Files:      src/os_unix.c

Patch 6.2.417 (after 6.2.393)
Problem:    Many people forget that the '"' item in 'viminfo' needs to be
            preceded with a backslash,
Solution:   Add '<' as an alias for the '"' item.
Files:      runtime/doc/options.txt, src/ops.c, src/option.c

Patch 6.2.418
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Problem:    Using ":nnoremap <F12> :echo "cheese" and ":cabbr cheese xxx":
            when pressing <F12> still uses the abbreviation. (Hari Krishna)
Solution:   Also apply "noremap" to abbreviations.
Files:      src/getchar.c

Patch 6.2.419 (extra)
Problem:    Win32: Cannot open the Vim window inside another application.
Solution:   Add the "-P" argument to specify the window title of the
            application to run inside. (Zibo Zhao)
Files:      runtime/doc/starting.txt, src/main.c, src/gui_w32.c,
            src/gui_w48.c, src/if_ole.cpp, src/os_mswin.c,
            src/proto/gui_w32.pro

Patch 6.2.420
Problem:    Cannot specify a file to be edited in binary mode without setting
            the global value of the 'binary' option.
Solution:   Support ":edit ++bin file".
Files:      runtime/doc/editing.txt, src/buffer.c, src/eval.c, src/ex_cmds.h,
            src/ex_docmd.c, src/fileio.c, src/misc2.c

Patch 6.2.421
Problem:    Cannot set the '[ and '] mark, which may be necessary when an
            autocommand simulates reading a file.
Solution:   Allow using "m[" and "m]".
Files:      runtime/doc/motion.txt, src/mark.c

Patch 6.2.422
Problem:    In CTRL-X completion messages the "/" makes them less readable.
Solution:   Remove the slashes. (Antony Scriven)
Files:      src/edit.c

Patch 6.2.423
Problem:    ":vertical wincmd ]" does not split vertically.
Solution:   Add "postponed_split_flags".
Files:      src/ex_docmd.c, src/globals.h, src/if_cscope.c, src/tag.c

Patch 6.2.424
Problem:    A BufEnter autocommand that sets an option stops 'mousefocus' from
            working in Insert mode (Normal mode is OK). (Gregory Seidman)
Solution:   In the Insert mode loop invoke gui_mouse_correct() when needed.
Files:      src/edit.c

Patch 6.2.425
Problem:    Vertical split and command line window: can only drag status line
            above the cmdline window on the righthand side, not lefthand side.
Solution:   Check the status line row instead of the window pointer.
Files:      src/ui.c

Patch 6.2.426
Problem:    A syntax region end match with a matchgroup that includes a line
            break only highlights the last line with matchgroup. (Gary
            Holloway)
Solution:   Also use the line number of the position where the region
            highlighting ends.
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Files:      src/syntax.c

Patch 6.2.427 (extra)
Problem:    When pasting a lot of text in a multi-byte encoding, conversion
            from 'termencoding' to 'encoding' may fail for some characters.
            (Kuang-che Wu)
Solution:   When there is an incomplete byte sequence at the end of the read
            text keep it for the next time.
Files:      src/mbyte.c, src/os_amiga.c, src/os_mswin.c, src/proto/mbyte.pro,
            src/proto/os_mswin.pro, src/ui.c

Patch 6.2.428
Problem:    The X11 clipboard supports the Vim selection for char/line/block
            mode, but since the encoding is not included  can't copy/paste
            between two Vims with a different 'encoding'.
Solution:   Add a new selection format that includes the 'encoding'.  Perform
            conversion when necessary.
Files:      src/gui_gtk_x11.c, src/ui.c, src/vim.h

Patch 6.2.429
Problem:    Unix: glob() doesn't work for a directory with a single quote in
            the name. (Nazri Ramliy)
Solution:   When using the shell to expand, only put double quotes around
            spaces and single quotes, not the whole thing.
Files:      src/os_unix.c

Patch 6.2.430
Problem:    BOM at start of a vim script file is not recognized and causes an
            error message.
Solution:   Detect the BOM and skip over it.  Also fix that after using
            ":scriptencoding" the iconv() file descriptor was not closed
            (memory leak).
Files:      src/ex_cmds2.c

Patch 6.2.431
Problem:    When using the horizontal scrollbar, the scrolling is limited to
            the length of the cursor line.
Solution:   Make the scroll limit depend on the longest visible line.  The
            cursor is moved when necessary.  Including the 'h' flag in
            'guioptions' disables this.
Files:      runtime/doc/gui.txt, runtime/doc/options.txt, src/gui.c,
            src/misc2.c, src/option.h

Patch 6.2.432 (after 6.2.430 and 6.2.431)
Problem:    Lint warnings.
Solution:   Add type casts.
Files:      src/ex_cmds2.c, src/gui.c

Patch 6.2.433
Problem:    Translating "VISUAL" and "BLOCK" separately doesn't give a good
            result. (Alejandro Lopez Valencia)
Solution:   Use a string for each combination.
Files:      src/screen.c
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Patch 6.2.434 (after 6.2.431)
Problem:    Compiler warning. (Salman Halim)
Solution:   Add type casts.
Files:      src/gui.c

Patch 6.2.435
Problem:    When there are vertically split windows the minimal Vim window
            height is computed wrong.
Solution:   Use frame_minheight() to correctly compute the minimal height.
Files:      src/window.c

Patch 6.2.436
Problem:    Running the tests changes the user's viminfo file.
Solution:   In test 49 tell the extra Vim to use the test viminfo file.
Files:      src/testdir/test49.vim

Patch 6.2.437
Problem:    ":mksession" always puts "set nocompatible" in the session file.
            This changes option settings. (Ron Aaron)
Solution:   Add an "if" to only change 'compatible' when needed.
Files:      src/ex_docmd.c

Patch 6.2.438
Problem:    When the 'v' flag is present in 'cpoptions', backspacing and then
            typing text again: one character too much is overtyped before
            inserting is done again.
Solution:   Set "dollar_vcol" to the right column.
Files:      src/edit.c

Patch 6.2.439
Problem:    GTK 2: Changing 'lines' may cause a mismatch between the window
            layout and the size of the window.
Solution:   Disable the hack with force_shell_resize_idle().
Files:      src/gui_gtk_x11.c

Patch 6.2.440
Problem:    When 'lazyredraw' is set the window title is still updated.
            The size of the Visual area and the ruler are displayed too often.
Solution:   Postpone redrawing the window title.  Only show the Visual area
            size when waiting for a character.  Don't draw the ruler
            unnecessary.
Files:      src/buffer.c, src/normal.c, src/screen.c

Patch 6.2.441
Problem:    ":unabbreviate foo " doesn't work, because of the trailing space,
            while an abbreviation with a trailing space is not possible. (Paul
            Jolly)
Solution:   Accept a match with the lhs of an abbreviation without the
            trailing space.
Files:      src/getchar.c

Patch 6.2.442
Problem:    Cannot manipulate the command line from a function.
Solution:   Add getcmdline(), getcmdpos() and setcmdpos() functions and the
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            CTRL-\ e command.
Files:      runtime/doc/cmdline.txt, runtime/doc/eval.txt, src/eval.c
            src/ex_getln.c, src/ops.c, src/proto/ex_getln.pro,
            src/proto/ops.pro

Patch 6.2.443
Problem:    With ":silent! echoerr something" you don't get the position of
            the error.  emsg() only writes the message itself and returns.
Solution:   Also redirect the position of the error.
Files:      src/message.c

Patch 6.2.444
Problem:    When adding the 'c' flag to a ":substitute" command it may replace
            more times than without the 'c' flag.  Happens for a  match that
            starts with "\ze" (Marcel Svitalsk) and when using "\@<=" (Klaus
            Bosau).
Solution:   Correct "prev_matchcol" when replacing the line.  Don't replace
            the line when the pattern uses look-behind matching.
Files:      src/ex_cmds.c, src/proto/regexp.pro, src/regexp.c

Patch 6.2.445
Problem:    Copying vimtutor to /tmp/something is not secure, a symlink may
            cause trouble.
Solution:   Create a directory and create the file in it.  Use "umask" to
            create the directory with mode 700.  (Stefan Nordhausen)
Files:      src/vimtutor

Patch 6.2.446 (after 6.2.404)
Problem:    Using library functions wcwidth() and iswprint() results in
            display problems for Hebrew characters. (Ron Aaron)
Solution:   Disable the code to use the library functions, use our own.
Files:      src/mbyte.c

Patch 6.2.447 (after 6.2.440)
Problem:    Now that the title is only updated when redrawing, it is no longer
            possible to show it while executing a function. (Madoka Machitani)
Solution:   Make ":redraw" also update the title.
Files:      src/ex_docmd.c

Patch 6.2.448 (after 6.2.427)
Problem:    Mac: conversion done when 'termencoding' differs from 'encoding'
            fails when pasting a longer text.
Solution:   Check for an incomplete sequence at the end of the chunk to be
            converted. (Eckehard Berns)
Files:      src/mbyte.c

Patch 6.2.449 (after 6.2.431)
Problem:    Get error messages when switching files.
Solution:   Check for a valid line number when calculating the width of the
            horizontal scrollbar. (Helmut Stiegler)
Files:      src/gui.c

Patch 6.2.450
Problem:    "  #include" and "  #define" are not recognized with the default
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            option values for 'include' and 'defined'. (RG Kiran)
Solution:   Adjust the default values to allow white space before the #.
Files:      runtime/doc/options.txt, src/option.c

Patch 6.2.451
Problem:    GTK: when using XIM there are various problems, including setting
            'modified' and breaking undo at the wrong moment.
Solution:   Add "xim_changed_while_preediting", "preedit_end_col" and
            im_is_preediting(). (Yasuhiro Matsumoto)
Files:      src/ex_getln.c, src/globals.h, src/gui_gtk.c, src/gui_gtk_x11.c,
            src/mbyte.c, src/misc1.c, src/proto/mbyte.pro, src/screen.c,
            src/undo.c

Patch 6.2.452
Problem:    In diff mode, when DiffAdd and DiffText highlight settings are
            equal, an added line is highlighted with DiffChange. (Tom Schumm)
Solution:   Remember the diff highlight type instead of the attributes.
Files:      src/screen.c

Patch 6.2.453
Problem:    ":s/foo\|\nbar/x/g" does not replace two times in "foo\nbar".
            (Pavel Papushev)
Solution:   When the pattern can match a line break also try matching at the
            NUL at the end of a line.
Files:      src/ex_cmds.c, src/regexp.c

Patch 6.2.454
Problem:    ":let b:changedtick" doesn't work. (Alan Schmitt)  ":let
            b:changedtick = 99" does not give an error message.
Solution:   Add code to recognize ":let b:changedtick".
Files:      src/eval.c

Patch 6.2.455 (after 6.2.297)
Problem:    In Python commands the current locale changes how certain Python
            functions work. (Eugene M. Minkovskii)
Solution:   Set the LC_NUMERIC locale to "C" while executing a Python command.
Files:      src/if_python.c

Patch 6.2.456 (extra)
Problem:    Win32: Editing a file by its Unicode name (dropping it on Vim or
            using the file selection dialog) doesn't work. (Yakov Lerner, Alex
            Jakushev)
Solution:   Use wide character functions when file names are involved and
            convert from/to 'encoding' where needed.
Files:      src/gui_w48.c, src/macros.h, src/memfile.c, src/memline.c,
            src/os_mswin.c, src/os_win32.c

Patch 6.2.457 (after 6.2.244)
Problem:    When 'encoding' is "utf-8" and writing text with chars above 0x80
            in latin1, conversion is wrong every 8200 bytes. (Oyvind Holm)
Solution:   Correct the utf_ptr2len_check_len() function and fix the problem
            of displaying 0xf7 in utfc_ptr2len_check_len().
Files:      src/mbyte.c
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Patch 6.2.458
Problem:    When 'virtualedit' is set "$" doesn't move to the end of an
            unprintable character, causing "y$" not to include that character.
            (Fred Ma)
Solution:   Set "coladd" to move the cursor to the end of the character.
Files:      src/misc2.c

Patch 6.2.459 (after 6.2.454)
Problem:    Variable "b" cannot be written. (Salman Halim)
Solution:   Compare strings properly.
Files:      src/eval.c

Patch 6.2.460 (extra, after 6.2.456)
Problem:    Compiler warnings for missing prototypes.
Solution:   Include the missing prototypes.
Files:      src/proto/os_win32.pro

Patch 6.2.461
Problem:    After using a search command "x" starts putting single characters
            in the numbered registers.
Solution:   Reset "use_reg_one" at the right moment.
Files:      src/normal.c

Patch 6.2.462
Problem:    Finding a matching parenthesis does not correctly handle a
            backslash in a trailing byte.
Solution:   Handle multi-byte characters correctly. (Taro Muraoka)
Files:      src/search.c

Patch 6.2.463 (extra)
Problem:    Win32: An NTFS file system may contain files with extra info
            streams.  The current method to copy them creates one and then
            deletes it again.  (Peter Toennies)  Also, only three streams with
            hard coded names are copied.
Solution:   Use BackupRead() to check which info streams the original file
            contains and only copy these streams.
Files:      src/os_win32.c

Patch 6.2.464 (extra, after 6.2.427)
Problem:    Amiga: Compilation error with gcc. (Ali Akcaagac)
Solution:   Move the #ifdef outside of Read().
Files:      src/os_amiga.c

Patch 6.2.465
Problem:    When resizing the GUI window the window manager sometimes moves it
            left of or above the screen. (Michael McCarty)
Solution:   Check the window position after resizing it and move it onto the
            screen when it isn't.
Files:      src/gui.c

Patch 6.2.466 (extra, after 6.2.456)
Problem:    Win32: Compiling with Borland C fails, and an un/signed warning.
Solution:   Redefine wcsicmp() to wcscmpi() and add type casts. (Yasuhiro
            Matsumoto)
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Files:      src/os_win32.c

Patch 6.2.467 (extra, after 6.2.463)
Problem:    Win32: can't compile without multi-byte feature. (Ajit Thakkar)
Solution:   Add #ifdefs around the info stream code.
Files:      src/os_win32.c

Patch 6.2.468
Problem:    Compiler warnings for shadowed variables. (Matthias Mohr)
Solution:   Delete superfluous variables and rename others.
Files:      src/eval.c, src/ex_docmd.c, src/ex_eval.c, src/if_cscope.c,
            src/fold.c, src/option.c, src/os_unix.c, src/quickfix.c,
            src/regexp.c

Patch 6.2.469 (extra, after 6.2.456)
Problem:    Win32: Can't create swap file when 'encoding' differs from the
            active code page. (Kriton Kyrimis)
Solution:   In enc_to_ucs2() terminate the converted string with a NUL
Files:      src/os_mswin.c

Patch 6.2.470
Problem:    The name returned by tempname() may be equal to the file used for
            shell output when ignoring case.
Solution:   Skip 'O' and 'I' in tempname().
Files:      src/eval.c

Patch 6.2.471
Problem:    "-L/usr/lib" is used in the link command, even though it's
            supposed to be filtered out. "-lw" and "-ldl" are not
            automatically added when needed for "-lXmu". (Antonio Colombo)
Solution:   Check for a space after the argument instead of before.  Also
            remove "-R/usr/lib" if it's there.  Check for "-lw" and "-ldl"
            before trying "-lXmu".
Files:      src/auto/configure, src/configure.in, src/link.sh

Patch 6.2.472
Problem:    When using a FileChangedShell autocommand that changes the current
            buffer, a buffer exists that can't be wiped out.
            Also, Vim sometimes crashes when executing an external command
            that changes the buffer and a FileChangedShell autocommand is
            used.  (Hari Krishna Dara)
            Users are confused by the warning for a file being changed outside
            of Vim.
Solution:   Avoid that the window counter for a buffer is incremented twice.
            Avoid that buf_check_timestamp() is used recursively.
            Add a hint to look in the help for more info.
Files:      src/ex_cmds.c, src/fileio.c

Patch 6.2.473
Problem:    Using CTRL-] in a help buffer without a name causes a crash.
Solution:   Check for name to be present before using it. (Taro Muraoka)
Files:      src/tag.c

Patch 6.2.474 (extra, after 6.2.456)
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Problem:    When Vim is starting up conversion is done unnecessarily.  Failure
            to find the runtime files on Windows 98. (Randall W. Morris)
Solution:   Init enc_codepage negative, only use it when not negative.
            Don't use GetFileAttributesW() on Windows 98 or earlier.
Files:      src/globals.h, src/gui_w32.c, src/gui_w48.c, src/os_mswin.c,
            src/os_win32.c

Patch 6.2.475
Problem:    Commands after "perl <<EOF" are parsed as Vim commands when they
            are not executed.
Solution:   Properly skip over the perl commands.
Files:      src/ex_docmd.c, src/ex_getln.c, src/if_perl.xs, src/if_python.c,
            src/if_ruby.c, src/if_tcl.c, src/misc2.c

Patch 6.2.476
Problem:    When reloading a hidden buffer changed outside of Vim and the
            current buffer is read-only, the reloaded buffer becomes
            read-only.  (Hari Krishna Dara)
Solution:   Save the 'readonly' flag of the reloaded buffer instead of the
            current buffer.
Files:      src/fileio.c

Patch 6.2.477
Problem:    Using remote_send(v:servername, "\<C-V>") causes Vim to hang.
            (Yakov Lerner)
Solution:   When the resulting string is empty don't set received_from_client.
Files:      src/main.c

Patch 6.2.478
Problem:    Win32: "--remote file" fails changing directory if the current
            directory name starts with a single quote.  (Iestyn Walters)
Solution:   Add a backslash where it will be removed later.
Files:      src/main.c, src/misc2.c, src/proto/misc2.pro

Patch 6.2.479
Problem:    The error message for errors during recovery goes unnoticed.
Solution:   Avoid that the hit-enter prompt overwrites the message.  Add a few
            lines to make the error stand out.
Files:      src/main.c, src/message.c, src/memline.c

Patch 6.2.480
Problem:    NetBeans: Using negative index in array.  backslash at end of
            message may cause Vim to crash. (Xavier de Gaye)
Solution:   Initialize buf_list_used to zero. Check for trailing backslash.
Files:      src/netbeans.c

Patch 6.2.481
Problem:    When writing a file it is not possible to specify that hard and/or
            symlinks are to be broken instead of preserved.
Solution:   Add the "breaksymlink" and "breakhardlink" values to 'backupcopy'.
            (Simon Ekstrand)
Files:      runtime/doc/options.txt, src/fileio.c, src/option.c, src/option.h

Patch 6.2.482
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Problem:    Repeating insert of CTRL-K 1 S doesn't work.  The superscript 1 is
            considered to be a digit. (Juergen Kraemer)
Solution:   In vim_isdigit() only accept '0' to '9'.  Use VIM_ISDIGIT() for
            speed where possible.  Also add vim_isxdigit().
Files:      src/buffer.c, src/charset.c, src/diff.c, src/digraph.c,
            src/edit.c, src/eval.c,, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_eval.c, src/ex_getln.c,
            src/if_xcmdsrv.c, src/farsi.c, src/fileio.c, src/fold.c,
            src/getchar.c, src/gui.c, src/if_cscope.c, src/macros.h,
            src/main.c, src/mark.c, src/mbyte.c, src/menu.c, src/misc1.c,
            src/misc2.c, src/normal.c, src/ops.c, src/option.c,
            src/proto/charset.pro, src/regexp.c, src/screen.c, src/search.c,
            src/syntax.c, src/tag.c, src/term.c, src/termlib.c

Patch 6.2.483 (extra, after 6.2.482)
Problem:    See 6.2.482.
Solution:   Extra part of patch 6.2.482.
Files:      src/gui_photon.c, src/gui_w48.c, src/os_msdos.c, src/os_mswin.c

Patch 6.2.484
Problem:    MS-Windows: With the included diff.exe, differences after a CTRL-Z
            are not recognized.  (Peter Keresztes)
Solution:   Write the files with unix fileformat and invoke diff with --binary
            if possible.
Files:      src/diff.c

Patch 6.2.485
Problem:    A BufWriteCmd autocommand cannot know if "!" was used or not.
            (Hari Krishna Dara)
Solution:   Add the v:cmdbang variable.
Files:      runtime/doc/eval.txt, src/eval.c, src/proto/eval.pro,
            src/fileio.c, src/vim.h

Patch 6.2.486 (6.2.482)
Problem:    Diff for eval.c is missing.
Solution:   Addition to patch 6.2.482.
Files:      src/eval.c

Patch 6.2.487 (extra, after 6.2.456)
Problem:    Compiler warnings for wrong prototype. (Alejandro Lopez Valencia)
Solution:   Delete the prototype for Handle_WM_Notify().
Files:      src/proto/gui_w32.pro

Patch 6.2.488
Problem:    Missing ")" in *.ch filetype detection.
Solution:   Add the ")".  (Ciaran McCreesh)
Files:      runtime/filetype.vim

Patch 6.2.489
Problem:    When accidentally opening a session in Vim which has already been
            opened in another Vim there is a long row of ATTENTION prompts.
            Need to quit each of them to get out. (Robert Webb)
Solution:   Add the "Abort" alternative to the dialog.
Files:      src/memline.c
```

Patch 6.2.490
Problem: With 'paragraph' it is not possible to use a single dot as a
            paragraph boundary. (Dorai Sitaram)
Solution: Allow using " " (two spaces) in 'paragraph' to match ".$" or
            ". $"
Files: src/search.c

Patch 6.2.491
Problem: Decrementing a position doesn't take care of multi-byte chars.
Solution: Adjust the column for multi-byte characters. Remove mb_dec().
            (Yasuhiro Matsumoto)
Files: src/mbyte.c, src/misc2.c, src/proto/mbyte.pro

Patch 6.2.492
Problem: When using ":redraw" while there is a message, the next ":echo"
            still causes text to scroll. (Yasuhiro Matsumoto)
Solution: Reset msg_didout and msg_col, so that after ":redraw" the next
            message overwrites an existing one.
Files: src/ex_docmd.c

Patch 6.2.493
Problem: "@x" doesn't work when 'insertmode' is set. (Benji Fisher)
Solution: Put "restart_edit" in the typeahead buffer, so that it's used
            after executing the register contents.
Files: src/ops.c

Patch 6.2.494
Problem: Using diff mode with two windows, when moving horizontally in
            inserted lines, a fold in the other window may open.
Solution: Compute the line number in the other window correctly.
Files: src/diff.c

Patch 6.2.495 (extra, after 6.2.456)
Problem: Win32: The file dialog doesn't work on Windows 95.
Solution: Put the wide code of gui_mch_browse() in gui_mch_browseW() and use
            it only on Windows NT/2000/XP.
Files: src/gui_w32.c, src/gui_w48.c

Patch 6.2.496
Problem: FreeBSD 4.x: When compiled with the pthread library (Python) a
            complicated pattern may cause Vim to crash. Catching the signal
            doesn't work.
Solution: When compiled with threads, instead of using the normal stacksize
            limit, use the size of the initial stack.
Files: src/auto/configure, src/config.h.in, src/configure.in,
            src/os_unix.c

Patch 6.2.497 (extra)
Problem: Russian messages are only available in one encoding.
Solution: Convert the messages to MS-Windows codepages. (Vassily Ragosin)
Files: src/po/Makefile

Patch 6.2.498

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Problem:    Non-latin1 help files are not properly supported.
Solution:   Support utf-8 help files and convert them to 'encoding' when
            needed.
Files:      src/fileio.c

Patch 6.2.499
Problem:    When writing a file and halting the system, the file might be lost
            when using a journaling file system.
Solution:   Use fsync() to flush the file data to disk after writing a file.
            (Radim Kolar)
Files:      src/fileio.c

Patch 6.2.500 (extra)
Problem:    The DOS/MS-Windows the installer doesn't use the --binary flag for
            diff.
Solution:   Add --binary to the diff argument in MyDiff(). (Alejandro Lopez-
            Valencia)
Files:      src/dosinst.c

Patch 6.2.501
Problem:    Vim does not compile with MorphOS.
Solution:   Add a Makefile and a few changes to make Vim work with MorphOS.
            (Ali Akcaagac)
Files:      runtime/doc/os_amiga.txt, src/INSTALLami.txt,
            src/Make_morphos.mak, src/memfile.c, src/term.c

Patch 6.2.502
Problem:    Building fails for generating message files.
Solution:   Add dummy message files.
Files:      src/po/ca.po, src/po/ru.po, src/po/sv.po

Patch 6.2.503
Problem:    Mac: Can't compile MacRoman conversions without the GUI.
Solution:   Also link with the Carbon framework for the terminal version, for
            the MacRoman conversion functions. (Eckehard Berns)
            Remove -ltermcap from the GUI link command, it is not needed.
Files:      src/auto/configure, src/Makefile, src/configure.in

Patch 6.2.504
Problem:    Various problems with 'cindent', among which that a
            list of variable declarations is not indented properly.
Solution:   Fix the wrong indenting.  Improve indenting of C++ methods.
            Add the 'i', 'b' and 'W' options to 'cinoptions'. (mostly by
            Helmut Stiegler)
            Improve indenting of preprocessor-continuation lines.
Files:      runtime/doc/indent.txt, src/misc1.c, src/testdir/test3.in,
            src/testdir/test3.ok

Patch 6.2.505
Problem:    Help for -P argument is missing. (Ronald Hoellwarth)
Solution:   Add the patch that was missing in 6.2.419.
Files:      runtime/doc/starting.txt

Patch 6.2.506 (extra)
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Problem: Win32: When 'encoding' is a codepage then reading a utf-8 file
            only works when iconv is available. Writing a file in another
            codepage uses the wrong kind of conversion.
Solution: Use internal conversion functions. Enable reading and writing
            files with 'fileencoding' different from 'encoding' for all valid
            codepages and utf-8 without the need for iconv.
Files: src/fileio.c, src/testdir/Make_dos.mak, src/testdir/test52.in,
            src/testdir/test52.ok

Patch 6.2.507
Problem: The ownership of the file with the password for the NetBeans
            connection is not checked. "-nb={file}" doesn't work for GTK.
Solution: Only accept the file when owned by the user and not accessible by
            others. Detect "-nb=" for GTK.
Files: src/netbeans.c, src/gui_gtk_x11.c

Patch 6.2.508
Problem: Win32: "v:lang" does not show the current language for messages if
            it differs from the other locale settings.
Solution: Use the value of the $LC_MESSAGES environment variable.
Files: src/ex_cmds2.c

Patch 6.2.509 (after 6.2.508)
Problem: Crash when $LANG is not set.
Solution: Add check for NULL pointer. (Ron Aaron)
Files: src/ex_cmds2.c

Patch 6.2.510 (after 6.2.507)
Problem: Warning for pointer conversion.
Solution: Add a type cast.
Files: src/gui_gtk_x11.c

Patch 6.2.511
Problem: Tags in Russian help files are in utf-8 encoding, which may be
            different from 'encoding'.
Solution: Use the "TAG_FILE_ENCODING" field in the tags file to specify the
            encoding of the tags. Convert help tags from 'encoding' to the
            tag file encoding when searching for matches, do the reverse when
            listing help tags.
Files: runtime/doc/tagsrch.txt, src/ex_cmds.c, src/tag.c

Patch 6.2.512
Problem: Translating "\"\n" is useless. (Gerfried Fuchs)
Solution: Remove the _() around it.
Files: src/main.c, src/memline.c

Patch 6.2.513 (after 6.2.507)
Problem: NetBeans: the check for owning the connection info file can be
            simplified. (Nikolay Molchanov)
Solution: Only check if the access mode is right.
Files: src/netbeans.c

Patch 6.2.514
Problem: When a highlight/syntax group name contains invalid characters

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            there is no warning.
Solution:   Add an error for unprintable characters and a warning for other
            invalid characters.
Files:      src/syntax.c

Patch 6.2.515
Problem:    When using the options window 'swapfile' is reset.
Solution:   Use ":setlocal" instead of ":set".
Files:      runtime/optwin.vim

Patch 6.2.516
Problem:    The sign column cannot be seen, looks like there are two spaces
            before the text. (Rob Retter)
Solution:   Add the SignColumn highlight group.
Files:      runtime/doc/options.txt, runtime/doc/sign.txt, src/option.c,
            src/screen.c, src/syntax.c, src/vim.h

Patch 6.2.517
Problem:    Using "r*" in Visual mode on multi-byte characters replaces
            too many characters.  In Visual Block mode replacing with a
            multi-byte character doesn't work.
Solution:   Adjust the operator end for the difference in byte length of the
            original and the replaced character.  Insert all bytes of a
            multi-byte character, take care of double-wide characters.
Files:      src/ops.c

Patch 6.2.518
Problem:    Last line of a window is not updated after using "J" and then "D".
            (Adri Verhoef)
Solution:   When no line is found below a change that doesn't need updating,
            update all lines below the change.
Files:      src/screen.c

Patch 6.2.519
Problem:    Mac: cannot read/write files in MacRoman format.
Solution:   Do internal conversion from/to MacRoman to/from utf-8 and latin1.
            (Eckehard Berns)
Files:      src/fileio.c

Patch 6.2.520 (extra)
Problem:    The NSIS installer is outdated.
Solution:   Make it work with NSIS 2.0.  Also include console executables for
            Win 95/98/ME and Win NT/2000/XP.  Use LZWA compression.  Use
            "/oname" to avoid having to rename files before running NSIS.
Files:      Makefile, nsis/gvim.nsi

Patch 6.2.521
Problem:    When using silent Ex mode the "changing a readonly file" warning
            is omitted but the one second wait isn't. (Yakov Lerner)
Solution:   Skip the delay when "silent_mode" is set.
Files:      src/misc1.c

Patch 6.2.522
Problem:    GUI: when changing 'cmdheight' in the gvimrc file the window
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            layout is messed up. (Keith Dart)
Solution:   Skip updating the window layout when changing 'cmdheight' while
            still starting up.
Files:      src/option.c

Patch 6.2.523
Problem:    When loading a session and aborting when a swap file already
            exists, the user is left with useless windows. (Robert Webb)
Solution:   Load one file before creating the windows.
Files:      src/ex_docmd.c

Patch 6.2.524 (extra, after 6.2.520)
Problem:    Win32: (un)installing gvimext.dll may fail if it was used.
            The desktop and start menu links are created for the current user
            instead of all users.
            Using the home directory as working directory for the links is a
            bad idea for multi-user systems.
            Cannot use Vim from the "Open With..." menu.
Solution:   Force a reboot if necessary. (Alejandro Lopez-Valencia)  Also use
            macros for the directory of the source and runtime files.  Use
            "CSIDL_COMMON_*" instead of "CSIDL_*" when possible.
            Do not specify a working directory in the links.
            Add Vim to the "Open With..." menu. (Giuseppe Bilotta)
Files:      nsis/gvim.nsi, src/dosinst.c, src/dosinst.h, src/uninstal.c

Patch 6.2.525
Problem:    When the history contains a very long line ":history" causes a
            crash. (Volker Kiefel)
Solution:   Shorten the history entry to fit it in one line.
Files:      src/ex_getln.c

Patch 6.2.526
Problem:    When s:lang is "ja" the Japanese menus are not used.
Solution:   Add 'encoding' to the language when there is no charset.
Files:      runtime/menu.vim

Patch 6.2.527
Problem:    The 2html script uses ":wincmd p", which breaks when using some
            autocommands.
Solution:   Remember the window numbers and jump to them with ":wincmd w".
            Also add XHTML support. (Panagiotis Issaris)
Files:      runtime/syntax/2html.vim

Patch 6.2.528
Problem:    NetBeans: Changes of the "~" command are not reported.
Solution:   Call netbeans_inserted() after performing "~". (Gordon Prieur)
            Also change NetBeans debugging to append to the log file.
            Also fix that "~" in Visual block mode changes too much if there
            are multi-byte characters.
Files:      src/nbdebug.c, src/normal.c, src/ops.c

Patch 6.2.529 (extra)
Problem:    VisVim only works for Admin.  Doing it for one user doesn't work.
            (Alexandre Gouraud)
```

```
Solution:   When registering the module fails, simply continue.
Files:      src/VisVim/VisVim.cpp

Patch 6.2.530
Problem:    Warning for missing prototype on the Amiga.
Solution:   Include time.h
Files:      src/version.c

Patch 6.2.531
Problem:    In silent ex mode no messages are given, which makes debugging
            very difficult.
Solution:   Do output messages when 'verbose' is set.
Files:      src/message.c, src/ui.c

Patch 6.2.532 (extra)
Problem:    Compiling for Win32s with VC 4.1 doesn't work.
Solution:   Don't use CP_UTF8 if it's not defined.  Don't use CSIDL_COMMON*
            when not defined.
Files:      src/dosinst.h, src/fileio.c

Win32 console: After patch 6.2.398 Ex mode did not work. (Yasuhiro Matsumoto)

Patch 6.3a.001
Problem:    Win32: if testing for the "--binary" option fails, diff isn't used
            at all.
Solution:   Handle the "ok" flag properly. (Yasuhiro Matsumoto)
Files:      src/diff.c

Patch 6.3a.002
Problem:    NetBeans: An insert command from NetBeans beyond the end of a
            buffer crashes Vim. (Xavier de Gaye)
Solution:   Use a local pos_T structure for the position.
Files:      src/netbeans.c

Patch 6.3a.003
Problem:    E315 error with auto-formatting comments. (Henry Van Roessel)
Solution:   Pass the line number to same_leader().
Files:      src/ops.c

Patch 6.3a.004
Problem:    Test32 fails on Windows XP for the DJGPP version.  Renaming
            test11.out fails.
Solution:   Don't try renaming, create new files to use for the test.
Files:      src/testdir/test32.in, src/testdir/test32.ok

Patch 6.3a.005
Problem:    ":checkpath!" does not use 'includeexpr'.
Solution:   Use a file name that was found directly.  When a file was not
            found and the located name is empty, use the rest of the line.
Files:      src/search.c

Patch 6.3a.006
Problem:    "yip" moves the cursor to the first yanked line, but not to the
            first column.  Looks like not all text was yanked. (Jens Paulus)
```

```
Solution:   Move the cursor to the first column.
Files:      src/search.c

Patch 6.3a.007
Problem:    'cindent' recognizes "enum" but not "typedef enum".
Solution:   Skip over "typedef" before checking for "enum". (Helmut Stiegler)
            Also avoid that searching for this item goes too far back.
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 6.3a.008 (extra)
Problem:    Windows 98: Some of the wide functions are not implemented,
            resulting in file I/O to fail.  This depends on what Unicode
            support is installed.
Solution:   Handle the failure and fall back to non-wide functions.
Files:      src/os_win32.c

Patch 6.3a.009
Problem:    Win32: Completion of filenames does not work properly when
            'encoding' differs from the active code page.
Solution:   Use wide functions for expanding wildcards when appropriate.
Files:      src/misc1.c

Patch 6.3a.010 (extra)
Problem:    Win32: Characters in the window title that do not appear in the
            active codepage are replaced by a question mark.
Solution:   Use DefWindowProcW() instead of DefWindowProc() when possible.
Files:      src/glbl_ime.cpp, src/globals.h, src/proto/gui_w16.pro,
            src/proto/gui_w32.pro, src/gui_w16.c, src/gui_w32.c, src/gui_w48.c

Patch 6.3a.011
Problem:    Using the explorer plugin changes a local directory to the global
            directory.
Solution:   Don't use ":chdir" to restore the current directory.  Make
            "expand('%:p')" remove "/../" and "/./" items from the path.
Files:      runtime/plugin/explorer.vim, src/eval.c, src/os_unix.c

Patch 6.3a.012 (extra)
Problem:    On Windows 98 the installer doesn't work, don't even get the "I
            agree" button.  The check for the path ending in "vim" makes the
            browse dialog hard to use.  The default path when no previous Vim
            is installed is "c:\vim" instead of "c:\Program Files\Vim".
Solution:   Remove the background gradient command.  Change the
            .onVerifyInstDir function to a leave function for the directory
            page.  Don't let the install program default to c:\vim when no
            path could be found.
Files:      nsis/gvim.nsi, src/dosinst.c

Patch 6.3a.013 (extra)
Problem:    Win32: Characters in the menu that are not in the active codepage
            are garbled.
Solution:   Convert menu strings from 'encoding' to the active codepage.
Files:      src/gui_w32.c, src/gui_w48.c

Patch 6.3a.014
```

```
Problem:    Using multi-byte text and highlighting in a statusline causes gaps
            to appear. (Helmut Stiegler)
Solution:   Advance the column by text width instead of number of bytes.  Add
            the vim_strnsize() function.
Files:      src/charset.c, src/proto/charset.pro, src/screen.c

Patch 6.3a.015
Problem:    Using the "select all" menu item when 'insertmode' is set and
            clicking the mouse button doesn't return to Insert mode.  The
            Buffers/Delete menu doesn't offer a choice to abandon a changed
            buffer.  (Jens Paulus)
Solution:   Don't use CTRL-\ CTRL-N.  Add ":confirm" for the Buffers menu
            items.
Files:      runtime/menu.vim

Patch 6.3a.016
Problem:    After cancelling the ":confirm" dialog the error message and
            hit-enter prompt may not be displayed properly.
Solution:   Flush output after showing the dialog.
Files:      src/message.c

Patch 6.3a.017
Problem:    servername() doesn't work when Vim was started with the "-X"
            argument or when the "exclude" in 'clipboard' matches the terminal
            name.  (Robert Nowotniak)
Solution:   Force connecting to the X server when using client-server
            commands.
Files:      src/eval.c, src/globals.h, src/os_unix.c

Patch 6.3a.018 (after 6.3a.017)
Problem:    Compiler warning for return value of make_connection().
Solution:   Use void return type.
Files:      src/eval.c

Patch 6.3a.019 (extra)
Problem:    Win32: typing non-latin1 characters doesn't work.
Solution:   Invoke _OnChar() directly to avoid that the argument is truncated
            to a byte.  Convert the UTF-16 character to bytes according to
            'encoding' and ignore 'termencoding'.  Same for _OnSysChar().
Files:      src/gui_w32.c, src/gui_w48.c

Patch 6.3a.020 (extra)
Problem:    Missing support for AROS (AmigaOS reimplementation).  Amiga GUI
            doesn't work.
Solution:   Add AROS support.  (Adam Chodorowski)
            Fix Amiga GUI problems. (Georg Steger, Ali Akcaagac)
Files:      Makefile, src/Make_aros.mak, src/gui_amiga.c, src/gui_amiga.h,
            src/memfile.c, src/os_amiga.c, src/term.c

Patch 6.3a.021 (after 6.3a.017)
Problem:    Can't compile with X11 but without GUI.
Solution:   Put use of "gui.in_use" inside an #ifdef.
Files:      src/eval.c
```

Patch 6.3a.022
Problem: When typing Tabs when 'softtabstop' is used and 'list' is set a
            tab is counted for two spaces.
Solution: Use the "L" flag in 'cpoptions' to tell whether a tab is counted
            as two spaces or as 'tabstop'. (Antony Scriven)
Files: runtime/doc/options.txt, src/edit.c

Patch 6.3a.023
Problem: Completion on the command line doesn't handle backslashes
            properly. Only the tail of matches is shown, even when not
            completing filenames.
Solution: When turning the string into a pattern double backslashes. Don't
            omit the path when not expanding files or directories.
Files: src/ex_getln.c

Patch 6.3a.024
Problem: The "save all" toolbar item fails for buffers that don't have a
            name. When using ":wa" or closing the Vim window and there are
            nameless buffers, browsing for a name may cause the name being
            given to the wrong buffer or not stored properly. ":browse" only
            worked for one file.
Solution: Use ":confirm browse" for "save all".
            Pass buffer argument to setfname(). Restore "browse" flag and
            "forceit" after doing the work for one file.
Files: runtime/menu.vim, src/buffer.c, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/fileio.c, src/memline.c,
            src/message.c, src/window.c, src/proto/buffer.pro,
            src/proto/ex_cmds2.pro, src/proto/memline.pro

Patch 6.3a.025
Problem: Setting 'virtualedit' moves the cursor. (Benji Fisher)
Solution: Update the virtual column before using it.
Files: src/option.c

Patch 6.3a.026 (extra, after 6.3a.008)
Problem: Editing files on Windows 98 doesn't work when 'encoding' is
            "utf-8" (Antoine Mechelynck)
            Warning for missing function prototype.
Solution: For all wide functions check if it failed because it is not
            implemented. Use ANSI function declaration for char_to_string().
Files: src/gui_w48.c, src/os_mswin.c, src/os_win32.c

Patch 6.3a.027 (extra, after 6.3a.026)
Problem: Compiler warning for function argument.
Solution: Declare both char and WCHAR arrays.
Files: src/gui_w48.c

Patch 6.3a.028
Problem: ":normal ." doesn't work inside a function, because redo is saved
            and restored. (Benji Fisher)
Solution: Make a copy of the redo buffer when executing a function.
Files: src/getchar.c

Patch 6.3b.001 (extra)

```
Problem:    Bcc 5: The generated auto/pathdef can't be compiled.
Solution:   Fix the way quotes and backslashes are escaped.
Files:      src/Make_bc5.mak

Patch 6.3b.002
Problem:    Win32: conversion during file write fails when a double-byte
            character is split over two writes.
Solution:   Fix the conversion retry without a trailing byte. (Taro Muraoka)
Files:      src/fileio.c

Patch 6.3b.003 (extra)
Problem:    Win32: When compiling with Borland C 5.5 and 'encoding' is "utf-8"
            then Vim can't open files under MS-Windows 98. (Antoine J.
            Mechelynck)
Solution:   Don't use _wstat(), _wopen() and _wfopen() in this situation.
Files:      src/os_mswin.c, src/os_win32.c

Patch 6.3b.004
Problem:    ":helpgrep" includes a trailing CR in the text line.
Solution:   Remove the CR.
Files:      src/quickfix.c

Patch 6.3b.005
Problem:    ":echo &g:ai" results in the local option value. (Salman Halim)
Solution:   Pass the flags from find_option_end() to get_option_value().
Files:      src/eval.c

Patch 6.3b.006
Problem:    When using "mswin.vim", CTRL-V in Insert mode leaves cursor before
            last pasted character.  (Mathew Davis)
Solution:   Use the same Paste() function as in menu.vim.
Files:      runtime/mswin.vim

Patch 6.3b.007
Problem:    Session file doesn't restore view on windows properly. (Robert
            Webb)
Solution:   Restore window sizes both before and after restoring the view, so
            that the view, cursor position and size are restored properly.
Files:      src/ex_docmd.c

Patch 6.3b.008
Problem:    Using ":finally" in a user command doesn't always work. (Hari
            Krishna Dara)
Solution:   Don't assume that using getexline() means the command was typed.
Files:      src/ex_docmd.c

Patch 6.3b.009 (extra)
Problem:    Win32: When the -P argument is not found in a window title, there
            is no error message.
Solution:   When the window can't be found give an error message and exit.
            Also use try/except to catch failing to open the MDI window.
            (Michael Wookey)
Files:      src/gui_w32.c
```

```
Patch 6.3b.010
Problem:    Win32: Using the "-D" argument and expanding arguments may cause a
            hang, because the terminal isn't initialized yet. (Vince Negri)
Solution:   Don't go into debug mode before the terminal is initialized.
Files:      src/main.c

Patch 6.3b.011
Problem:    Using CTRL-\ e while obtaining an expression aborts the command
            line. (Hari Krishna Dara)
Solution:   Insert the CTRL-\ e as typed.
Files:      src/ex_getln.c

Patch 6.3b.012 (after 6.3b.010)
Problem:    Can't compile with tiny features. (Norbert Tretkowski)
Solution:   Add #ifdefs.
Files:      src/main.c

Patch 6.3b.013
Problem:    Loading a session file results in editing the wrong file in the
            first window when this is not the file at the current position in
            the argument list. (Robert Webb)
Solution:   Check w_arg_idx_invalid to decide whether to edit a file.
Files:      src/ex_docmd.c

Patch 6.3b.014
Problem:    ":runtime! foo*.vim" may using freed memory when a sourced script
            changes the value of 'runtimepath'.
Solution:   Make a copy of 'runtimepath' when looping over the matches.
Files:      src/ex_cmds2.c

Patch 6.3b.015
Problem:    Get lalloc(0) error when using "p" in Visual mode while
            'clipboard' contains "autoselect,unnamed". (Mark Wagonner)
Solution:   Avoid allocating zero bytes.  Obtain the clipboard when necessary.
Files:      src/ops.c

Patch 6.3b.016
Problem:    When 'virtualedit' is used "x" doesn't delete the last character
            of a line that has as many characters as 'columns'. (Yakov Lerner)
Solution:   When the cursor isn't moved let oneright() return FAIL.
Files:      src/edit.c

Patch 6.3b.017
Problem:    Win32: "vim --remote-wait" doesn't exit when the server finished
            editing the file. (David Fishburn)
Solution:   In the rrhelper plugin change backslashes to forward slashes and
            escape special characters.
Files:      runtime/plugin/rrhelper.vim

Patch 6.3b.018
Problem:    The list of help files in the "local additions" table doesn't
            recognize utf-8 encoding. (Yasuhiro Matsumoto)
Solution:   Recognize utf-8 characters.
Files:      src/ex_cmds.c
```

```
Patch 6.3b.019
Problem:    When $VIMRUNTIME is not a full path name the "local additions"
            table lists all the help files.
Solution:   Use fullpathcmp() instead of fnamecmp() to compare the directory
            names.
Files:      src/ex_cmds.c

Patch 6.3b.020
Problem:    When using CTRL-^ when entering a search string, the item in the
            statusline that indicates the keymap is not updated. (Ilya
            Dogolazky)
Solution:   Mark the statuslines for updating.
Files:      src/ex_getln.c

Patch 6.3b.021
Problem:    The swapfile is not readable for others, the ATTENTION prompt does
            not show all info when someone else is editing the same file.
            (Marcel Svitalsky)
Solution:   Use the protection of original file for the swapfile and set it
            after creating the swapfile.
Files:      src/fileio.c

Patch 6.3b.022
Problem:    Using "4v" to select four times the old Visual area may put the
            cursor beyond the end of the line. (Jens Paulus)
Solution:   Correct the cursor column.
Files:      src/normal.c

Patch 6.3b.023
Problem:    When "3dip" starts in an empty line, white lines after the
            non-white lines are not deleted. (Jens Paulus)
Solution:   Include the white lines.
Files:      src/search.c

Patch 6.3b.024
Problem:    "2daw" does not delete leading white space like "daw" does.  (Jens
            Paulus)
Solution:   Include the white space when a count is used.
Files:      src/search.c

Patch 6.3b.025
Problem:    Percentage in ruler isn't updated when a line is deleted. (Jens
            Paulus)
Solution:   Check for a change in line count when deciding to update the ruler.
Files:      src/screen.c, src/structs.h

Patch 6.3b.026
Problem:    When selecting "abort" at the ATTENTION prompt for a file that is
            already being edited Vim crashes.
Solution:   Don't abort creating a new buffer when we really need it.
Files:      src/buffer.c, src/vim.h

Patch 6.3b.027
```

```
Problem:    Win32: When enabling the menu in a maximized window, Vim uses more
            lines than what is room for. (Shizhu Pan)
Solution:   When deciding to call shell_resized(), also compare the text area
            size with Rows and Columns, not just with screen_Rows and
            screen_Columns.
Files:      src/gui.c

Patch 6.3b.028
Problem:    When in diff mode, setting 'rightleft' causes a crash. (Eddine)
Solution:   Check for last column differently when 'rightleft' is set.
Files:      src/screen.c

Patch 6.3b.029
Problem:    Win32: warning for uninitialized variable.
Solution:   Initialize to zero.
Files:      src/misc1.c

Patch 6.3b.030
Problem:    After Visually selecting four characters, changing it to other
            text, Visually selecting and yanking two characters: "." changes
            four characters, another "." changes two characters. (Robert Webb)
Solution:   Don't store the size of the Visual area when redo is active.
Files:      src/normal.c

==============================================================================
VERSION 6.4                                                  version-6.4

This section is about improvements made between version 6.3 and 6.4.

This is a bug-fix release.  There are also a few new features.  The major
number of new items is in the runtime files and translations.

The big MS-Windows version now uses:
        Ruby version 1.8.3
        Perl version 5.8.7
        Python version 2.4.2


Changed                                                      changed-6.4
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Removed runtime/tools/tcltags, Exuberant ctags does it better.


Added                                                        added-6.4
-----

Alsaconf syntax file (Nikolai Weibull)
Eruby syntax, indent, compiler and ftplugin file (Doug Kearns)
Esterel syntax file (Maurizio Tranchero)
Mathematica indent file (Steve Layland)
Netrc syntax file (Nikolai Weibull)
PHP compiler file (Doug Kearns)
Pascal indent file (Neil Carter)
```

Prescribe syntax file (Klaus Muth)
Rubyunit compiler file (Doug Kearns)
SMTPrc syntax file (Kornel Kielczewski)
Sudoers syntax file (Nikolai Weibull)
TPP syntax file (Gerfried Fuchs)
VHDL ftplugin file (R. Shankar)
Verilog-AMS syntax file (S. Myles Prather)

Bulgarian keymap (Alberto Mardegan)
Canadian keymap (Eric Joanis)

Hungarian menu translations in UTF-8 (Kantra Gergely)
Ukrainian menu translations (Bohdan Vlasyuk)

Irish message translations (Kevin Patrick Scannell)

Configure also checks for tclsh8.4.

Fixed fixed-6.4

"dFxd;" deleted the character under the cursor, "d;" didn't remember the
exclusiveness of the motion.

When using "set laststatus=2 cmdheight=2" in the .gvimrc you may only get one
line for the cmdline. (Christian Robinson) Invoke command_height() after the
GUI has started up.

Gcc would warn "dereferencing type-punned pointer will break strict -aliasing
rules". Avoid using typecasts for variable pointers.

Gcc 3.x interprets the -MM argument differently. Change "-I /path" to
"-isystem /path" for "make depend".

Patch 6.3.001
Problem: ":browse split" gives the file selection dialog twice. (Gordon
            Bazeley) Same problem for ":browse diffpatch".
Solution: Reset cmdmod.browse before calling do_ecmd().
Files: src/diff.c, src/ex_docmd.c

Patch 6.3.002
Problem: When using translated help files with non-ASCII latin1 characters
            in the first line the utf-8 detection is wrong.
Solution: Properly detect utf-8 characters. When a mix of encodings is
            detected continue with the next language and avoid a "no matches"
            error because of "got_int" being set. Add the directory name to
            the error message for a duplicate tag.
Files: src/ex_cmds.c

Patch 6.3.003
Problem: Crash when using a console dialog and the first choice does not
            have a default button. (Darin Ohashi)

```
Solution:   Allocate two more characters for the [] around the character for
            the default choice.
Files:      src/message.c

Patch 6.3.004
Problem:    When searching for a long string (140 chars in a 80 column
            terminal) get three hit-enter prompts. (Robert Webb)
Solution:   Avoid the hit-enter prompt when giving the message for wrapping
            around the end of the buffer.  Don't give that message again when
            the string was not found.
Files:      src/message.c, src/search.c

Patch 6.3.005
Problem:    Crash when searching for a pattern with a character offset and
            starting in a closed fold. (Frank Butler)
Solution:   Check for the column to be past the end of the line.  Also fix
            that a pattern with a character offset relative to the end isn't
            read back from the viminfo properly.
Files:      src/search.c

Patch 6.3.006
Problem:    ":breakadd file *foo" prepends the current directory to the file
            pattern. (Hari Krishna Dara)
Solution:   Keep the pattern as-is.
Files:      src/ex_cmds2.c

Patch 6.3.007
Problem:    When there is a buffer with 'buftype' set to "nofile" and using a
            ":cd" command, the swap file is not deleted when exiting.
Solution:   Use the full path of the swap file also for "nofile" buffers.
Files:      src/fileio.c

Patch 6.3.008
Problem:    Compiling fails under OS/2.
Solution:   Include "e_screenmode" also for OS/2. (David Sanders)
Files:      src/globals.h

Patch 6.3.009 (after 6.3.006)
Problem:    ":breakadd file /path/foo.vim" does not match when a symbolic link
            is involved.  (Servatius Brandt)
Solution:   Do expand the pattern when it does not start with "*".
Files:      runtime/doc/repeat.txt, src/ex_cmds2.c

Patch 6.3.010
Problem:    When writing to a named pipe there is an error for fsync()
            failing.
Solution:   Ignore the fsync() error for devices.
Files:      src/fileio.c

Patch 6.3.011
Problem:    Crash when the completion function of a user-command uses a
            "normal :cmd" command.  (Hari Krishna Dara)
Solution:   Save the command line when invoking the completion function.
Files:      src/ex_getln.c
```

```
Patch 6.3.012
Problem:    Internal lalloc(0) error when using a complicated multi-line
            pattern in a substitute command. (Luc Hermitte)
Solution:   Avoid going past the end of a line.
Files:      src/ex_cmds.c

Patch 6.3.013
Problem:    Crash when editing a command line and typing CTRL-R = to evaluate
            a function that uses "normal :cmd". (Hari Krishna Dara)
Solution:   Save and restore the command line when evaluating an expression
            for CTRL-R =.
Files:      src/ex_getln.c, src/ops.c, src/proto/ex_getln.pro,
            src/proto/ops.pro

Patch 6.3.014
Problem:    When using Chinese or Taiwanese the default for 'helplang' is
            wrong. (Simon Liang)
Solution:   Use the part of the locale name after "zh_".
Files:      src/option.c

Patch 6.3.015
Problem:    The string that winrestcmd() returns may end in garbage.
Solution:   NUL-terminate the string. (Walter Briscoe)
Files:      src/eval.c

Patch 6.3.016
Problem:    The default value for 'define' has "\s" before '#'.
Solution:   Add a star after "\s". (Herculano de Lima Einloft Neto)
Files:      src/option.c

Patch 6.3.017
Problem:    "8zz" may leave the cursor beyond the end of the line. (Niko
            Maatjes)
Solution:   Correct the cursor column after moving to another line.
Files:      src/normal.c

Patch 6.3.018
Problem:    ":0argadd zero" added the argument after the first one, instead of
            before it. (Adri Verhoef)
Solution:   Accept a zero range for ":argadd".
Files:      src/ex_cmds.h

Patch 6.3.019
Problem:    Crash in startup for debug version. (David Rennals)
Solution:   Move the call to nbdebug_wait() to after allocating NameBuff.
Files:      src/main.c

Patch 6.3.020
Problem:    When 'encoding' is "utf-8" and 'delcombine' is set, "dw" does not
            delete a word but only a combining character of the first
            character, if there is one. (Raphael Finkel)
Solution:   Correctly check that one character is being deleted.
Files:      src/misc1.c
```

Patch 6.3.021
Problem: When the last character of a file name is a multi-byte character
            and the last byte is a path separator, the file cannot be edited.
Solution: Check for the last byte to be part of a multi-byte character.
            (Taro Muraoka)
Files: src/fileio.c

Patch 6.3.022 (extra)
Problem: Win32: When the last character of a file name is a multi-byte
            character and the last byte is a path separator, the file cannot
            be written. A trail byte that is a space makes that a file cannot
            be opened from the command line.
Solution: Recognize double-byte characters when parsing the command line.
            In mch_stat() check for the last byte to be part of a multi-byte
            character. (Taro Muraoka)
Files: src/gui_w48.c, src/os_mswin.c

Patch 6.3.023
Problem: When the "to" part of a mapping starts with its "from" part,
            abbreviations for the same characters is not possible. For
            example, when <Space> is mapped to something that starts with a
            space, typing <Space> does not expand abbreviations.
Solution: Only disable expanding abbreviations when a mapping is not
            remapped, don't disable it when the RHS of a mapping starts with
            the LHS.
Files: src/getchar.c, src/vim.h

Patch 6.3.024
Problem: In a few places a string in allocated memory is not terminated
            with a NUL.
Solution: Add ga_append(NUL) in script_get(), gui_do_findrepl() and
            serverGetVimNames().
Files: src/ex_getln.c, src/gui.c, src/if_xcmdsrv.c, src/os_mswin.c

Patch 6.3.025 (extra)
Problem: Missing NUL for list of server names.
Solution: Add ga_append(NUL) in serverGetVimNames().
Files: src/os_mswin.c

Patch 6.3.026
Problem: When ~/.vim/after/syntax/syncolor.vim contains a command that
            reloads the colors an endless loop and/or a crash may occur.
Solution: Only free the old value of an option when it was originally
            allocated. Limit recursiveness of init_highlight() to 5 levels.
Files: src/option.c, src/syntax.c

Patch 6.3.027
Problem: VMS: Writing a file may insert extra CR characters. Not all
            terminals are recognized correctly. Vt320 doesn't support colors.
            Environment variables are not expanded correctly.
Solution: Use another method to write files. Add vt320 termcap codes for
            colors. (Zoltan Arpadffy)
Files: src/fileio.c, src/misc1.c, src/os_unix.c, src/structs.h,

```
            src/term.c

Patch 6.3.028
Problem:    When appending to a file the BOM marker may be written.  (Alex
            Jakushev)
Solution:   Do not write the BOM marker when appending.
Files:      src/fileio.c

Patch 6.3.029
Problem:    Crash when inserting a line break. (Walter Briscoe)
Solution:   In the syntax highlighting code, don't use an old state after a
            change was made, current_col may be past the end of the line.
Files:      src/syntax.c

Patch 6.3.030
Problem:    GTK 2: Crash when sourcing a script that deletes the menus, sets
            'encoding' to "utf-8" and loads the menus again.  GTK error
            message when tooltip text is in a wrong encoding.
Solution:   Don't copy characters from the old screen to the new screen when
            switching 'encoding' to utf-8, they may be invalid.  Only set the
            tooltip when it is valid utf-8.
Files:      src/gui_gtk.c, src/mbyte.c, src/proto/mbyte.pro, src/screen.c

Patch 6.3.031
Problem:    When entering a mapping and pressing Tab halfway the command line
            isn't redrawn properly. (Adri Verhoef)
Solution:   Reposition the cursor after drawing over the "..." of the
            completion attempt.
Files:      src/ex_getln.c

Patch 6.3.032
Problem:    Using Python 2.3 with threads doesn't work properly.
Solution:   Release the lock after initialization.
Files:      src/if_python.c

Patch 6.3.033
Problem:    When a mapping ends in a Normal mode command of more than one
            character Vim doesn't return to Insert mode.
Solution:   Check that the mapping has ended after obtaining all characters of
            the Normal mode command.
Files:      src/normal.c

Patch 6.3.034
Problem:    VMS: crash when using ":help".
Solution:   Avoid using "tags-??", some Open VMS systems can't handle the "?"
            wildcard.  (Zoltan Arpadffy)
Files:      src/tag.c

Patch 6.3.035 (extra)
Problem:    RISC OS: Compile errors.
Solution:   Change e_screnmode to e_screenmode.  Change the way
            __riscosify_control is set.  Improve the makefile.  (Andy Wingate)
Files:      src/os_riscos.c, src/search.c, src/Make_ro.mak
```

```
Patch 6.3.036
Problem:    ml_get errors when the whole file is a fold, switching
            'foldmethod' and doing "zj". (Christian J. Robinson) Was not
            deleting the fold but creating a fold with zero lines.
Solution:   Delete the fold properly.
Files:      src/fold.c

Patch 6.3.037 (after 6.3.032)
Problem:    Warning for unused variable.
Solution:   Change the #ifdefs for the saved thread stuff.
Files:      src/if_python.c

Patch 6.3.038 (extra)
Problem:    Win32: When the "file changed" dialog pops up after a click that
            gives gvim focus and not moving the mouse after that, the effect
            of the click may occur when moving the mouse later. (Ken Clark)
            Happened because the release event was missed.
Solution:   Clear the s_button_pending variable when any input is received.
Files:      src/gui_w48.c

Patch 6.3.039
Problem:    When 'number' is set and inserting lines just above the first
            displayed line (in another window on the same buffer), the line
            numbers are not updated.  (Hitier Sylvain)
Solution:   When 'number' is set and lines are inserted/deleted redraw all
            lines below the change.
Files:      src/screen.c

Patch 6.3.040
Problem:    Error handling does not always work properly and may cause a
            buffer to be marked as if it's viewed in a window while it isn't.
            Also when selecting "Abort" at the attention prompt.
Solution:   Add enter_cleanup() and leave_cleanup() functions to move
            saving/restoring things for error handling to one place.
            Clear a buffer read error when it's unloaded.
Files:      src/buffer.c, src/ex_docmd.c, src/ex_eval.c,
            src/proto/ex_eval.pro, src/structs.h, src/vim.h

Patch 6.3.041 (extra)
Problem:    Win32: When the path to a file has Russian characters, ":cd %:p:h"
            doesn't work. (Valery Kondakoff)
Solution:   Use a wide function to change directory.
Files:      src/os_mswin.c

Patch 6.3.042
Problem:    When there is a closed fold at the top of the window, CTRL-X
            CTRL-E in Insert mode reduces the size of the fold instead of
            scrolling the text up. (Gautam)
Solution:   Scroll over the closed fold.
Files:      src/move.c

Patch 6.3.043
Problem:    'hlsearch' highlighting sometimes disappears when inserting text
            in PHP code with syntax highlighting. (Marcel Svitalsky)
```

```
Solution:   Don't use pointers to remember where a match was found, use an
            index.  The pointers may become invalid when searching in other
            lines.
Files:      src/screen.c

Patch 6.3.044 (extra)
Problem:    Mac: When 'linespace' is non-zero the Insert mode cursor leaves
            pixels behind. (Richard Sandilands)
Solution:   Erase the character cell before drawing the text when needed.
Files:      src/gui_mac.c


Patch 6.3.045
Problem:    Unusual characters in an option value may cause unexpected
            behavior, especially for a modeline. (Ciaran McCreesh)
Solution:   Don't allow setting termcap options or 'printdevice' in a
            modeline.  Don't list options for "termcap" and "all" in a
            modeline.  Don't allow unusual characters in 'filetype', 'syntax',
            'backupext', 'keymap', 'patchmode' and 'langmenu'.
Files:      src/option.c, runtime/doc/options.txt

Patch 6.3.046
Problem:    ":registers" doesn't show multi-byte characters properly.
            (Valery Kondakoff)
Solution:   Get the length of each character before displaying it.
Files:      src/ops.c

Patch 6.3.047 (extra)
Problem:    Win32 with Borland C 5.5 on Windows XP: A new file is created with
            read-only attributes. (Tony Mechelynck)
Solution:   Don't use the _wopen() function for Borland.
Files:      src/os_win32.c

Patch 6.3.048 (extra)
Problem:    Build problems with VMS on IA64.
Solution:   Add dependencies to the build file. (Zoltan Arpadffy)
Files:      src/Make_vms.mms

Patch 6.3.049 (after 6.3.045)
Problem:    Compiler warning for "char" vs "char_u" mixup. (Zoltan Arpadffy)
Solution:   Add a typecast.
Files:      src/option.c

Patch 6.3.050
Problem:    When SIGHUP is received while busy exiting, non-reentrant
            functions such as free() may cause a crash.
Solution:   Ignore SIGHUP when exiting because of an error. (Scott Anderson)
Files:      src/misc1.c, src/main.c

Patch 6.3.051
Problem:    When 'wildmenu' is set and completed file names contain multi-byte
            characters Vim may crash.
Solution:   Reserve room for multi-byte characters. (Yasuhiro Matsumoto)
Files:      src/screen.c
```

```
Patch 6.3.052 (extra)
Problem:    Windows 98: typed keys that are not ASCII may not work properly.
            For example with a Russian input method. (Jiri Jezdinsky)
Solution:   Assume that the characters arrive in the current codepage instead
            of UCS-2.  Perform conversion based on that.
Files:      src/gui_w48.c

Patch 6.3.053
Problem:    Win32: ":loadview" cannot find a file with non-ASCII characters.
            (Valerie Kondakoff)
Solution:   Use mch_open() instead of open() to open the file.
Files:      src/ex_cmds2.c

Patch 6.3.054
Problem:    When 'insertmode' is set <C-L>4ixxx<C-L> hangs Vim. (Jens Paulus)
            Vim is actually still working but redraw is disabled.
Solution:   When stopping Insert mode with CTRL-L don't put an Esc in the redo
            buffer but a CTRL-L.
Files:      src/edit.c

Patch 6.3.055 (after 6.3.013)
Problem:    Can't use getcmdline(), getcmdpos() or setcmdpos() with <C-R>=
            when editing a command line.  Using <C-\>e may crash Vim. (Peter
            Winters)
Solution:   When moving ccline out of the way for recursive use, make it
            available to the functions that need it.  Also save and restore
            ccline when calling get_expr_line().  Make ccline.cmdbuf NULL at
            the end of getcmdline().
Files:      src/ex_getln.c

Patch 6.3.056
Problem:    The last characters of a multi-byte file name may not be displayed
            in the window title.
Solution:   Avoid to remove a multi-byte character where the last byte looks
            like a path separator character. (Yasuhiro Matsumoto)
Files:      src/buffer.c, src/ex_getln.c

Patch 6.3.057
Problem:    When filtering lines folds are not updated. (Carl Osterwisch)
Solution:   Update folds for filtered lines.
Files:      src/ex_cmds.c

Patch 6.3.058
Problem:    When 'foldcolumn' is equal to the window width and 'wrap' is on
            Vim may crash.  Disabling the vertical split feature breaks
            compiling.  (Peter Winters)
Solution:   Check for zero room for wrapped text.  Make compiling without
            vertical splits possible.
Files:      src/move.c, src/quickfix.c, src/screen.c, src/netbeans.c

Patch 6.3.059
Problem:    Crash when expanding an ":edit" command containing several spaces
            with the shell. (Brian Hirt)
```

```
Solution:   Allocate enough space for the quotes.
Files:      src/os_unix.c

Patch 6.3.060
Problem:    Using CTRL-R CTRL-O in Insert mode with an invalid register name
            still causes something to be inserted.
Solution:   Check the register name for being valid.
Files:      src/edit.c

Patch 6.3.061
Problem:    When editing a utf-8 file in an utf-8 xterm and there is a
            multi-byte character in the last column, displaying is messed up.
            (Joël Rio)
Solution:   Check for a multi-byte character, not a multi-column character.
Files:      src/screen.c

Patch 6.3.062
Problem:    ":normal! gQ" hangs.
Solution:   Quit getcmdline() and do_exmode() when out of typeahead.
Files:      src/ex_getln.c, src/ex_docmd.c

Patch 6.3.063
Problem:    When a CursorHold autocommand changes to another window
            (temporarily) 'mousefocus' stops working.
Solution:   Call gui_mouse_correct() after triggering CursorHold.
Files:      src/gui.c

Patch 6.3.064
Problem:    line2byte(line("$") + 1) sometimes returns the wrong number.
            (Charles Campbell)
Solution:   Flush the cached line before counting the bytes.
Files:      src/memline.c

Patch 6.3.065
Problem:    The euro digraph doesn't always work.
Solution:   Add an "e=" digraph for Unicode euro character and adjust the
            help files.
Files:      src/digraph.c, runtime/doc/digraph.txt

Patch 6.3.066
Problem:    Backup file may get wrong permissions.
Solution:   Use permissions of original file for backup file in more places.
Files:      src/fileio.c

Patch 6.3.067 (after 6.3.066)
Problem:    Newly created file gets execute permission.
Solution:   Check for "perm" to be negative before using it.
Files:      src/fileio.c

Patch 6.3.068
Problem:    When editing a compressed file xxx.gz which is a symbolic link to
            the actual file a ":write" renames the link.
Solution:   Resolve the link, so that the actual file is renamed and
            compressed.
```

```
Files:      runtime/plugin/gzip.vim

Patch 6.3.069
Problem:    When converting text with illegal characters Vim may crash.
Solution:   Avoid that too much is subtracted from the length. (Da Woon Jung)
Files:      src/mbyte.c

Patch 6.3.070
Problem:    After ":set number linebreak wrap" and a vertical split, moving
            the vertical separator far left will crash Vim. (Georg Dahn)
Solution:   Avoid dividing by zero.
Files:      src/charset.c

Patch 6.3.071
Problem:    The message for CTRL-X mode is still displayed after an error for
            'thesaurus' or 'dictionary' being empty.
Solution:   Clear "edit_submode".
Files:      src/edit.c

Patch 6.3.072
Problem:    Crash in giving substitute message when language is Chinese and
            encoding is utf-8. (Yongwei)
Solution:   Make the msg_buf size larger when using multi-byte.
Files:      src/vim.h

Patch 6.3.073
Problem:    Win32 GUI: When the Vim window is partly above or below the
            screen, scrolling causes display errors when the taskbar is not on
            that side.
Solution:   Use the SW_INVALIDATE flag when the Vim window is partly below or
            above the screen.
Files:      src/gui_w48.c

Patch 6.3.074
Problem:    When mswin.vim is used and 'insertmode' is set, typing text in
            Select mode and then using CTRL-V results in <SNR>99_Pastegi.
            (Georg Dahn)
Solution:   When restart_edit is set use "d" instead of "c" to remove the
            selected text to avoid calling edit() twice.
Files:      src/normal.c

Patch 6.3.075
Problem:    After unloading another buffer, syntax highlighting in the current
            buffer may be wrong when it uses "containedin". (Eric Arnold)
Solution:   Use "buf" instead of "curbuf" in syntax_clear().
Files:      src/syntax.c

Patch 6.3.076
Problem:    Crash when using cscope and there is a parse error (e.g., line too
            long). (Alexey I. Froloff)
Solution:   Pass the actual number of matches to cs_manage_matches() and
            correctly handle the error situation.
Files:      src/if_cscope.c
```

```
Patch 6.3.077 (extra)
Problem:    VMS: First character input after ESC was not recognized.
Solution:   Added TRM$M_TM_TIMED in vms_read().  (Zoltan Arpadffy)
Files:      src/os_vms.c

Patch 6.3.078 (extra, after 6.3.077)
Problem:    VMS: Performance issue after patch 6.3.077
Solution:   Add a timeout in the itemlist.  (Zoltan Arpadffy)
Files:      src/os_vms.c

Patch 6.3.079
Problem:    Crash when executing a command in the command line window while
            syntax highlighting is enabled. (Pero Brbora)
Solution:   Don't use a pointer to a buffer that has been deleted.
Files:      src/syntax.c

Patch 6.3.080 (extra)
Problem:    Win32: With 'encoding' set to utf-8 while the current codepage is
            Chinese editing a file with some specific characters in the name
            fails.
Solution:   Use _wfullpath() instead of _fullpath() when necessary.
Files:      src/os_mswin.c

Patch 6.3.081
Problem:    Unix: glob() may execute a shell command when it's not wanted.
            (Georgi Guninski)
Solution:   Verify the sandbox flag is not set.
Files:      src/os_unix.c

Patch 6.3.082 (after 6.3.081)
Problem:    Unix: expand() may execute a shell command when it's not wanted.
            (Georgi Guninski)
Solution:   A more generic solution than 6.3.081.
Files:      src/os_unix.c

Patch 6.3.083
Problem:    VMS: The vt320 termcap entry is incomplete.
Solution:   Add missing function keys.  (Zoltan Arpadffy)
Files:      src/term.c

Patch 6.3.084 (extra)
Problem:    Cygwin: compiling with DEBUG doesn't work.  Perl path was ignored.
            Failure when $(OUTDIR) already exists.  "po" makefile is missing.
Solution:   Use changes tested in Vim 7. (Tony Mechelynck)
Files:      src/Make_cyg.mak, src/po/Make_cyg.mak

Patch 6.3.085
Problem:    Crash in syntax highlighting code. (Marc Espie)
Solution:   Prevent current_col going past the end of the line.
Files:      src/syntax.c

Patch 6.3.086 (extra)
Problem:    Can't produce message translation file with msgfmt that checks
            printf strings.
```

```
Solution:   Fix the Russian translation.
Files:      src/po/ru.po, src/po/ru.cp1251.po

Patch 6.3.087
Problem:    MS-DOS: Crash. (Jason Hood)
Solution:   Don't call fname_case() with a NULL pointer.
Files:      src/ex_cmds.c

Patch 6.3.088
Problem:    Editing ".in" causes error E218. (Stefan Karlsson)
Solution:   Require some characters before ".in".  Same for ".orig" and others.
Files:      runtime/filetype.vim

Patch 6.3.089
Problem:    A session file doesn't work when created while the current
            directory contains a space or the directory of the session files
            contains a space. (Paolo Giarrusso)
Solution:   Escape spaces with a backslash.
Files:      src/ex_docmd.c

Patch 6.3.090
Problem:    A very big value for 'columns' or 'lines' may cause a crash.
Solution:   Limit the values to 10000 and 1000.
Files:      src/option.c

Patch 6.4a.001
Problem:    The Unix Makefile contained too many dependencies and a few
            uncommented lines.
Solution:   Run "make depend" with manual changes to avoid a gcc
            incompatibility.  Comment a few lines.
Files:      src/Makefile

Patch 6.4b.001
Problem:    Vim reports "Vim 6.4a" in the ":version" output.
Solution:   Change "a" to "b". (Tony Mechelynck)
Files:      src/version.h

Patch 6.4b.002
Problem:    In Insert mode, pasting a multi-byte character after the end of
            the line leaves the cursor just before that character.
Solution:   Make sure "gP" leaves the cursor in the right place when
            'virtualedit' is set.
Files:      src/ops.c

Patch 6.4b.003 (after 6.4b.002)
Problem:    The problem still exists when 'encoding' is set to "cp936".
Solution:   Fix the problem in getvvcol(), compute the coladd field correctly.
Files:      src/charset.c, src/ops.c

Patch 6.4b.004
Problem:    Selecting a {} block with "viB" includes the '}' when there is an
            empty line before it.
Solution:   Don't advance the cursor to include a line break when it's already
            at the line break.
```

```
Files:      src/search.c

 vim:tw=78:ts=8:ft=help:norl:
```

version7.txt For Vim version 8.1. Last change: 2016 Jul 17

VIM REFERENCE MANUAL by Bram Moolenaar

vim7 version-7.0 version7.0

Welcome to Vim 7! A large number of features has been added. This file mentions all the new items, changes to existing features and bug fixes since Vim 6.x. Use this command to see the version you are using:

```
:version
```

See vi_diff.txt for an overview of differences between Vi and Vim 7.0.
See version4.txt for differences between Vim 3.x and Vim 4.x.
See version5.txt for differences between Vim 4.x and Vim 5.x.
See version6.txt for differences between Vim 5.x and Vim 6.x.

Changed   changed-7.2
Added   added-7.2
Fixed   fixed-7.2

VERSION 7.3   version-7.3

Persistent undo   new-persistent-undo
More encryption   new-more-encryption
Conceal text   new-conceal
Lua interface   new-lua
Python3 interface   new-python3

Changed   changed-7.3
Added   added-7.3
Fixed   fixed-7.3

VERSION 7.4   version-7.4
New regexp engine   new-regexp-engine
Better Python interface   better-python-interface
Changed   changed-7.4
Added   added-7.4
Fixed   fixed-7.4

==
INCOMPATIBLE CHANGES   incompatible-7

These changes are incompatible with previous releases. Check this list if you
run into a problem when upgrading from Vim 6.x to 7.0.

A ":write file" command no longer resets the 'modified' flag of the buffer,
unless the '+' flag is in 'cpoptions' cpo-+ . This was illogical, since the
buffer is still modified compared to the original file. And when undoing
all changes the file would actually be marked modified. It does mean that
":quit" fails now.

":helpgrep" now uses a help window to display a match.

In an argument list double quotes could be used to include spaces in a file
name. This caused a difference between ":edit" and ":next" for escaping
double quotes and it is incompatible with some versions of Vi.
        Command   Vim 6.x file name   Vim 7.x file name
        :edit foo\"888   foo"888   foo"888
        :next foo\"888   foo888   foo"888
        :next a\"b c\"d   ab cd   a"b and c"d

In a literal-string a single quote can be doubled to get one.
":echo 'a''b'" would result in "a b", but now that two quotes stand for one it
results in "a'b".

When overwriting a file with ":w! fname" there was no warning for when "fname"
was being edited by another Vim. Vim now gives an error message E768 .

The support for Mac OS 9 has been removed.

Files ending in .tex now have 'filetype' set to "context", "plaintex", or "tex". ft-tex-plugin

Minor incompatibilities:

For filetype detection: For many types, use */.dir/filename instead of ~/.dir/filename, so that it also works for other user's files.

For quite a few filetypes the indent settings have been moved from the filetype plugin to the indent plugin. If you used:
	:filetype plugin on
Then some indent settings may be missing. You need to use:
	:filetype plugin indent on

":0verbose" now sets 'verbose' to zero instead of one.

Removed the old and incomplete "VimBuddy" code.

Buffers without a name report "No Name" instead of "No File". It was confusing for buffers with a name and 'buftype' set to "nofile".

When ":file xxx" is used in a buffer without a name, the alternate file name isn't set. This avoids creating buffers without a name, they are not useful.

The "2html.vim" script now converts closed folds to HTML. This means the HTML looks like it's displayed, with the same folds open and closed. Use "zR", or "let html_ignore_folding=1", if no folds should appear in the HTML. (partly by Carl Osterwisch)
Diff mode is now also converted to HTML as it is displayed.

Win32: The effect of the <F10> key depended on 'winaltkeys'. Now it depends on whether <F10> has been mapped or not. This allows mapping <F10> without changing 'winaltkeys'.

When 'octal' is in 'nrformats' and using CTRL-A on "08" it became "018", which is illogical. Now it becomes "9". The leading zero(s) is(are) removed to avoid the number becoming octal after incrementing "009" to "010".

When 'encoding' is set to a Unicode encoding, the value for 'fileencodings' now includes "default" before "latin1". This means that for files with 8-bit encodings the default is to use the encoding specified by the environment, if possible. Previously latin1 would always be used, which is wrong in a non-latin1 environment, such as Russian.

Previously Vim would exit when there are two windows, both of them displaying a help file, and using ":quit". Now only the window is closed.

"-w {scriptout}" only works when {scriptout} doesn't start with a digit. Otherwise it's used to set the 'window' option.

Previously <Home> and <xHome> could be mapped separately. This had the disadvantage that all mappings (with modifiers) had to be duplicated, since

you can't be sure what the keyboard generates. Now all <xHome> are internally translated to <Home>, both for the keys and for mappings. Also for <xEnd>, <xF1>, etc.

":put" now leaves the cursor on the last inserted line.

When a .gvimrc file exists then 'compatible' is off, just like when a ".vimrc" file exists.

When making a string upper-case with "vlllU" or similar then the German sharp s is replaced with "SS". This does not happen with "~" to avoid backwards compatibility problems and because "SS" can't be changed back to a sharp s.

"gd" previously found the very first occurrence of a variable in a function, that could be the function argument without type. Now it finds the position where the type is given.

The line continuation in functions was not taken into account, line numbers in errors were logical lines, not lines in the sourced file. That made it difficult to locate errors. Now the line number in the sourced file is reported, relative to the function start. This also means that line numbers for ":breakadd func" are different.

When defining a user command with :command the special items could be abbreviated. This caused unexpected behavior, such as <li> being recognized as <line1>. The items can no longer be abbreviated.

When executing a FileChangedRO autocommand it is no longer allowed to switch to another buffer or edit another file. This is to prevent crashes (the event is triggered deep down in the code where changing buffers is not anticipated). It is still possible to reload the buffer.

At the more-prompt and the hit-enter-prompt , when the 'more' option is set, the 'k', 'u', 'g' and 'b' keys are now used to scroll back to previous messages. Thus they are no longer used as typeahead.

==
NEW FEATURES   new-7

Vim script enhancements   new-vim-script

In Vim scripts the following types have been added:

```
        List            ordered list of items
        Dictionary      associative array of items
        Funcref         reference to a function
```

Many functions and commands have been added to support the new types.

The string() function can be used to get a string representation of a variable. Works for Numbers, Strings and composites of them. Then eval() can be used to turn the string back into the variable value.

The :let command can now use "+=", "-=" and ".=":
```
:let var += expr        " works like :let var = var + expr
:let var -= expr        " works like :let var = var - expr
:let var .= string      " works like :let var = var . string
```

With the :profile command you can find out where your function or script is wasting time.

In the Python interface vim.eval() also handles Dictionaries and Lists.
python-eval (G. Sumner Hayes)

The getscript plugin was added as a convenient way to update scripts from www.vim.org automatically. (Charles Campbell)

The vimball plugin was added as a convenient way to distribute a set of files for a plugin (plugin file, autoload script, documentation). (Charles Campbell)

Spell checking new-spell

Spell checking has been integrated in Vim. There were a few implementations with scripts, but they were slow and/or required an external program.

The 'spell' option is used to switch spell checking on or off
The 'spelllang' option is used to specify the accepted language(s)
The 'spellfile' option specifies where new words are added
The 'spellsuggest' option specifies the methods used for making suggestions

The]s and [s commands can be used to move to the next or previous error
The zg and zw commands can be used to add good and wrong words
The z= command can be used to list suggestions and correct the word
The :mkspell command is used to generate a Vim spell file from word lists

The "undercurl" highlighting attribute was added to nicely point out spelling mistakes in the GUI (based on patch from Marcin Dalecki).
The "guisp" color can be used to give it a color different from foreground and background.
The number of possible different highlight attributes was raised from about 220 to over 30000. This allows for the attributes of spelling to be combined with syntax highlighting attributes. This is also used for syntax highlighting and marking the Visual area.

Much more info here: spell .

Omni completion new-omni-completion

This could also be called "intellisense", but that is a trademark. It is a smart kind of completion. The text in front of the cursor is inspected to figure out what could be following. This may suggest struct and class members, system functions, etc.

Use CTRL-X CTRL-O in Insert mode to start the completion. i_CTRL-X_CTRL-O

The 'omnifunc' option is set by filetype plugins to define the function that
figures out the completion.

Currently supported languages:

C	ft-c-omni
(X)HTML with CSS	ft-html-omni
JavaScript	ft-javascript-omni
PHP	ft-php-omni
Python	
Ruby	ft-ruby-omni
SQL	ft-sql-omni
XML	ft-xml-omni
any language with syntax highlighting	ft-syntax-omni

You can add your own omni completion scripts.

When the 'completeopt' option contains "menu" then matches for Insert mode
completion are displayed in a (rather primitive) popup menu.

MzScheme interface new-MzScheme

The MzScheme interpreter is supported. MzScheme

The :mzscheme command can be used to execute MzScheme commands
The :mzfile command can be used to execute an MzScheme script file

This depends on Vim being compiled with the +mzscheme feature.

Printing multi-byte text new-print-multi-byte

The :hardcopy command now supports printing multi-byte characters when using
PostScript.

The 'printmbcharset' and 'printmbfont' options are used for this.
Also see postscript-cjk-printing . (Mike Williams)

Tab pages new-tab-pages

A tab page is a page with one or more windows with a label (aka tab) at the top.
By clicking on the label you can quickly switch between the tab pages. And
with the keyboard, using the gt (Goto Tab) command. This is a convenient
way to work with many windows.

To start Vim with each file argument in a separate tab page use the -p
argument. The maximum number of pages can be set with 'tabpagemax'.

The line with tab labels is either made with plain text and highlighting or with a GUI mechanism. The GUI labels look better but are only available on a few systems. The line can be customized with 'tabline', 'guitablabel' and 'guitabtooltip'. Whether it is displayed is set with 'showtabline'. Whether to use the GUI labels is set with the "e" flag in 'guioptions'.

The :tab command modifier can be used to have most commands that open a new window open a new tab page instead.

The --remote-tab argument can be used to edit a file in a new tab page in an already running Vim server.

Variables starting with "t:" are local to a tab page.

More info here: tabpage
Most of the GUI stuff was implemented by Yegappan Lakshmanan.

Undo branches new-undo-branches

Previously there was only one line of undo-redo. If, after undoing a number of changes, a new change was made all the undone changes were lost. This could lead to accidentally losing work.

Vim now makes an undo branch in this situation. Thus you can go back to the text after any change, even if they were undone. So long as you do not run into 'undolevels', when undo information is freed up to limit the memory used.

To be able to navigate the undo branches each change is numbered sequentially. The commands g- and :earlier go back in time, to older changes. The commands g+ and :later go forward in time, to newer changes.

The changes are also timestamped. Use ":earlier 10m" to go to the text as it was about ten minutes earlier.

The :undolist command can be used to get an idea of which undo branches exist. The :undo command now takes an argument to directly jump to a specific position in this list. The changenr() function can be used to obtain the change number.

There is no graphical display of the tree with changes, navigation can be quite confusing.

Extended Unicode support new-more-unicode

Previously only two combining characters were displayed. The limit is now raised to 6. This can be set with the 'maxcombine' option. The default is still 2.

ga now shows all combining characters, not just the first two.

Previously only 16 bit Unicode characters were supported for displaying. Now the full 32 bit character set can be used. Unless manually disabled at compile time to save a bit of memory.

For pattern matching it is now possible to search for individual composing characters. patterns-composing

The 8g8 command searches for an illegal UTF-8 byte sequence.

More highlighting new-more-highlighting

Highlighting matching parens:

When moving the cursor through the text and it is on a paren, then the matching paren can be highlighted. This uses the new CursorMoved autocommand event.

This means some commands are executed every time you move the cursor. If this slows you down too much switch it off with:

```
:NoMatchParen
```

See matchparen for more information.

The plugin uses the :match command. It now supports three match patterns. The plugin uses the third one. The first one is for the user and the second one can be used by another plugin.

Highlighting the cursor line and column:

The 'cursorline' and 'cursorcolumn' options have been added. These highlight the screen line and screen column of the cursor. This makes the cursor position easier to spot. 'cursorcolumn' is also useful to align text. This may make screen updating quite slow. The CursorColumn and CursorLine highlight groups allow changing the colors used. hl-CursorColumn hl-CursorLine

The number of possible different highlight attributes was raised from about 220 to over 30000. This allows for the attributes of spelling to be combined with syntax highlighting attributes. This is also used for syntax highlighting, marking the Visual area, CursorColumn, etc.

Translated manual pages new-manpage-trans

The manual page of Vim and associated programs is now also available in several other languages.

French - translated by David Blanchet
Italian - translated by Antonio Colombo
Russian - translated by Vassily Ragosin

Polish - translated by Mikolaj Machowski

The Unix Makefile installs the Italian manual pages in .../man/it/man1/,
.../man/it.ISO8859-1/man1/ and .../man/it.UTF-8/man1/. There appears to be no
standard for what encoding goes in the "it" directory, the 8-bit encoded file
is used there as a best guess.
Other languages are installed in similar places.
The translated pages are not automatically installed when Vim was configured
with "--disable-nls", but "make install-languages install-tool-languages" will
do it anyway.

Internal grep new-vimgrep

The ":vimgrep" command can be used to search for a pattern in a list of files.
This is like the ":grep" command, but no external program is used. Besides
better portability, handling of different file encodings and using multi-line
patterns, this also allows grepping in compressed and remote files.
 :vimgrep .

If you want to use the search results in a script you can use the
 getqflist() function.

To grep files in various directories the "**" pattern can be used. It expands
into an arbitrary depth of directories. "**" can be used in all places where
file names are expanded, thus also with :next and :args .

Scroll back in messages new-scroll-back

When displaying messages, at the more-prompt and the hit-enter-prompt , The
'k', 'u', 'g' and 'b' keys can be used to scroll back to previous messages.
This is especially useful for commands such as ":syntax", ":autocommand" and
":highlight". This is implemented in a generic way thus it works for all
commands and highlighting is kept. Only works when the 'more' option is set.
Previously it only partly worked for ":clist".

The g< command can be used to see the last page of messages after you have
hit <Enter> at the hit-enter-prompt . Then you can scroll further back.

Cursor past end of the line new-onemore

When the 'virtualedit' option contains "onemore" the cursor can move just past
the end of the line. As if it's on top of the line break.

This makes some commands more consistent. Previously the cursor was always
past the end of the line if the line was empty. But it is far from Vi
compatible. It may also break some plugins or Vim scripts. Use with care!

The patch was provided by Mattias Flodin.

POSIX compatibility new-posix

The POSIX test suite was used to verify POSIX compatibility. A number of problems have been fixed to make Vim more POSIX compatible. Some of them conflict with traditional Vi or expected behavior. The $VIM_POSIX environment variable can be set to get POSIX compatibility. See posix .

Items that were fixed for both Vi and POSIX compatibility:
- repeating "R" with a count only overwrites text once; added the 'X' flag to 'cpoptions' cpo-X
- a vertical movement command that moves to a non-existing line fails; added the '-' flag to 'cpoptions' cpo--
- when preserving a file and doing ":q!" the file can be recovered; added the '&' flag to 'cpoptions' cpo-&
- The 'window' option is partly implemented. It specifies how much CTRL-F and CTRL-B scroll when there is one window. The "-w {number}" argument is now accepted. "-w {scriptout}" only works when {scriptout} doesn't start with a digit.
- Allow "-c{command}" argument, no space between "-c" and {command}.
- When writing a file with ":w!" don't reset 'readonly' when 'Z' is present in 'cpoptions'.
- Allow 'l' and '#' flags for ":list", ":print" and ":number".
- Added the '.' flag to 'cpoptions': ":cd" fails when the buffer is modified.
- In Ex mode with an empty buffer ":read file" doesn't keep an empty line above or below the new lines.
- Remove a backslash before a NL for the ":global" command.
- When ":append", ":insert" or ":change" is used with ":global", get the inserted lines from the command. Can use backslash-NL to separate lines.
- Can use ":global /pat/ visual" to execute Normal mode commands at each matched line. Use "Q" to continue and go to the next line.
- The :open command has been partially implemented. It stops Ex mode, but redraws the whole screen, not just one line as open mode is supposed to do.
- Support using a pipe to read the output from and write input to an external command. Added the 'shelltemp' option and has("filterpipe").
- In ex silent mode the ":set" command output is displayed.
- The ":@@" and ":**" give an error message when no register was used before.
- The search pattern "[]-`]" matches ']', '^', '_' and '`'.
- Autoindent for ":insert" is using the line below the insert.
- Autoindent for ":change" is using the first changed line.
- Editing Ex command lines is not done in cooked mode, because CTRL-D and CTRL-T cannot be handled then.
- In Ex mode, "1,3" prints three lines. "%" prints all lines.
- In Ex mode "undo" would undo all changes since Ex mode was started.
- Implemented the 'prompt' option.

Debugger support new-debug-support

The 'balloonexpr' option has been added. This is a generic way to implement balloon functionality. You can use it to show info for the word under the

mouse pointer.

Remote file explorer new-netrw-explore

The netrw plugin now also supports viewing a directory, when "scp://" is used.
Deleting and renaming files is possible.

To avoid duplicating a lot of code, the previous file explorer plugin has been
integrated in the netrw plugin. This means browsing local and remote files
works the same way.

":browse edit" and ":browse split" use the netrw plugin when it's available
and a GUI dialog is not possible.

The netrw plugin is maintained by Charles Campbell.

Define an operator new-define-operator

Previously it was not possible to define your own operator; a command that is
followed by a {motion}. Vim 7 introduces the 'operatorfunc' option and the
g@ operator. This makes it possible to define a mapping that works like an
operator. The actual work is then done by a function, which is invoked
through the g@ operator.

See :map-operator for the explanation and an example.

Mapping to an expression new-map-expression

The {rhs} argument of a mapping can be an expression. That means the
resulting characters can depend on the context. Example:

```
:inoremap <expr> . InsertDot()
```

Here the dot will be mapped to whatever InsertDot() returns.

This also works for abbreviations. See :map-<expr> for the details.

Visual and Select mode mappings new-map-select

Previously Visual mode mappings applied both to Visual and Select mode. With
a trick to have the mappings work in Select mode like they would in Visual
mode.

Commands have been added to define mappings for Visual and Select mode
separately: :xmap and :smap . With the associated "noremap" and "unmap"
commands.

The same is done for menus: :xmenu , :smenu , etc.

Location list new-location-list

The support for a per-window quickfix list (location list) is added. The location list can be displayed in a location window (similar to the quickfix window). You can open more than one location list window. A set of commands similar to the quickfix commands are added to browse the location list. (Yegappan Lakshmanan)

Various new items new-items-7

Normal mode commands:

a", a' and a`
i", i' and i` New text objects to select quoted strings. a' (Taro Muraoka)

CTRL-W <Enter> In the quickfix window: opens a new window to show the location of the error under the cursor.

at and it text objects select a block of text between HTML or XML tags.

<A-LeftMouse> ('mousemodel' "popup" or "popup-setpos")
<A-RightMouse> ('mousemodel' "extend")
Make a blockwise selection. <A-LeftMouse>

gF Start editing the filename under the cursor and jump to the line number following the file name. (Yegappan Lakshmanan)

CTRL-W F Start editing the filename under the cursor in a new window and jump to the line number following the file name. (Yegappan Lakshmanan)

Insert mode commands:

CTRL-\ CTRL-O Execute a Normal mode command. Like CTRL-O but without moving the cursor. i_CTRL-_CTRL-O

Options:

'balloonexpr' expression for text to show in evaluation balloon
'completefunc' The name of the function used for user-specified Insert mode completion. CTRL-X CTRL-U can be used in Insert mode to do any kind of completion. (Taro Muraoka)
'completeopt' Enable popup menu and other settings for Insert mode completion.
'cursorcolumn' highlight column of the cursor
'cursorline' highlight line of the cursor
'formatexpr' expression for formatting text with gq and when text

goes over 'textwidth' in Insert mode.
'formatlistpat' pattern to recognize a numbered list for formatting. (idea by Hugo Haas)
'fsync' Whether fsync() is called after writing a file. (Ciaran McCreesh)
'guitablabel' expression for text to display in GUI tab page label
'guitabtooltip' expression for text to display in GUI tab page tooltip
'macatsui' Mac: use ATSUI text display functions
'maxcombine' maximum number of combining characters displayed
'maxmempattern' maximum amount of memory to use for pattern matching
'mkspellmem' parameters for :mkspell memory use
'mzquantum' Time in msec to schedule MzScheme threads.
'numberwidth' Minimal width of the space used for the 'number' and 'relativenumber' option. (Emmanuel Renieris)
'omnifunc' The name of the function used for omni completion.
'operatorfunc' function to be called for g@ operator
'printmbcharset' CJK character set to be used for :hardcopy
'printmbfont' font names to be used for CJK output of :hardcopy
'pumheight' maximum number of items to show in the popup menu
'quoteescape' Characters used to escape quotes inside a string. Used for the a", a' and a` text objects. a'
'shelltemp' whether to use a temp file or pipes for shell commands
'showtabline' whether to show the tab pages line
'spell' switch spell checking on/off
'spellcapcheck' pattern to locate the end of a sentence
'spellfile' file where good and wrong words are added
'spelllang' languages to check spelling for
'spellsuggest' methods for spell suggestions
'synmaxcol' maximum column to look for syntax items; avoids very slow redrawing when there are very long lines
'tabline' expression for text to display in the tab pages line
'tabpagemax' maximum number of tab pages to open for -p
'verbosefile' Log messages in a file.
'wildoptions' "tagfile" value enables listing the file name of matching tags for CTRL-D command line completion. (based on an idea from Yegappan Lakshmanan)
'winfixwidth' window with fixed width, similar to 'winfixheight'

Ex commands:

Win32: The ":winpos" command now also works in the console. (Vipin Aravind)

:startreplace Start Replace mode. (Charles Campbell)
:startgreplace Start Virtual Replace mode.

:0file Removes the name of the buffer. (Charles Campbell)

:diffoff Switch off diff mode in the current window or in all windows.

:delmarks Delete marks.

:exusage Help for Ex commands (Nvi command).

:viusage	Help for Vi commands (Nvi command).
:sort	Sort lines in the buffer without depending on an external command. (partly by Bryce Wagner)
:vimgrep	Internal grep command, search for a pattern in files.
:vimgrepadd	Like :vimgrep but don't make a new list.
:caddfile	Add error messages to an existing quickfix list (Yegappan Lakshmanan).
:cbuffer	Read error lines from a buffer. (partly by Yegappan Lakshmanan)
:cgetbuffer	Create a quickfix list from a buffer but don't jump to the first error.
:caddbuffer	Add errors from the current buffer to the quickfix list.
:cexpr	Read error messages from a Vim expression (Yegappan Lakshmanan).
:caddexpr	Add error messages from a Vim expression to an existing quickfix list. (Yegappan Lakshmanan).
:cgetexpr	Create a quickfix list from a Vim expression, but don't jump to the first error. (Yegappan Lakshmanan).
:lfile	Like :cfile but use the location list.
:lgetfile	Like :cgetfile but use the location list.
:laddfile	Like :caddfile but use the location list.
:lbuffer	Like :cbuffer but use the location list.
:lgetbuffer	Like :cgetbuffer but use the location list.
:laddbuffer	Like :caddbuffer but use the location list.
:lexpr	Like :cexpr but use the location list.
:lgetexpr	Like :cgetexpr but use the location list.
:laddexpr	Like :caddexpr but use the location list.
:ll	Like :cc but use the location list.
:llist	Like :clist but use the location list.
:lnext	Like :cnext but use the location list.
:lprevious	Like :cprevious but use the location list.
:lNext	Like :cNext but use the location list.
:lfirst	Like :cfirst but use the location list.
:lrewind	Like :crewind but use the location list.
:llast	Like :clast but use the location list.
:lnfile	Like :cnfile but use the location list.
:lpfile	Like :cpfile but use the location list.
:lNfile	Like :cNfile but use the location list.
:lolder	Like :colder but use the location list.
:lnewer	Like :cnewer but use the location list.
:lwindow	Like :cwindow but use the location list.
:lopen	Like :copen but use the location list.
:lclose	Like :cclose but use the location list.
:lmake	Like :make but use the location list.
:lgrep	Like :grep but use the location list.
:lgrepadd	Like :grepadd but use the location list.
:lvimgrep	Like :vimgrep but use the location list.
:lvimgrepadd	Like :vimgrepadd but use the location list.
:lhelpgrep	Like :helpgrep but use the location list.

:lcscope Like :cscope but use the location list.
:ltag Jump to a tag and add matching tags to a location list.

:undojoin Join a change with the previous undo block.
:undolist List the leafs of the undo tree.

:earlier Go back in time for changes in the text.
:later Go forward in time for changes in the text.

:for Loop over a List .
:endfor

:lockvar Lock a variable, prevents it from being changed.
:unlockvar Unlock a locked variable.

:mkspell Create a Vim spell file.
:spellgood Add a word to the list of good words.
:spellwrong Add a word to the list of bad words
:spelldump Dump list of good words.
:spellinfo Show information about the spell files used.
:spellrepall Repeat a spelling correction for the whole buffer.
:spellundo Remove a word from list of good and bad words.

:mzscheme Execute MzScheme commands.
:mzfile Execute an MzScheme script file.

:nbkey Pass a key to NetBeans for processing.

:profile Commands for Vim script profiling.
:profdel Stop profiling for specified items.

:smap Select mode mapping.
:smapclear
:snoremap
:sunmap

:xmap Visual mode mapping, not used for Select mode.
:xmapclear
:xnoremap
:xunmap

:smenu Select mode menu.
:snoremenu
:sunmenu

:xmenu Visual mode menu, not used for Select mode.
:xnoremenu
:xunmenu

:tabclose Close the current tab page.
:tabdo Perform a command in every tab page.
:tabedit Edit a file in a new tab page.
:tabnew Open a new tab page.
:tabfind Search for a file and open it in a new tab page.

:tabnext	Go to the next tab page.
:tabprevious	Go to the previous tab page.
:tabNext	Go to the previous tab page.
:tabfirst	Go to the first tab page.
:tabrewind	Go to the first tab page.
:tablast	Go to the last tab page.
:tabmove	Move the current tab page elsewhere.
:tabonly	Close all other tab pages.
:tabs	List the tab pages and the windows they contain.

Ex command modifiers:

:keepalt	Do not change the alternate file.
:noautocmd	Do not trigger autocommand events.
:sandbox	Execute a command in the sandbox.
:tab	When opening a new window create a new tab page.

Ex command arguments:

++bad	Specify what happens with characters that can't be converted and illegal bytes. (code example by Yasuhiro Matsumoto) Also, when a conversion error occurs or illegal bytes are found include the line number in the error message.

New and extended functions:

add()	append an item to a List
append()	append List of lines to the buffer
argv()	without an argument return the whole argument list
browsedir()	dialog to select a directory
bufnr()	takes an extra argument: create buffer
byteidx()	index of a character (Ilya Sher)
call()	call a function with List as arguments
changenr()	number of current change
complete()	set matches for Insert mode completion
complete_add()	add match for 'completefunc'
complete_check()	check for key pressed, for 'completefunc'
copy()	make a shallow copy of a List or Dictionary
count()	count nr of times a value is in a List or Dictionary
cursor()	also accepts an offset for 'virtualedit', and the first argument can be a list: [lnum, col, off]
deepcopy()	make a full copy of a List or Dictionary
diff_filler()	returns number of filler lines above line {lnum}.
diff_hlID()	returns the highlight ID for diff mode
empty()	check if List or Dictionary is empty
eval()	evaluate {string} and return the result
extend()	append one List to another or add items from one

	Dictionary to another
feedkeys()	put characters in the typeahead buffer
filter()	remove selected items from a List or Dictionary
finddir()	find a directory in 'path'
findfile()	find a file in 'path' (Johannes Zellner)
foldtextresult()	the text displayed for a closed fold at line "lnum"
function()	make a Funcref out of a function name
garbagecollect()	cleanup unused Lists and Dictionaries with circular references
get()	get an item from a List or Dictionary
getbufline()	get a list of lines from a specified buffer (Yegappan Lakshmanan)
getcmdtype()	return the current command-line type (Yegappan Lakshmanan)
getfontname()	get actual font name being used
getfperm()	get file permission string (Nikolai Weibull)
getftype()	get type of file (Nikolai Weibull)
getline()	with second argument: get List with buffer lines
getloclist()	list of location list items (Yegappan Lakshmanan)
getpos()	return a list with the position of cursor, mark, etc.
getqflist()	list of quickfix errors (Yegappan Lakshmanan)
getreg()	get contents of a register
gettabwinvar()	get variable from window in specified tab page.
has_key()	check whether a key appears in a Dictionary
haslocaldir()	check if current window used :lcd
hasmapto()	check for a mapping to a string
index()	index of item in List
inputlist()	prompt the user to make a selection from a list
insert()	insert an item somewhere in a List
islocked()	check if a variable is locked
items()	get List of Dictionary key-value pairs
join()	join List items into a String
keys()	get List of Dictionary keys
len()	number of items in a List or Dictionary
map()	change each List or Dictionary item
maparg()	extra argument: use abbreviation
mapcheck()	extra argument: use abbreviation
match()	extra argument: count
matcharg()	return arguments of :match command
matchend()	extra argument: count
matchlist()	list with match and submatches of a pattern in a string
matchstr()	extra argument: count
max()	maximum value in a List or Dictionary
min()	minimum value in a List or Dictionary
mkdir()	create a directory
pathshorten()	reduce directory names to a single character
printf()	format text
pumvisible()	check whether the popup menu is displayed
range()	generate a List with numbers
readfile()	read a file into a list of lines
reltime()	get time value, possibly relative
reltimestr()	turn a time value into a string
remove()	remove one or more items from a List or Dictionary
repeat()	repeat "expr" "count" times (Christophe Poucet)

reverse()	reverse the order of a List
search()	extra argument:
searchdecl()	search for declaration of variable
searchpair()	extra argument: line to stop searching
searchpairpos()	return a List with the position of the match
searchpos()	return a List with the position of the match
setloclist()	modify a location list (Yegappan Lakshmanan)
setpos()	set cursor or mark to a position
setqflist()	modify a quickfix list (Yegappan Lakshmanan)
settabwinvar()	set variable in window of specified tab page
sort()	sort a List
soundfold()	get the sound-a-like equivalent of a word
spellbadword()	get a badly spelled word
spellsuggest()	get suggestions for correct spelling
split()	split a String into a List
str2nr()	convert a string to a number, base 2, 8, 10 or 16
stridx()	extra argument: start position
strridx()	extra argument: start position
string()	string representation of a List or Dictionary
system()	extra argument: filters {input} through a shell command
tabpagebuflist()	List of buffers in a tab page
tabpagenr()	number of current or last tab page
tabpagewinnr()	window number in a tab page
tagfiles()	List with tags file names
taglist()	get list of matching tags (Yegappan Lakshmanan)
tr()	translate characters (Ron Aaron)
uniq()	remove copies of repeated adjacent list items
values()	get List of Dictionary values
winnr()	takes an argument: what window to use
winrestview()	restore the view of the current window
winsaveview()	save the view of the current window
writefile()	write a list of lines into a file

User defined functions can now be loaded automatically from the "autoload" directory in 'runtimepath'. See autoload-functions .

New Vim variables:

v:insertmode	used for InsertEnter and InsertChange autocommands
v:val	item value in a map() or filter() function
v:key	item key in a map() or filter() function
v:profiling	non-zero after a ":profile start" command
v:fcs_reason	the reason why FileChangedShell was triggered
v:fcs_choice	what should happen after FileChangedShell
v:beval_bufnr	buffer number for 'balloonexpr'
v:beval_winnr	window number for 'balloonexpr'
v:beval_lnum	line number for 'balloonexpr'
v:beval_col	column number for 'balloonexpr'
v:beval_text	text under the mouse pointer for 'balloonexpr'
v:scrollstart	what caused the screen to be scrolled up
v:swapname	name of the swap file for the SwapExists event
v:swapchoice	what to do for an existing swap file
v:swapcommand	command to be executed after handling SwapExists

v:char	argument for evaluating 'formatexpr'

New autocommand events:

ColorScheme	after loading a color scheme
CursorHoldI	the user doesn't press a key for a while in Insert mode
CursorMoved	the cursor was moved in Normal mode
CursorMovedI	the cursor was moved in Insert mode
FileChangedShellPost	after handling a file changed outside of Vim
InsertEnter	starting Insert or Replace mode
InsertChange	going from Insert to Replace mode or back
InsertLeave	leaving Insert or Replace mode
MenuPopup	just before showing popup menu
QuickFixCmdPre	before :make, :grep et al. (Ciaran McCreesh)
QuickFixCmdPost	after :make, :grep et al. (Ciaran McCreesh)
SessionLoadPost	after loading a session file. (Yegappan Lakshmanan)
ShellCmdPost	after executing a shell command
ShellFilterPost	after filtering with a shell command
SourcePre	before sourcing a Vim script
SpellFileMissing	when a spell file can't be found
SwapExists	found existing swap file when editing a file
TabEnter	just after entering a tab page
TabLeave	just before leaving a tab page
VimResized	after the Vim window size changed (Yakov Lerner)

New highlight groups:

Pmenu	Popup menu: normal item hl-Pmenu
PmenuSel	Popup menu: selected item hl-PmenuSel
PmenuThumb	Popup menu: scrollbar hl-PmenuThumb
PmenuSbar	Popup menu: Thumb of the scrollbar hl-PmenuSbar
TabLine	tab pages line, inactive label hl-TabLine
TabLineSel	tab pages line, selected label hl-TabLineSel
TabLineFill	tab pages line, filler hl-TabLineFill
SpellBad	badly spelled word hl-SpellBad
SpellCap	word with wrong caps hl-SpellCap
SpellRare	rare word hl-SpellRare
SpellLocal	word only exists in other region hl-SpellLocal

```
CursorColumn            'cursorcolumn'  hl-CursorColumn
CursorLine              'cursorline'  hl-CursorLine

MatchParen              matching parens  pi_paren.txt   hl-MatchParen
```

New items in search patterns:

```
 /\%d  \%d123           search for character with decimal number
 /\]   [\d123]          idem, in a collection
 /\%o  \%o103           search for character with octal number
 /\]   [\o1o3]          idem, in a collection
 /\%x  \%x1a            search for character with 2 pos. hex number
 /\]   [\x1a]           idem, in a collection
 /\%u  \%u12ab          search for character with 4 pos. hex number
 /\]   [\u12ab]         idem, in a collection
 /\%U  \%U1234abcd      search for character with 8 pos. hex number
 /\]   [\U1234abcd]     idem, in a collection
                            (The above partly by Ciaran McCreesh)

 /[[=  [[=a=]]          an equivalence class (only for latin1 characters)
 /[[.  [[.a.]]          a collation element (only works with single char)

 /\%'m   \%'m           match at mark m
 /\%<'m  \%<'m          match before mark m
 /\%>'m  \%>'m          match after mark m
 /\%V    \%V            match in Visual area
```

Nesting /multi items no longer is an error when an empty match is possible.

It is now possible to use \{0}, it matches the preceding atom zero times. Not useful, just for compatibility.

New Syntax/Indent/FTplugin files:

Moved all the indent settings from the filetype plugin to the indent file.
Implemented b:undo_indent to undo indent settings when setting 'filetype' to a different value.

a2ps syntax and ftplugin file. (Nikolai Weibull)
ABAB/4 syntax file. (Marius van Wyk)
alsaconf ftplugin file. (Nikolai Weibull)
AppendMatchGroup ftplugin file. (Dave Silvia)
arch ftplugin file. (Nikolai Weibull)
asterisk and asteriskvm syntax file. (Tilghman Lesher)
BDF ftplugin file. (Nikolai Weibull)
BibTeX indent file. (Dorai Sitaram)
BibTeX Bibliography Style syntax file. (Tim Pope)
BTM ftplugin file. (Bram Moolenaar)
calendar ftplugin file. (Nikolai Weibull)
Changelog indent file. (Nikolai Weibull)
ChordPro syntax file. (Niels Bo Andersen)
Cmake indent and syntax file. (Andy Cedilnik)

conf ftplugin file. (Nikolai Weibull)
context syntax and ftplugin file. (Nikolai Weibull)
CRM114 ftplugin file. (Nikolai Weibull)
cvs RC ftplugin file. (Nikolai Weibull)
D indent file. (Jason Mills)
Debian Sources.list syntax file. (Matthijs Mohlmann)
dictconf and dictdconf syntax, indent and ftplugin files. (Nikolai Weibull)
diff ftplugin file. (Bram Moolenaar)
dircolors ftplugin file. (Nikolai Weibull)
django and htmldjango syntax file. (Dave Hodder)
doxygen syntax file. (Michael Geddes)
elinks ftplugin file. (Nikolai Weibull)
eterm ftplugin file. (Nikolai Weibull)
eviews syntax file. (Vaidotas Zemlys)
fetchmail RC ftplugin file. (Nikolai Weibull)
FlexWiki syntax and ftplugin file. (George Reilly)
Generic indent file. (Dave Silvia)
gpg ftplugin file. (Nikolai Weibull)
gretl syntax file. (Vaidotas Zemlys)
groovy syntax file. (Alessio Pace)
group syntax and ftplugin file. (Nikolai Weibull)
grub ftplugin file. (Nikolai Weibull)
Haskell ftplugin file. (Nikolai Weibull)
help ftplugin file. (Nikolai Weibull)
indent ftplugin file. (Nikolai Weibull)
Javascript ftplugin file. (Bram Moolenaar)
Kconfig ftplugin and syntax file. (Nikolai Weibull)
ld syntax, indent and ftplugin file. (Nikolai Weibull)
lftp ftplugin file. (Nikolai Weibull)
libao config ftplugin file. (Nikolai Weibull)
limits syntax and ftplugin file. (Nikolai Weibull)
Lisp indent file. (Sergey Khorev)
loginaccess and logindefs syntax and ftplugin file. (Nikolai Weibull)
m4 ftplugin file. (Nikolai Weibull)
mailaliases syntax file. (Nikolai Weibull)
mailcap ftplugin file. (Nikolai Weibull)
manconf syntax and ftplugin file. (Nikolai Weibull)
matlab ftplugin file. (Jake Wasserman)
Maxima syntax file. (Robert Dodier)
MGL syntax file. (Gero Kuhlmann)
modconf ftplugin file. (Nikolai Weibull)
mplayer config ftplugin file. (Nikolai Weibull)
Mrxvtrc syntax and ftplugin file. (Gautam Iyer)
MuPAD source syntax, indent and ftplugin. (Dave Silvia)
mutt RC ftplugin file. (Nikolai Weibull)
nanorc syntax and ftplugin file. (Nikolai Weibull)
netrc ftplugin file. (Nikolai Weibull)
pamconf syntax and ftplugin file. (Nikolai Weibull)
Pascal indent file. (Neil Carter)
passwd syntax and ftplugin file. (Nikolai Weibull)
PHP compiler plugin. (Doug Kearns)
pinfo ftplugin file. (Nikolai Weibull)
plaintex syntax and ftplugin files. (Nikolai Weibull, Benji Fisher)
procmail ftplugin file. (Nikolai Weibull)

prolog ftplugin file. (Nikolai Weibull)
protocols syntax and ftplugin file. (Nikolai Weibull)
quake ftplugin file. (Nikolai Weibull)
racc syntax and ftplugin file. (Nikolai Weibull)
readline ftplugin file. (Nikolai Weibull)
rhelp syntax file. (Johannes Ranke)
rnoweb syntax file. (Johannes Ranke)
Relax NG compact ftplugin file. (Nikolai Weibull)
Scheme indent file. (Sergey Khorev)
screen ftplugin file. (Nikolai Weibull)
sensors syntax and ftplugin file. (Nikolai Weibull)
services syntax and ftplugin file. (Nikolai Weibull)
setserial syntax and ftplugin file. (Nikolai Weibull)
sieve syntax and ftplugin file. (Nikolai Weibull)
SiSU syntax file (Ralph Amissah)
Sive syntax file. (Nikolai Weibull)
slp config, reg and spi syntax and ftplugin files. (Nikolai Weibull)
SML indent file. (Saikat Guha)
SQL anywhere syntax and indent file. (David Fishburn)
SQL indent file.
SQL-Informix syntax file. (Dean L Hill)
SQL: Handling of various variants. (David Fishburn)
sshconfig ftplugin file. (Nikolai Weibull)
Stata and SMCL syntax files. (Jeff Pitblado)
sudoers ftplugin file. (Nikolai Weibull)
sysctl syntax and ftplugin file. (Nikolai Weibull)
terminfo ftplugin file. (Nikolai Weibull)
trustees syntax file. (Nima Talebi)
Vera syntax file. (David Eggum)
udev config, permissions and rules syntax and ftplugin files. (Nikolai Weibull)
updatedb syntax and ftplugin file. (Nikolai Weibull)
VHDL indent file (Gerald Lai)
WSML syntax file. (Thomas Haselwanter)
Xdefaults ftplugin file. (Nikolai Weibull)
XFree86 config ftplugin file. (Nikolai Weibull)
xinetd syntax, indent and ftplugin file. (Nikolai Weibull)
xmodmap ftplugin file. (Nikolai Weibull)
Xquery syntax file. (Jean-Marc Vanel)
xsd (XML schema) indent file.
YAML ftplugin file. (Nikolai Weibull)
Zsh ftplugin file. (Nikolai Weibull)

New Keymaps:

Sinhala (Sri Lanka) (Harshula Jayasuriya)
Tamil in TSCII encoding (Yegappan Lakshmanan)
Greek in cp737 (Panagiotis Louridas)
Polish-slash (HS6_06)
Ukrainian-jcuken (Anatoli Sakhnik)
Kana (Edward L. Fox)

New message translations:

The Ukrainian messages are now also available in cp1251.
Vietnamese message translations and menu. (Phan Vinh Thinh)

Others:

The :read command has the ++edit argument. This means it will use the detected 'fileformat', 'fileencoding' and other options for the buffer. This also fixes the problem that editing a compressed file didn't set these options.

The Netbeans interface was updated for Sun Studio 10. The protocol number goes from 2.2 to 2.3. (Gordon Prieur)

Mac: When starting up Vim will load the $VIMRUNTIME/macmap.vim script to define default command-key mappings. (mostly by Benji Fisher)

Mac: Add the selection type to the clipboard, so that Block, line and character selections can be used between two Vims. (Eckehard Berns)
Also fixes the problem that setting 'clipboard' to "unnamed" breaks using "yyp".

Mac: GUI font selector. (Peter Cucka)

Mac: support for multi-byte characters. (Da Woon Jung)
This doesn't always work properly. If you see text drawing problems try switching the 'macatsui' option off.

Mac: Support the xterm mouse in the non-GUI version.

Mac: better integration with Xcode. Post a fake mouse-up event after the odoc event and the drag receive handler to work around a stall after Vim loads a file. Fixed an off-by-one line number error. (Da Woon Jung)

Mac: When started from Finder change directory to the file being edited or the user home directory.

Added the t_SI and t_EI escape sequences for starting and ending Insert mode. To be used to set the cursor shape to a bar or a block. No default values, they are not supported by termcap/terminfo.

GUI font selector for Motif. (Marcin Dalecki)

Nicer toolbar buttons for Motif. (Marcin Dalecki)

Mnemonics for the Motif find/replace dialog. (Marcin Dalecki)

Included a few improvements for Motif from Marcin Dalecki. Draw label contents ourselves to make them handle fonts in a way configurable by Vim and a bit less dependent on the X11 font management.

Autocommands can be defined local to a buffer. This means they will also work when the buffer does not have a name or no specific name. See

autocmd-buflocal . (Yakov Lerner)

For xterm most combinations of modifiers with function keys are recognized.
xterm-modifier-keys

When 'verbose' is set the output of ":highlight" will show where a highlight item was last set.
When 'verbose' is set the output of the ":map", ":abbreviate", ":command", ":function" and ":autocmd" commands will show where it was last defined. (Yegappan Lakshmanan)

":function /pattern" lists functions matching the pattern.

"1gd" can be used like "gd" but ignores matches in a {} block that ends before the cursor position. Likewise for "1gD" and "gD".

'scrolljump' can be set to a negative number to scroll a percentage of the window height.

The v:scrollstart variable has been added to help find the location in your script that causes the hit-enter prompt.

To make it possible to handle the situation that a file is being edited that is already being edited by another Vim instance, the SwapExists event has been added. The v:swapname , v:swapchoice and v:swapcommand variables can be used, for example to use the client-server functionality to bring the other Vim to the foreground.
When starting Vim with a "-t tag" argument, there is an existing swapfile and the user selects "quit" or "abort" then exit Vim.

Undo now also restores the '< and '> marks. "gv" selects the same area as before the change and undo.

When editing a search pattern for a "/" or "?" command and 'incsearch' is set CTRL-L can be used to add a character from the current match. CTRL-R CTRL-W will add a word, but exclude the part of the word that was already typed.

Ruby interface: add line number methods. (Ryan Paul)

The $MYVIMRC environment variable is set to the first found vimrc file.
The $MYGVIMRC environment variable is set to the first found gvimrc file.

==
IMPROVEMENTS improvements-7

":helpgrep" accepts a language specifier after the pattern: "pat@it".

Moved the help for printing to a separate help file. It's quite a lot now.

When doing completion for ":!cmd", ":r !cmd" or ":w !cmd" executable files are found in $PATH instead of looking for ordinary files in the current directory.

When ":silent" is used and a backwards range is given for an Ex command the range is swapped automatically instead of asking if that is OK.

The pattern matching code was changed from a recursive function to an iterative mechanism. This avoids out-of-stack errors. State is stored in allocated memory, running out of memory can always be detected. Allows matching more complex things, but Vim may seem to hang while doing that.

Previously some options were always evaluated in the sandbox. Now that only happens when the option was set from a modeline or in secure mode. Applies to 'balloonexpr', 'foldexpr', 'foldtext' and 'includeexpr'. (Sumner Hayes)

Some commands and expressions could have nasty side effects, such as using CTRL-R = while editing a search pattern and the expression invokes a function that jumps to another window. The textlock has been added to prevent this from happening.

":breakadd here" and ":breakdel here" can be used to set or delete a breakpoint at the cursor.

It is now possible to define a function with:
```
:exe "func Test()\n ...\n endfunc"
```

The tutor was updated to make it simpler to use and text was added to explain a few more important commands. Used ideas from Gabriel Zachmann.

Unix: When libcall() fails obtain an error message with dlerror() and display it. (Johannes Zellner)

Mac and Cygwin: When editing an existing file make the file name the same case of the edited file. Thus when typing ":e os_UNIX.c" the file name becomes "os_unix.c".

Added "nbsp" in 'listchars'. (David Blanchet)

Added the "acwrite" value for the 'buftype' option. This is for a buffer that does not have a name that refers to a file and is written with BufWriteCmd autocommands.

For lisp indenting and matching parenthesis: (Sergey Khorev)
- square brackets are recognized properly
- #\(, #\), #\[and #\] are recognized as character literals
- Lisp line comments (delimited by semicolon) are recognized

Added the "count" argument to match(), matchend() and matchstr(). (Ilya Sher)

winnr() takes an optional "$" or "#" argument. (Nikolai Weibull, Yegappan Lakshmanan)

Added 's' flag to search(): set ' mark if cursor moved. (Yegappan Lakshmanan)
Added 'n' flag to search(): don't move the cursor. (Nikolai Weibull)
Added 'c' flag to search(): accept match at the cursor.
Added 'e' flag to search(): move to end of the match. (Benji Fisher)
Added 'p' flag to search(): return number of sub-pattern. (Benji Fisher)
These also apply to searchpos(), searchpair() and searchpairpos().

The search() and searchpair() functions have an extra argument to specify where to stop searching. Speeds up searches that should not continue too far.

When uncompressing fails in the gzip plugin, give an error message but don't delete the raw text. Helps if the file has a .gz extension but is not actually compressed. (Andrew Pimlott)

When C, C++ or IDL syntax is used, may additionally load doxygen syntax. (Michael Geddes)

Support setting 'filetype' and 'syntax' to "aaa.bbb" for "aaa" plus "bbb" filetype or syntax.

The ":registers" command now displays multi-byte characters properly.

VMS: In the usage message mention that a slash can be used to make a flag upper case. Add color support to the builtin vt320 terminal codes. (Zoltan Arpadffy)

For the '%' item in 'viminfo', allow a number to set a maximum for the number of buffers.

For recognizing the file type: When a file looks like a shell script, check for an "exec" command that starts the tcl interpreter. (suggested by Alexios Zavras)

Support conversion between utf-8 and latin9 (iso-8859-15) internally, so that digraphs still work when iconv is not available.

When a session file is loaded while editing an unnamed, empty buffer that buffer is wiped out. Avoids that there is an unused buffer in the buffer list.

Win32: When libintl.dll supports bind_textdomain_codeset(), use it. (NAKADAIRA Yukihiro)

Win32: Vim was not aware of hard links on NTFS file systems. These are detected now for when 'backupcopy' is "auto". Also fixed a bogus "file has been changed since reading it" error for links.

When foldtext() finds no text after removing the comment leader, use the second line of the fold. Helps for C-style /* */ comments where the first line is just "/*".

When editing the same file from two systems (e.g., Unix and MS-Windows) there mostly was no warning for an existing swap file, because the name of the edited file differs (e.g., y:\dir\file vs /home/me/dir/file). Added a flag to the swap file to indicate it is in the same directory as the edited file. The used path then doesn't matter and the check for editing the same file is much more reliable.

Unix: When editing a file through a symlink the swap file would use the name of the symlink. Now use the name of the actual file, so that editing the same file twice is detected. (suggestions by Stefano Zacchiroli and James Vega)

Client-server communication now supports 'encoding'. When setting 'encoding'
in a Vim server to "utf-8", and using "vim --remote fname" in a console,
"fname" is converted from the console encoding to utf-8. Also allows Vims
with different 'encoding' settings to exchange messages.

Internal: Changed ga_room into ga_maxlen, so that it doesn't need to be
incremented/decremented each time.

When a register is empty it is not stored in the viminfo file.

Removed the tcltags script, it's obsolete.

":redir @*>>" and ":redir @+>>" append to the clipboard. Better check for
invalid characters after the register name. :redir

":redir => variable" and ":redir =>> variable" write or append to a variable.
(Yegappan Lakshmanan) :redir

":redir @{a-z}>>" appends to register a to z. (Yegappan Lakshmanan)

The 'verbosefile' option can be used to log messages in a file. Verbose
messages are not displayed then. The "-V{filename}" argument can be used to
log startup messages.

":let g:" lists global variables.
":let b:" lists buffer-local variables.
":let w:" lists window-local variables.
":let v:" lists Vim variables.

The stridx() and strridx() functions take a third argument, where to start
searching. (Yegappan Lakshmanan)

The getreg() function takes an extra argument to be able to get the expression
for the '=' register instead of the result of evaluating it.

The setline() function can take a List argument to set multiple lines. When
the line number is just below the last line the line is appended.

g CTRL-G also shows the number of characters if it differs from the number of
bytes.

Completion for ":debug" and entering an expression for the '=' register. Skip
":" between range and command name. (Peter Winters)

CTRL-Q in Insert mode now works like CTRL-V by default. Previously it was
ignored.

When "beep" is included in 'debug' a function or script that causes a beep
will result in a message with the source of the error.

When completing buffer names, match with "\(^\|[\/]\)" instead of "^", so that
":buf stor<Tab>" finds both "include/storage.h" and "storage/main.c".

To count items (pattern matches) without changing the buffer the 'n' flag has
been added to :substitute . See count-items .

In a :substitute command the \u, \U, \l and \L items now also work for
multi-byte characters.

The "screen.linux" $TERM name is recognized to set the default for
'background' to "dark". (Ciaran McCreesh) Also for "cygwin" and "putty".

The FileChangedShell autocommand event can now use the v:fcs_reason
variable that specifies what triggered the event. v:fcs_choice can be used
to reload the buffer or ask the user what to do.

Not all modifiers were recognized for xterm function keys. Added the
possibility in term codes to end in ";*X" or "O*X", where X is any character
and the * stands for the modifier code.
Added the <xUp>, <xDown>, <xLeft> and <xRight> keys, to be able to recognize
the two forms that xterm can send their codes in and still handle all possible
modifiers.

getwinvar() now also works to obtain a buffer-local option from the specified
window.

Added the "%s" item to 'errorformat'. (Yegappan Lakshmanan)
Added the "%>" item to 'errorformat'.

For 'errorformat' it was not possible to have a file name that contains the
character that follows after "%f". For example, in "%f:%l:%m" the file name
could not contain ":". Now include the first ":" where the rest of the
pattern matches. In the example a ":" not followed by a line number is
included in the file name. (suggested by Emanuele Giaquinta)

GTK GUI: use the GTK file dialog when it's available. Mix from patches by
Grahame Bowland and Evan Webb.

Added ":scriptnames" to bugreport.vim, so that we can see what plugins were
used.

Win32: If the user changes the setting for the number of lines a scroll wheel
click scrolls it is now used immediately. Previously Vim would need to be
restarted.

When using @= in an expression the value is expression @= contains. ":let @=
= value" can be used to set the register contents.

A ! can be added to ":popup" to have the popup menu appear at the mouse
pointer position instead of the text cursor.

The table with encodings has been expanded with many MS-Windows codepages,
such as cp1250 and cp737, so that these can also be used on Unix without
prepending "8bit-".
When an encoding name starts with "microsoft-cp" ignore the "microsoft-" part.

Added the "customlist" completion argument to a user-defined command. The

user-defined completion function should return the completion candidates as a Vim List and the returned results are not filtered by Vim. (Yegappan Lakshmanan)

Win32: Balloons can have multiple lines if common controls supports it. (Sergey Khorev)

For command-line completion the matches for various types of arguments are now sorted: user commands, variables, syntax names, etc.

When no locale is set, thus using the "C" locale, Vim will work with latin1 characters, using its own isupper()/toupper()/etc. functions.

When using an rxvt terminal emulator guess the value of 'background' using the COLORFGBG environment variable. (Ciaran McCreesh)

Also support t_SI and t_EI on Unix with normal features. (Ciaran McCreesh)

When 'foldcolumn' is one then put as much info in it as possible. This allows closing a fold with the mouse by clicking on the '-'.

input() takes an optional completion argument to specify the type of completion supported for the input. (Yegappan Lakshmanan)

"dp" works with more than two buffers in diff mode if there is only one where 'modifiable' is set.

The 'diffopt' option has three new values: "horizontal", "vertical" and "foldcolumn".

When the 'include' option contains \zs the file name found is what is being matched from \zs to the end or \ze. Useful to pass more to 'includeexpr'.

Loading plugins on startup now supports subdirectories in the plugin directory. load-plugins

In the foldcolumn always show the '+' for a closed fold, so that it can be opened easily. It may overwrite another character, esp. if 'foldcolumn' is 1.

It is now possible to get the W10 message again by setting 'readonly'. Useful in the FileChangedRO autocommand when checking out the file fails.

Unix: When open() returns EFBIG give an appropriate message.

":mksession" sets the SessionLoad variable to notify plugins. A modeline is added to the session file to set 'filetype' to "vim".

In the ATTENTION prompt put the "Delete it" choice before "Quit" to make it more logical. (Robert Webb)

When appending to a file while the buffer has no name the name of the appended file would be used for the current buffer. But the buffer contents is actually different from the file content. Don't set the file name, unless the 'P' flag is present in 'cpoptions'.

When starting to edit a new file and the directory for the file doesn't exist
then Vim will report "[New DIRECTORY]" instead of "[New File] to give the user
a hint that something might be wrong.

Win32: Preserve the hidden attribute of the viminfo file.

In Insert mode CTRL-A didn't keep the last inserted text when using CTRL-O and
then a cursor key. Now keep the previously inserted text if nothing is
inserted after the CTRL-O. Allows using CTRL-O commands to move the cursor
without losing the last inserted text.

The exists() function now supports checking for autocmd group definition
and for supported autocommand events. (Yegappan Lakshmanan)

Allow using ":global" in the sandbox, it doesn't do anything harmful by
itself.

":saveas asdf.c" will set 'filetype' to c when it's empty. Also for ":w
asdf.c" when it sets the filename for the buffer.

Insert mode completion for whole lines now also searches unloaded buffers.

The colortest.vim script can now be invoked directly with ":source" or
":runtime syntax/colortest.vim".

The 'statusline' option can be local to the window, so that each window can
have a different value. (partly by Yegappan Lakshmanan)

The 'statusline' option and other options that support the same format can now
use these new features:
- When it starts with "%!" the value is first evaluated as an expression
  before parsing the value.
- "%#HLname#" can be used to start highlighting with HLname.

When 'statusline' is set to something that causes an error message then it is
made empty to avoid an endless redraw loop. Also for other options, such at
'tabline' and 'titlestring'. ":verbose set statusline" will mention that it
was set in an error handler.

When there are several matching tags, the ":tag <name>" and CTRL-] commands
jump to the [count] matching tag. (Yegappan Lakshmanan)

Win32: In the batch files generated by the install program, use $VIMRUNTIME or
$VIM if it's set. Example provided by Mathias Michaelis.
Also create a vimtutor.bat batch file.

The 'balloonexpr' option is now global-local .

The system() function now runs in cooked mode, thus can be interrupted by
CTRL-C.

==
COMPILE TIME CHANGES   compile-changes-7

Dropped the support for the BeOS and Amiga GUI. They were not maintained and
probably didn't work. If you want to work on this: get the Vim 6.x version
and merge it back in.

When running the tests and one of them fails to produce "test.out" the
following tests are still executed. This helps when running out of memory.

When compiling with EXITFREE defined and the ccmalloc library, it is possible
to detect memory leaks. Some memory will always be reported as leaked, such
as allocated by X11 library functions and the memory allocated in
alloc_cmdbuff() to store the ":quit" command.

Moved the code for printing to src/hardcopy.c.

Moved some code from main() to separate functions to make it easier to see
what is being done. Using a structure to avoid a lot of arguments to the
functions.

Moved unix_expandpath() to misc1.c, so that it can also be used by os_mac.c
without copying the code.

--- Mac ---

"make" now creates the Vim.app directory and "make install" copies it to its
final destination. (Raf)

Put the runtime directory not directly in Vim.app but in
Vim.app/Contents/Resources/vim, so that it's according to Mac specs.

Made it possible to compile with Motif, Athena or GTK without tricks and still
being able to use the MacRoman conversion. Added the os_mac_conv.c file.

When running "make install" the runtime files are installed as for Unix.
Avoids that too many files are copied. When running "make" a link to the
runtime files is created to avoid a recursive copy that takes much time.

Configure will attempt to build Vim for both Intel and PowerPC. The
--with-mac-arch configure argument can change it.

--- Win32 ---

The Make_mvc.mak file was adjusted to work with the latest MS compilers,
including the free version of Visual Studio 2005. (George Reilly)

INSTALLpc.txt was updated for the recent changes. (George Reilly)

The distributed executable is now produced with the free Visual C++ Toolkit
2003 and other free SDK chunks. msvcsetup.bat was added to support this.

Also generate the .pdb file that can be used to generate a useful crash report
on MS-Windows. (George Reilly)

==

When using PostScript printing on MS-DOS the default 'printexpr' used "lpr" instead of "copy". When 'printdevice' was empty the copy command did not work. Use "LPT1" then.

The GTK font dialog uses a font size zero when the font name doesn't include a size. Use a default size of 10.

This example in the documentation didn't work:
```
    :e `=foo . ".c"`
```
Skip over the expression in `=expr` when looking for comments, |, % and #.

When ":helpgrep" doesn't find anything there is no error message.

"L" and "H" did not take closed folds into account.

Win32: The "-P title" argument stopped at the first title that matched, even when it doesn't support MDI.

Mac GUI: CTRL-^ and CTRL-@ did not work.

"2daw" on "word." at the end of a line didn't include the preceding white space.

Win32: Using FindExecutable() doesn't work to find a program. Use SearchPath() instead. For executable() use $PATHEXT when the program searched for doesn't have an extension.

When 'virtualedit' is set, moving the cursor up after appending a character may move it to a different column. Was caused by auto-formatting moving the cursor and not putting it back where it was.

When indent was added automatically and then moving the cursor, the indent was not deleted (like when pressing ESC). The "I" flag in 'cpoptions' can be used to make it work the old way.

When opening a command-line window, 'textwidth' gets set to 78 by the Vim filetype plugin. Reset 'textwidth' to 0 to avoid lines are broken.

After using cursor(line, col) moving up/down doesn't keep the same column.

Win32: Borland C before 5.5 requires using ".u." for LowPart and HighPart fields. (Walter Briscoe)

On Sinix SYS_NMLN isn't always defined. Define it ourselves. (Cristiano De Michele)

Printing with PostScript may keep the printer waiting for more. Append a CTRL-D to the printer output. (Mike Williams)

When converting a string with a hex or octal number the leading '-' was ignored. ":echo '-05' + 0" resulted in 5 instead of -5.

Using "@:" to repeat a command line didn't work when it contains control characters. Also remove "'<,'>" when in Visual mode to avoid that it appears twice.

When using file completion for a user command, it would not expand environment variables like for a regular command with a file argument.

'cindent': When the argument of a #define looks like a C++ class the next line is indented too much.

When 'comments' includes multi-byte characters inserting the middle part and alignment may go wrong. 'cindent' also suffers from this for right-aligned items.

Win32: when 'encoding' is set to "utf-8" getenv() still returns strings in the active codepage. Convert to utf-8. Also for $HOME.

The default for 'helplang' was "zh" for both "zh_cn" and "zh_tw". Now use "cn" or "tw" as intended.

When 'bin' is set and 'eol' is not set then line2byte() added the line break after the last line while it's not there.

Using foldlevel() in a WinEnter autocommand may not work. Noticed when resizing the GUI shell upon startup.

Python: Using buffer.append(f.readlines()) didn't work. Allow appending a string with a trailing newline. The newline is ignored.

When using the ":saveas f2" command for buffer "f1", the Buffers menu would contain "f2" twice, one of them leading to "f1". Also trigger the BufFilePre and BufFilePost events for the alternate buffer that gets the old name.

strridx() did not work well when the needle is empty. (Ciaran McCreesh)

GTK: Avoid a potential hang in gui_mch_wait_for_chars() when input arrives just before it is invoked

VMS: Occasionally CR characters were inserted in the file. Expansion of environment variables was not correct. (Zoltan Arpadffy)

UTF-8: When 'delcombine' is set "dw" only deleted the last combining character from the first character of the word.

When using ":sball" in an autocommand only the filetype in one buffer was detected. Reset did_filetype in enter_buffer().

When using ":argdo" and the window already was at the first argument index, but not actually editing it, the current buffer would be used instead.

When ":next dir/*" includes many matches, adding the names to the argument list may take an awful lot of time and can't be interrupted. Allow interrupting this.

When editing a file that was already loaded in a buffer, modelines were not used. Now window-local options in the modeline are set. Buffer-local options and global options remain unmodified.

Win32: When 'encoding' is set to "utf-8" in the vimrc file, files from the command line with non-ASCII characters are not used correctly. Recode the file names when 'encoding' is set, using the Unicode command line.

Win32 console: When the default for 'encoding' ends up to be "latin1", the default value of 'isprint' was wrong.

When an error message is given while waiting for a character (e.g., when an xterm reports the number of colors), the hit-enter prompt overwrote the last line. Don't reset msg_didout in normal_cmd() for K_IGNORE.

Mac GUI: Shift-Tab didn't work.

When defining tooltip text, don't translate terminal codes, since it's not going to be used like a command.

GTK 2: Check the tooltip text for valid utf-8 characters to avoid getting a GTK error. Invalid characters may appear when 'encoding' is changed.

GTK 2: Add a safety check for invalid utf-8 sequences, they can crash pango.

Win32: When 'encoding' is changed while starting up, use the Unicode command line to convert the file arguments to 'encoding'. Both for the GUI and the console version.

Win32 GUI: latin9 text (iso-8859-15) was not displayed correctly, because there is no codepage for latin9. Do our own conversion from latin9 to UCS2.

When two versions of GTK+ 2 are installed it was possible to use the header files from one and the library from the other. Use GTK_LIBDIR to put the directory for the library early in the link flags.

With the GUI find/replace dialog a replace only worked if the pattern was literal text. Now it works for any pattern.

When 'equalalways' is set and 'eadirection' is "hor", ":quit" would still cause equalizing window heights in the vertical direction.

When ":emenu" is used in a startup script the command was put in the typeahead buffer, causing a prompt for the crypt key to be messed up.

Mac OS/X: The default for 'isprint' included characters 128-160, causes problems for Terminal.app.

When a syntax item with "containedin" is used, it may match in the start or end of a region with a matchgroup, while this doesn't happen for a "contains" argument.

When a transparent syntax items matches in another item where the highlighting has already stopped (because of a he= argument), the highlighting would come

back.

When cscope is used to set the quickfix error list, it didn't get set if there was only one match. (Sergey Khorev)

When 'confirm' is set and using ":bdel" in a modified buffer, then selecting "cancel", would still give an error message.

The PopUp menu items that started Visual mode didn't work when not in Normal mode. Switching between selecting a word and a line was not possible.

Win32: The keypad decimal point always resulted in a '.', while on some keyboards it's a ','. Use MapVirtualKey(VK_DECIMAL, 2).

Removed unused function DisplayCompStringOpaque() from gui_w32.c

In Visual mode there is not always an indication whether the line break is selected or not. Highlight the character after the line when the line break is included, e.g., after "v$o".

GTK: The <F10> key can't be mapped, it selects the menu. Disable that with a GTK setting and do select the menu when <F10> isn't mapped. (David Necas)

After "Y" '[and '] were not at start/end of the yanked text.

When a telnet connection is dropped Vim preserves files and exits. While doing that a SIGHUP may arrive and disturb us, thus ignore it. (Scott Anderson) Also postpone SIGHUP, SIGQUIT and SIGTERM until it's safe to handle. Added handle_signal().

When completing a file name on the command line backslashes are required for white space. Was only done for a space, not for a Tab.

When configure could not find a terminal library, compiling continued for a long time before reporting the problem. Added a configure check for tgetent() being found in a library.

When the cursor is on the first char of the last line a ":g/pat/s///" command may cause the cursor to be displayed below the text.

Win32: Editing a file with non-ASCII characters doesn't work when 'encoding' is "utf-8". use _wfullpath() instead of _fullpath(). (Yu-sung Moon)

When recovering the 'fileformat' and 'fileencoding' were taken from the original file instead of from the swapfile. When the file didn't exist, was empty or the option was changed (e.g., with ":e ++fenc=cp123 file") it could be wrong. Now store 'fileformat' and 'fileencoding' in the swapfile and use the values when recovering.

":bufdo g/something/p" overwrites each last printed text line with the file message for the next buffer. Temporarily clear 'shortmess' to avoid that.

Win32: Cannot edit a file starting with # with --remote. Do escape % and # when building the ":drop" command.

A comment or | just after an expression-backtick argument was not recognized.
E.g. in :e `="foo"`"comment.

"(" does not stop at an empty sentence (single dot and white space) while ")"
does. Also breaks "das" on that dot.

When doing "yy" with the cursor on a TAB the ruler could be wrong and "k"
moved the cursor to another column.

When 'commentstring' is '"%s' and there is a double quote in the line a double
quote before the fold marker isn't removed in the text displayed for a closed
fold.

In Visual mode, when 'bin' and 'eol' set, g CTRL-G counted the last line
break, resulting in "selected 202 of 201 bytes".

Motif: fonts were not used for dialog components. (Marcin Dalecki)

Motif: After using a toolbar button the keyboard focus would be on the toolbar
(Lesstif problem). (Marcin Dalecki)

When using "y<C-V>`x" where mark x is in the first column, the last line was
not included.

Not all test scripts work properly on MS-Windows when checked out from CVS.
Use a Vim command to fix all fileformats to dos before executing the tests.

When using ":new" and the file fits in the window, lines could still be above
the window. Now remove empty lines instead of keeping the relative position.

Cmdline completion didn't work after ":let var1 var<Tab>".

When using ":startinsert" or ":startreplace" when already in Insert mode
(possible when using CTRL-R =), pressing Esc would directly restart Insert
mode. (Peter Winters)

"2daw" didn't work at end of file if the last word is a single character.

Completion for ":next a'<Tab>" put a backslash before single quote, but it was
not removed when editing a file. Now halve backslashes in save_patterns().
Also fix expanding a file name with the shell that contains "\'".

When doing "1,6d|put" only "fewer lines" was reported. Now a following "more
lines" overwrites the message.

Configure could not handle "-Dfoo=long\ long" in the TCL config output.

When searching backwards, using a pattern that matches a newline and uses \zs
after that, didn't find a match. Could also get a hang or end up in the right
column in the wrong line.

When $LANG is "sl" for slovenian, the slovak menu was used, since "slovak"
starts with "sl".

When 'paste' is set in the GUI the Paste toolbar button doesn't work. Clear 'paste' when starting the GUI.

A message about a wrong viminfo line included the trailing NL.

When 'paste' is set in the GUI the toolbar button doesn't work in Insert mode. Use ":exe" in menu.vim to avoid duplicating the commands, instead of using a mapping.

Treat "mlterm" as an xterm-like terminal. (Seiichi Sato)

":z.4" and ":z=4" didn't work Vi compatible.

When sourcing a file, editing it and sourcing it again, it could appear twice in ":scriptnames" and get a new <SID>, because the inode has changed.

When $SHELL is set but empty the 'shell' option would be empty. Don't use an empty $SHELL value.

A command "w! file" in .vimrc or $EXINIT didn't work. Now it writes an empty file.

When a CTRL-F command at the end of the file failed, the cursor was still moved to the start of the line. Now it remains where it is.

When using ":s" or "&" to repeat the last substitute and "$" was used to put the cursor in the last column, put the cursor in the last column again. This is Vi compatible.

Vim is not fully POSIX compliant but sticks with traditional Vi behavior. Added a few flags in 'cpoptions' to behave the POSIX way when wanted. The $VIM_POSIX environment variable is checked to set the default.

Appending to a register didn't insert a line break like Vi. Added the '>' flag to 'cpoptions' for this.

Using "I" in a line with only blanks appended to the line. This is not Vi compatible. Added the 'H' flag in 'cpoptions' for this.

When joining multiple lines the cursor would be at the last joint, but Vi leaves it at the position where "J" would put it. Added the 'q' flag in 'cpoptions' for this.

Autoindent didn't work for ":insert" and ":append".

Using ":append" in an empty buffer kept the dummy line. Now it's deleted to be Vi compatible.

When reading commands from a file and stdout goes to a terminal, would still request the xterm version. Vim can't read it, thus the output went to the shell and caused trouble there.

When redirecting to a register with an invalid name the redirection would

still be done (after an error message). Now reset "redir_reg". (Yegappan Lakshmanan)

It was not possible to use a NL after a backslash in Ex mode. This is sometimes used to feed multiple lines to a shell command.

When 'cmdheight' is set to 2 in .vimrc and the GUI uses the number of lines from the terminal we actually get 3 lines for the cmdline in gvim.

When setting $HOME allocated memory would leak.

Win32: bold characters may sometimes write in another character cell. Use unicodepdy[] as for UTF-8. (Taro Muraoka)

":w fname" didn't work for files with 'buftype' set to "nofile".

The method used to locate user commands for completion differed from when they are executed. Ambiguous command names were not completed properly.

Incremental search may cause a crash when there is a custom statusline that indirectly invokes ":normal".

Diff mode failed when $DIFF_OPTIONS was set in the environment. Unset it before invoking "diff".

Completion didn't work after ":argdo", ":windo" and ":bufdo". Also for ":set &l:opt" and ":set &g:opt". (Peter Winters)

When setting 'ttymouse' to "dec" in an xterm that supports the DEC mouse locator it doesn't work. Now switch off the mouse before selecting another mouse model.

When the CursorHold event is triggered and the commands peek for typed characters the typeahead buffer may be messed up, e.g., when a mouse-up event is received. Avoid invoking the autocommands from the function waiting for a character, let it put K_CURSORHOLD in the input buffer.

Removed the "COUNT" flag from ":argadd", to avoid ":argadd 1*" to be used like ":1argadd *". Same for ":argdelete" and ":argedit".

Avoid that $LANG is used for the menus when LC_MESSAGES is "en_US".

Added backslashes before dashes in the vim.1 manual page to make them appear as real dashes. (Pierre Habouzit)

Where "gq" left the cursor depended on the value of 'formatprg'. Now "gq" always leaves the cursor at the last line of the formatted text.

When editing a compressed file, such as "changelog.Debian.gz" file, filetype detection may try to check the contents of the file while it's still compressed. Skip setting 'filetype' for compressed files until they have been decompressed. Required for patterns that end in a "*".

Starting with an argument "+cmd" or "-S script" causes the cursor to be moved

to the first line. That breaks a BufReadPost autocommand that uses g`".
Don't move the cursor if it's somewhere past the first line.

"gg=G" while 'modifiable' is off was uninterruptible.

When 'encoding' is "sjis" inserting CTRL-V u d800 a few times causes a crash.
Don't insert a DBCS character with a NUL second byte.

In Insert mode CTRL-O <Home> didn't move the cursor. Made "ins_at_eol" global
and reset it in nv_home().

Wildcard expansion failed: ":w /tmp/$$.`echo test`". Don't put quotes around
spaces inside backticks.

After this sequence of commands: Y V p gv: the wrong line is selected. Now
let "gv" select the text that was put, since the original text is deleted.
This should be the most useful thing to do.

":sleep 100u" sleeps for 100 seconds, not 100 usec as one might expect. Give
an error message when the argument isn't recognized.

In gui_mch_draw_string() in gui_w32.c "unibuflen" wasn't static, resulting in
reallocating the buffer every time. (Alexei Alexandrov)

When using a Python "atexit" function it was not invoked when Vim exits. Now
call Py_Finalize() for that. (Ugo Di Girolamo)
This breaks the thread stuff though, fixed by Ugo.

GTK GUI: using a .vimrc with "set cmdheight=2 lines=43" and ":split" right
after startup, the window layout is messed up. (Michael Schaap) Added
win_new_shellsize() call in gui_init() to fix the topframe size.

Trick to get ...MOUSE_NM not used when there are vertical splits. Now pass
column -1 for the left most window and add MOUSE_COLOFF for others. Limits
mouse column to 10000.

searchpair() may hang when the end pattern has "\zs" at the end. Check that
we find the same position again and advance one character.

When in diff mode and making a change that causes the "changed" highlighting
to disappear or reappear, it was still highlighted in another window.

When a ":next" command fails because the user selects "Abort" at the ATTENTION
prompt the argument index was advanced anyway.

When "~" is in 'iskeyword' the "gd" doesn't work, it's used for the previous
substitute pattern. Put "\V" in the pattern to avoid that.

Use of sprintf() sometimes didn't check properly for buffer overflow. Also
when using smsg(). Included code for snprintf() to avoid having to do size
checks where invoking them

":help \=<Tab>" didn't find "sub-replace-\=". Wild menu for help tags didn't
show backslashes. ":he :s\=" didn't work.

When reading an errorfile "~/" in a file name was not expanded.

GTK GUI: When adding a scrollbar (e.g. when using ":vsplit") in a script or removing it the window size may change. GTK sends us resize events when we change the window size ourselves, but they may come at an unexpected moment. Peek for a character to get any window resize events and fix 'columns' and 'lines' to undo this.

When using the GTK plug mechanism, resizing and focus was not working properly. (Neil Bird)

After deleting files from the argument list a session file generated with ":mksession" may contain invalid ":next" commands.

When 'shortmess' is empty and 'keymap' set to accents, in Insert mode CTRL-N may cause the hit-enter prompt. Typing 'a then didn't result in the accented character. Put the character typed at the prompt back in the typeahead buffer so that mapping is done in the right mode.

setbufvar() and setwinvar() did not give error messages.

It was possible to set a variable with an illegal name, e.g. with setbufvar(). It was possible to define a function with illegal name, e.t. ":func F{-1}()"

CTRL-W F and "gf" didn't use the same method to get the file name.

When reporting a conversion error the line number of the last error could be given. Now report the first encountered error.

When using ":e ++enc=name file" and iconv() was used for conversion an error caused a fall-back to no conversion. Now replace a character with '?' and continue.

When opening a new buffer the local value of 'bomb' was not initialized from the global value.

Win32: When using the "Edit with Vim" entry the file name was limited to about 200 characters.

When using command line completion for ":e *foo" and the file "+foo" exists the resulting command ":e +foo" doesn't work. Now insert a backslash: ":e \+foo".

When the translation of "-- More --" was not 10 characters long the following message would be in the wrong position.

At the more-prompt the last character in the last line wasn't drawn.

When deleting non-existing text while 'virtualedit' is set the '[and '] marks were not set.

Win32: Could not use "**/" in 'path', it had to be "**\".

The search pattern "\n" did not match at the end of the last line.

Searching for a pattern backwards, starting on the NUL at the end of the line and 'encoding' is "utf-8" would match the pattern just before it incorrectly. Affected searchpair('/*', '', '*/').

For the Find/Replace dialog it was possible that not finding the text resulted in an error message while redrawing, which cleared the syntax highlighting while it was being used, resulting in a crash. Now don't clear syntax highlighting, disable it with b_syn_error.

Win32: Combining UTF-8 characters were drawn on the previous character. Could be noticed with a Thai font.

Output of ":function" could leave some of the typed text behind. (Yegappan Lakshmanan)

When the command line history has only a few lines the command line window would be opened with these lines above the first window line.

When using a command line window for search strings ":qa" would result in searching for "qa" instead of quitting all windows.

GUI: When scrolling with the scrollbar and there is a line that doesn't fit redrawing may fail. Make sure w_skipcol is valid before redrawing.

Limit the values of 'columns' and 'lines' to avoid an overflow in Rows * Columns. Fixed bad effects when running out of memory (command line would be reversed, ":qa!" resulted in ":!aq").

Motif: "gvim -iconic" opened the window anyway. (David Harrison)

There is a tiny chance that a symlink gets created between checking for an existing file and creating a file. Use the O_NOFOLLOW for open() if it's available.

In an empty line "ix<CTRL-O>0" moved the cursor to after the line instead of sticking to the first column.

When using ":wq" and a BufWriteCmd autocmd uses inputsecret() the text was echoed anyway. Set terminal to raw mode in getcmdline().

Unix: ":w a;b~c" caused an error in expanding wildcards.

When appending to a file with ":w >>fname" in a buffer without a name, causing the buffer to use "fname", the modified flag was reset.

When appending to the current file the "not edited" flag would be reset. ":w" would overwrite the file accidentally.

Unix: When filtering text with an external command Vim would still read input, causing text typed for the command (e.g., a password) to be eaten and echoed. Don't read input when the terminal is in cooked mode.

The Cygwin version of xxd used CR/LF line separators. (Corinna Vinschen)

Unix: When filtering text through a shell command some resulting text may be dropped. Now after detecting that the child has exited try reading some more of its output.

When inside input(), using "CTRL-R =" and the expression throws an exception the command line was not abandoned but it wasn't used either. Now abandon typing the command line.

'delcombine' was also used in Visual and Select mode and for commands like "cl". That was illogical and has been disabled.

When recording while a CursorHold autocommand was defined special keys would appear in the register. Now the CursorHold event is not triggered while recording.

Unix: the src/configure script used ${srcdir-.}, not all shells understand that. Use ${srcdir:-.} instead.

When editing file "a" which is a symlink to file "b" that doesn't exist, writing file "a" to create "b" and then ":split b" resulted in two buffers on the same file with two different swapfile names. Now set the inode in the buffer when creating a new file.

When 'esckeys' is not set don't send the xterm code to request the version string, because it may cause trouble in Insert mode.

When evaluating an expression for CTRL-R = on the command line it was possible to call a function that opens a new window, resulting in errors for incremental search, and many other nasty things were possible. Now use the textlock to disallow changing the buffer or jumping to another window to protect from unexpected behavior. Same for CTRL-\ e.

"d(" deleted the character under the cursor, while the documentation specified an exclusive motion. Vi also doesn't delete the character under the cursor.

Shift-Insert in Insert mode could put the cursor before the last character when it just fits in the window. In coladvance() don't stop at the window edge when filling with spaces and when in Insert mode. In mswin.vim avoid getting a beep from the "l" command.

Win32 GUI: When Alt-F4 is used to close the window and Cancel is selected in the dialog then Vim would insert <M-F4> in the text. Now it's ignored.

When ":silent! {cmd}" caused the swap file dialog, which isn't displayed, there would still be a hit-enter prompt.

Requesting the termresponse (t_RV) early may cause problems with "-c" arguments that invoke an external command or even "-c quit". Postpone it until after executing "-c" arguments.

When typing in Insert mode so that a new line is started, using CTRL-G u to break undo and start a new change, then joining the lines with <BS> caused

undo info to be missing. Now reset the insertion start point.

Syntax HL: When a region start match has a matchgroup and an offset that
happens to be after the end of the line then it continued in the next line and
stopped at the region end match, making the region continue after that.
Now check for the column being past the end of the line in syn_add_end_off().

When changing a file, setting 'swapfile' off and then on again, making another
change and killing Vim, then some blocks may be missing from the swapfile.
When 'swapfile' is switched back on mark all blocks in the swapfile as dirty.
Added mf_set_dirty().

Expanding wildcards in a command like ":e aap;<>!" didn't work. Put
backslashes before characters that are special to the shell. (Adri Verhoef)

A CursorHold autocommand would cause a message to be cleared. Don't show the
special key for the event for 'showcmd'.

When expanding a file name for a shell command, as in "!cmd foo<Tab>" or ":r
!cmd foo<Tab>" also escape characters that are special for the shell:
"!;&()<>".

When the name of the buffer was set by a ":r fname" command cpo-f no
autocommands were triggered to notify about the change in the buffer list.

In the quickfix buffer 'bufhidden' was set to "delete", which caused closing
the quickfix window to leave an unlisted "No Name" buffer behind every time.

Win32: when using two screens of different size, setting 'lines' to a large
value didn't fill the whole screen. (SungHyun Nam)

Win32 installer: The generated _vimrc contained an absolute path to diff.exe.
After upgrading it becomes invalid. Now use $VIMRUNTIME instead.

The command line was cleared to often when 'showmode' was set and ":silent
normal vy" was used. Don't clear the command line unless the mode was
actually displayed. Added the "mode_displayed" variable.

The "load session" toolbar item could not handle a space or other special
characters in v:this_session.

":set sta ts=8 sw=4 sts=2" deleted 4 spaces halfway a line instead of 2.

In a multi-byte file the foldmarker could be recognized in the trail byte.
(Taro Muraoka)

Pasting with CTRL-V and menu didn't work properly when some commands are
mapped. Use ":normal!" instead of ":normal". (Tony Apuzzo)

Crashed when expanding a file name argument in backticks.

In some situations the menu and scrollbar didn't work, when the value contains
a CSI byte. (Yukihiro Nakadaira)

GTK GUI: When drawing the balloon focus changes and we might get a key release event that removed the balloon again. Ignore the key release event.

'titleold' was included in ":mkexrc" and ":mksession" files.

":set background&" didn't use the same logic as was used when starting up.

When "umask" is set such that nothing is writable then the viminfo file would be written without write permission. (Julian Bridle)

Motif: In diff mode dragging one scrollbar didn't update the scrollbar of the other diff'ed window.

When editing in an xterm with a different number of colors than expected the screen would be cleared and redrawn, causing the message about the edited file to be cleared. Now set "keep_msg" to redraw the last message.

For a color terminal: When the Normal HL uses bold, possibly to make the color lighter, and another HL group specifies a color it might become light as well. Now reset bold if a HL group doesn't specify bold itself.

When using 256 color xterm the color 255 would show up as color 0. Use a short instead of a char to store the color number.

ml_get errors when searching for "\n\zs" in an empty file.

When selecting a block and using "$" to select until the end of every line and not highlighting the character under the cursor the first character of the block could be unhighlighted.

When counting words for the Visual block area and using "$" to select until the end of every line only up to the length of the last line was counted.

"dip" in trailing empty lines left one empty line behind.

The script ID was only remembered globally for each option. When a buffer- or window-local option was set the same "last set" location was changed for all buffers and windows. Now remember the script ID for each local option separately.

GUI: The "Replace All" button didn't handle backslashes in the replacement in the same way as "Replace". Escape backslashes so that they are taken literally.

When using Select mode from Insert mode and typing a key, causing lines to be deleted and a message displayed, delayed the effect of inserting the key. Now overwrite the message without delay.

When 'whichwrap' includes "l" then "dl" and "yl" on a single letter line worked differently. Now recognize all operators when using "l" at the end of a line.

GTK GUI: when the font selector returned a font name with a comma in it then it would be handled like two font names. Now put a backslash before the

comma.

MS-DOS, Win32: When 'encoding' defaults to "latin1" then the value for
'iskeyword' was still for CPxxx. And when 'nocompatible' was set 'isprint'
would also be the wrong value.

When a command was defined not to take arguments and no '|' no warning message
would be given for using a '|'. Also with ":loadkeymap".

Motif: When using a fontset and 'encoding' is "utf-8" and sizeof(wchar_t) !=
sizeof(XChar2b) then display was wrong. (Yukihiro Nakadaira)

":all" always set the current window to the first window, even when it
contains a buffer that is not in the argument list (can't be closed because it
is modified). Now go to the window that has the first item of the argument
list.

GUI: To avoid left-over pixels from bold text all characters after a character
with special attributes were redrawn. Now only do this for characters that
actually are bold. Speeds up displaying considerably.

When only highlighting changes and the text is scrolled at the same time
everything is redrawn instead of using a scroll and updating the changed text.
E.g., when using ":match" to highlight a paren that the cursor landed on.
Added SOME_VALID: Redraw the whole window but also try to scroll to minimize
redrawing.

Win32: When using Korean IME making it active didn't work properly. (Moon,
Yu-sung, 2005 March 21)

Ruby interface: when inserting/deleting lines display wasn't updated. (Ryan
Paul)

--- fixes since Vim 7.0b ---

Getting the GCC version in configure didn't work with Solaris sed. First
strip any "darwin." and then get the version number.

The "autoload" directory was missing from the self-installing executable for
MS-Windows.

The MS-Windows install program would find "vimtutor.bat" in the install
directory. After changing to "c:" also change to "\" to avoid looking in the
install directory.

To make the 16 bit DOS version compile exclude not used highlight
initializations and build a tiny instead of small version.

finddir() and findfile() accept a negative count and return a List then.

The Python indent file contained a few debugging statements, removed.

Expanding {} for a function name, resulting in a name starting with "s:" was
not handled correctly.

Spelling: renamed COMPOUNDMAX to COMPOUNDWORDMAX. Added several items to be able to handle the new Hungarian dictionary.

Mac: Default to building for the current platform only, that is much faster than building a universal binary. Also, using Perl/Python/etc. only works for the current platform.

The time on undo messages disappeared for someone. Using %T for strftime() apparently doesn't work everywhere. Use %H:%M:%S instead.

Typing BS at the "z=" prompt removed the prompt.

--- fixes and changes since Vim 7.0c ---

When jumping to another tab page the Vim window size was always set, even when nothing in the layout changed.

Win32 GUI tab pages line wasn't always enabled. Do a proper check for the compiler version.

Win32: When switching between tab pages the Vim window was moved when part of it was outside of the screen. Now only do that in the direction of a size change.

Win32: added menu to GUI tab pages line. (Yegappan Lakshmanan)

Mac: Added document icons. (Benji Fisher)

Insert mode completion: Using Enter to accept the current match causes confusion. Use CTRL-Y instead. Also, use CTRL-E to go back to the typed text.

GUI: When there are left and right scrollbars, ":tabedit" kept them instead of using the one that isn't needed.

Using "gP" to replace al the text could leave the cursor below the last line, causing ml_get errors.

When 'cursorline' is set don't use the highlighting when Visual mode is active, otherwise it's difficult to see the selected area.

The matchparen plugin restricts the search to 100 lines, to avoid a long delay when there are closed folds.

Sometimes using CTRL-X s to list spelling suggestions used text from another line.

Win32: Set the default for 'isprint' back to the wrong default "@,~-255", because many people use Windows-1252 while 'encoding' is "latin1".

GTK: Added a workaround for gvim crashing when used over an untrusted ssh link, caused by GTK doing something nasty. (Ed Catmur)

Win32: The font used for the tab page labels is too big. Use the system menu font. (George Reilly)

Win32: Adjusting the window position and size to keep it on the screen didn't work properly when the taskbar is on the left or top of the screen.

The installman.sh and installml.sh scripts use ${10}, that didn't work with old shells. And use "test -f" instead of "test -e".

Win32: When 'encoding' was set in the vimrc then a directory argument for diff mode didn't work.

GUI: at the inputlist() prompt the cursorshape was adjusted as if the windows were still at their old position.

The parenmatch plugin didn't remember the highlighting per window.

Using ":bd" for a buffer that's the current window in another tab page caused a crash.

For a new tab page the 'scroll' option wasn't set to a good default.

Using an end offset for a search "/pat/e" didn't work properly for multi-byte text. (Yukihiro Nakadaira)

":s/\n/,/" doubled the text when used on the last line.

When "search" is in 'foldopen' "[s" and "]s" now open folds.

When using a numbered function "dict" can be omitted, but "self" didn't work then. Always add FC_DICT to the function flags when it's part of a dictionary.

When "--remote-tab" executes locally it left an empty tab page.

"gvim -u NONE", ":set cursorcolumn", "C" in the second line didn't update text. Do update further lines even though the "$" is displayed.

VMS: Support GTK better, also enable +clientserver. (Zoltan Arpadffy)

When highlighting of statusline or tabline is changed there was no redraw to show the effect.

Mac: Added "CFBundleIdentifier" to infplist.xml.

Added tabpage-local variables t:var.

Win32: Added double-click in tab pages line creates new tab. (Yegappan Lakshmanan)

Motif: Added GUI tab pages line. (Yegappan Lakshmanan)

Fixed crash when 'lines' was set to 1000 in a modeline.

When init_spellfile() finds a writable directory in 'runtimepath' but it doesn't contain a "spell" directory, create one.

Win32: executable() also finds "xxd" in the directory where Vim was started, but "!xxd" doesn't work. Append the Vim starting directory to $PATH.

The tab page labels are shortened, directory names are reduced to a single letter by default. Added the pathshorten() function to allow a user to do the same.

":saveas" now resets 'readonly' if the file was successfully written.

Set $MYVIMRC file to the first found .vimrc file.
Set $MYGVIMRC file to the first found .gvimrc file.
Added menu item "Startup Settings" that edits the $MYVIMRC file

Added matcharg().

Error message E745 appeared twice. Renamed one to E786.

Fixed crash when using "au BufRead * Sexplore" and doing ":help". Was wiping out a buffer that's still in a window.

":hardcopy" resulted in an error message when 'encoding' is "utf-8" and 'printencoding' is empty. Now it assumes latin1. (Mike Williams)

The check for the toolbar feature for Motif, depending on certain included files, wasn't detailed enough, causing building to fail in gui_xmebw.c.

Using CTRL-E in Insert mode completion after CTRL-P inserted the first match instead of the original text.

When displaying a UTF-8 character with a zero lower byte Vim might think the previous character is double-wide.

The "nbsp" item of 'listchars' didn't work when 'encoding' was utf-8.

Motif: when Xm/xpm.h is missing gui_xmebw.c would not compile.
HAVE_XM_UNHIGHLIGHTT_H was missing a T.

Mac: Moved the .icns files into src/os_mac_rsrc, so that they can all be copied at once. Adjusted the Info.plist file for three icons.

When Visual mode is active while switching to another tabpage could get ml_get errors.

When 'list' is set, 'nowrap' the $ in the first column caused 'cursorcolumn' to move to the right.

When a line wraps, 'cursorcolumn' was never displayed past the end of the line.

'autochdir' was only available when compiled with NetBeans and GUI. Now it's a separate feature, also available in the "big" version.

Added CTRL-W gf: open file under cursor in new tab page.

When using the menu in the tab pages line, "New Tab" opens the new tab before where the click was. Beyond the labels the new tab appears at the end instead of after the current tab page.

Inside a mapping with an expression getchar() could not be used.

When vgetc is used recursively vgetc_busy protects it from being used recursively. But after a ":normal" command the protection was reset.

":s/a/b/n" didn't work when 'modifiable' was off.

When $VIMRUNTIME includes a multi-byte character then rgb.txt could not be found. (Yukihiro Nakadaira)

":mkspell" didn't work correctly for non-ASCII affix flags when conversion is needed on the spell file.

glob('/dir/\$ABC/*') didn't work.

When using several tab pages and changing 'cmdheight' the display could become messed up. Now store the value of 'cmdheight' separately for each tab page.

The user of the Enter key while the popup menu is visible was still confusing. Now use Enter to select the match after using a cursor key.

Added "usetab" to 'switchbuf'.

--- fixes and changes since Vim 7.0d ---

Added CTRL-W T: move a window to a new tab page.

Using CTRL-X s in Insert mode to complete spelling suggestions and using BS deleted characters before the bad word.

A few small fixes for the VMS makefile. (Zoltan Arpadffy)

With a window of 91 lines 45 cols, ":vsp" scrolled the window. Copy w_wrow when splitting a window and skip setting the height when it's already at the right value.

Using <silent> in a mapping with a shell command and the GUI caused redraw to use wrong attributes.

Win32: Using MSVC 4.1 for install.exe resulted in the start menu items to be created in the administrator directory instead of "All Users". Define the CSIDL_ items if they are missing.

Motif: The GUI tabline did not use the space above the right scrollbar. Work around a bug in the Motif library. (Yegappan Lakshmanan)

The extra files for XML Omni completion are now also installed.
 xml-omni-datafile

GTK GUI: when 'm' is missing from 'guioptions' during startup and pressing
<F10> GTK produced error messages. Now do create the menu but disable it just
after the first gui_mch_update().

":mkspell" doesn't work well with the Hungarian dictionary from the Hunspell
project. Back to the Myspell dictionary.

In help files hide the | used around tags.

Renamed pycomplete to pythoncomplete.

Added "tabpages" to 'sessionoptions'.

When 'guitablabel' is set the effect wasn't visible right away.

Fixed a few 'cindent' errors.

When completing menu names, e.g., after ":emenu", don't sort the entries but
keep them in the original order.

Fixed a crash when editing a directory in diff mode. Don't trigger
autocommands when executing the diff command.

Getting a keystroke could get stuck if 'encoding' is a multi-byte encoding and
typing a special key.

When 'foldignore' is set the folds were not updated right away.

When a list is indexed with [a : b] and b was greater than the length an error
message was given. Now silently truncate the result.

When using BS during Insert mode completion go back to the original text, so
that CTRL-N selects the first matching entry.

Added the 'M' flag to 'cinoptions'.

Win32: Make the "gvim --help" window appear in the middle of the screen
instead of at an arbitrary position. (Randall W. Morris)

Added gettabwinvar() and settabwinvar().

Command line completion: pressing <Tab> after ":e /usr/*" expands the whole
tree, because it becomes ":e /usr/**". Don't add a star if there already is
one.

Added grey10 to grey90 to all GUIs, so that they can all be used for
initializing highlighting. Use grey40 for CursorColumn and CursorLine when
'background' is "dark".

When reading a file and using iconv for conversion, an incomplete byte
sequence at the end caused problems. (Yukihiro Nakadaira)

--- fixes and changes since Vim 7.0e ---

Default color for MatchParen when 'background' is "dark" is now DarkCyan.

":syn off" had to be used twice in a file that sets 'syntax' in a modeline.
(Michael Geddes)

When using ":vsp" or ":sp" the available space wasn't used equally between
windows. (Servatius Brandt)

Expanding <cWORD> on a trailing blank resulted in the first word in the line
if 'encoding' is a multi-byte encoding.

Spell checking: spellbadword() didn't see a missing capital in the first word
of a line. Popup menu now only suggest the capitalized word when appropriate.

When using whole line completion CTRL-L moves through the matches but it
didn't work when at the original text.

When completion finds the longest match, don't go to the first match but stick
at the original text, so that CTRL-N selects the first one.

Recognize "zsh-beta" like "zsh" for setting the 'shellpipe' default. (James
Vega)

When using ":map <expr>" and the expression results in something with a
special byte (NUL or CSI) then it didn't work properly. Now escape special
bytes.

The default Visual highlighting for a color xterm with 8 colors was a magenta
background, which made magenta text disappear. Now use reverse in this
specific situation.

After completing the longest match "." didn't insert the same text. Repeating
also didn't work correctly for multi-byte text.

When using Insert mode completion and BS the whole word that was completed
would result in all possible matches. Now stop completion. Also fixes that
for spell completion the previous word was deleted.

GTK: When 'encoding' is "latin1" and using non-ASCII characters in a file name
the tab page label was wrong and an error message would be given.

The taglist() function could hang on a tags line with a non-ASCII character.

Win32: When 'encoding' differs from the system encoding tab page labels with
non-ASCII characters looked wrong. (Yegappan Lakshmanan)

Motif: building failed when Xm/Notebook.h doesn't exist. Added a configure
check, disable GUI tabline when it's missing.

Mac: When compiled without multi-byte feature the clipboard didn't work.

It was possible to switch to another tab page when the cmdline window is open.

Completion could hang when 'lines' is 6 and a preview window was opened.

Added CTRL-W gF: open file under cursor in new tab page and jump to the line number following the file name.
Added 'guitabtooltip'. Implemented for Win32 (Yegappan Lakshmanan).

Added "throw" to 'debug' option: throw an exception for error messages even whey they would otherwise be ignored.

When 'keymap' is set and a line contains an invalid entry could get a "No mapping found" warning instead of a proper error message.

Motif: default to using XpmAttributes instead of XpmAttributes_21.

A few more changes for 64 bit MS-Windows. (George Reilly)

Got ml_get errors when doing "o" and selecting in other window where there are less lines shorter than the cursor position in the other window. ins_mouse() was using position in wrong window.

Win32 GUI: Crash when giving a lot of messages during startup. Allocate twice as much memory for the dialog template.

Fixed a few leaks and wrong pointer use reported by coverity.

When showing menus the mode character was sometimes wrong.

Added feedkeys(). (Yakov Lerner)

Made matchlist() always return all submatches.

Moved triggering QuickFixCmdPost to before jumping to the first location.

Mac: Added the 'macatsui' option as a temporary work around for text drawing problems.

Line completion on "/**" gave error messages when scanning an unloaded buffer.

--- fixes and changes since Vim 7.0f ---

Win32: The height of the tab page labels is now adjusted to the font height. (Yegappan Lakshmanan)

Win32: selecting the tab label was off by one. (Yegappan Lakshmanan)

Added tooltips for Motif and GTK tab page labels. (Yegappan Lakshmanan)

When 'encoding' is "utf-8" then ":help spell" would report an illegal byte and the file was not converted from latin1 to utf-8. Now retry with latin1 if reading the file as utf-8 results in illegal bytes.

Escape the argument of feedkeys() before putting it in the typeahead buffer.
(Yukihiro Nakadaira)

Added the v:char variable for evaluating 'formatexpr'. (Yukihiro Nakadaira)

With 8 colors Search highlighting combined with Statement highlighted text
made the text disappear.

VMS: avoid warnings for redefining MAX and MIN. (Zoltan Arpadffy)

When 'virtualedit' includes "onemore", stopping Visual selection would still
move the cursor left.

Prevent that using CTRL-R = in Insert mode can start Visual mode.

Fixed a crash that occurred when in Insert mode with completion active and a
mapping caused edit() to be called recursively.

When using CTRL-O in Insert mode just after the last character while
'virtualedit' is "all", then typing CR moved the last character to the next
line. Call coladvance() before starting the new line.

When using :shell ignore clicks on the tab page labels. Also when using the
command line window.

When 'eventignore' is "all" then adding more to ignoring some events, e.g.,
for ":vimgrep", would actually trigger more events.

Win32: When a running Vim uses server name GVIM1 then "gvim --remote fname"
didn't find it. When looking for a server name that doesn't end in a digit
and it is not found then use another server with that name and a number (just
like on Unix).

When using "double" in 'spellsuggest' when the language doesn't support sound
folding resulted in too many suggestions.

Win32: Dropping a shortcut on the Vim icon didn't edit the referred file like
editing it in another way would. Use fname_expand() in buf_set_name() instead
of simply make the file name a full path.

Using feedkeys() could cause Vim to hang.

When closing another tab page from the tabline menu in Insert mode the tabline
was not updated right away.

The syntax menu didn't work in compatible mode.

After using ":tag id" twice with the same "id", ":ts" and then ":pop" a ":ts"
reported no matching tag. Clear the cached tag name.

In Insert mode the matchparen plugin highlighted the wrong paren when there is
a string just next to a paren.

GTK: After opening a new tab page the text was sometimes not drawn correctly.

Flush output and catch up with events when updating the tab page labels.

In the GUI, using CTRL-W q to close the last window of a tab page could cause a crash.

GTK: The tab pages line menu was not converted from 'encoding' to utf-8.

Typing a multi-byte character or a special key at the hit-enter prompt did not work.

When 'virtualedit' contains "onemore" CTRL-O in Insert mode still moved the cursor left when it was after the end of the line, even though it's allowed to be there.

Added test for using tab pages.

towupper() and towlower() were not used, because of checking for __STDC__ISO_10646__ instead of __STDC_ISO_10646__. (sertacyildiz)

For ":map <expr>" forbid changing the text, jumping to another buffer and using ":normal" to avoid nasty side effects.

--- fixes and changes since Vim 7.0g ---

Compilation error on HP-UX, use of "dlerr" must be inside a #ifdef.
(Gary Johnson)

Report +reltime feature in ":version" output.

The tar and zip plugins detect failure to get the contents of the archive and edit the file as-is.

When the result of 'guitablabel' is empty fall back to the default label.

Fixed crash when using ":insert" in a while loop and missing "endwhile".

"gt" and other commands could move to another window when textlock active and when the command line window was open.

Spell checking a file with syntax highlighting and a bad word at the end of the line is ignored could make "]s" hang.

Mac: inputdialog() didn't work when compiled with big features.

Interrupting ":vimgrep" while it is busy loading a file left a modified and hidden buffer behind. Use enter_cleanup() and leave_cleanup() around wipe_buffer().

When making 'keymap' empty the b:keymap_name variable wasn't deleted.

Using CTRL-N that searches a long time, pressing space to interrupt the searching and accept the first match, the popup menu was still displayed briefly.

When setting the Vim window height with -geometry the 'window' option could be at a value that makes CTRL-F behave differently.

When opening a quickfix window in two tabs they used different buffers, causing redrawing problems later. Now use the same buffer for all quickfix windows. (Yegappan Lakshmanan)

When 'mousefocus' is set moving the mouse to the text tab pages line would move focus to the first window. Also, the mouse pointer would jump to the active window.

In a session file, when an empty buffer is wiped out, do this silently.

When one window has the cursor on the last line and another window is resized to make that window smaller, the cursor line could go below the displayed lines. In win_new_height() subtract one from the available space.
Also avoid that using "~" lines makes the window scroll down.

Mac: When sourcing the "macmap.vim" script and then finding a .vimrc file the 'cpo' option isn't set properly, because it was already set and restored.
Added the <special> argument to ":map", so that 'cpo' doesn't need to be changed to be able to use <> notation. Also do this for ":menu" for consistency.

When using "/encoding=abc" in a spell word list, only "bc" was used.

When 'encoding' and 'printencoding' were both "utf-8" then ":hardcopy" didn't work. (Mike Williams)

Mac: When building with "--disable-gui" the install directory would still be "/Applications" and Vim.app would be installed. Now install in /usr/local as usual for a console application.

GUI: when doing completion and there is one match and still searching for another, the cursor was displayed at the end of the line instead of after the match. Now show the cursor after the match while still searching for matches.

GUI: The mouse shape changed on the statusline even when 'mouse' was empty and they can't be dragged.

GTK2: Selecting a button in the confirm() dialog with Tab or cursor keys and hitting Enter didn't select that button. Removed GTK 1 specific code. (Neil Bird)

When evaluating 'balloonexpr' takes a long time it could be called recursively, which could cause a crash.

exists() could not be used to detect whether ":2match" is supported. Added a check for it specifically.

GTK1: Tab page labels didn't work. (Yegappan Lakshmanan)

Insert mode completion: When finding matches use 'ignorecase', but when adding matches to the list don't use it, so that all words with different case are

added, "word", "Word" and "WORD".

When 'cursorline' and 'hlsearch' are set and the search pattern is "x\n"
the rest of the line was highlighted as a match.

Cursor moved while evaluating 'balloonexpr' that invokes ":isearch" and
redirects the output. Don't move the cursor to the command line if msg_silent
is set.

exists() ignored text after a function name and option name, which could
result in false positives.

exists() ignored characters after the recognized word, which can be wrong when
using a name with non-keyword characters. Specifically, these calls no longer
allow characters after the name: exists('*funcname') exists('*funcname(...')
exists('&option') exists(':cmd') exists('g:name') exists('g:name[n]')
exists('g:name.n')

Trigger the TabEnter autocommand only after entering the current window of the
tab page, otherwise the commands are executed with an invalid current window.

Win32: When using two monitors and Vim is on the second monitor, changing the
width of the Vim window could make it jump to the first monitor.

When scrolling back at the more prompt and the quitting a line of text would
be left behind when 'cmdheight' is 2 or more.

Fixed a few things for Insert mode completion, especially when typing BS,
CTRL-N or a printable character while still searching for matches.

==
VERSION 7.1   version-7.1 version7.1

This section is about improvements made between version 7.0 and 7.1.

This is a bug-fix release, there are no fancy new features.

Changed   changed-7.1

Added setting 'mouse' in vimrc_example.vim.

When building with MZscheme also look for include files in the "plt"
subdirectory. That's where they are for FreeBSD.

The Ruby interface module is now called "Vim" instead of "VIM". But "VIM" is
an alias, so it's backwards compatible. (Tim Pope)

Added   added-7.1

New syntax files:
	/var/log/messages (Yakov Lerner)
	Autohotkey (Nikolai Weibull)
	AutoIt v3 (Jared Breland)
	Bazaar commit file "bzr". (Dmitry Vasiliev)
	Cdrdao TOC (Nikolai Weibull)
	Cmusrc (Nikolai Weibull)
	Conary recipe (rPath Inc)
	Framescript (Nikolai Weibull)
	FreeBasic (Mark Manning)
	Hamster (David Fishburn)
	IBasic (Mark Manning)
	Initng (Elan Ruusamae)
	Ldapconf (Nikolai Weibull)
	Litestep (Nikolai Weibull)
	Privoxy actions file (Doug Kearns)
	Streaming Descriptors "sd" (Puria Nafisi Azizi)

New tutor files:
	Czech (Lubos Turek)
	Hungarian (Arpad Horvath)
	Turkish (Serkan kkk)
	utf-8 version of Greek tutor.
	utf-8 version of Russian tutor.
	utf-8 version of Slowak tutor.

New filetype plugins:
	Bst (Tim Pope)
	Cobol (Tim Pope)
	Fvwm (Gautam Iyer)
	Hamster (David Fishburn)
	Django HTML template (Dave Hodder)

New indent files:
	Bst (Tim Pope)
	Cobol (Tim Pope)
	Hamster (David Fishburn)
	Django HTML template (Dave Hodder)
	Javascript
	JSP (David Fishburn)

New keymap files:
	Bulgarian (Boyko Bantchev)
	Mongolian (Natsagdorj Shagdar)
	Thaana (Ibrahim Fayaz)
	Vietnamese (Samuel Thibault)

Other new runtime files:
	Ada support files. (Neil Bird, Martin Krischik)
	Slovenian menu translations (Mojca Miklavec)
	Mono C# compiler plugin (Jarek Sobiecki)

Fixed fixed-7.1

Could not build the Win32s version. Added a few structure definitions in
src/gui_w32.c

Patch 7.0.001
Problem: ":set spellsuggest+=10" does not work. (Suresh Govindachar)
Solution: Add P_COMMA to the 'spellsuggest' flags.
Files: src/option.c

Patch 7.0.002
Problem: C omni completion has a problem with tags files with a path
            containing "#" or "%".
Solution: Escape these characters. (Sebastian Baberowski)
Files: runtime/autoload/ccomplete.vim

Patch 7.0.003
Problem: GUI: clicking in the lower part of a label in the tab pages line
            while 'mousefocus' is set may warp the mouse pointer. (Robert
            Webb)
Solution: Check for a negative mouse position.
Files: src/gui.c

Patch 7.0.004
Problem: Compiler warning for debug_saved used before set. (Todd Blumer)
Solution: Remove the "else" for calling save_dbg_stuff().
Files: src/ex_docmd.c

Patch 7.0.005 (extra)
Problem: Win32: The installer doesn't remove the "autoload" and "spell"
            directories. (David Fishburn)
Solution: Add the directories to the list to be removed.
Files: nsis/gvim.nsi

Patch 7.0.006
Problem: Mac: "make shadow" doesn't make a link for infplist.xml. (Axel
            Kielhorn)
Solution: Make the link.
Files: src/Makefile

Patch 7.0.007
Problem: AIX: compiling fails for message.c. (Ruediger Hornig)
Solution: Move the #if outside of memchr().
Files: src/message.c

Patch 7.0.008
Problem: Can't call a function that uses both <SID> and {expr}. (Thomas)
Solution: Check both the expanded and unexpanded name for <SID>.
Files: src/eval.c

Patch 7.0.009
Problem: ml_get errors with both 'sidescroll' and 'spell' set.
Solution: Use ml_get_buf() instead of ml_get(), get the line from the right

            buffer, not the current one.
Files: src/spell.c

Patch 7.0.010
Problem: The spellfile plugin required typing login name and password.
Solution: Use "anonymous" and "vim7user" by default. No need to setup a
            .netrc file.
Files: runtime/autoload/spellfile.vim

Patch 7.0.011
Problem: Can't compile without the folding and with the eval feature.
Solution: Add an #ifdef. (Vallimar)
Files: src/option.c

Patch 7.0.012
Problem: Using the matchparen plugin, moving the cursor in Insert mode to a
            shorter line that ends in a brace, changes the preferred column
Solution: Use winsaveview()/winrestview() instead of getpos()/setpos().
Files: runtime/plugin/matchparen.vim

Patch 7.0.013
Problem: Insert mode completion: using CTRL-L to add an extra character
            also deselects the current match, making it impossible to use
            CTRL-L a second time.
Solution: Keep the current match. Also make CTRL-L work at the original
            text, using the first displayed match.
Files: src/edit.c

Patch 7.0.014
Problem: Compiling gui_xmebw.c fails on Dec Alpha Tru64. (Rolfe)
Solution: Disable some code for Motif 1.2 and older.
Files: src/gui_xmebw.c

Patch 7.0.015
Problem: Athena: compilation problems with modern compiler.
Solution: Avoid type casts for lvalue. (Alexey Froloff)
Files: src/gui_at_fs.c

Patch 7.0.016
Problem: Printing doesn't work for "dec-mcs" encoding.
Solution: Add "dec-mcs", "mac-roman" and "hp-roman8" to the list of
            recognized 8-bit encodings. (Mike Williams)
Files: src/mbyte.c

Patch 7.0.017 (after 7.0.014)
Problem: Linking gui_xmebw.c fails on Dec Alpha Tru64. (Rolfe)
Solution: Adjust defines for Motif 1.2 and older.
Files: src/gui_xmebw.c

Patch 7.0.018
Problem: VMS: plugins are not loaded on startup.
Solution: Remove "**" from the path. (Zoltan Arpadffy)
Files: src/main.c

```
Patch 7.0.019
Problem:    Repeating "VjA789" may cause a crash. (James Vega)
Solution:   Check the cursor column after moving it to another line.
Files:      src/ops.c

Patch 7.0.020
Problem:    Crash when using 'mousefocus'. (William Fulton)
Solution:   Make buffer for mouse coordinates 2 bytes longer. (Juergen Weigert)
Files:      src/gui.c

Patch 7.0.021
Problem:    Crash when using "\\[" and "\\]" in 'errorformat'. (Marc Weber)
Solution:   Check for valid submatches after matching the pattern.
Files:      src/quickfix.c

Patch 7.0.022
Problem:    Using buffer.append() in Ruby may append the line to the wrong
            buffer. (Alex Norman)
Solution:   Properly switch to the buffer to do the appending.  Also for
            buffer.delete() and setting a buffer line.
Files:      src/if_ruby.c

Patch 7.0.023
Problem:    Crash when doing spell completion in an empty line and pressing
            CTRL-E.
Solution:   Check for a zero pointer. (James Vega)
            Also handle a situation without a matching pattern better, report
            "No matches" instead of remaining in undefined CTRL-X mode.  And
            get out of CTRL-X mode when typing a letter.
Files:      src/edit.c

Patch 7.0.024
Problem:    It is possible to set arbitrary "v:" variables.
Solution:   Disallow setting "v:" variables that are not predefined.
Files:      src/eval.c

Patch 7.0.025
Problem:    Crash when removing an element of a:000.  (Nikolai Weibull)
Solution:   Mark the a:000 list with VAR_FIXED.
Files:      src/eval.c

Patch 7.0.026
Problem:    Using libcall() may show an old error.
Solution:   Invoke dlerror() to clear a previous error. (Yukihiro Nakadaira)
Files:      src/os_unix.c

Patch 7.0.027 (extra)
Problem:    Win32: When compiled with SNIFF gvim may hang on exit.
Solution:   Translate and dispatch the WM_USER message. (Mathias Michaelis)
Files:      src/gui_w48.c

Patch 7.0.028 (extra)
Problem:    OS/2: Vim doesn't compile with gcc 3.2.1.
Solution:   Add argument to after_pathsep(), don't define vim_handle_signal(),
```

            define HAVE_STDARG_H. (David Sanders)
Files: src/os_unix.c, src/vim.h, src/os_os2_cfg.h

Patch 7.0.029
Problem: getchar() may not position the cursor after a space.
Solution: Position the cursor explicitly.
Files: src/eval.c

Patch 7.0.030
Problem: The ":compiler" command can't be used in a FileChangedRO event.
            (Hari Krishna Dara)
Solution: Add the CMDWIN flag to the ":compiler" command.
Files: src/ex_cmds.h

Patch 7.0.031
Problem: When deleting a buffer the buffer-local mappings for Select mode
            remain.
Solution: Add the Select mode bit to MAP_ALL_MODES. (Edwin Steiner)
Files: src/vim.h

Patch 7.0.032 (extra, after 7.0.027)
Problem: Missing semicolon.
Solution: Add the semicolon.
Files: src/gui_w48.c

Patch 7.0.033
Problem: When pasting text, with the menu or CTRL-V, autoindent is removed.
Solution: Use "x<BS>" to avoid indent to be removed. (Benji Fisher)
Files: runtime/autoload/paste.vim

Patch 7.0.034
Problem: After doing completion and typing more characters or using BS
            repeating with "." didn't work properly. (Martin Stubenschrott)
Solution: Don't put BS and other characters in the redo buffer right away,
            do this when finishing completion.
Files: src/edit.c

Patch 7.0.035
Problem: Insert mode completion works when typed but not when replayed from
            a register. (Hari Krishna Dara)
            Also: Mappings for Insert mode completion don't always work.
Solution: When finding a non-completion key in the input don't interrupt
            completion when it wasn't typed.
            Do use mappings when checking for typeahead while still finding
            completions. Avoids that completion is interrupted too soon.
            Use "compl_pending" in a different way.
Files: src/edit.c

Patch 7.0.036
Problem: Can't compile with small features and syntax highlighting or the
            diff feature.
Solution: Define LINE_ATTR whenever syntax highlighting or the diff feature
            is enabled.
Files: src/screen.c

```
Patch 7.0.037
Problem:    Crash when resizing the GUI window vertically when there is a line
            that doesn't fit.
Solution:   Don't redraw while the screen data is invalid.
Files:      src/screen.c

Patch 7.0.038
Problem:    When calling complete() from an Insert mode expression mapping
            text could be inserted in an improper way.
Solution:   Make undo_allowed() global and use it in complete().
Files:      src/undo.c, src/proto/undo.pro, src/eval.c

Patch 7.0.039
Problem:    Calling inputdialog() with a third argument in the console doesn't
            work.
Solution:   Make a separate function for input() and inputdialog(). (Yegappan
            Lakshmanan)
Files:      src/eval.c

Patch 7.0.040
Problem:    When 'cmdheight' is larger than 1 using inputlist() or selecting
            a spell suggestion with the mouse gets the wrong entry.
Solution:   Start listing the first alternative on the last line of the screen.
Files:      src/eval.c, src/spell.c

Patch 7.0.041
Problem:    cursor([1, 1]) doesn't work. (Peter Hodge)
Solution:   Allow leaving out the third item of the list and use zero for the
            virtual column offset.
Files:      src/eval.c

Patch 7.0.042
Problem:    When pasting a block of text in Insert mode Vim hangs or crashes.
            (Noam Halevy)
Solution:   Avoid that the cursor is positioned past the NUL of a line.
Files:      src/ops.c

Patch 7.0.043
Problem:    Using "%!" at the start of 'statusline' doesn't work.
Solution:   Recognize the special item when the option is being set.
Files:      src/option.c

Patch 7.0.044
Problem:    Perl: setting a buffer line in another buffer may result in
            changing the current buffer.
Solution:   Properly change to the buffer to be changed.
Files:      src/if_perl.xs

Patch 7.0.045 (extra)
Problem:    Win32: Warnings when compiling OLE version with MSVC 2005.
Solution:   Move including vim.h to before windows.h. (Ilya Bobir)
Files:      src/if_ole.cpp
```

```
Patch 7.0.046
Problem:    The matchparen plugin ignores parens in strings, but not in single
            quotes, often marked with "character".
Solution:   Also ignore parens in syntax items matching "character".
Files:      runtime/plugin/matchparen.vim

Patch 7.0.047
Problem:    When running configure the exit status is wrong.
Solution:   Handle the exit status properly. (Matthew Woehlke)
Files:      configure, src/configure

Patch 7.0.048
Problem:    Writing a compressed file fails when there are parens in the name.
            (Wang Jian)
Solution:   Put quotes around the temp file name.
Files:      runtime/autoload/gzip.vim

Patch 7.0.049
Problem:    Some TCL scripts are not recognized. (Steven Atkinson)
Solution:   Check for "exec wish" in the file.
Files:      runtime/scripts.vim

Patch 7.0.050
Problem:    After using the netbeans interface close command a stale pointer
            may be used.
Solution:   Clear the pointer to the closed buffer. (Xavier de Gaye)
Files:      src/netbeans.c

Patch 7.0.051 (after 7.0.44)
Problem:    The Perl interface doesn't compile or doesn't work properly.
Solution:   Remove the spaces before #ifdef and avoid an empty line above it.
Files:      src/if_perl.xs

Patch 7.0.052
Problem:    The user may not be aware that the Vim server allows others more
            functionality than desired.
Solution:   When running Vim as root don't become a Vim server without an
            explicit --servername argument.
Files:      src/main.c

Patch 7.0.053
Problem:    Shortening a directory name may fail when there are multi-byte
            characters.
Solution:   Copy the correct bytes. (Titov Anatoly)
Files:      src/misc1.c

Patch 7.0.054
Problem:    Mac: Using a menu name that only has a mnemonic or accelerator
            causes a crash.  (Elliot Shank)
Solution:   Check for an empty menu name.  Also delete empty submenus that
            were created before detecting the error.
Files:      src/menu.c

Patch 7.0.055
```

```
Problem:    ":startinsert" in a CmdwinEnter autocommand doesn't take immediate
            effect. (Bradley White)
Solution:   Put a NOP key in the typeahead buffer.  Also avoid that using
            CTRL-C to go back to the command line moves the cursor left.
Files:      src/edit.c, src/ex_getln.c

Patch 7.0.056
Problem:    "#!something" gives an error message.
Solution:   Ignore this line, so that it can be used in an executable Vim
            script.
Files:      src/ex_docmd.c

Patch 7.0.057 (extra, after 7.0.45)
Problem:    Win32: Compilation problem with Borland C 5.5.
Solution:   Include vim.h as before. (Mark S. Williams)
Files:      src/if_ole.cpp

Patch 7.0.058
Problem:    The gbk and gb18030 encodings are not recognized.
Solution:   Add aliases to cp936. (Edward L. Fox)
Files:      src/mbyte.c

Patch 7.0.059
Problem:    The Perl interface doesn't compile with ActiveState Perl 5.8.8.
Solution:   Remove the __attribute__() items. (Liu Yubao)
Files:      src/if_perl.xs

Patch 7.0.060 (after 7.0.51)
Problem:    Code for temporarily switching to another buffer is duplicated in
            quite a few places.
Solution:   Use aucmd_prepbuf() and aucmd_restbuf() also when FEAT_AUTOCMD is
            not defined.
Files:      src/buffer.c, src/eval.c, src/fileio.c, src/if_ruby.c,
            src/if_perl.xs, src/quickfix.c, src/structs.h

Patch 7.0.061
Problem:    Insert mode completion for Vim commands may crash if there is
            nothing to complete.
Solution:   Instead of freeing the pattern make it empty, so that a "not
            found" error is given. (Yukihiro Nakadaira)
Files:      src/edit.c

Patch 7.0.062
Problem:    Mac: Crash when using the popup menu for spell correction.  The
            popup menu appears twice when letting go of the right mouse button
            early.
Solution:   Don't show the popup menu on the release of the right mouse
            button.  Also check that a menu pointer is actually valid.
Files:      src/proto/menu.pro, src/menu.c, src/normal.c, src/term.c

Patch 7.0.063
Problem:    Tiny chance for a memory leak. (coverity)
Solution:   Free pointer when next memory allocation fails.
Files:      src/eval.c
```

```
Patch 7.0.064
Problem:    Using uninitialized variable. (Tony Mechelynck)
Solution:   When not used set "temp" to zero.  Also avoid a warning for
            "files" in ins_compl_dictionaries().
Files:      src/edit.c

Patch 7.0.065 (extra)
Problem:    Mac: left-right movement of the scrollwheel causes up-down
            scrolling.
Solution:   Ignore mouse wheel events that are not up-down. (Nicolas Weber)
Files:      src/gui_mac.c

Patch 7.0.066
Problem:    After the popup menu for Insert mode completion overlaps the tab
            pages line it is not completely removed.
Solution:   Redraw the tab pages line after removing the popup menu. (Ori
            Avtalion)
Files:      src/popupmnu.c

Patch 7.0.067
Problem:    Undo doesn't always work properly when using "scim" input method.
            Undo is split up when using preediting.
Solution:   Reset xim_has_preediting also when preedit_start_col is not
            MAXCOL.  Don't split undo when <Left> is used while preediting.
            (Yukihiro Nakadaira)
Files:      src/edit.c, src/mbyte.c

Patch 7.0.068
Problem:    When 'ignorecase' is set and using Insert mode completion,
            typing characters to change the list of matches, case is not
            ignored. (Hugo Ahlenius)
Solution:   Store the 'ignorecase' flag with the matches where needed.
Files:      src/edit.c, src/search.c, src/spell.c

Patch 7.0.069
Problem:    Setting 'guitablabel' to %!expand(\%)  causes Vim to free an
            invalid pointer. (Kim Schulz)
Solution:   Don't try freeing a constant string pointer.
Files:      src/buffer.c

Patch 7.0.070
Problem:    Compiler warnings for shadowed variables and uninitialized
            variables.
Solution:   Rename variables such as "index", "msg" and "dup".  Initialize
            variables.
Files:      src/edit.c, src/eval.c, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/gui_beval.c, src/gui_gtk.c, src/gui_gtk_x11.c,
            src/hardcopy.c, src/if_cscope.c, src/main.c, src/mbyte.c,
            src/memline.c, src/netbeans.c, src/normal.c, src/option.c,
            src/os_unix.c, src/quickfix.c, src/regexp.c, src/screen.c,
            src/search.c, src/spell.c, src/ui.c, src/undo.c, src/window.c,
            src/version.c
```

```
Patch 7.0.071
Problem:    Using an empty search pattern may cause a crash.
Solution:   Avoid using a NULL pointer.
Files:      src/search.c

Patch 7.0.072
Problem:    When starting the GUI fails there is no way to adjust settings or
            do something else.
Solution:   Add the GUIFailed autocommand event.
Files:      src/fileio.c, src/gui.c, src/vim.h

Patch 7.0.073
Problem:    Insert mode completion: Typing <CR> sometimes selects the original
            text instead of keeping what was typed.  (Justin Constantino)
Solution:   Don't let <CR> select the original text if there is no popup menu.
Files:      src/edit.c

Patch 7.0.074 (extra)
Problem:    Win32: tooltips were not converted from 'encoding' to Unicode.
Solution:   Set the tooltip to use Unicode and do the conversion.  Also
            cleanup the code for the tab pages tooltips. (Yukihiro Nakadaira)
Files:      src/gui_w32.c, src/gui_w48.c

Patch 7.0.075
Problem:    winsaveview() did not store the actual value of the desired cursor
            column.  This could move the cursor in the matchparen plugin.
Solution:   Call update_curswant() before using the value w_curswant.
Files:      src/eval.c

Patch 7.0.076 (after 7.0.010)
Problem:    Automatic downloading of spell files only works for ftp.
Solution:   Don't add login and password for non-ftp URLs. (Alexander Patrakov)
Files:      runtime/autoload/spellfile.vim

Patch 7.0.077
Problem:    ":unlet v:this_session" causes a crash. (Marius Roets)
Solution:   When trying to unlet a fixed variable give an error message.
Files:      src/eval.c

Patch 7.0.078
Problem:    There are two error messages E46.
Solution:   Change the number for the sandbox message to E794.
Files:      src/globals.h

Patch 7.0.079
Problem:    Russian tutor doesn't work when 'encoding' is "utf-8".
Solution:   Use tutor.ru.utf-8 as the master, and generate the other encodings
            from it.  Select the right tutor depending on 'encoding'. (Alexey
            Froloff)
Files:      runtime/tutor/Makefile, runtime/tutor/tutor.vim,
            runtime/tutor/tutor.ru.utf-8

Patch 7.0.080
Problem:    Generating auto/pathdef.c fails for CFLAGS with a backslash.
```

```
Solution:   Double backslashes in the string. (Alexey Froloff)
Files:      src/Makefile

Patch 7.0.081
Problem:    Command line completion doesn't work for a shell command with an
            absolute path.
Solution:   Don't use $PATH when there is an absolute path.
Files:      src/ex_getln.c

Patch 7.0.082
Problem:    Calling a function that waits for input may cause List and
            Dictionary arguments to be freed by the garbage collector.
Solution:   Keep a list of all arguments to internal functions.
Files:      src/eval.c

Patch 7.0.083
Problem:    Clicking with the mouse on an item for inputlist() doesn't work
            when 'compatible' is set and/or when 'cmdheight' is more than one.
            (Christian J.  Robinson)
Solution:   Also decrement "lines_left" when 'more' isn't set.  Set
            "cmdline_row" to zero to get all mouse events.
Files:      src/message.c, src/misc1.c

Patch 7.0.084
Problem:    The garbage collector may do its work while some Lists or
            Dictionaries are used internally, e.g., by ":echo" that runs into
            the more-prompt or ":echo [garbagecollect()]".
Solution:   Only do garbage collection when waiting for a character at the
            toplevel.  Let garbagecollect() set a flag that is handled at the
            toplevel before waiting for a character.
Files:      src/eval.c, src/getchar.c, src/globals.h, src/main.c

Patch 7.0.085
Problem:    When doing "make test" the viminfo file is modified.
Solution:   Use another viminfo file after setting 'compatible'.
Files:      src/testdir/test56.in

Patch 7.0.086
Problem:    getqflist() returns entries for pattern and text with the number
            zero.  Passing these to setqflist() results in the string "0".
Solution:   Use an empty string instead of the number zero.
Files:      src/quickfix.c

Patch 7.0.087
Problem:    After ":file fname" and ":saveas fname" the 'autochdir' option
            does not take effect. (Yakov Lerner)
            Commands for handling 'autochdir' are repeated many times.
Solution:   Add the DO_AUTOCHDIR macro and do_autochdir().  Use it for
            ":file fname" and ":saveas fname".
Files:      src/proto/buffer.pro, src/buffer.c, src/ex_cmds.c, src/macros.h,
            src/netbeans.c, src/option.c, src/window.c

Patch 7.0.088
Problem:    When compiled with Perl the generated prototypes have "extern"
```

            unnecessarily added.
Solution: Remove the "-pipe" argument from PERL_CFLAGS.
Files: src/auto/configure, src/configure.in

Patch 7.0.089
Problem: "ga" does not work properly for a non-Unicode multi-byte encoding.
Solution: Only check for composing chars for utf-8. (Taro Muraoka)
Files: src/ex_cmds.c

Patch 7.0.090
Problem: Cancelling the conform() dialog on the console with Esc requires
            typing it twice. (Benji Fisher)
Solution: When the start of an escape sequence is found use 'timeoutlen' or
            'ttimeoutlen'.
Files: src/misc1.c

Patch 7.0.091
Problem: Using winrestview() while 'showcmd' is set causes the cursor to be
            displayed in the wrong position. (Yakov Lerner)
Solution: Set the window topline properly.
Files: src/eval.c

Patch 7.0.092 (after 7.0.082 and 7.0.084)
Problem: The list of internal function arguments is obsolete now that
            garbage collection is only done at the toplevel.
Solution: Remove the list of all arguments to internal functions.
Files: src/eval.c

Patch 7.0.093
Problem: The matchparen plugin can't handle a 'matchpairs' value where a
            colon is matched.
Solution: Change the split() that is used to change 'matchpairs' into a
            List.
Files: runtime/plugin/matchparen.vim

Patch 7.0.094
Problem: When a hidden buffer is made the current buffer and another file
            edited later, the file message will still be given. Using
            ":silent" also doesn't prevent the file message. (Marvin Renich)
Solution: Reset the need_fileinfo flag when reading a file. Don't set
            need_fileinfo when msg_silent is set.
Files: src/buffer.c, src/fileio.c

Patch 7.0.095
Problem: The Greek tutor is not available in utf-8. "el" is used for the
            language, only "gr" for the country is recognized.
Solution: Add the utf-8 Greek tutor. Use it for conversion to iso-8859-7
            and cp737. (Lefteris Dimitroulakis)
Files: runtime/tutor/Makefile, runtime/tutor/tutor.gr.utf-8,
            runtime/tutor/tutor.vim

Patch 7.0.096
Problem: taglist() returns the filename relative to the tags file, while
            the directory of the tags file is unknown. (Hari Krishna Dara)

```
Solution:   Expand the file name. (Yegappan Lakshmanan)
Files:      src/tag.c

Patch 7.0.097
Problem:    ":tabclose N" that closes another tab page does not remove the tab
            pages line.  Same problem when using the mouse.
Solution:   Adjust the tab pages line when needed in tabpage_close_other().
Files:      src/ex_docmd.c

Patch 7.0.098
Problem:    Redirecting command output in a cmdline completion function
            doesn't work. (Hari Krishna Dara)
Solution:   Enable redirection when redirection is started.
Files:      src/ex_docmd.c, src/ex_getln.c

Patch 7.0.099
Problem:    GUI: When the popup menu is visible using the scrollbar messes up
            the display.
Solution:   Disallow scrolling the current window.  Redraw the popup menu
            after scrolling another window.
Files:      src/gui.c

Patch 7.0.100
Problem:    "zug" may report the wrong filename. (Lawrence Kesteloot)
Solution:   Call home_replace() to fill NameBuff[].
Files:      src/spell.c

Patch 7.0.101
Problem:    When the "~/.vim/spell" directory does not exist "zg" may create
            a wrong directory.  "zw" doesn't work.
Solution:   Use the directory of the file name instead of NameBuff.  For "zw"
            not only remove a good word but also add the word with "!".
Files:      src/spell.c

Patch 7.0.102
Problem:    Redrawing cmdline is not correct when using SCIM.
Solution:   Don't call im_get_status(). (Yukihiro Nakadaira)
Files:      src/ex_getln.c

Patch 7.0.103 (after 7.0.101)
Problem:    Compiler warning for uninitialized variable. (Tony Mechelynck)
Solution:   Init variable.
Files:      src/spell.c

Patch 7.0.104
Problem:    The CursorHoldI event only triggers once in Insert mode.  It also
            triggers after CTRL-V and other two-key commands.
Solution:   Set "did_cursorhold" before getting a second key.  Reset
            "did_cursorhold" after handling a command.
Files:      src/edit.c, src/fileio.c

Patch 7.0.105
Problem:    When using incremental search the statusline ruler isn't updated.
            (Christoph Koegl)
```

```
Solution:   Update the statusline when it contains the ruler.
Files:      src/ex_getln.c

Patch 7.0.106
Problem:    The spell popup menu uses ":amenu", triggering mappings.  Other
            PopupMenu autocommands are removed. (John Little)
Solution:   Use ":anoremenu" and use an autocmd group.
Files:      runtime/menu.vim

Patch 7.0.107
Problem:    Incremental search doesn't redraw the text tabline. (Ilya Bobir)
            Also happens in other situations with one window in a tab page.
Solution:   Redraw the tabline after clearing the screen.
Files:      src/screen.c

Patch 7.0.108 (extra)
Problem:    Amiga: Compilation problem.
Solution:   Have mch_mkdir() return a failure flag. (Willy Catteau)
Files:      src/os_amiga.c, src/proto/os_amiga.pro

Patch 7.0.109
Problem:    Lisp indenting is confused by escaped quotes in strings. (Dorai
            Sitaram)
Solution:   Check for backslash inside strings. (Sergey Khorev)
Files:      src/misc1.c

Patch 7.0.110
Problem:    Amiga: Compilation problems when not using libnix.
Solution:   Change a few #ifdefs. (Willy Catteau)
Files:      src/memfile.c

Patch 7.0.111
Problem:    The gzip plugin can't handle filenames with single quotes.
Solution:   Add and use the shellescape() function. (partly by Alexey Froloff)
Files:      runtime/autoload/gzip.vim, runtime/doc/eval.txt, src/eval.c,
            src/mbyte.c, src/misc2.c, src/proto/misc2.pro

Patch 7.0.112
Problem:    Python interface does not work with Python 2.5.
Solution:   Change PyMem_DEL() to Py_DECREF(). (Sumner Hayes)
Files:      src/if_python.c

Patch 7.0.113
Problem:    Using CTRL-L in Insert completion when there is no current match
            may cause a crash. (Yukihiro Nakadaira)
Solution:   Check for compl_leader to be NULL
Files:      src/edit.c

Patch 7.0.114
Problem:    When aborting an insert with CTRL-C an extra undo point is
            created in the GUI. (Yukihiro Nakadaira)
Solution:   Call gotchars() only when advancing.
Files:      src/getchar.c
```

Patch 7.0.115
Problem: When 'ignorecase' is set, Insert mode completion only adds "foo"
            and not "Foo" when both are found.
            A found match isn't displayed right away when 'completeopt' does
            not have "menu" or "menuone".
Solution: Do not ignore case when checking if a completion match already
            exists. call ins_compl_check_keys() also when not using a popup
            menu. (Yukihiro Nakadaira)
Files: src/edit.c

Patch 7.0.116
Problem: 64 bit Windows version reports "32 bit" in the ":version" output.
            (M. Veerman)
Solution: Change the text for Win64.
Files: src/version.c

Patch 7.0.117
Problem: Using "extend" on a syntax item inside a region with "keepend", an
            intermediate item may be truncated.
            When applying the "keepend" and there is an offset to the end
            pattern the highlighting of a contained item isn't adjusted.
Solution: Use the seen_keepend flag to remember when to apply the "keepend"
            flag. Adjust the keepend highlighting properly. (Ilya Bobir)
Files: src/syntax.c

Patch 7.0.118
Problem: printf() does not do zero padding for strings.
Solution: Do allow zero padding for strings.
Files: src/message.c

Patch 7.0.119
Problem: When going back from Insert to Normal mode the CursorHold event
            doesn't trigger. (Yakov Lerner)
Solution: Reset "did_cursorhold" when leaving Insert mode.
Files: src/edit.c

Patch 7.0.120
Problem: Crash when using CTRL-R = at the command line and entering
            "getreg('=')". (James Vega)
Solution: Avoid recursiveness of evaluating the = register.
Files: src/ops.c

Patch 7.0.121
Problem: GUI: Dragging the last status line doesn't work when there is a
            text tabline. (Markus Wolf)
Solution: Take the text tabline into account when deciding to start modeless
            selection.
Files: src/gui.c

Patch 7.0.122
Problem: GUI: When clearing after a bold, double-wide character half a
            character may be drawn.
Solution: Check for double-wide character and redraw it. (Yukihiro Nakadaira)
Files: src/screen.c

```
Patch 7.0.123
Problem:    On SCO Openserver configure selects the wrong terminal library.
Solution:   Put terminfo before the other libraries. (Roger Cornelius)
            Also fix a small problem compiling on Mac without Darwin.
Files:      src/configure.in, src/auto/configure

Patch 7.0.124
Problem:    getwinvar() obtains a dictionary with window-local variables, but
            it's always for the current window.
Solution:   Get the variables of the specified window. (Geoff Reedy)
Files:      src/eval.c

Patch 7.0.125
Problem:    When "autoselect" is in the 'clipboard' option then the '< and '>
            marks are set while Visual mode is still active.
Solution:   Don't set the '< and '> marks when yanking the selected area for
            the clipboard.
Files:      src/normal.c

Patch 7.0.126
Problem:    When 'formatexpr' uses setline() and later internal formatting is
            used undo information is not correct. (Jiri Cerny, Benji Fisher)
Solution:   Set ins_need_undo after using 'formatexpr'.
Files:      src/edit.c

Patch 7.0.127
Problem:    Crash when swap files has invalid timestamp.
Solution:   Check return value of ctime() for being NULL.
Files:      src/memline.c

Patch 7.0.128
Problem:    GUI: when closing gvim is cancelled because there is a changed
            buffer the screen isn't updated to show the changed buffer in the
            current window.  (Krzysztof Kacprzak)
Solution:   Redraw when closing gvim is cancelled.
Files:      src/gui.c

Patch 7.0.129
Problem:    GTK GUI: the GTK file dialog can't handle a relative path.
Solution:   Make the initial directory a full path before passing it to GTK.
            (James Vega)  Also postpone adding the default file name until
            after setting the directory.
Files:      src/gui_gtk.c

Patch 7.0.130 (extra)
Problem:    Win32: Trying to edit or write devices may cause Vim to get stuck.
Solution:   Add the 'opendevice' option, default off.  Disallow
            reading/writing from/to devices when it's off.
            Also detect more devices by the full name starting with "\\.\".
Files:      runtime/doc/options.txt, src/fileio.c, src/option.c, src/option.h,
            src/os_win32.c

Patch 7.0.131
```

Problem: Win32: "vim -r" does not list all the swap files.
Solution: Also check for swap files starting with a dot.
Files: src/memline.c

Patch 7.0.132 (after 7.0.130)
Problem: Win32: Crash when Vim reads from stdin.
Solution: Only use mch_nodetype() when there is a file name.
Files: src/fileio.c

Patch 7.0.133
Problem: When searching included files messages are added to the history.
Solution: Set msg_hist_off for messages about scanning included files.
            Set msg_silent to avoid message about wrapping around.
Files: src/edit.c, src/globals.h, src/message.c, src/search.c

Patch 7.0.134
Problem: Crash when comparing a recursively looped List or Dictionary.
Solution: Limit recursiveness for comparing to 1000.
Files: src/eval.c

Patch 7.0.135
Problem: Crash when garbage collecting list or dict with loop.
Solution: Don't use DEL_REFCOUNT but don't recurse into Lists and
            Dictionaries when freeing them in the garbage collector.
            Also add allocated Dictionaries to the list of Dictionaries to
            avoid leaking memory.
Files: src/eval.c, src/proto/eval.pro, src/tag.c

Patch 7.0.136
Problem: Using "O" while matching parens are highlighted may not remove the
            highlighting. (Ilya Bobir)
Solution: Also trigger CursorMoved when a line is inserted under the cursor.
Files: src/misc1.c

Patch 7.0.137
Problem: Configure check for big features is wrong.
Solution: Change "==" to "=". (Martti Kuparinen)
Files: src/auto/configure, src/configure.in

Patch 7.0.138 (extra)
Problem: Mac: modifiers don't work with function keys.
Solution: Use GetEventParameter() to obtain modifiers. (Nicolas Weber)
Files: src/gui_mac.c

Patch 7.0.139
Problem: Using CTRL-PageUp or CTRL-PageDown in Insert mode to go to another
            tab page does not prepare for undo properly. (Stefano Zacchiroli)
Solution: Call start_arrow() before switching tab page.
Files: src/edit.c

Patch 7.0.140 (after 7.0.134)
Problem: Comparing recursively looped List or Dictionary doesn't work well.
Solution: Detect comparing a List or Dictionary with itself.
Files: src/eval.c

Patch 7.0.141
Problem: When pasting a while line on the command line an extra CR is added
            literally.
Solution: Don't add the trailing CR when pasting with the mouse.
Files: src/ex_getln.c, src/proto/ops.pro, src/ops.c

Patch 7.0.142
Problem: Using the middle mouse button in Select mode to paste text results
            in an extra "y". (Kriton Kyrimis)
Solution: Let the middle mouse button replace the selected text with the
            contents of the clipboard.
Files: src/normal.c

Patch 7.0.143
Problem: Setting 'scroll' to its default value was not handled correctly.
Solution: Compare the right field to PV_SCROLL.
Files: src/option.c

Patch 7.0.144
Problem: May compare two unrelated pointers when matching a pattern against
            a string. (Dominique Pelle)
Solution: Avoid calling reg_getline() when REG_MULTI is false.
Files: src/regexp.c

Patch 7.0.145 (after 7.0.142)
Problem: Compiler warning.
Solution: Add type cast.
Files: src/normal.c

Patch 7.0.146
Problem: When 'switchbuf' is set to "usetab" and the current tab has only a
            quickfix window, jumping to an error always opens a new window.
            Also, when the buffer is open in another tab page it's not found.
Solution: Check for the "split" value of 'switchbuf' properly. Search in
            other tab pages for the desired buffer. (Yegappan Lakshmanan)
Files: src/buffer.c, src/quickfix.c

Patch 7.0.147
Problem: When creating a session file and there are several tab pages and
            some windows have a local directory a short file name may be used
            when it's not valid. (Marius Roets)
            A session with multiple tab pages may result in "No Name" buffers.
            (Bill McCarthy)
Solution: Don't enter tab pages when going through the list, only use a
            pointer to the first window in each tab page.
            Use "tabedit" instead of "tabnew | edit" when possible.
Files: src/ex_docmd.c

Patch 7.0.148
Problem: When doing "call a.xyz()" and "xyz" does not exist in dictionary
            "a" there is no error message. (Yegappan Lakshmanan)
Solution: Add the error message.
Files: src/eval.c

```
Patch 7.0.149
Problem:    When resizing a window that shows "~" lines the text sometimes
            jumps down.
Solution:   Remove code that uses "~" lines in some situations.  Fix the
            computation of the screen line of the cursor.  Also set w_skipcol
            to handle very long lines.
Files:      src/misc1.c, src/window.c

Patch 7.0.150
Problem:    When resizing the Vim window scrollbinding doesn't work. (Yakov
            Lerner)
Solution:   Do scrollbinding in set_shellsize().
Files:      src/term.c

Patch 7.0.151
Problem:    Buttons in file dialog are not according to Gnome guidelines.
Solution:   Swap Cancel and Open buttons. (Stefano Zacchiroli)
Files:      src/gui_gtk.c

Patch 7.0.152
Problem:    Crash when using lesstif 2.
Solution:   Fill in the extension field. (Ben Hutchings)
Files:      src/gui_xmebw.c

Patch 7.0.153
Problem:    When using cscope and opening the temp file fails Vim crashes.
            (Kaya Bekiroglu)
Solution:   Check for NULL pointer returned from mch_open().
Files:      src/if_cscope.c

Patch 7.0.154
Problem:    When 'foldnestmax' is negative Vim can hang. (James Vega)
Solution:   Avoid the fold level becoming negative.
Files:      src/fold.c, src/syntax.c

Patch 7.0.155
Problem:    When getchar() returns a mouse button click there is no way to get
            the mouse coordinates.
Solution:   Add v:mouse_win, v:mouse_lnum and v:mouse_col.
Files:      runtime/doc/eval.txt, src/eval.c, src/vim.h

Patch 7.0.156 (extra)
Problem:    Vim doesn't compile for Amiga OS 4.
Solution:   Various changes for Amiga OS4. (Peter Bengtsson)
Files:      src/feature.h, src/mbyte.c, src/memfile.c, src/memline.c,
            src/os_amiga.c, src/os_amiga.h, src/pty.c

Patch 7.0.157
Problem:    When a function is used recursively the profiling information is
            invalid. (Mikolaj Machowski)
Solution:   Put the start time on the stack instead of in the function.
Files:      src/eval.c
```

```
Patch 7.0.158
Problem:    In a C file with ":set foldmethod=syntax", typing {<CR> on the
            last line results in the cursor being in a closed fold. (Gautam
            Iyer)
Solution:   Open fold after inserting a new line.
Files:      src/edit.c

Patch 7.0.159
Problem:    When there is an I/O error in the swap file the cause of the error
            cannot be seen.
Solution:   Use PERROR() instead of EMSG() where possible.
Files:      src/memfile.c

Patch 7.0.160
Problem:    ":@a" echoes the command, Vi doesn't do that.
Solution:   Set the silent flag in the typeahead buffer to avoid echoing the
            command.
Files:      src/ex_docmd.c, src/normal.c, src/ops.c, src/proto/ops.pro

Patch 7.0.161
Problem:    Win32: Tab pages line popup menu isn't using the right encoding.
            (Yongwei Wu)
Solution:   Convert the text when necessary.  Also fixes the Find/Replace
            dialog title. (Yegappan Lakshmanan)
Files:      src/gui_w48.c

Patch 7.0.162
Problem:    "vim -o a b" when file "a" triggers the ATTENTION dialog,
            selecting "Quit" exits Vim instead of editing "b" only.
            When file "b" triggers the ATTENTION dialog selecting "Quit" or
            "Abort" results in editing file "a" in that window.
Solution:   When selecting "Abort" exit Vim.  When selecting "Quit" close the
            window.  Also avoid hit-enter prompt when selecting Abort.
Files:      src/buffer.c, src/main.c

Patch 7.0.163
Problem:    Can't retrieve the position of a sign after it was set.
Solution:   Add the netbeans interface getAnno command. (Xavier de Gaye)
Files:      runtime/doc/netbeans.txt, src/netbeans.c

Patch 7.0.164
Problem:    ":redir @+" doesn't work.
Solution:   Accept "@+" just like "@*". (Yegappan Lakshmanan)
Files:      src/ex_docmd.c

Patch 7.0.165
Problem:    Using CTRL-L at the search prompt adds a "/" and other characters
            without escaping, causing the pattern not to match.
Solution:   Escape special characters with a backslash.
Files:      src/ex_getln.c

Patch 7.0.166
Problem:    Crash in cscope code when connection could not be opened.
            (Kaya Bekiroglu)
```

```
Solution:   Check for the file descriptor to be NULL.
Files:      src/if_cscope.c

Patch 7.0.167
Problem:    ":function" redefining a dict function doesn't work properly.
            (Richard Emberson)
Solution:   Allow a function name to be a number when it's a function
            reference.
Files:      src/eval.c

Patch 7.0.168
Problem:    Using uninitialized memory and memory leak. (Dominique Pelle)
Solution:   Use alloc_clear() instead of alloc() for w_lines.  Free
            b_ml.ml_stack after recovery.
Files:      src/memline.c, src/window.c

Patch 7.0.169
Problem:    With a Visual block selection, with the cursor in the left upper
            corner, pressing "I" doesn't remove the highlighting. (Guopeng
            Wen)
Solution:   When checking if redrawing is needed also check if Visual
            selection is still active.
Files:      src/screen.c

Patch 7.0.170 (extra)
Problem:    Win32: Using "gvim --remote-tab foo" when gvim is minimized while
            it previously was maximized, un-maximizing doesn't work properly.
            And the labels are not displayed properly when 'encoding' is
            utf-8.
Solution:   When minimized check for SW_SHOWMINIMIZED.  When updating the tab
            pages line use TCM_SETITEMW instead of TCM_INSERTITEMW. (Liu
            Yubao)
Files:      src/gui_w48.c

Patch 7.0.171 (extra)
Problem:    VMS: A file name with multiple paths is written in the wrong file.
Solution:   Get the actually used file name. (Zoltan Arpadffy)
            Also add info to the :version command about compilation.
Files:      src/Make_vms.mms, src/buffer.c, src/os_unix.c, src/version.c

Patch 7.0.172
Problem:    Crash when recovering and quitting at the "press-enter" prompt.
Solution:   Check for "msg_list" to be NULL. (Liu Yubao)
Files:      src/ex_eval.c

Patch 7.0.173
Problem:    ":call f().TT()" doesn't work.  (Richard Emberson)
Solution:   When a function returns a Dictionary or another composite continue
            evaluating what follows.
Files:      src/eval.c

Patch 7.0.174
Problem:    ":mksession" doesn't restore window layout correctly in tab pages
            other than the current one. (Zhibin He)
```

```
Solution:   Use the correct topframe for producing the window layout commands.
Files:      src/ex_docmd.c

Patch 7.0.175
Problem:    The result of tr() is missing the terminating NUL. (Ingo Karkat)
Solution:   Add the NUL.
Files:      src/eval.c

Patch 7.0.176
Problem:    ":emenu" isn't executed directly, causing the encryption key
            prompt to fail. (Life Jazzer)
Solution:   Fix wrong #ifdef.
Files:      src/menu.c

Patch 7.0.177
Problem:    When the press-enter prompt gets a character from a non-remappable
            mapping, it's put back in the typeahead buffer as remappable,
            which may cause an endless loop.
Solution:   Restore the non-remappable flag and the silent flag when putting a
            char back in the typeahead buffer.
Files:      src/getchar.c, src/message.c, src/normal.c

Patch 7.0.178
Problem:    When 'enc' is "utf-8" and 'ignorecase' is set the result of ":echo
            ("\xe4" == "\xe4")" varies.
Solution:   In mb_strnicmp() avoid looking past NUL bytes.
Files:      src/mbyte.c

Patch 7.0.179
Problem:    Using ":recover" or "vim -r" without a swapfile crashes Vim.
Solution:   Check for "buf" to be unequal NULL. (Yukihiro Nakadaira)
Files:      src/memline.c

Patch 7.0.180 (extra, after 7.0.171)
Problem:    VMS: build failed.  Problem with swapfiles.
Solution:   Add "compiled_arch".  Always expand path and pass it to
            buf_modname().  (Zoltan Arpadffy)
Files:      src/globals.h, src/memline.c, src/os_unix.c, runtime/menu.vim

Patch 7.0.181
Problem:    When reloading a file that starts with an empty line, the reloaded
            buffer has an extra empty line at the end. (Motty Lentzitzky)
Solution:   Delete all lines, don't use bufempty().
Files:      src/fileio.c

Patch 7.0.182
Problem:    When using a mix of undo and "g-" it may no longer be possible to
            go to every point in the undo tree.  (Andy Wokula)
Solution:   Correctly update pointers in the undo tree.
Files:      src/undo.c

Patch 7.0.183
Problem:    Crash in ":let" when redirecting to a variable that's being
            displayed. (Thomas Link)
```

```
Solution:   When redirecting to a variable only do the assignment when
            stopping redirection to avoid that setting the variable causes a
            freed string to be accessed.
Files:      src/eval.c

Patch 7.0.184
Problem:    When the cscope program is called "mlcscope" the Cscope interface
            doesn't work.
Solution:   Accept "\S*cscope:" instead of "cscope:". (Frodak D. Baksik)
Files:      src/if_cscope.c

Patch 7.0.185
Problem:    Multi-byte characters in a message are displayed with attributes
            from what comes before it.
Solution:   Don't use the attributes for a multi-byte character.  Do use
            attributes for special characters. (Yukihiro Nakadaira)
Files:      src/message.c

Patch 7.0.186
Problem:    Get an ml_get error when 'encoding' is "utf-8" and searching for
            "/\_s*/e" in an empty buffer.  (Andrew Maykov)
Solution:   Don't try getting the line just below the last line.
Files:      src/search.c

Patch 7.0.187
Problem:    Can't source a remote script properly.
Solution:   Add the SourceCmd event. (Charles Campbell)
Files:      runtime/doc/autocmd.txt, src/ex_cmds2.c, src/fileio.c, src/vim.h

Patch 7.0.188 (after 7.0.186)
Problem:    Warning for wrong pointer type.
Solution:   Add a type cast.
Files:      src/search.c

Patch 7.0.189
Problem:    Translated message about finding matches is truncated. (Yukihiro
            Nakadaira)
Solution:   Enlarge the buffer.  Also use vim_snprintf().
Files:      src/edit.c

Patch 7.0.190
Problem:    "syntax spell default" results in an error message.
Solution:   Change 4 to 7 for STRNICMP(). (Raul Nunez de Arenas Coronado)
Files:      src/syntax.c

Patch 7.0.191
Problem:    The items used by getqflist() and setqflist() don't match.
Solution:   Support the "bufnum" item for setqflist(). (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/quickfix.c

Patch 7.0.192
Problem:    When 'swapfile' is switched off in an empty file it is possible
            that not all blocks are loaded into memory, causing ml_get errors
            later.
```

```
Solution:   Rename "dont_release" to "mf_dont_release" and also use it to
            avoid using the cached line and locked block.
Files:      src/globals.h, src/memfile.c, src/memline.c

Patch 7.0.193
Problem:    Using --remote or --remote-tab with an argument that matches
            'wildignore' causes a crash.
Solution:   Check the argument count before using ARGLIST[0].
Files:      src/ex_cmds.c

Patch 7.0.194
Problem:    Once an ml_get error is given redrawing part of the screen may
            cause it again, resulting in an endless loop.
Solution:   Don't give the error message for a recursive call.
Files:      src/memline.c

Patch 7.0.195
Problem:    When a buffer is modified and 'autowriteall' is set, ":quit"
            results in an endless loop when there is a conversion error while
            writing. (Nikolai Weibull)
Solution:   Make autowrite() return FAIL if the buffer is still changed after
            writing it.
            /* put the cursor on the last char, for 'tw' formatting */
Files:      src/ex_cmds2.c

Patch 7.0.196
Problem:    When using ":vert ball" the computation of the mouse pointer
            position may be off by one column. (Stefan Karlsson)
Solution:   Recompute the frame width when moving the vertical separator from
            one window to another.
Files:      src/window.c

Patch 7.0.197 (extra)
Problem:    Win32: Compiling with EXITFREE doesn't work.
Solution:   Adjust a few #ifdefs. (Alexei Alexandrof)
Files:      src/misc2.c, src/os_mswin.c

Patch 7.0.198 (extra)
Problem:    Win32: Compiler warnings.  No need to generate gvim.exe.mnf.
Solution:   Add type casts.  Use "*" for processorArchitecture. (George Reilly)
Files:      src/Make_mvc.mak, src/eval.c, src/gvim.exe.mnf, src/misc2.c

Patch 7.0.199
Problem:    When using multi-byte characters the combination of completion and
            formatting may result in a wrong cursor position.
Solution:   Don't decrement the cursor column, use dec_cursor(). (Yukihiro
            Nakadaira)  Also check for the column to be zero.
Files:      src/edit.c

Patch 7.0.200
Problem:    Memory leaks when out of memory.
Solution:   Free the memory.
Files:      src/edit.c, src/diff.c
```

```
Patch 7.0.201
Problem:    Message for ":diffput" about buffer not being in diff mode may be
            wrong.
Solution:   Check for buffer in diff mode but not modifiable.
Files:      src/diff.c

Patch 7.0.202
Problem:    Problems on Tandem systems while compiling and at runtime.
Solution:   Recognize root uid is 65535.  Check select() return value for it
            not being supported.  Avoid wrong function prototypes.  Mention
            use of -lfloss.  (Matthew Woehlke)
Files:      src/Makefile, src/ex_cmds.c, src/fileio.c, src/main.c,
            src/osdef1.h.in, src/osdef2.h.in, src/os_unix.c, src/pty.c,
            src/vim.h

Patch 7.0.203
Problem:    0x80 characters in a register are not handled correctly for the
            "@" command.
Solution:   Escape CSI and 0x80 characters. (Yukihiro Nakadaira)
Files:      src/ops.c

Patch 7.0.204
Problem:    Cscope: Parsing matches for listing isn't done properly.
Solution:   Check for line number being found. (Yu Zhao)
Files:      src/if_cscope.c

Patch 7.0.205 (after 7.0.203)
Problem:    Can't compile.
Solution:   Always include the vim_strsave_escape_csi function.
Files:      src/getchar.c

Patch 7.0.206 (after 7.0.058)
Problem:    Some characters of the "gb18030" encoding are not handled
            properly.
Solution:   Do not use "cp936" as an alias for "gb18030" encoding.  Instead
            initialize 'encoding' to "cp936".
Files:      src/mbyte.c, src/option.c

Patch 7.0.207
Problem:    After patch 2.0.203 CSI and K_SPECIAL characters are escaped when
            recorded and then again when the register is executed.
Solution:   Remove escaping before putting the recorded characters in a
            register.  (Yukihiro Nakadaira)
Files:      src/getchar.c, src/ops.c, src/proto/getchar.pro

Patch 7.0.208 (after 7.0.171 and 7.0.180)
Problem:    VMS: changes to path handling cause more trouble than they solve.
Solution:   Revert changes.
Files:      src/buffer.c, src/memline.c, src/os_unix.c

Patch 7.0.209
Problem:    When replacing a line through Python the cursor may end up beyond
            the end of the line.
Solution:   Check the cursor column after replacing the line.
```

```
Files:      src/if_python.c

Patch 7.0.210
Problem:    ":cbuffer" and ":lbuffer" always fail when the buffer is modified.
            (Gary Johnson)
Solution:   Support adding a !. (Yegappan Lakshmanan)
Files:      runtime/doc/quickfix.txt, src/ex_cmds.h

Patch 7.0.211
Problem:    With ":set cindent noai bs=0" using CTRL-U in Insert mode will
            delete auto-indent.  After ":set ai" it doesn't.
Solution:   Also check 'cindent' being set. (Ryan Lortie)
Files:      src/edit.c

Patch 7.0.212
Problem:    The GUI can't be terminated with SIGTERM. (Mark Logan)
Solution:   Use the signal protection in the GUI as in the console, allow
            signals when waiting for 100 msec or longer.
Files:      src/ui.c

Patch 7.0.213
Problem:    When 'spellfile' has two regions that use the same sound folding
            using "z=" will cause memory to be freed twice. (Mark Woodward)
Solution:   Clear the hashtable properly so that the items are only freed once.
Files:      src/spell.c

Patch 7.0.214
Problem:    When using <f-args> in a user command it's not possible to have an
            argument end in '\ '.
Solution:   Change the handling of backslashes. (Yakov Lerner)
Files:      runtime/doc/map.txt, src/ex_docmd.c

Patch 7.0.215 (extra)
Problem:    Mac: Scrollbar size isn't set.  Context menu has disabled useless
            Help entry.  Call to MoreMasterPointers() is ignored.
Solution:   Call SetControlViewSize() in gui_mch_set_scrollbar_thumb().  Use
            kCMHelpItemRemoveHelp for ContextualMenuSelect().  Remove call to
            MoreMasterPointers(). (Nicolas Weber)
Files:      src/gui_mac.c

Patch 7.0.216
Problem:    ":tab wincmd ]" does not open a tab page. (Tony Mechelynck)
Solution:   Copy the cmdmod.tab value to postponed_split_tab and use it.
Files:      src/globals.h, src/ex_docmd.c, src/if_cscope.c, src/window.c

Patch 7.0.217
Problem:    This hangs when pressing "n": ":%s/\n/,\r/gc". (Ori Avtalion)
Solution:   Set "skip_match" to advance to the next line.
Files:      src/ex_cmds.c

Patch 7.0.218
Problem:    "%B" in 'statusline' always shows zero in Insert mode. (DervishD)
Solution:   Remove the exception for Insert mode, check the column for being
            valid instead.
```

```
Files:      src/buffer.c

Patch 7.0.219
Problem:    When using the 'editexisting.vim' script and a file is being
            edited in another tab page the window is split.  The "+123"
            argument is not used.
Solution:   Make the tab page with the file the current tab page.  Set
            v:swapcommand when starting up to the first "+123" or "-c" command
            line argument.
Files:      runtime/macros/editexisting.vim, src/main.c

Patch 7.0.220
Problem:    Crash when using winnr('#') in a new tab page. (Andy Wokula)
Solution:   Check for not finding the window.
Files:      src/eval.c

Patch 7.0.221
Problem:    finddir() uses 'path' by default, where "." means relative to the
            current file.  But it works relative to the current directory.
            (Tye Zdrojewski)
Solution:   Add the current buffer name to find_file_in_path_option() for the
            relative file name.
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.0.222
Problem:    Perl indenting using 'cindent' works almost right.
Solution:   Recognize '#' to start a comment. (Alex Manoussakis)  Added '#'
            flag in 'cinoptions'.
Files:      runtime/doc/indent.txt, src/misc1.c

Patch 7.0.223
Problem:    Unprintable characters in completion text mess up the popup menu.
            (Gombault Damien)
Solution:   Use strtrans() to make the text printable.
Files:      src/charset.c, src/popupmnu.c

Patch 7.0.224
Problem:    When expanding "##" spaces are escaped twice.  (Pavol Juhas)
Solution:   Don't escape the spaces that separate arguments.
Files:      src/eval.c, src/ex_docmd.c, src/proto/ex_docmd.pro

Patch 7.0.225
Problem:    When using setline() in an InsertEnter autocommand and doing "A"
            the cursor ends up on the last byte in the line. (Yukihiro
            Nakadaira)
Solution:   Only adjust the column when using setline() for the cursor line.
            Move it back to the head byte if necessary.
Files:      src/eval.c, src/misc2.c

Patch 7.0.226
Problem:    Display flickering when updating signs through the netbeans
            interface. (Xavier de Gaye)
Solution:   Remove the redraw_later(CLEAR) call.
Files:      src/netbeans.c
```

```
Patch 7.0.227
Problem:    Crash when closing a window in the GUI. (Charles Campbell)
Solution:   Don't call out_flush() from win_free().
Files:      src/window.c

Patch 7.0.228
Problem:    Cygwin: problem with symlink to DOS style path.
Solution:   Invoke cygwin_conv_to_posix_path(). (Luca Masini)
Files:      src/os_unix.c

Patch 7.0.229
Problem:    When 'pastetoggle' starts with Esc then pressing Esc in Insert
            mode will not time out. (Jeffery Small)
Solution:   Use KL_PART_KEY instead of KL_PART_MAP, so that 'ttimeout' applies
            to the 'pastetoggle' key.
Files:      src/getchar.c

Patch 7.0.230
Problem:    After using ":lcd" a script doesn't know how to restore the
            current directory.
Solution:   Add the haslocaldir() function. (Bob Hiestand)
Files:      runtime/doc/usr_41.txt, runtime/doc/eval.txt, src/eval.c

Patch 7.0.231
Problem:    When recovering from a swap file the page size is likely to be
            different from the minimum.  The block used for the first page
            then has a buffer of the wrong size, causing a crash when it's
            reused later.  (Zephaniah Hull)
Solution:   Reallocate the buffer when the page size changes.  Also check that
            the page size is at least the minimum value.
Files:      src/memline.c

Patch 7.0.232 (extra)
Problem:    Mac: doesn't support GUI tab page labels.
Solution:   Add GUI tab page labels. (Nicolas Weber)
Files:      src/feature.h, src/gui.c, src/gui.h, src/gui_mac.c,
            src/proto/gui_mac.pro

Patch 7.0.233 (extra)
Problem:    Mac: code formatted badly.
Solution:   Fix code formatting
Files:      src/gui_mac.c

Patch 7.0.234
Problem:    It's possible to use feedkeys() from a modeline.  That is a
            security issue, can be used for a trojan horse.
Solution:   Disallow using feedkeys() in the sandbox.
Files:      src/eval.c

Patch 7.0.235
Problem:    It is possible to use writefile() in the sandbox.
Solution:   Add a few more checks for the sandbox.
Files:      src/eval.c
```

```
Patch 7.0.236
Problem:    Linux 2.4 uses sysinfo() with a mem_unit field, which is not
            backwards compatible.
Solution:   Add an autoconf check for sysinfo.mem_unit.  Let mch_total_mem()
            return Kbyte to avoid overflow.
Files:      src/auto/configure, src/configure.in, src/config.h.in,
            src/option.c, src/os_unix.c

Patch 7.0.237
Problem:    For root it is recommended to not use 'modeline', but in
            not-compatible mode the default is on.
Solution:   Let 'modeline' default to off for root.
Files:      runtime/doc/options.txt, src/option.c

Patch 7.0.238
Problem:    Crash when ":match" pattern runs into 'maxmempattern'. (Yakov
            Lerner)
Solution:   Don't free the regexp program of match_hl.
Files:      src/screen.c

Patch 7.0.239
Problem:    When using local directories and tab pages ":mksession" uses a
            short file name when it shouldn't.  Window-local options from a
            modeline may be applied to the wrong window. (Teemu Likonen)
Solution:   Add the did_lcd flag, use the full path when it's set.  Don't use
            window-local options from the modeline when using the current
            window for another buffer in ":doautoall".
Files:      src/fileio.c,  src/ex_docmd.c

Patch 7.0.240
Problem:    Crash when splitting a window in the GUI. (opposite of 7.0.227)
Solution:   Don't call out_flush() from win_alloc().  Also avoid this for
            win_delete().  Also block autocommands while the window structure
            is invalid.
Files:      src/window.c

Patch 7.0.241
Problem:    ":windo throw 'foo'" loops forever. (Andy Wokula)
Solution:   Detect that win_goto() doesn't work.
Files:      src/ex_cmds2.c

Patch 7.0.242 (extra)
Problem:    Win32: Using "-register" in a Vim that does not support OLE causes
            a crash.
Solution:   Don't use EMSG() but mch_errmsg().  Check p_go for being NULL.
            (partly by Michael Wookey)
Files:      src/gui_w32.c

Patch 7.0.243 (extra)
Problem:    Win32: When GvimExt is built with MSVC 2005 or later, the "Edit
            with vim" context menu doesn't appear in the Windows Explorer.
Solution:   Embed the linker manifest file into the resources of GvimExt.dll.
            (Mathias Michaelis)
```

```
Files:      src/GvimExt/Makefile


Fixes after Vim 7.1a BETA:

The extra archive had CVS directories included below "farsi" and
"runtime/icons".  CVS was missing the farsi icon files.

Fix compiling with Gnome 2.18, undefine bind_textdomain_codeset. (Daniel
Drake)

Mac: "make install" didn't copy rgb.txt.

When editing a compressed file while there are folds caused "ml_get" errors
and some lines could be missing.  When decompressing failed option values were
not restored.


Patch 7.1a.001
Problem:    Crash when downloading a spell file.  (Szabolcs Horvat)
Solution:   Avoid that did_set_spelllang() is used recursively when a new
            window is opened for the download.
            Also avoid wiping out the wrong buffer.
Files:      runtime/autoload/spellfile.vim, src/buffer.c, src/ex_cmds.c,
            src/spell.c

Patch 7.1a.002 (extra)
Problem:    Compilation error with MingW.
Solution:   Check for LPTOOLTIPTEXT to be defined.
Files:      src/gui_w32.c


Fixes after Vim 7.1b BETA:

Made the Mzscheme interface build both with old and new versions of Mzscheme,
using an #ifdef. (Sergey Khorev)
Mzscheme interface didn't link, missing function.  Changed order of libraries
in the configure script.

Ruby interface didn't compile on Mac.  Changed #ifdef. (Kevin Ballard)

Patch 7.1b.001 (extra)
Problem:    Random text in a source file.  No idea how it got there.
Solution:   Delete the text.
Files:      src/gui_w32.c

Patch 7.1b.002
Problem:    When 'maxmem' is large there can be an overflow in computations.
            (Thomas Wiegner)
Solution:   Use the same mechanism as in mch_total_mem(): first reduce the
            multiplier as much as possible.
Files:      src/memfile.c

==============================================================================
```

VERSION 7.2 version-7.2 version7.2

This section is about improvements made between version 7.1 and 7.2.

This is mostly a bug-fix release. The main new feature is floating point support. Float

Changed changed-7.2

Changed the command line buffer name from "command-line" to "[Command Line]".

Removed optional ! for ":caddexpr", ":cgetexpr", ":cgetfile", ":laddexpr", ":lgetexpr" and ":lgetfile". They are not needed. (Yegappan Lakshmanan)

An offset for syntax matches worked on bytes instead of characters. That is inconsistent and can easily be done wrong. Use character offsets now. (Yukihiro Nakadaira)

The FileChangedShellPost event was also given when a file didn't change. (John Little)

When the current line is long (doesn't fit) the popup menu can't be seen. Display it below the screen line instead of below the text line. (Francois Ingelrest)

Switched to autoconf version 2.62.

Moved including fcntl.h to vim.h and removed it from all .c files.

Introduce macro STRMOVE(d, s), like STRCPY() for overlapping strings. Use it instead of mch_memmove(p, p + x, STRLEN(p + x) + 1).

Removed the bulgarian.vim keymap file, two more standard ones replace it. (Boyko Bantchev)

Increased the maximum number of tag matches for command line completion from 200 to 300.

Renamed help file sql.txt to ft_sql.txt and ada.txt to ft_ada.txt.

Added added-7.2

New syntax files:
- CUDA (Timothy B. Terriberry)
- Cdrdao config (Nikolai Weibull)
- Coco/R (Ashish Shukla)
- Denyhosts config (Nikolai Weibull)
- Dtrace script (Nicolas Weber)
- Git output, commit, config, rebase, send-email (Tim Pope)
- HASTE and HastePreProc (M. Tranchero)

	Haml (Tim Pope)
	Host conf (Nikolai Weibull)
	Linden script (Timo Frenay)
	MS messages (Kevin Locke)
	PDF (Tim Pope)
	ProMeLa (Maurizio Tranchero)
	Reva Foth (Ron Aaron)
	Sass (Tim Pope)
	Symbian meta-makefile, MMP (Ron Aaron)
	VOS CM macro (Andrew McGill)
	XBL (Doug Kearns)

New tutor files:
	Made UTF-8 versions of all the tutor files.
	Greek renamed from ".gr" to ".el" (Greek vs Greece).
	Esperanto (Dominique Pelle)
	Croatian (Paul B. Mahol)

New filetype plugins:
	Cdrdao config (Nikolai Weibull)
	Debian control files (Debian Vim maintainers)
	Denyhosts (Nikolai Weibull)
	Dos .ini file (Nikolai Weibull)
	Dtrace script (Nicolas Weber)
	FnameScript (Nikolai Weibull)
	Git, Git config, Git commit, Git rebase, Git send-email (Tim Pope)
	Haml (Tim Pope)
	Host conf (Nikolai Weibull)
	Host access (Nikolai Weibull)
	Logtalk (Paulo Moura)
	MS messages (Kevin Locke)
	NSIS script (Nikolai Weibull)
	PDF (Tim Pope)
	Reva Forth (Ron Aaron)
	Sass (Tim Pope)

New indent files:
	DTD (Nikolai Weibull)
	Dtrace script (Nicolas Weber)
	Erlang (Csaba Hoch)
	FrameScript (Nikolai Weibull)
	Git config (Tim Pope)
	Haml (Tim Pope)
	Logtalk (Paulo Moura)
	Sass (Tim Pope)
	Tiny Fugue (Christian J. Robinson)

New compiler plugins:
	RSpec (Tim Pope)

New keymap files:
	Croatian (Paul B. Mahol)
	Russian Dvorak (Serhiy Boiko)
	Ukrainian Dvorak (Serhiy Boiko)

	Removed plain Bulgarian, "bds" and phonetic are sufficient.

Other new runtime files:
	Esperanto menu and message translations. (Dominique Pelle)
	Finnish menu and message translations. (Flammie Pirinen)
	Brazilian Portuguese message translations. (Eduardo Dobay)

Added floating point support. Float

Added argument to mode() to return a bit more detail about the current mode.
(Ben Schmidt)

Added support for BSD console mouse: sysmouse . (Paul B. Mahol)

Added the "newtab" value for the 'switchbuf' option. (partly by Yegappan
Lakshmanan)

Improved error messages for the netbeans interface. (Philippe Fremy)

Added support for using xterm mouse codes for screen. (Micah Cowan)

Added support for cross compiling:
Adjusted configure.in and added INSTALLcross.txt. (Marc Haisenko) Fixed
mistakes in configure.in after that.
Don't use /usr/local/include and /usr/local/lib in configure. (Philip
Prindeville)
For cross compiling the Cygwin version on Unix, change VIM.TLB to vim.tlb in
src/vim.rc. (Tsuneo Nakagawa)

Added v:searchforward variable: What direction we're searching in. (Yakov
Lerner)

Fixed   fixed-7.2

Patch 7.1.001
Problem: Still can't build with Gnome libraries.
Solution: Fix typo in bind_textdomain_codeset. (Mike Kelly)
Files: src/gui_gtk.c, src/gui_gtk_x11.c

Patch 7.1.002
Problem: Oracle Pro*C/C++ files are not detected.
Solution: Add the missing star. (Micah J. Cowan)
Files: runtime/filetype.vim

Patch 7.1.003 (extra)
Problem: The "Tear off this menu" message appears in the message history
            when using a menu. (Yongwei Wu)
Solution: Disable message history when displaying the menu tip.
Files: src/gui_w32.c

Patch 7.1.004
Problem: Crash when doing ":next directory". (Raphael Finkel)

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Solution:   Do not use "buf", it may be invalid after autocommands.
Files:      src/ex_cmds.c

Patch 7.1.005
Problem:    "cit" used on <foo></foo> deletes <foo>.  Should not delete
            anything and start insertion, like "ci'" does on "". (Michal
            Bozon)
Solution:   Handle an empty object specifically.  Made it work consistent for
            various text objects.
Files:      src/search.c

Patch 7.1.006
Problem:    Resetting 'modified' in a StdinReadPost autocommand doesn't work.
Solution:   Set 'modified' before the autocommands instead of after it.
Files:      src/buffer.c

Patch 7.1.007 (extra)
Problem:    Mac: Context menu doesn't work on Intel Macs.
            Scrollbars are not dimmed when Vim is not the active application.
Solution:   Remove the test whether context menus are supported.  They are
            always there in OS/X.  Handle the dimming. (Nicolas Weber)
Files:      src/gui_mac.c, src/gui.h

Patch 7.1.008
Problem:    getfsize() returns a negative number for very big files.
Solution:   Check for overflow and return -2.
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.1.009
Problem:    In diff mode, displaying the difference between a tab and spaces
            is not highlighted correctly.
Solution:   Only change highlighting at the end of displaying a tab.
Files:      src/screen.c

Patch 7.1.010
Problem:    The Gnome session file doesn't restore tab pages.
Solution:   Add SSOP_TABPAGES to the session flags. (Matias D'Ambrosio)
Files:      src/gui_gtk_x11.c

Patch 7.1.011
Problem:    Possible buffer overflow when $VIMRUNTIME is very long. (Victor
            Stinner)
Solution:   Use vim_snprintf().
Files:      src/main.c

Patch 7.1.012
Problem:    ":let &shiftwidth = 'asdf'" doesn't produce an error message.
Solution:   Check for a string argument. (Chris Lubinski)
Files:      src/option.c

Patch 7.1.013
Problem:    ":syn include" only loads the first file, while it is documented
            as doing the equivalent of ":runtime!".
Solution:   Change the argument to source_runtime(). (James Vega)
```

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Files:      src/syntax.c

Patch 7.1.014
Problem:    Crash when doing C indenting. (Chris Monson)
Solution:   Obtain the current line again after invoking cin_islabel().
Files:      src/edit.c

Patch 7.1.015
Problem:    MzScheme interface: current-library-collection-paths produces no
            list.  Interface doesn't build on a Mac.
Solution:   Use a list instead of a pair. (Bernhard Fisseni)  Use "-framework"
            argument for MZSCHEME_LIBS in configure.
Files:      src/configure.in, src/if_mzsch.c, src/auto/configure

Patch 7.1.016 (after patch 7.1.012)
Problem:    Error message about setting 'diff' to a string.
Solution:   Don't pass an empty string to set_option_value() when setting
            'diff'.
Files:      src/quickfix.c, src/popupmnu.c

Patch 7.1.017
Problem:    ":confirm w" does give a prompt when 'readonly' is set, but not
            when the file permissions are read-only.  (Michael Schaap)
Solution:   Provide a dialog in both situations.  (Chris Lubinski)
Files:      src/ex_cmds.c, src/fileio.c, src/proto/fileio.pro

Patch 7.1.018
Problem:    When 'virtualedit' is set a "p" of a block just past the end of
            the line inserts before the cursor. (Engelke)
Solution:   Check for the cursor being just after the line (Chris Lubinski)
Files:      src/ops.c

Patch 7.1.019
Problem:    ":py" asks for an argument, ":py asd" then gives the error that
            ":py" isn't implemented.  Should already happen for ":py".
Solution:   Compare with ex_script_ni. (Chris Lubinski)
Files:      src/ex_docmd.c

Patch 7.1.020
Problem:    Reading from uninitialized memory when using a dialog. (Dominique
            Pelle)
Solution:   In msg_show_console_dialog() append a NUL after every appended
            character.
Files:      src/message.c

Patch 7.1.021 (after 7.1.015)
Problem:    Mzscheme interface doesn't compile on Win32.
Solution:   Fix the problem that 7.1.015 fixed in a better way. (Sergey Khorev)
Files:      src/if_mzsch.c

Patch 7.1.022
Problem:    When setting 'keymap' twice the b:keymap_name variable isn't set.
            (Milan Berta)
Solution:   Don't unlet b:keymap_name for ":loadkeymap". (Martin Toft)
```

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Files:      src/digraph.c

Patch 7.1.023
Problem:    "dw" in a line with one character deletes the line.  Vi and nvi
            don't do this.  (Kjell Arne Rekaa)
Solution:   Check for one-character words especially.
Files:      src/search.c

Patch 7.1.024
Problem:    Using a pointer that has become invalid. (Chris Monson)
Solution:   Obtain the line pointer again after we looked at another line.
Files:      src/search.c

Patch 7.1.025
Problem:    search() and searchpos() don't use match under cursor at start of
            line when using 'bc' flags. (Viktor Kojouharov)
Solution:   Don't go to the previous line when the 'c' flag is present.
            Also fix that "j" doesn't move the cursor to the right column.
Files:      src/eval.c, src/search.c

Patch 7.1.026
Problem:    "[p" doesn't work in Visual mode. (David Brown)
Solution:   Use checkclearop() instead of checkclearopq().
Files:      src/normal.c

Patch 7.1.027
Problem:    On Sun systems opening /dev/fd/N doesn't work, and they are used
            by process substitutions.
Solution:   Allow opening specific character special files for Sun systems.
            (Gary Johnson)
Files:      src/fileio.c, src/os_unix.h

Patch 7.1.028
Problem:    Can't use last search pattern for ":sort". (Brian McKee)
Solution:   When the pattern is empty use the last search pattern. (Martin
            Toft)
Files:      runtime/doc/change.txt, src/ex_cmds.c

Patch 7.1.029 (after 7.1.019)
Problem:    Can't compile when all interfaces are used. (Taylor Venable)
Solution:   Only check for ex_script_ni when it's defined.
Files:      src/ex_docmd.c

Patch 7.1.030
Problem:    The "vimtutor" shell script checks for "vim6" but not for "vim7".
            (Christian Robinson)
Solution:   Check for more versions, but prefer using "vim".
Files:      src/vimtutor

Patch 7.1.031
Problem:    virtcol([123, '$']) doesn't work. (Michael Schaap)
Solution:   When '$' is used for the column number get the last column.
Files:      runtime/doc/eval.txt, src/eval.c
```

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Patch 7.1.032
Problem:    Potential crash when editing a command line. (Chris Monson)
Solution:   Check the position to avoid access before the start of an array.
Files:      src/ex_getln.c

Patch 7.1.033
Problem:    A buffer is marked modified when it was first deleted and then
            added again using a ":next" command. (John Mullin)
Solution:   When checking if a buffer is modified use the BF_NEVERLOADED flag.
Files:      src/option.c

Patch 7.1.034
Problem:    Win64: A few compiler warnings.  Problems with optimizer.
Solution:   Use int instead of size_t.  Disable the optimizer in one function.
            (George V.  Reilly)
Files:      src/eval.c, src/spell.c

Patch 7.1.035
Problem:    After ":s/./&/#" all listed lines have a line number. (Yakov
            Lerner)
Solution:   Reset the line number flag when not using the "&" flag.
Files:      src/ex_cmds.c

Patch 7.1.036
Problem:    Completing ":echohl" argument should include "None". (Ori
            Avtalion)  ":match" should have "none" too.
Solution:   Add flags to use expand_highlight().  Also fix that when disabling
            FEAT_CMDL_COMPL compilation fails.  (Chris Lubinski)
Files:      src/eval.c, src/ex_docmd.c, src/ex_getln.c, src/proto/syntax.pro
            src/syntax.c

Patch 7.1.037
Problem:    strcpy() used for overlapping strings. (Chris Monson)
Solution:   Use mch_memmove() instead.
Files:      src/option.c

Patch 7.1.038
Problem:    When 'expandtab' is set then a Tab copied for 'copyindent' is
            expanded to spaces, even when 'preserveindent' is set. (Alexei
            Alexandrov)
Solution:   Remove the check for 'expandtab'.  Also fix that ">>" doesn't obey
            'preserveindent'. (Chris Lubinski)
Files:      src/misc1.c

Patch 7.1.039
Problem:    A tag in a help file that starts with "help-tags" and contains a
            percent sign may make Vim crash. (Ulf Harnhammar)
Solution:   Use puts() instead of fprintf().
Files:      src/ex_cmds.c

Patch 7.1.040
Problem:    ":match" only supports three matches.
Solution:   Add functions clearmatches(), getmatches(), matchadd(),
            matchdelete() and setmatches().  Changed the data structures for
```

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            this.  A small bug in syntax.c is fixed, so newly created
            highlight groups can have their name resolved correctly from their
            ID.  (Martin Toft)
Files:      runtime/doc/eval.txt, runtime/doc/pattern.txt,
            runtime/doc/usr_41.txt, src/eval.c, src/ex_docmd.c,
            src/proto/window.pro, src/screen.c, src/structs.h, src/syntax.c,
            src/testdir/Makefile, src/testdir/test63.in,
            src/testdir/test63.ok, src/window.c

Patch 7.1.041 (extra, after 7.1.040)
Problem:    Some changes for patch 7.1.040 are in extra files.
Solution:   Update the extra files.
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.1.042 (after 7.1.040)
Problem:    Internal error when using matchadd(). (David Larson)
Solution:   Check the third argument to be present before using the fourth
            argument. (Martin Toft)
Files:      src/eval.c

Patch 7.1.043
Problem:    In Ex mode using CTRL-D twice may cause a crash.  Cursor isn't
            positioned properly after CTRL-D.
Solution:   Set prev_char properly.  Position the cursor correctly. (Antony
            Scriven)
Files:      src/ex_getln.c

Patch 7.1.044
Problem:    In Insert mode 0 CTRL-T deletes all indent, it should add indent.
            (Gautam Iyer)
Solution:   Check for CTRL-D typed.
Files:      src/edit.c

Patch 7.1.045
Problem:    Unnecessary screen redrawing. (Jjgod Jiang)
Solution:   Reset "must_redraw" after clearing the screen.
Files:      src/screen.c

Patch 7.1.046
Problem:    ":s" command removes combining characters. (Ron Aaron)
Solution:   Copy composing characters individually. (Chris Lubinski)
Files:      src/regexp.c

Patch 7.1.047
Problem:    vim_regcomp() called with invalid argument. (Xiaozhou Liu)
Solution:   Change TRUE to RE_MAGIC + RE_STRING.
Files:      src/ex_eval.c

Patch 7.1.048
Problem:    The matchparen plugin doesn't update the match when scrolling with
            the mouse wheel. (Ilya Bobir)
Solution:   Set the match highlighting for text that can be scrolled into the
            viewable area without moving the cursor. (Chris Lubinski)
```

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Files:      runtime/plugin/matchparen.vim

Patch 7.1.049
Problem:    Cannot compile GTK2 version with Hangul input feature.
Solution:   Don't define FEAT_XFONTSET when using GTK2.
Files:      src/feature.h

Patch 7.1.050
Problem:    Possible crash when using C++ indenting. (Chris Monson)
Solution:   Keep the line pointer to the line to compare with.  Avoid going
            past the end of line.
Files:      src/misc1.c

Patch 7.1.051
Problem:    Accessing uninitialized memory when finding spell suggestions.
Solution:   Don't try swapping characters at the end of a word.
Files:      src/spell.c

Patch 7.1.052
Problem:    When creating a new match not all fields are initialized, which
            may lead to unpredictable results.
Solution:   Initialise rmm_ic and rmm_maxcol.
Files:      src/window.c

Patch 7.1.053
Problem:    Accessing uninitialized memory when giving a message.
Solution:   Check going the length before checking for a NUL byte.
Files:      src/message.c

Patch 7.1.054
Problem:    Accessing uninitialized memory when displaying the fold column.
Solution:   Add a NUL to the extra array. (Dominique Pelle).  Also do this in
            a couple of other situations.
Files:      src/screen.c

Patch 7.1.055
Problem:    Using strcpy() with arguments that overlap.
Solution:   Use mch_memmove() instead.
Files:      src/buffer.c, src/charset.c, src/eval.c, src/ex_getln.c,
            src/misc1.c, src/regexp.c, src/termlib.c

Patch 7.1.056
Problem:    More prompt does not behave correctly after scrolling back.
            (Randall W. Morris)
Solution:   Avoid lines_left becomes negative. (Chris Lubinski)  Don't check
            mp_last when deciding to show the more prompt. (Martin Toft)
Files:      src/message.c

Patch 7.1.057
Problem:    Problem with CursorHoldI when using "r" in Visual mode (Max
            Dyckhoff)
Solution:   Ignore CursorHold(I) when getting a second character for a Normal
            mode command.  Also abort the "r" command in Visual when a special
            key is typed.
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Files:      src/normal.c

Patch 7.1.058
Problem:    When 'rightleft' is set the completion menu is positioned wrong.
            (Baha-Eddine MOKADEM)
Solution:   Fix the completion menu. (Martin Toft)
Files:      src/popupmnu.c, src/proto/search.pro, src/search.c

Patch 7.1.059
Problem:    When in Ex mode and doing "g/^/vi" and then pressing CTRL-C Vim
            hangs and beeps. (Antony Scriven)
Solution:   Clear "got_int" in the main loop to avoid the hang.  When typing
            CTRL-C twice in a row abort the ":g" command.  This is Vi
            compatible.
Files:      src/main.c

Patch 7.1.060
Problem:    Splitting quickfix window messes up window layout. (Marius
            Gedminas)
Solution:   Compute the window size in a smarter way. (Martin Toft)
Files:      src/window.c

Patch 7.1.061
Problem:    Win32: When 'encoding' is "latin1" 'ignorecase' doesn't work for
            characters with umlaut. (Joachim Hofmann)
Solution:   Do not use islower()/isupper()/tolower()/toupper() but our own
            functions. (Chris Lubinski)
Files:      src/mbyte.c, src/regexp.c, src/vim.h

Patch 7.1.062 (after 7.1.038)
Problem:    Indents of C comments can be wrong. (John Mullin)
Solution:   Adjust ind_len. (Chris Lubinski)
Files:      src/misc1.c

Patch 7.1.063 (after 7.1.040)
Problem:    Warning for uninitialized variable.
Solution:   Initialise it to NULL.
Files:      src/ex_docmd.c

Patch 7.1.064
Problem:    On Interix some files appear not to exist.
Solution:   Remove the top bit from st_mode. (Ligesh)
Files:      src/os_unix.c

Patch 7.1.065 (extra)
Problem:    Win32: Compilation problem for newer version of w32api.
Solution:   Only define __IID_DEFINED__ when needed. (Chris Sutcliffe)
Files:      src/Make_ming.mak, src/iid_ole.c

Patch 7.1.066
Problem:    When 'bomb' is set or reset the file should be considered
            modified.  (Tony Mechelynck)
Solution:   Handle like 'endofline'. (Martin Toft)
Files:      src/buffer.c, src/fileio.c, src/option.c, src/structs.h
```

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Patch 7.1.067
Problem:    'thesaurus' doesn't work when 'infercase' is set. (Mohsin)
Solution:   Don't copy the characters being completed but check the case and
            apply it to the suggested word.  Also fix that the first word in
            the thesaurus line is not used.  (Martin Toft)
Files:      src/edit.c

Patch 7.1.068
Problem:    When 'equalalways' is set and splitting a window, it's possible
            that another small window gets bigger.
Solution:   Only equalize window sizes when after a split the windows are
            smaller than another window. (Martin Toft)
Files:      runtime/doc/options.txt, runtime/doc/windows.txt, src/window.c

Patch 7.1.069
Problem:    GTK GUI: When using confirm() without a default button there still
            is a default choice.
Solution:   Ignore Enter and Space when there is no default button. (Chris
            Lubinski)
Files:      src/gui_gtk.c

Patch 7.1.070 (extra)
Problem:    Win32 GUI: When using confirm() without a default button there
            still is a default choice.
Solution:   Set focus on something else than a button. (Chris Lubinski)
Files:      src/gui_w32.c

Patch 7.1.071 (after 7.1.040)
Problem:    Regexp patterns are not tested.
Solution:   Add a basic test, to be expanded later.
            Also add (commented-out) support for valgrind.
Files:      src/testdir/Makefile, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.1.072 (extra, after 7.1.041 and 7.1.071)
Problem:    Some changes for patch 7.1.071 are in extra files.
Solution:   Update the extra files.  Also fix a few warnings from the DOS test
            makefile.
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.1.073 (after 7.1.062)
Problem:    Wrong cursor position and crash when 'preserveindent' is set.
            (Charles Campbell)
Solution:   Handle the situation that we start without indent. (Chris
            Lubinski)
Files:      src/misc1.c

Patch 7.1.074
Problem:    Crash when calling string() on a recursively nested List.
Solution:   Check result value for being NULL. (Yukihiro Nakadaira)
Files:      src/eval.c

Patch 7.1.075
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Problem:    ":let v:statusmsg" reads memory already freed.
Solution:   Don't set v:statusmsg when listing it.
Files:      src/eval.c

Patch 7.1.076
Problem:    Another strcpy() with overlapping arguments.
Solution:   Use mch_memmove(). (Dominique Pelle)  And another one.
Files:      src/ex_docmd.c, src/normal.c

Patch 7.1.077
Problem:    Using "can_spell" without initializing it. (Dominique Pelle)
Solution:   Set a default for get_syntax_attr().
Files:      src/syntax.c

Patch 7.1.078
Problem:    Dropping a file name on gvim that contains a CSI byte doesn't work
            when editing the command line.
Solution:   Escape the CSI byte when inserting in the input buffer. (Yukihiro
            Nakadaira)
Files:      src/gui.c, src/ui.c

Patch 7.1.079
Problem:    When the locale is "C" and 'encoding' is "latin1" then the "@"
            character in 'isfname', 'isprint', etc. doesn't pick up accented
            characters.
Solution:   Instead of isalpha() use MB_ISLOWER() and MB_ISUPPER().
Files:      src/charset.c, src/macros.h

Patch 7.1.080 (extra)
Problem:    Compiler warnings for using "const char *" for "char *".
Solution:   Add type casts. (Chris Sutcliffe)
Files:      src/GvimExt/gvimext.cpp

Patch 7.1.081
Problem:    Command line completion for a shell command: "cat </tmp/file<Tab>"
            doesn't work.
Solution:   Start the file name at any character that can't be in a file name.
            (Martin Toft)
Files:      src/ex_docmd.c

Patch 7.1.082
Problem:    After a ":split" the matchparen highlighting isn't there.
Solution:   Install a WinEnter autocommand.  Also fixes that after
            ":NoMatchParen" only the current window is updated. (Martin Toft)
Files:      runtime/doc/pi_paren.txt, runtime/plugin/matchparen.vim

Patch 7.1.083 (after 7.1.081)
Problem:    Command line completion doesn't work with wildcards.
Solution:   Add vim_isfilec_or_wc() and use it. (Martin Toft)
Files:      src/charset.c, src/proto/charset.pro, src/ex_docmd.c

Patch 7.1.084
Problem:    Using the "-nb" argument twice causes netbeans not to get
            fileOpened events.
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Solution:   Change "&" to "&&". (Xavier de Gaye)
Files:      src/ex_cmds.c

Patch 7.1.085
Problem:    ":e fold.c" then ":sp fold.c" results in folds of original window
            to disappear. (Akita Noek)
Solution:   Invoke foldUpdateAll() for all windows of the changed buffer.
            (Martin Toft)
Files:      src/ex_cmds.c

Patch 7.1.086
Problem:    Crash when using specific Python syntax highlighting.  (Quirk)
Solution:   Check for a negative index, coming from a keyword match at the
            start of a line from a saved state.
Files:      src/syntax.c

Patch 7.1.087
Problem:    Reading past ":cscope find" command.  Writing past end of a buffer.
Solution:   Check length of the argument before using the pattern.  Use
            vim_strncpy().  (Dominique Pelle)
Files:      if_cscope.c

Patch 7.1.088 (extra)
Problem:    The coordinates used by ":winpos" differ from what getwinposx()
            and getwinposy() return.
Solution:   Use MoveWindowStructure() instead of MoveWindow(). (Michael Henry)
Files:      src/gui_mac.c

Patch 7.1.089
Problem:    ":let loaded_getscriptPlugin" doesn't clear to eol, result is
            "#1in".
Solution:   Clear to the end of the screen after displaying the first variable
            value.
Files:      src/eval.c

Patch 7.1.090
Problem:    Compiler warning on Mac OS X 10.5.
Solution:   Don't redeclare sigaltstack(). (Hisashi T Fujinaka)
Files:      src/os_unix.c

Patch 7.1.091 (extra)
Problem:    Win32: Can't embed Vim inside another application.
Solution:   Add the --windowid argument. (Nageshwar)
Files:      runtime/doc/gui_w32.txt, runtime/doc/starting.txt,
            runtime/doc/vi_diff.txt, src/globals.h, src/gui_w32.c, src/main.c

Patch 7.1.092 (extra, after 7.1.088)
Problem:    Wrong arguments for MoveWindowStructure().
Solution:   Remove "TRUE". (Michael Henry)
Files:      src/gui_mac.c

Patch 7.1.093
Problem:    Reading past end of a screen line when determining cell width.
            (Dominique Pelle)
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Solution:   Add an argument to mb_off2cells() for the maximum offset.
Files:      src/globals.h, src/gui.c, src/mbyte.c, src/proto/mbyte.pro,
            src/screen.c

Patch 7.1.094
Problem:    When checking if syntax highlighting is present, looking in the
            current buffer instead of the specified one.
Solution:   Use "buf" instead of "curbuf".
Files:      src/syntax.c

Patch 7.1.095
Problem:    The FocusLost and FocusGained autocommands are triggered
            asynchronously in the GUI.  This may cause arbitrary problems.
Solution:   Put the focus event in the input buffer and handle it when ready
            for it.
Files:      src/eval.c, src/getchar.c, src/gui.c, src/gui_gtk_x11.c,
            src/keymap.h

Patch 7.1.096
Problem:    Reading past end of a string when resizing Vim. (Dominique Pelle)
Solution:   Check the string pointer before getting the char it points to.
Files:      src/message.c

Patch 7.1.097
Problem:    ":setlocal stl=%!1+1" does not work.
Solution:   Adjust check for pointer. (Politz)
Files:      src/option.c

Patch 7.1.098
Problem:    ":call s:var()" doesn't work if "s:var" is a Funcref. (Andy Wokula)
Solution:   Before converting "s:" into a script ID, check if it is a Funcref.
Files:      src/eval.c

Patch 7.1.099
Problem:    When the 'keymap' and 'paste' options have a non-default value,
            ":mkexrc" and ":mksession" do not correctly set the options.
Solution:   Set the options with side effects before other options.
Files:      src/option.c

Patch 7.1.100
Problem:    Win32: Executing cscope doesn't always work properly.
Solution:   Use another way to invoke cscope. (Mike Williams)
Files:      src/if_cscope.c, src/if_cscope.h, src/main.c,
            src/proto/if_cscope.pro

Patch 7.1.101
Problem:    Ruby: The Buffer.line= method does not work.
Solution:   Add the "self" argument to set_current_line(). (Jonathan Hankins)
Files:      src/if_ruby.c

Patch 7.1.102
Problem:    Perl interface doesn't compile with new version of Perl.
Solution:   Add two variables to the dynamic library loading. (Suresh
            Govindachar)
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Files:      src/if_perl.xs

Patch 7.1.103
Problem:    Using "dw" with the cursor past the end of the last line (using
            CTRL-\ CTRL-O from Insert mode) deletes a character. (Tim Chase)
Solution:   Don't move the cursor back when the movement failed.
Files:      src/normal.c

Patch 7.1.104 (after 7.1.095)
Problem:    When 'lazyredraw' is set a focus event causes redraw to be
            postponed until a key is pressed.
Solution:   Instead of not returning from vgetc() when a focus event is
            encountered return K_IGNORE.  Add plain_vgetc() for when the
            caller doesn't want to get K_IGNORE.
Files:      src/digraph.c, src/edit.c, src/ex_cmds.c, src/ex_getln.c,
            src/getchar.c, src/normal.c, src/proto/getchar.pro, src/window.c

Patch 7.1.105
Problem:    Internal error when using "0 ? {'a': 1} : {}". (A.Politz)
Solution:   When parsing a dictionary value without using the value, don't try
            obtaining the key name.
Files:      src/eval.c

Patch 7.1.106
Problem:    ":messages" doesn't quit listing on ":".
Solution:   Break the loop when "got_int" is set.
Files:      src/message.c

Patch 7.1.107
Problem:    When doing a block selection and using "s" to change the text,
            while triggering auto-indenting, causes the wrong text to be
            repeated in other lines. (Adri Verhoef)
Solution:   Compute the change of indent and compensate for that.
Files:      src/ops.c

Patch 7.1.108 (after 7.1.100)
Problem:    Win32: Compilation problems in Cscope code. (Jeff Lanzarotta)
Solution:   Use (long) instead of (intptr_t) when it's not defined.
Files:      src/if_cscope.c

Patch 7.1.109
Problem:    GTK: when there are many tab pages, clicking on the arrow left of
            the labels moves to the next tab page on the right. (Simeon Bird)
Solution:   Check the X coordinate of the click and pass -1 as value for the
            left arrow.
Files:      src/gui_gtk_x11.c, src/term.c

Patch 7.1.110 (after 7.1.102)
Problem:    Win32: Still compilation problems with Perl.
Solution:   Change the #ifdefs. (Suresh Govindachar)
Files:      src/if_perl.xs

Patch 7.1.111
Problem:    When using ":vimgrep" with the "j" flag folds from another buffer
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            may be displayed. (A.Politz)
Solution:   When not jumping to another buffer update the folds.
Files:      src/quickfix.c

Patch 7.1.112
Problem:    Using input() with a wrong argument may crash Vim. (A.Politz)
Solution:   Init the input() return value to NULL.
Files:      src/eval.c

Patch 7.1.113
Problem:    Using map() to go over an empty list causes memory to be freed
            twice. (A.Politz)
Solution:   Don't clear the typeval in restore_vimvar().
Files:      src/eval.c

Patch 7.1.114
Problem:    Memory leak in getmatches().
Solution:   Don't increment the refcount twice.
Files:      src/eval.c

Patch 7.1.115 (after 7.1.105)
Problem:    Compiler warning for uninitialized variable. (Tony Mechelynck)
Solution:   Init variable to NULL.
Files:      src/eval.c

Patch 7.1.116
Problem:    Cannot display Unicode characters above 0x10000.
Solution:   Remove the replacement with a question mark when UNICODE16 is not
            defined. (partly by Nicolas Weber)
Files:      src/screen.c

Patch 7.1.117
Problem:    Can't check whether Vim was compiled with Gnome. (Tony Mechelynck)
Solution:   Add gui_gnome to the has() list.
Files:      src/eval.c

Patch 7.1.118 (after 7.1.107)
Problem:    Compiler warning for Visual C compiler.
Solution:   Add typecast. (Mike Williams)
Files:      src/ops.c

Patch 7.1.119
Problem:    Crash when 'cmdheight' set to very large value. (A.Politz)
Solution:   Limit 'cmdheight' to 'lines' minus one.  Store right value of
            'cmdheight' when running out of room.
Files:      src/option.c, src/window.c

Patch 7.1.120
Problem:    Can't properly check memory leaks while running tests.
Solution:   Add an argument to garbagecollect().  Delete functions and
            variables in the test scripts.
Files:      runtime/doc/eval.txt src/eval.c, src/globals.h, src/main.c,
            src/testdir/Makefile, src/testdir/test14.in,
            src/testdir/test26.in, src/testdir/test34.in,
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            src/testdir/test45.in, src/testdir/test47.in,
            src/testdir/test49.in, src/testdir/test55.in,
            src/testdir/test56.in, src/testdir/test58.in,
            src/testdir/test59.in, src/testdir/test60.in,
            src/testdir/test60.vim, src/testdir/test62.in,
            src/testdir/test63.in, src/testdir/test64.in,

Patch 7.1.121
Problem:    Using ":cd %:h" when editing a file in the current directory
            results in an error message for using an empty string.
Solution:   When "%:h" results in an empty string use ".".
Files:      src/eval.c

Patch 7.1.122
Problem:    Mac: building Vim.app fails.  Using wrong architecture.
Solution:   Use line continuation for the gui_bundle dependency.  Detect the
            system architecture with "uname -a".
Files:      src/main.aap

Patch 7.1.123
Problem:    Win32: ":edit foo ~ foo" expands "~".
Solution:   Change the call to expand_env().
Files:      src/ex_docmd.c, src/misc1.c, src/proto/misc1.pro, src/option.c

Patch 7.1.124 (extra)
Problem:    Mac: When dropping a file on Vim.app that is already in the buffer
            list (from .viminfo) results in editing an empty, unnamed buffer.
            (Axel Kielhorn)  Also: warning for unused variable.
Solution:   Move to the buffer of the first argument.  Delete unused variable.
Files:      src/gui_mac.c

Patch 7.1.125
Problem:    The TermResponse autocommand event is not always triggered. (Aron
            Griffis)
Solution:   When unblocking autocommands check if v:termresponse changed and
            trigger the event then.
Files:      src/buffer.c, src/diff.c, src/ex_getln.c, src/fileio.c,
            src/globals.h, src/misc2.c, src/proto/fileio.pro, src/window.c

Patch 7.1.126 (extra)
Problem:    ":vimgrep */*" fails when a BufRead autocommand changes directory.
            (Bernhard Kuhn)
Solution:   Change back to the original directory after loading a file.
            Also: use shorten_fname1() to avoid duplicating code.
Files:      src/buffer.c, src/ex_docmd.c, src/fileio.c, src/gui_gtk.c,
            src/gui_w48.c, src/proto/ex_docmd.pro, src/proto/fileio.pro,
            src/quickfix.c

Patch 7.1.127
Problem:    Memory leak when doing cmdline completion. (Dominique Pelle)
Solution:   Free "orig" argument of ExpandOne() when it's not used.
Files:      src/ex_getln.c

Patch 7.1.128 (extra)
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Problem:    Build problems with new version of Cygwin.
Solution:   Remove -D__IID_DEFINED__, like with MingW. (Guopeng Wen)
Files:      src/Make_cyg.mak

Patch 7.1.129 (extra)
Problem:    Win32: Can't get the user name when it is longer than 15
            characters.
Solution:   Use UNLEN instead of MAX_COMPUTERNAME_LENGTH. (Alexei Alexandrov)
Files:      src/os_win32.c

Patch 7.1.130
Problem:    Crash with specific order of undo and redo. (A.Politz)
Solution:   Clear and adjust pointers properly.  Add u_check() for debugging.
Files:      src/undo.c, src/structs.h

Patch 7.1.131
Problem:    ":mksession" always adds ":setlocal autoread". (Christian J.
            Robinson)
Solution:   Skip boolean global/local option using global value.
Files:      src/option.c

Patch 7.1.132
Problem:    getpos("'>") may return a negative column number for a Linewise
            selection. (A.Politz)
Solution:   Don't add one to MAXCOL.
Files:      src/eval.c

Patch 7.1.133 (after 7.1.126)
Problem:    shorten_fname1() linked when it's not needed.
Solution:   Add #ifdef.
Files:      src/fileio.c

Patch 7.1.134 (extra)
Problem:    Win32: Can't build with VC8
Solution:   Detect the MSVC version instead of using NMAKE_VER.
            (Mike Williams)
Files:      src/Make_mvc.mak

Patch 7.1.135
Problem:    Win32: When editing a file c:\tmp\foo and c:\tmp\\foo we have two
            buffers for the same file. (Suresh Govindachar)
Solution:   Invoke FullName_save() when a path contains "//" or "\\".
Files:      src/buffer.c

Patch 7.1.136
Problem:    Memory leak when using Ruby syntax highlighting. (Dominique Pelle)
Solution:   Free the contained-in list.
Files:      src/syntax.c

Patch 7.1.137
Problem:    Build failure when using EXITFREE. (Dominique Pelle)
Solution:   Add an #ifdef around using clip_exclude_prog.
Files:      src/misc2.c
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Patch 7.1.138
Problem:    The Perl Msg() function doesn't stop when "q" is typed at the more
            prompt. (Hari Krishna Dara)
Solution:   Check got_int.
Files:      src/if_perl.xs

Patch 7.1.139
Problem:    When using marker folding and ending Insert mode with CTRL-C the
            current fold is truncated. (Fred Kater)
Solution:   Ignore got_int while updating folds.
Files:      src/fold.c

Patch 7.1.140
Problem:    v:count is set only after typing a non-digit, that makes it
            difficult to make a nice mapping.
Solution:   Set v:count while still typing the count.
Files:      src/normal.c

Patch 7.1.141
Problem:    GTK: -geom argument doesn't support a negative offset.
Solution:   Compute position from the right/lower corner.
Files:      src/gui_gtk_x11.c

Patch 7.1.142
Problem:    ":redir @A>" doesn't work.
Solution:   Ignore the extra ">" also when appending. (James Vega)
Files:      src/ex_docmd.c

Patch 7.1.143
Problem:    Uninitialized memory read when diffing three files. (Dominique
            Pelle)
Solution:   Remove "+ !notset" so that we don't use fields that were not
            computed.
Files:      src/diff.c

Patch 7.1.144
Problem:    After ":diffup" cursor can be in the wrong position.
Solution:   Force recomputing the cursor position.
Files:      src/diff.c

Patch 7.1.145
Problem:    Insert mode completion: When using the popup menu, after
            completing a word and typing a non-word character Vim is still
            completing the same word, following CTRL-N doesn't work.
            Insert mode Completion: When using CTRL-X O and there is only
            "struct." before the cursor, typing one char to reduce the
            matches, then BS completion stops.
Solution:   When typing a character that is not part of the item being
            completed, stop complete mode.  For whole line completion also
            accept a space.  For file name completion stop at a path
            separator.
            For omni completion stay in completion mode even if completing
            with empty string.
Files:      src/edit.c
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Patch 7.1.146 (extra)
Problem:    VMS: Files with a very rare record organization (VFC) cannot be
            properly written by Vim.
            On older VAX systems mms runs into a syntax error.
Solution:   Check for this special situation.  Do not wrap a comment, make it
            one long line.  (Zoltan Arpadffy)
Files:      src/fileio.c, src/Make_vms.mms

Patch 7.1.147 (after 7.1.127)
Problem:    Freeing memory already freed when completing user name. (Meino
            Cramer)
Solution:   Use a flag to remember if "orig" needs to be freed.
Files:      src/ex_getln.c

Patch 7.1.148
Problem:    Some types are not found by configure.
Solution:   Test for the sys/types.h header file. (Sean Boudreau)
Files:      src/configure.in, src/auto/configure

Patch 7.1.149
Problem:    GTK GUI: When the completion popup menu is used scrolling another
            window by the scrollbar is OK, but using the scroll wheel it
            behaves line <Enter>.
Solution:   Ignore K_MOUSEDOWN and K_MOUSEUP.  Fix redrawing the popup menu.
Files:      src/edit.c, src/gui.c

Patch 7.1.150
Problem:    When 'clipboard' has "unnamed" using "p" in Visual mode doesn't
            work correctly. (Jianrong Yu)
Solution:   When 'clipboard' has "unnamed" also obtain the selection when
            getting the default register.
Files:      src/ops.c

Patch 7.1.151
Problem:    Using whole line completion with 'ignorecase' and 'infercase' set
            and the line is empty get an lalloc(0) error.
Solution:   Don't try changing case for an empty match. (Matthew Wozniski)
Files:      src/edit.c

Patch 7.1.152
Problem:    Display problem when 'hls' and 'cursorcolumn' are set and
            searching for "$".  (John Mullin)  Also when scrolling
            horizontally when 'wrap' is off.
Solution:   Keep track of the column where highlighting was set.  Check the
            column offset when skipping characters.
Files:      src/screen.c

Patch 7.1.153
Problem:    Compiler warnings on SGI.  Undefined XpmAllocColor (Charles
            Campbell)
Solution:   Add type casts.  Init st_dev and st_ino separately.  Don't use
            type casts for vim_snprintf() when HAVE_STDARG_H is defined.
            Define XpmAllocColor when needed.
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Files:      src/eval.c, src/ex_cmds.c, src/fileio.c, src/misc2.c,
            src/gui_xmebw.c

Patch 7.1.154
Problem:    Compiler warning for signed/unsigned compare.
Solution:   Add type cast.
Files:      src/screen.c

Patch 7.1.155
Problem:    Crash when 'undolevels' is 0 and repeating "udd". (James Vega)
Solution:   When there is only one branch use u_freeheader() to delete it.
Files:      src/undo.c

Patch 7.1.156
Problem:    Overlapping arguments for strcpy() when expanding command line
            variables.
Solution:   Use mch_memmove() instead of STRCPY().  Also fix a few typos.
            (Dominique Pelle)
Files:      src/ex_docmd.c

Patch 7.1.157
Problem:    In Ex mode, :" gives an error at end-of-file. (Michael Hordijk)
Solution:   Only give an error for an empty line, not for a comment.
Files:      src/ex_docmd.c

Patch 7.1.158 (extra)
Problem:    Win32 console: When 'encoding' is "utf-8" and typing Alt-y the
            result is wrong.  Win32 GUI: Alt-y results in "u" when 'encoding'
            is "cp1250" (Lukas Cerman)
Solution:   For utf-8 don't set the 7th bit in a byte, convert to the correct
            byte sequence.  For cp1250, when conversion to 'encoding' results
            in the 7th bit not set, set the 7th bit after conversion.
Files:      src/os_win32.c, src/gui_w48.c

Patch 7.1.159
Problem:    strcpy() has overlapping arguments.
Solution:   Use mch_memmove() instead. (Dominique Pelle)
Files:      src/ex_cmds.c

Patch 7.1.160
Problem:    When a focus autocommand is defined, getting or losing focus
            causes the hit-enter prompt to be redrawn. (Bjorn Winckler)
Solution:   Overwrite the last line.
Files:      src/message.c

Patch 7.1.161
Problem:    Compilation errors with tiny features and EXITFREE.
Solution:   Add #ifdefs. (Dominique Pelle)
Files:      src/edit.c, src/misc2.c

Patch 7.1.162
Problem:    Crash when using a modifier before "while" or "for". (A.Politz)
Solution:   Skip modifiers when checking for a loop command.
Files:      src/proto/ex_docmd.pro, src/ex_docmd.c, src/ex_eval.c
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Patch 7.1.163
Problem:    Warning for the unknown option 'bufsecret'.
Solution:   Remove the lines .vim that use this option. (Andy Wokula)
Files:      runtime/menu.vim

Patch 7.1.164
Problem:    Reading past end of regexp pattern. (Dominique Pelle)
Solution:   Use utf_ptr2len().
Files:      src/regexp.c

Patch 7.1.165
Problem:    Crash related to getting X window ID. (Dominique Pelle)
Solution:   Don't trust the window ID that we got in the past, check it every
            time.
Files:      src/os_unix.c

Patch 7.1.166
Problem:    Memory leak for using "gp" in Visual mode.
Solution:   Free memory in put_register(). (Dominique Pelle)
Files:      src/ops.c

Patch 7.1.167
Problem:    Xxd crashes when using "xxd -b -c 110". (Debian bug 452789)
Solution:   Allocate more memory.  Fix check for maximum number of columns.
Files:      src/xxd/xxd.c

Patch 7.1.168 (extra)
Problem:    Win32 GUI: Since patch 7.1.095, when the Vim window does not have
            focus, clicking in it doesn't position the cursor. (Juergen
            Kraemer)
Solution:   Don't reset s_button_pending just after receiving focus.
Files:      src/gui_w48.c

Patch 7.1.169
Problem:    Using uninitialized variable when system() fails. (Dominique
            Pelle)
Solution:   Let system() return an empty string when it fails.
Files:      src/eval.c

Patch 7.1.170
Problem:    Valgrind warning for overlapping arguments for strcpy().
Solution:   Use mch_memmove() instead. (Dominique Pelle)
Files:      src/getchar.c

Patch 7.1.171
Problem:    Reading one byte before allocated memory.
Solution:   Check index not to become negative. (Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.1.172
Problem:    When 'buftype' is "acwrite" Vim still checks if the file or
            directory exists before overwriting.
Solution:   Don't check for overwriting when the buffer name is not a file
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            name.
Files:      src/ex_cmds.c

Patch 7.1.173
Problem:    Accessing freed memory. (Dominique Pelle)
Solution:   Don't call reg_getline() to check if a line is the first in the
            file.
Files:      src/regexp.c

Patch 7.1.174
Problem:    Writing NUL past end of a buffer.
Solution:   Copy one byte less when using strncat(). (Dominique Pelle)
Files:      src/ex_cmds.c, src/ex_docmd.c,

Patch 7.1.175
Problem:    <BS> doesn't work with some combination of 'sts', 'linebreak' and
            'backspace'. (Francois Ingelrest)
Solution:   When adding white space results in not moving back delete one
            character.
Files:      src/edit.c

Patch 7.1.176
Problem:    Building with Aap fails when the "compiledby" argument contains
            '<' or '>' characters. (Alex Yeh)
Solution:   Change how quoting is done in the Aap recipe.
Files:      src/main.aap

Patch 7.1.177
Problem:    Freeing memory twice when in debug mode while reading a script.
Solution:   Ignore script input while in debug mode.
Files:      src/ex_cmds2.c, src/getchar.c, src/globals.h

Patch 7.1.178
Problem:    "%" doesn't work on "/* comment  //  comment */".
Solution:   Don't handle the "//" in "*//*" as a C++ comment. (Markus
            Heidelberg)
Files:      src/search.c

Patch 7.1.179
Problem:    Need to check for TCL 8.5.
Solution:   Adjust configure script. (Alexey Froloff)
Files:      src/configure.in, src/auto/configure

Patch 7.1.180
Problem:    Regexp patterns not tested sufficiently.
Solution:   Add more checks to the regexp test.
Files:      src/testdir/test64.in, src/testdir/test64.ok

Patch 7.1.181
Problem:    Accessing uninitialized memory in Farsi mode. (Dominique Pelle)
Solution:   Only invoke lrF_sub() when there is something to do.
Files:      src/ex_cmds.c

Patch 7.1.182
```

```
Problem:    When using tab pages and an argument list the session file may
            contain wrong "next" commands. (Alexander Bluem)
Solution:   Use "argu" commands and only when needed.
Files:      src/ex_docmd.c

Patch 7.1.183
Problem:    "Internal error" for ":echo matchstr('a', 'a\%[\&]')" (Mitanu
            Paul)
Solution:   Inside "\%[]" detect \&, \| and \) as an error.
Files:      src/regexp.c

Patch 7.1.184
Problem:    Crash when deleting backwards over a line break in Insert mode.
Solution:   Don't advance the cursor when it's already on the NUL after a
            line. (Matthew Wozniski)
Files:      src/normal.c

Patch 7.1.185
Problem:    Using "gR" with a multi-byte encoding and typing a CR pushes
            characters onto the replace stack incorrectly, resulting in BS
            putting back the wrong characters. (Paul B. Mahol)
Solution:   Push multi-byte characters onto the replace stack in reverse byte
            order.  Add replace_push_mb().
Files:      src/edit.c, src/misc1.c, src/proto/edit.pro

Patch 7.1.186
Problem:    "expand('<afile>')" returns a bogus value after changing
            directory. (Dave Fishburn)
Solution:   Copy "autocmd_fname" to allocated memory and expand to full
            filename.  Shorten the path when expanding <afile>.
Files:      src/ex_docmd.c, src/fileio.c

Patch 7.1.187
Problem:    Win32 GUI: Custom completion using system() no longer works
            after patch 7.1.104. (Erik Falor)
Solution:   Loop when safe_vgetc() returns K_IGNORE.
Files:      src/ex_getln.c

Patch 7.1.188
Problem:    When 'showmode' is off the message for changing a readonly file is
            given in the second column instead of the first.  (Payl B. Mahol)
Solution:   Put the W10 message in the first column.
Files:      src/edit.c

Patch 7.1.189 (after 7.1.104)
Problem:    Patch 7.1.104 was incomplete.
Solution:   Also call plain_vgetc() in ask_yesno().
Files:      src/misc1.c

Patch 7.1.190
Problem:    Cursor after end-of-line: "iA sentence.<Esc>)"
Solution:   Move cursor back and make motion inclusive.
Files:      src/normal.c
```

```
Patch 7.1.191
Problem:    Win32 GUI: after patch 7.1.168 there is still a problem when
            clicking in a scrollbar. (Juergen Jottkaerr)
Solution:   Don't check the input buffer when dragging the scrollbar.
Files:      src/gui.c

Patch 7.1.192
Problem:    With Visual block selection, "s" and typing something, CTRL-C
            doesn't stop Vim from repeating the replacement in other lines,
            like happens for "I".
Solution:   Check for "got_int" to be set.
Files:      src/ops.c

Patch 7.1.193
Problem:    Some Vim 5.x digraphs are missing in Vim 7, even though the
            character pairs are not used. (Philippe de Muyter)
Solution:   Add those Vim 5.x digraphs that don't conflict with others.
Files:      src/digraph.c

Patch 7.1.194
Problem:    ":echo glob('~/{}')" results in /home/user//.
Solution:   Don't add a slash if there already is one.
Files:      src/os_unix.c

Patch 7.1.195
Problem:    '0 mark doesn't work for "~/foo ~ foo".
Solution:   Don't expand the whole file name, only "~/".
Files:      src/mark.c

Patch 7.1.196 (extra)
Problem:    Win32 GUI: "\n" in a tooltip doesn't cause a line break. (Erik
            Falor)
Solution:   Use the TTM_SETMAXTIPWIDTH message.
Files:      src/gui_w32.c

Patch 7.1.197
Problem:    Mac: "make install" doesn't work when prefix defined.
Solution:   Pass different arguments to "make installruntime".  (Jjgod Jiang)
Files:      src/Makefile

Patch 7.1.198
Problem:    Hang when using ":s/\n//gn". (Burak Gorkemli)
Solution:   Set "skip_match".
Files:      src/ex_cmds.c

Patch 7.1.199
Problem:    Can't do command line completion for a specific file name
            extension.
Solution:   When the pattern ends in "$" don't add a star for completion and
            remove the "$" before matching with file names.
Files:      runtime/doc/cmdline.txt, src/ex_getln.c

Patch 7.1.200 (after 7.1.177 and 7.1.182)
Problem:    Compiler warnings for uninitialized variables.
```

```
Solution:   Init variables.
Files:      src/ex_cmds2.c, src/ex_docmd.c

Patch 7.1.201
Problem:    When reading stdin 'fenc' and 'ff' are not set.
Solution:   Set the options after reading stdin. (Ben Schmidt)
Files:      src/fileio.c

Patch 7.1.202
Problem:    Incomplete utf-8 byte sequence is not checked for validity.
Solution:   Check the bytes that are present for being valid. (Ben Schmidt)
Files:      src/mbyte.c

Patch 7.1.203
Problem:    When 'virtualedit' is "onemore" then "99|" works but ":normal 99|"
            doesn't.  (Andy Wokula)
Solution:   Check for "onemore" flag in check_cursor_col().
Files:      src/misc2.c

Patch 7.1.204 (extra)
Problem:    Win32: Using the example at 'balloonexpr' the balloon disappears
            after four seconds and then comes back again.  Also moves the
            mouse pointer a little bit.  (Yongwei Wu)
Solution:   Set the autopop time to 30 seconds (the max value).  (Sergey
            Khorev)  Move the mouse two pixels forward and one back to end up
            in the same position (really!).
Files:      src/gui_w32.c

Patch 7.1.205
Problem:    Can't get the operator in an ":omap".
Solution:   Add the "v:operator" variable. (Ben Schmidt)
Files:      runtime/doc/eval.txt, src/eval.c, src/normal.c, src/vim.h

Patch 7.1.206
Problem:    Compiler warnings when using MODIFIED_BY.
Solution:   Add type casts. (Ben Schmidt)
Files:      src/version.c

Patch 7.1.207
Problem:    Netbeans: "remove" cannot delete one line.
Solution:   Remove partial lines and whole lines properly.  Avoid a memory
            leak.  (Xavier de Gaye)
Files:      src/netbeans.c

Patch 7.1.208
Problem:    On Alpha get an unaligned access error.
Solution:   Store the dictitem pointer before using it. (Matthew Luckie)
Files:      src/eval.c

Patch 7.1.209
Problem:    GTK: When using the netrw plugin and doing ":gui" Vim hangs.
Solution:   Stop getting a selection after three seconds.  This is a hack.
Files:      src/gui_gtk_x11.c
```

```
Patch 7.1.210
Problem:    Listing mapping for 0xdb fails when 'encoding' is utf-8. (Tony
            Mechelynck)
Solution:   Recognize K_SPECIAL KS_EXTRA KE_CSI as a CSI byte.
Files:      src/mbyte.c

Patch 7.1.211
Problem:    The matchparen plugin may take an unexpected amount of time, so
            that it looks like Vim hangs.
Solution:   Add a timeout to searchpair(), searchpairpos(), search() and
            searchpos().  Use half a second timeout in the plugin.
Files:      runtime/doc/eval.txt, runtime/plugin/matchparen.vim, src/edit.c,
            src/eval.c, src/ex_cmds2.c, src/ex_docmd.c, src/normal.c,
            src/proto/eval.pro, src/proto/ex_cmds2.pro, src/proto/search.pro,
            src/search.c

Patch 7.1.212
Problem:    Accessing a byte before a line.
Solution:   Check that the column is 1 or more. (Dominique Pelle)
Files:      src/edit.c

Patch 7.1.213
Problem:    A ":tabedit" command that results in the "swap file exists" dialog
            and selecting "abort" doesn't close the new tab. (Al Budden)
Solution:   Pass "old_curwin" to do_exedit().
Files:      src/ex_docmd.c

Patch 7.1.214
Problem:    ":1s/g\n\zs1//" deletes characters from the first line. (A Politz)
Solution:   Start replacing in the line where the match starts.
Files:      src/ex_cmds.c

Patch 7.1.215
Problem:    It is difficult to figure out what syntax items are nested at a
            certain position.
Solution:   Add the synstack() function.
Files:      runtime/doc/eval.txt, src/eval.c, src/proto/syntax.pro,
            src/syntax.c

Patch 7.1.216
Problem:    Variants of --remote-tab are not mentioned for "vim --help".
Solution:   Display optional -wait and -silent.
Files:      src/main.c

Patch 7.1.217
Problem:    The "help-tags" tag may be missing from runtime/doc/tags when it
            was generated during "make install".
Solution:   Add the "++t" argument to ":helptags" to force adding the tag.
Files:      runtime/doc/Makefile, runtime/doc/various.txt, src/ex_cmds.c,
            src/ex_cmds.h

Patch 7.1.218
Problem:    A syntax region without a "keepend", containing a region with
            "extend" could be truncated at the end of the containing region.
```

```
Solution:   Do not call syn_update_ends() when there are no keepend items.
Files:      src/syntax.c

Patch 7.1.219 (after 7.1.215)
Problem:    synstack() returns situation after the current character, can't
            see the state for a one-character region.
Solution:   Don't update ending states in the requested column.
Files:      runtime/doc/eval.txt, src/eval.c, src/hardcopy.c,
            src/proto/syntax.pro, src/screen.c, src/spell.c, src/syntax.c

Patch 7.1.220
Problem:    When a ")" or word movement command moves the cursor back from the
            end of the line it may end up on the trail byte of a multi-byte
            character.  It's also moved back when it isn't needed.
Solution:   Add the adjust_cursor() function.
Files:      src/normal.c

Patch 7.1.221
Problem:    When inserting a "(", triggering the matchparen plugin, the
            following highlighting may be messed up.
Solution:   Before triggering the CursorMovedI autocommands update the display
            to update the stored syntax stacks for the change.
Files:      src/edit.c

Patch 7.1.222 (after 7.1.217)
Problem:    Wildcards in argument of ":helptags" are not expanded.  (Marcel
            Svitalsky)
Solution:   Expand wildcards in the directory name.
Files:      src/ex_cmds.c

Patch 7.1.223
Problem:    glob() doesn't work properly when 'shell' is "sh" or "bash" and
            the expanded name contains spaces, '~', single quotes and other
            special characters.  (Adri Verhoef, Charles Campbell)
Solution:   For Posix shells define a vimglob() function to list the matches
            instead of using "echo" directly.
Files:      src/os_unix.c

Patch 7.1.224
Problem:    When using "vim -F -o file1 file2" only one window is
            right-to-left.  Same for "-H".  (Ben Schmidt)
Solution:   use set_option_value() to set 'rightleft'.
Files:      src/main.c

Patch 7.1.225
Problem:    Using uninitialized value when XGetWMNormalHints() fails.
Solution:   Check the return value. (Dominique Pelle)
Files:      src/os_unix.c

Patch 7.1.226
Problem:    Command line completion doesn't work when a file name contains a
            '&' character.
Solution:   Accept all characters in a file name, except ones that end a
            command or white space.
```

```
Files:      src/ex_docmd.c

Patch 7.1.227
Problem:    Hang in syntax HL when moving over a ")". (Dominique Pelle)
Solution:   Avoid storing a syntax state in the wrong position in the list of
            remembered states.
Files:      src/syntax.c

Patch 7.1.228
Problem:    When 'foldmethod' is "indent" and a fold is created with ">>" it
            can't be closed with "zc".  (Daniel Shahaf)
Solution:   Reset the "small" flag of a fold when adding a line to it.
Files:      src/fold.c

Patch 7.1.229
Problem:    A fold is closed when it shouldn't when 'foldmethod' is "indent"
            and backspacing a non-white character so that the indent increases.
Solution:   Keep the fold open after backspacing a character.
Files:      src/edit.c

Patch 7.1.230
Problem:    Memory leak when executing SourceCmd autocommands.
Solution:   Free the memory. (Dominique Pelle)
Files:      src/ex_cmds2.c

Patch 7.1.231
Problem:    When shifting lines the change is acted upon multiple times.
Solution:   Don't have shift_line() call changed_bytes.
Files:      src/edit.c, src/ops.c, src/proto/edit.pro, src/proto/ops.pro

Patch 7.1.232 (after 7.1.207 and 7.1.211)
Problem:    Compiler warnings with MSVC.
Solution:   Add type casts. (Mike Williams)
Files:      src/ex_cmds2.c, src/netbeans.c

Patch 7.1.233
Problem:    Crash when doing Insert mode completion for a user defined
            command.  (Yegappan Lakshmanan)
Solution:   Don't use the non-existing command line.
Files:      src/ex_getln.c

Patch 7.1.234
Problem:    When diff'ing three files the third one isn't displayed correctly.
            (Gary Johnson)
Solution:   Compute the size of diff blocks correctly when merging blocks.
            Compute filler lines correctly when scrolling.
Files:      src/diff.c

Patch 7.1.235
Problem:    Pattern matching is slow when using a lot of simple patterns.
Solution:   Avoid allocating memory by not freeing it when it's not so much.
            (Alexei Alexandrov)
Files:      src/regexp.c
```

```
Patch 7.1.236
Problem:    When using 'incsearch' and 'hlsearch' a complicated pattern may
            make Vim hang until CTRL-C is pressed.
Solution:   Add the 'redrawtime' option.
Files:      runtime/doc/options.txt, src/ex_cmds.c, src/ex_docmd.c,
            src/ex_getln.c, src/gui.c, src/misc1.c, src/normal.c,
            src/option.c, src/quickfix.c, src/regexp.c, src/proto/regexp.pro,
            src/proto/search.pro, src/search.c, src/screen.c,
            src/option.h, src/spell.c, src/structs.h, src/syntax.c, src/tag.c,
            src/vim.h

Patch 7.1.237
Problem:    Compiler warning on an Alpha processor in Motif code.
Solution:   Change a typecast. (Adri Verhoef)
Files:      src/gui_motif.c

Patch 7.1.238
Problem:    Using the 'c' flag with searchpair() may cause it to fail.  Using
            the 'r' flag doesn't work when 'wrapscan' is set.  (A.Politz)
Solution:   Only use the 'c' flag for the first search, not for repeating.
            When using 'r' imply 'W'. (Antony Scriven)
Files:      src/eval.c

Patch 7.1.239 (after 7.1.233)
Problem:    Compiler warning for sprintf() argument.
Solution:   Add a typecast. (Nico Weber)
Files:      src/ex_getln.c

Patch 7.1.240
Problem:    When "gUe" turns a German sharp s into SS the operation stops
            before the end of the word.  Latin2 has the same sharp s but it's
            not changed to SS there.
Solution:   Make sure all the characters are operated upon.  Detect the sharp
            s in latin2.  Also fixes that changing case of a multi-byte
            character that changes the byte count doesn't always work.
Files:      src/ops.c

Patch 7.1.241
Problem:    Focus change events not always ignored.  (Erik Falor)
Solution:   Ignore K_IGNORE in Insert mode in a few more places.
Files:      src/edit.c

Patch 7.1.242 (after 7.1.005)
Problem:    "cib" doesn't work properly on "(x)". (Tim Pope)
Solution:   Use ltoreq() instead of lt().  Also fix "ciT" on "<a>x</a>".
Files:      src/search.c

Patch 7.1.243 (after 7.1.240)
Problem:    "U" doesn't work on all text in Visual mode. (Adri Verhoef)
Solution:   Loop over all the lines to be changed.  Add tests for this.
Files:      src/ops.c, src/testdir/test39.in, src/testdir/test39.ok

Patch 7.1.244
Problem:    GUI may have part of the command line cut off.
```

```
Solution:   Don't round the number of lines up, always round down.
            (Tony Houghton, Scott Dillard)
Files:      src/gui.c

Patch 7.1.245
Problem:    Pressing CTRL-\ three times causes Vim to quit.  (Ranganath Rao).
            Also for f CTRL-\ CTRL-\.
Solution:   When going to cooked mode in mch_delay() set a flag to ignore
            SIGQUIT.
Files:      src/os_unix.c

Patch 7.1.246
Problem:    Configure hangs when the man pager is something strange. (lorien)
Solution:   Set MANPAGER and PAGER to "cat". (Micah Cowan)
Files:      src/auto/configure, src/configure.in

Patch 7.1.247
Problem:    When using Netbeans backspacing in Insert mode skips a character
            now and then. (Ankit Jain)
Solution:   Avoid calling netbeans_removed(), it frees the line pointer.
            (partly by Dominique Pelle).
Files:      src/misc1.c

Patch 7.1.248
Problem:    Can't set the '" mark.  Can't know if setpos() was successful.
Solution:   Allow setting the '" mark with setpos().  Have setpos() return a
            value indicating success/failure.
Files:      runtime/doc/eval.txt, src/eval.c, src/mark.c

Patch 7.1.249
Problem:    After "U" the cursor can be past end of line.  (Adri Verhoef)
Solution:   Adjust the cursor position in u_undoline().
Files:      src/undo.c

Patch 7.1.250
Problem:    ":setglobal fenc=anything" gives an error message in a buffer
            where 'modifiable' is off.  (Ben Schmidt)
Solution:   Don't give an error if 'modifiable' doesn't matter.
Files:      src/option.c

Patch 7.1.251
Problem:    Using freed memory when spell checking enabled.
Solution:   Obtain the current line again after calling spell_move_to().
            (Dominique Pelle)
Files:      src/screen.c

Patch 7.1.252 (after 7.1.243)
Problem:    Test 39 fails when the environment has a utf-8 locale. (Dominique
            Pelle)
Solution:   Force 'encoding' to be latin1.
Files:      src/testdir/test39.in

Patch 7.1.253
Problem:    ":sort" doesn't work in a one line file. (Patrick Texier)
```

```
Solution:   Don't sort if there is only one line. (Dominique Pelle)
Files:      src/ex_cmds.c

Patch 7.1.254
Problem:    Tests 49 and 55 fail when the locale is French.
Solution:   Using C messages for test 49.  Filter the error message in test 55
            such that it works when the number is halfway the message.
Files:      src/testdir/test49.in, src/testdir/test55.in

Patch 7.1.255
Problem:    Vim doesn't support utf-32. (Yongwei Wu)
Solution:   Add aliases for utf-32, it's the same as ucs-4.
Files:      src/mbyte.c

Patch 7.1.256
Problem:    findfile() also returns directories.
Solution:   Cleanup the code for finding files and directories in a list of
            directories.  Remove the ugly global ff_search_ctx.
Files:      src/eval.c, src/misc2.c, src/vim.h, src/tag.c

Patch 7.1.257
Problem:    Configure can't always find the Tcl header files.
Solution:   Also look in /usr/local/include/tcl$tclver and
            /usr/include/tcl$tclver (James Vega)
Files:      src/auto/configure, src/configure.in

Patch 7.1.258
Problem:    Crash when doing "d/\n/e" and 'virtualedit' is "all". (Andy Wokula)
Solution:   Avoid that the column becomes negative.  Also fixes other problems
            with the end of a pattern match is in column zero. (A.Politz)
Files:      src/search.c

Patch 7.1.259
Problem:    Cursor is in the wrong position when 'rightleft' is set,
            'encoding' is "utf-8" and on an illegal byte.  (Dominique Pelle)
Solution:   Only put the cursor in the first column when actually on a
            double-wide character.  (Yukihiro Nakadaira)
Files:      src/screen.c

Patch 7.1.260
Problem:    Cursor positioning problem after ^@ wrapping halfway when
            'encoding' is utf-8.
Solution:   Only count a position for printable characters.  (partly by
            Yukihiro Nakadaira)
Files:      src/charset.c

Patch 7.1.261
Problem:    When a 2 byte BOM is detected Vim uses UCS-2, which doesn't work
            for UTF-16 text. (Tony Mechelynck)
Solution:   Default to UTF-16.
Files:      src/fileio.c, src/testdir/test42.ok

Patch 7.1.262
Problem:    Can't get the process ID of Vim.
```

```
Solution:   Implement getpid().
Files:      src/eval.c, runtime/doc/eval.txt

Patch 7.1.263
Problem:    The filetype can consist of two dot separated names.  This works
            for syntax and ftplugin, but not for indent. (Brett Stahlman)
Solution:   Use split() and loop over each dot separated name.
Files:      runtime/indent.vim

Patch 7.1.264
Problem:    Crash when indenting lines. (Dominique Pelle)
Solution:   Set the cursor column when changing the cursor line.
Files:      src/ops.c, src/misc1.c

Patch 7.1.265
Problem:    When 'isfname' contains a space, cmdline completion can hang.
            (James Vega)
Solution:   Reset the "len" variable.
Files:      src/ex_docmd.c

Patch 7.1.266
Problem:    When the version string returned by the terminal contains
            unexpected characters, it is used as typed input. (James Vega)
Solution:   Assume the escape sequence ends in a letter.
Files:      src/term.c

Patch 7.1.267
Problem:    When changing folds cursor may be positioned in the wrong place.
Solution:   Call changed_window_setting_win() instead of
            changed_window_setting().
Files:      src/fold.c

Patch 7.1.268
Problem:    Always shows "+" at end of screen line with: ":set
            listchars=eol:$,extends:+ nowrap list cursorline" (Gary Johnson)
Solution:   Check for lcs_eol_one instead of lcs_eol.
Files:      src/screen.c

Patch 7.1.269
Problem:    The matchparen plugin has an arbitrary limit for the number of
            lines to look for a match.
Solution:   Rely on the searchpair() timeout.
Files:      runtime/plugin/matchparen.vim

Patch 7.1.270
Problem:    ":?foo?" matches in current line since patch 7.1.025. (A.Politz)
Solution:   Remove the SEARCH_START flag.
Files:      src/ex_docmd.c, src/search.c

Patch 7.1.271
Problem:    In a Vim build without autocommands, checking a file that was
            changed externally causes the current buffer to be changed
            unexpectedly.  (Karsten Hopp)
Solution:   Store "curbuf" instead of "buf".
```

```
Files:      src/fileio.c

Patch 7.1.272
Problem:    The special buffer name [Location List] is not used for a buffer
            displayed in another tab page.
Solution:   Use FOR_ALL_TAB_WINDOWS instead of FOR_ALL_WINDOWS. (Hiroaki
            Nishihara)
Files:      src/buffer.c

Patch 7.1.273
Problem:    When profiling on Linux Vim exits early. (Liu Yubao)
Solution:   When profiling don't exit on SIGPROF.
Files:      src/Makefile, src/os_unix.c

Patch 7.1.274 (after 7.1.272)
Problem:    Compiler warning for optimized build.
Solution:   Init win to NULL.
Files:      src/buffer.c

Patch 7.1.275 (extra)
Problem:    Mac: ATSUI and 'antialias' don't work properly together.
Solution:   Fix this and the input method. (Jjgod Jiang)
Files:      src/vim.h, src/gui_mac.c

Patch 7.1.276
Problem:    "gw" uses 'formatexpr', even though the docs say it doesn't.
Solution:   Don't use 'formatexpr' for "gw".
Files:      src/vim.h, src/edit.c, src/ops.c, src/proto/ops.pro

Patch 7.1.277
Problem:    Default for 'paragraphs' misses some items (Colin Watson)
Solution:   Add TP, HP, Pp, Lp and It to 'paragraphs'. (James Vega)
Files:      runtime/doc/options.txt, src/option.c

Patch 7.1.278 (extra, after 7.1.275)
Problem:    Build failure when USE_CARBONKEYHANDLER is not defined.
Solution:   Remove #ifdef.
Files:      src/gui_mac.c

Patch 7.1.279
Problem:    When using cscope temporary files are left behind.
Solution:   Send the quit command to cscope and give it two seconds to exit
            nicely before killing it. (partly by Dominique Pelle)
Files:      src/if_cscope.c

Patch 7.1.280  (after 7.1.275)
Problem:    Mac: build problems when not using multibyte feature. (Nicholas
            Stallard)
Solution:   Don't define USE_IM_CONTROL when not using multibyte.
Files:      src/vim.h

Patch 7.1.281 (after 7.1.279)
Problem:    sa.sa_mask is not initialized.  Cscope may not exit.
Solution:   Use sigemptyset().  Use SIGKILL instead of SIGTERM. (Dominique
```

            Pelle)
Files: src/if_cscope.c

Patch 7.1.282 (extra)
Problem: Win64: Edit with Vim context menu isn't installed correctly.
            Compiler warnings and a few other things.
Solution: Add [and] to entry of class name. Use UINT_PTR instead of UINT.
            And fixes for other things. (George V. Reilly)
Files: src/GvimExt/Makefile, src/dosinst.c, src/if_ole.cpp, src/if_ole.h,
            src/if_ole.idl, src/INSTALLpc.txt, src/Make_mvc.mak,
            src/os_win32.c,

Patch 7.1.283
Problem: Non-extra part for 7.1.282.
Solution: Various changes.
Files: src/ex_docmd.c, src/globals.h, src/if_cscope.c, src/main.c,
            src/mark.c, src/netbeans.c, src/popupmnu.c, src/vim.h,
            src/window.c

Patch 7.1.284
Problem: Compiler warnings for functions without prototype.
Solution: Add the function prototypes. (Patrick Texier)
Files: src/eval.c, src/quickfix.c

Patch 7.1.285 (extra)
Problem: Mac: dialog hotkeys don't work.
Solution: Add hotkey support. (Dan Sandler)
Files: src/gui_mac.c

Patch 7.1.286 (after 7.1.103)
Problem: "w" at the end of the buffer moves the cursor past the end of the
            line. (Markus Heidelberg)
Solution: Move the cursor back from the NUL when it was moved forward.
Files: src/normal.c

Patch 7.1.287
Problem: Crash when reversing a list after using it. (Andy Wokula)
Solution: Update the pointer to the last used element. (Dominique Pelle)
Files: src/eval.c

Patch 7.1.288 (after 7.1.281)
Problem: Cscope still leaves behind temp files when using gvim.
Solution: When getting the ECHILD error loop for a while until cscope exits.
            (Dominique Pelle)
Files: if_cscope.c

Patch 7.1.289
Problem: When EXITFREE is defined and 'acd' is set freed memory is used.
            (Dominique Pelle)
Solution: Reset p_acd before freeing all buffers.
Files: src/misc2.c

Patch 7.1.290
Problem: Reading bytes that were not written when spell checking and a line

            has a very large indent.
Solution: Don't copy the start of the next line when it only contains
            spaces. (Dominique Pelle)
Files: src/spell.c

Patch 7.1.291 (after 7.1.288)
Problem: Compiler warning.
Solution: Change 50 to 50L.
Files: src/if_cscope.c

Patch 7.1.292
Problem: When using a pattern with "\@<=" the submatches can be wrong.
            (Brett Stahlman)
Solution: Save the submatches when attempting a look-behind match.
Files: src/regexp.c

Patch 7.1.293
Problem: Spell checking considers super- and subscript characters as word
            characters.
Solution: Recognize the Unicode super and subscript characters.
Files: src/spell.c

Patch 7.1.294
Problem: Leaking memory when executing a shell command.
Solution: Free memory when not able to save for undo. (Dominique Pelle)
Files: src/ex_cmds.c

Patch 7.1.295
Problem: Vimtutor only works with vim, not gvim.
Solution: Add the -g flag to vimtutor. (Dominique Pelle) Add gvimtutor.
Files: src/Makefile, src/gvimtutor, src/vimtutor, runtime/doc/vimtutor.1

Patch 7.1.296
Problem: SELinux is not supported.
Solution: Detect the selinux library and use mch_copy_sec(). (James Vega)
Files: src/auto/configure, src/config.h.in, src/configure.in,
            src/fileio.c, src/memfile.c, src/os_unix.c, src/proto/os_unix.pro

Patch 7.1.297
Problem: When using the search/replace dialog the parenmatch highlighting
            can be wrong. (Tim Duncan)
Solution: In the GUI redraw function invoke the CursorMoved autocmd.
Files: src/gui.c

Patch 7.1.298 (after 7.1.295)
Problem: src/gvimtutor is not distributed.
Solution: Add it to the list of distributed files.
Files: Filelist

Patch 7.1.299
Problem: Filetype detection doesn't work properly for file names ending in
            a part that is ignored and contain a space or other special
            characters.
Solution: Escape the special characters using the new fnameescape function.

```
Files:      runtime/doc/eval.txt, runtime/filetype.vim, src/eval.c,
            src/ex_getln.c, src/proto/ex_getln.pro, src/vim.h

Patch 7.1.300
Problem:    Value of asmsyntax argument isn't checked for valid characters.
Solution:   Only accepts letters and digits.
Files:      runtime/filetype.vim

Patch 7.1.301
Problem:    When the "File/Save" menu is used in Insert mode, a tab page label
            is not updated to remove the "+".
Solution:   Call draw_tabline() from showruler(). (Bjorn Winckler)
Files:      src/screen.c

Patch 7.1.302 (after 7.1.299)
Problem:    Compilation error on MS-Windows.
Solution:   Don't use xp_shell when it's not defined.
Files:      src/ex_getln.c

Patch 7.1.303 (after 7.1.302)
Problem:    Compilation error on MS-Windows, again.
Solution:   Declare p.
Files:      src/ex_getln.c

Patch 7.1.304
Problem:    Shortpath_for_invalid_fname() does not work correctly and is
            unnecessary complex.
Solution:   Clean up shortpath_for_invalid_fname(). (mostly by Yegappan
            Lakshmanan)
Files:      src/eval.c

Patch 7.1.305
Problem:    Editing a compressed file with special characters in the name
            doesn't work properly.
Solution:   Escape special characters.
Files:      runtime/autoload/gzip.vim

Patch 7.1.306
Problem:    Some Unicode characters are handled like word characters while
            they are symbols.
Solution:   Adjust the table for Unicode classification.
Files:      src/mbyte.c

Patch 7.1.307
Problem:    Many warnings when compiling with Python 2.5.
Solution:   Use ssize_t instead of int for some types. (James Vega)
Files:      src/if_python.c

Patch 7.1.308
Problem:    When in readonly mode ":options" produces an error.
Solution:   Reset 'readonly'. (Gary Johnson)
Files:      runtime/optwin.vim

Patch 7.1.309
```

```
Problem:    Installing and testing with a shadow directory doesn't work.
            (James Vega)
Solution:   Add "po" to the list of directories to link.  Also link the Vim
            scripts in testdir.  And a few more small fixes.
Files:      src/Makefile

Patch 7.1.310
Problem:    Incomplete utf-8 byte sequence at end of the file is not detected.
            Accessing memory that wasn't written.
Solution:   Check the last bytes in the buffer for being a valid utf-8
            character. (mostly by Ben Schmidt)
            Also fix that the reported line number of the error was wrong.
Files:      src/fileio.c

Patch 7.1.311
Problem:    Compiler warning for missing sentinel in X code.
Solution:   Change 0 to NULL. (Markus Heidelberg)
Files:      src/mbyte.c

Patch 7.1.312
Problem:    The .po files have mistakes in error numbers.
Solution:   Search for these mistakes in the check script. (Dominique Pelle)
Files:      src/po/check.vim

Patch 7.1.313
Problem:    When the netbeans interface setModified call is used the status
            lines and window title are not updated.
Solution:   Redraw the status lines and title. (Philippe Fremy)
Files:      src/netbeans.c

Patch 7.1.314
Problem:    The value of 'pastetoggle' is written to the session file without
            any escaping. (Randall Hansen)
Solution:   Use put_escstr(). (Ben Schmidt)
Files:      src/option.c

Patch 7.1.315
Problem:    Crash with specific search pattern using look-behind match.
            (Andreas Politz)
Solution:   Also save the value of "need_clear_subexpr".
Files:      src/regexp.c

Patch 7.1.316
Problem:    When 'cscopetag' is set ":tag" gives an error message instead of
            going to the next tag in the tag stack.
Solution:   Don't call do_cstag() when there is no argument. (Mark Goldman)
Files:      src/ex_docmd.c

Patch 7.1.317
Problem:    Compiler warnings in Motif calls.
Solution:   Change zero to NULL. (Dominique Pelle)
Files:      src/gui_motif.c

Patch 7.1.318
```

```
Problem:    Memory leak when closing xsmp connection.  Crash on exit when
            using Lesstif.
Solution:   Don't close the X display to work around a Lesstif bug.  Free
            clientid.  Also fix a leak for Motif and Athena. (Dominique Pelle)
Files:      src/gui_x11.c, src/os_unix.c

Patch 7.1.319
Problem:    When a register has an illegal utf-8 sequence, pasting it on the
            command line causes an illegal memory access.
Solution:   Use mb_cptr2char_adv(). (Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.1.320 (extra)
Problem:    Win64: Warnings while compiling Python interface.
Solution:   Use PyInt in more places.  Also update version message for the
            console. (George Reilly)
Files:      src/if_python.c, src/version.c

Patch 7.1.321 (extra)
Problem:    Win32 / Win64: Install file is outdated.
Solution:   Update the text for recent compiler. (George Reilly)
Files:      src/INSTALLpc.txt

Patch 7.1.322
Problem:    Can't get start of Visual area in an <expr> mapping.
Solution:   Add the 'v' argument to getpos().
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.1.323
Problem:    Test 19 fails with some termcaps. (Dominique Pelle)
Solution:   Set the t_kb and t_kD termcap values.
Files:      src/testdir/test19.in, src/testdir/test38.in

Patch 7.1.324
Problem:    File name path length on Unix is limited to 1024.
Solution:   Use PATH_MAX when it's more than 1000.
Files:      src/os_unix.h

Patch 7.1.325
Problem:    When editing a command line that's longer than available space in
            the window, the characters at the end are in reverse order.
Solution:   Increment the insert position even when the command line doesn't
            fit.  (Ingo Karkat)
Files:      src/ex_getln.c

Patch 7.1.326
Problem:    ":s!from!to!" works, but ":smagic!from!to!" doesn't.  It sees the
            "!" as a flag to the command.  Same for ":snomagic". (Johan Spetz)
Solution:   When checking for a forced command also ignore ":smagic" and
            ":snomagic". (Ian Kelling)
Files:      src/ex_docmd.c

Patch 7.1.327
Problem:    The GUI tutor is installed when there is no GUI version.
```

Solution: Only install gvimtutor when building a GUI version.
Files: src/Makefile

Patch 7.1.328
Problem: Crash when using Cygwin and non-posix path name in tags file.
Solution: Use separate buffer for posix path. (Ben Schmidt)
Files: src/os_unix.c

Patch 7.1.329
Problem: When the popup menu is removed a column of cells, the right halve
            of double-wide characters, may not be redrawn.
Solution: Check if the right halve of a character needs to be redrawn.
            (Yukihiro Nakadaira)
Files: src/screen.c

Patch 7.1.330
Problem: Reading uninitialized memory when using Del in replace mode.
Solution: Use utfc_ptr2len_len() instead of mb_ptr2len(). (Dominique Pelle)
Files: src/misc1.c

Warning for missing sentinel in gui_xmldlg.c. (Dominique Pelle)

A search offset from the end of a match didn't work properly for multi-byte
characters. (Yukihiro Nakadaira)

When displaying the value of 'key' don't show "*****" when the value is empty.
(Ben Schmidt)

Internal error when compiled with EXITFREE and using the nerd_tree plugin.
Set last_msg_hist to NULL when history becomes empty. Call
free_all_functions() after garbage collection. (Dominique Pelle)

GTK with XIM: <S-Space> does not work. (Yukihiro Nakadaira)

Some shells do not support "echo -n", which breaks glob(). Use "echo" instead
of "echo -n $1; echo". (Gary Johnson)

"echo 22,44" printed "22" on top of the command, the error messages caused
the rest not to be cleared. Added the need_clr_eos flag.

Netbeans events are handled while updating the screen, causing a crash.
Change the moment when events are handled. Rename nb_parse_messages() to
netbeans_parse_messages(). (Xavier de Gaye)

Test 11 was broken after patch 7.1.186 on Win32 console. (Daniel Shahaf)
Use shellescape() on the file name.

IM was turned off in im_preedit_end_cb() for no good reason. (Takuhiro
Nishioka)

A corrupted spell file could cause Vim to use lots of memory. Better
detection for running into the end of the file. (idea from James Vega)

Mac: Included a patch to make it build with GTK. Moved language init to
mac_lang_init() function. (Ben Schmidt)

Problem with 'wildmenu' after ":lcd", up/down arrows don't work. (Erik Falor)

Fix configure.in to avoid "implicitly declared" warnings when running
configure.

Fixed a memory leak when redefining a keymap. (Dominique Pelle)

Setting 'pastetoggle' to "jj" didn't work.

'ic' and 'smartcase' don't work properly when using \%V in a search pattern.
(Kana Natsuno)

Patch 7.2a.001
Problem: On some systems X11/Xlib.h exists (from X11-dev package) but
            X11/Intrinsic.h does not (in Xt-dev package). This breaks the
            build. Also, on Solaris 9 sys/ptem.h isn't found.
Solution: Have configure only accept X11 when X11/Intrinsic.h exists.
            Check for sys/ptem.h while including sys/stream.h. (Vladimir
            Marek)
Files: src/auto/configure, src/configure.in

Patch 7.2a.002
Problem: getbufvar(N, "") gets the dictionary of the current buffer instead
            of buffer N.
Solution: Set curbuf before calling find_var_in_ht(). (Kana Natsuno)
Files: src/eval.c

Patch 7.2a.003
Problem: Leaking memory when using ":file name" and using access control
            lists.
Solution: Invoke mch_free_acl() in vim_rename(). (Dominique Pelle)
Files: src/fileio.c

Patch 7.2a.004
Problem: Some systems can't get spell files by ftp.
Solution: Use http when it looks like it's possible. (James Vega)
Files: runtime/autoload/spellfile.vim

Patch 7.2a.005
Problem: A few error messages use confusing names. Misspelling.
Solution: Change "dissallows" to "disallows". (Dominique Pelle) Change
            "number" to "Number".
Files: src/eval.c, src/fileio.c

Patch 7.2a.006
Problem: Reading past NUL in a string.
Solution: Check for invalid utf-8 byte sequence. (Dominique Pelle)
Files: src/charset.c

Patch 7.2a.007
Problem: ":let v = 1.2.3" was OK in Vim 7.1, now it gives an error.

```
Solution:   Don't look for a floating point number after the "." operator.
Files:      src/eval.c

Patch 7.2a.008
Problem:    printf("%g", 1) doesn't work.
Solution:   Convert Number to Float when needed.
Files:      src/message.c

Patch 7.2a.009
Problem:    cygwin_conv_to_posix_path() does not specify buffer size.
Solution:   Use new Cygwin function: cygwin_conv_path(). (Corinna Vinschen)
Files:      src/main.c, src/os_unix.c

Patch 7.2a.010
Problem:    When a file name has an illegal byte sequence Vim may read
            uninitialised memory.
Solution:   Don't use UTF_COMPOSINGLIKE() on an illegal byte.  In
            msg_outtrans_len_attr() use char2cells() instead of ptr2cells().
            In utf_ptr2char() don't check second byte when first byte is
            illegal.  (Dominique Pelle)
Files:      src/mbyte.c, src/message.c

Patch 7.2a.011
Problem:    The Edit/Startup Settings menu doesn't work.
Solution:   Expand environment variables. (Ben Schmidt)
Files:      runtime/menu.vim

Patch 7.2a.012
Problem:    Compiler warnings for casting int to pointer.
Solution:   Add cast to long in between. (Martin Toft)
Files:      src/gui_gtk_x11.c

Patch 7.2a.013
Problem:    shellescape() does not escape "%" and "#" characters.
Solution:   Add find_cmdline_var() and use it when the second argument to
            shellescape() is non-zero.
Files:      runtime/doc/eval.txt, src/eval.c, src/ex_docmd.c,
            src/proto/ex_docmd.pro, src/proto/misc2.pro, src/misc2.c

Patch 7.2a.014
Problem:    Problem with % in message.
Solution:   Put % in single quotes.
Files:      src/eval.c

Patch 7.2a.015 (after 7.2a.010)
Problem:    Misaligned messages.
Solution:   Compute length of unprintable chars correctly.
Files:      src/message.c

Patch 7.2a.016
Problem:    Using CTRL-W v in the quickfix window results in two quickfix
            windows, which is not allowed.  ":tab split" should be allowed to
            open a new quickfix window in another tab.
Solution:   For CTRL-W v instead of splitting the window open a new one.
```

            When using ":tab" do allow splitting the quickfix window (was
            already included in patch 7.2a.013).
Files: src/window.c

Patch 7.2a.017
Problem: ":doautoall" executes autocommands for all buffers instead of just
            for loaded buffers.
Solution: Change "curbuf" to "buf".
Files: src/fileio.c

Patch 7.2a.018
Problem: Compiler warnings when compiling with Gnome. (Tony Mechelynck)
Solution: Add type casts.
Files: src/gui_gtk_x11.c

Patch 7.2a.019
Problem: ":let &g:tw = 44" sets the local option value. (Cyril Slobin)
Solution: Use get_varp_scope() instead of get_varp(). (Ian Kelling)
Files: src/option.c

There is no way to avoid adding /usr/local/{include|lib} to the build
commands. Add the --with-local-dir argument to configure. (Michael
Haubenwallner)

When using CTRL-D after ":help", the number of matches could be thousands.
Restrict to TAG_MANY to avoid this taking too long. (Ian Kelling)

The popup menu could be placed at a weird location. Caused by w_wcol computed
by curs_columns(). (Dominique Pelle)

Overlapping STRCPY() arguments when using %r item in 'errorformat'. Use
STRMOVE() instead. (Ralf Wildenhues)

Mac: On Leopard gvim, when using the mouse wheel nothing would happen until
another event occurs, such as moving the mouse. Then the recorded scrolling
would take place all at once. (Eckehard Berns)

Solution for cursor color not reflecting IM status for GTK 2. Add
preedit_is_active flag. (SungHyun Nam)

filereadable() can hang on a FIFO on Linux. Use open() instead of fopen(),
with O_NONBLOCK. (suggested by Lars Kotthoff)

Included patch to support Perl 5.10. (Yasuhiro Matsumoto)

When files are dropped on gvim while the screen is being updated, ignore the
drop command to avoid freeing memory that is being used.

In a terminal, when drawing the popup menu over double-wide characters, half
characters may not be cleared properly. (Yukihiro Nakadaira)

The #ifdef for including "vimio.h" was inconsistent. In a few files it
depended on MSWIN, which isn't defined until later.

```
Patch 7.2b.001
Problem:    Compilation problem: mb_fix_col() missing with multi-byte feature
            but without GUI or clipboard.
Solution:   Remove #ifdef.
Files:      src/mbyte.c

Patch 7.2b.002
Problem:    Compiler warnings for signed/unsigned mismatch.
Solution:   Add type casts.
Files:      src/screen.c

Patch 7.2b.003
Problem:    Still a compilation problem, check_col() and check_row() missing.
Solution:   Add FEAT_MBYTE to the #if.
Files:      src/ui.c

Patch 7.2b.004
Problem:    Trying to free memory for a static string when using ":helpgrep".
            (George Reilly)
Solution:   Set 'cpo' to empty_option instead of an empty string.  Also for
            searchpair() and substitute().
Files:      src/quickfix.c, src/eval.c

Patch 7.2b.005
Problem:    The special character "!" isn't handled properly in shellescape().
            (Jan Minar)
Solution:   Escape "!" when using a "csh" like shell and with
            shellescape(s, 1).  Twice for both.  Also escape <NL>.
Files:      src/misc2.c

Patch 7.2b.006
Problem:    Reading past end of string when reading info from tags line.
Solution:   Break the loop when encountering a NUL. (Dominique Pelle)
Files:      src/tag.c

Patch 7.2b.007
Problem:    Part of a message cannot be translated.
Solution:   Put _() around the message.
Files:      src/search.c

Patch 7.2b.008
Problem:    A few filetypes are not detected or not detected properly.
Solution:   Add filetype detection patterns. (Nikolai Weibull)
Files:      runtime/filetype.vim

Patch 7.2b.009
Problem:    Reading past end of screen line. (Epicurus)
Solution:   Avoid going past the value of Columns.
Files:      src/screen.c

Patch 7.2b.010
Problem:    ":mksession" doesn't work for ":map , foo", ":sunmap ,". (Ethan
            Mallove)
Solution:   Check for "nxo", "nso" and other strange mapping combinations.
```

```
Files:      src/getchar.c

Patch 7.2b.011
Problem:    Configure for TCL ends up with include file in compiler command.
            (Richard Hogg)
Solution:   Delete items from $TCL_DEFS that do not start with a dash.
Files:      src/auto/configure, src/configure.in

Patch 7.2b.012
Problem:    Build failure with +multi_byte but without +diff.
Solution:   Add #ifdef. (Patrick Texier)
Files:      src/main.c

Patch 7.2b.013
Problem:    Build fails with tiny features and Perl. (Dominique Pelle)
Solution:   Define missing functions.  Also when compiling Python.
Files:      src/if_perl.xs, src/if_python.c

Patch 7.2b.014
Problem:    Configure uses an unsafe temp file to store commands.
Solution:   Create the temp file in local directory.
Files:      src/auto/configure, src/configure.in

Patch 7.2b.015
Problem:    Build fails on Mac when using Aap.
Solution:   Fix typo in configure script.
Files:      src/auto/configure, src/configure.in

Patch 7.2b.016
Problem:    Build fails with normal features but without +autocmd.
Solution:   Fix #ifdefs. (Ian Kelling)
Files:      src/eval.c, src/ex_cmds.c, src/quickfix.c, src/option.c,
            src/ex_docmd.c

Patch 7.2b.017
Problem:    "vim -O foo foo" results in only one window.  (Zdenek Sekera)
Solution:   Handle result of ATTENTION prompt properly. (Ian Kelling)
Files:      src/main.c

Patch 7.2b.018
Problem:    When doing command line completion on a file name for a csh-like
            shell argument a '!' character isn't escaped properly.
Solution:   Add another backslash.
Files:      src/ex_getln.c, src/misc2.c, src/proto/misc2.pro, src/screen.c

Patch 7.2b.019 (extra)
Problem:    Win32: Various compiler warnings.
Solution:   Use __w64 attribute.  Comment-out unused parameters.  Adjust a few
            #ifdefs. (George Reilly)
Files:      src/gui_w48.c, src/GvimExt/gvimext.cpp, src/Make_mvc.mak,
            src/os_mswin.c, src/os_win32.c, src/vim.h

Patch 7.2b.020
Problem:    ":sort n" doesn't handle negative numbers. (James Vega)
```

```
Solution:   Include '-' in the number.
Files:      src/charset.c, src/ex_cmds.c

Patch 7.2b.021
Problem:    Reloading doesn't read the BOM correctly. (Steve Gardner)
Solution:   Accept utf-8 BOM when specified file encoding is utf-8.
Files:      src/fileio.c

Patch 7.2b.022
Problem:    When using ":normal" while updating the status line the count of
            an operator is lost. (Dominique Pelle)
Solution:   Save and restore "opcount".
Files:      src/ex_docmd.c, src/globals.h, src/normal.c

Patch 7.2b.023
Problem:    Crash when using the result of synstack(0,0). (Matt Wozniski)
Solution:   Check for v_list to be NULL in a few more places.
Files:      src/eval.c

Patch 7.2b.024
Problem:    Using ":gui" while the netrw plugin is active causes a delay in
            updating the display.
Solution:   Don't check for terminal codes when starting the GUI.
Files:      src/term.c

Patch 7.2b.025
Problem:    When the CursorHold event triggers a pending count is lost.
            (Juergen Kraemer)
Solution:   Save the counts and restore them.
Files:      src/normal.c, src/structs.h

Patch 7.2b.026
Problem:    The GTK 2 file chooser causes the ~/.recently-used.xbel file to be
            written over and over again.  This may cause a significant
            slowdown. (Guido Berhoerster)
Solution:   Don't use the GTK 2 file chooser.
Files:      src/gui_gtk.c

Patch 7.2b.027
Problem:    Memory leak for Python, Perl, etc. script command with end marker.
Solution:   Free the memory of the end marker. (Andy Kittner)
Files:      src/ex_getln.c

Patch 7.2b.028
Problem:    Reading uninitialized memory when doing ":gui -f". (Dominique
            Pelle)
Solution:   Don't position the cursor when the screen size is invalid.
Files:      src/gui.c

Patch 7.2b.029
Problem:    ":help a" doesn't jump to "a" tag in docs. (Tony Mechelynck)
Solution:   Get all tags and throw away more than TAG_MANY after sorting.
            When there is no argument find matches for "help" to avoid a long
            delay.
```

```
Files:      src/ex_cmds.c, src/ex_getln.c

Patch 7.2b.030
Problem:    When changing the value of t_Co from 8 to 16 the Visual
            highlighting keeps both reverse and a background color.
Solution:   Remove the attribute when setting the default highlight color.
            (Markus Heidelberg)
Files:      src/syntax.c

Error when cancelling completion menu and auto-formatting. (fixed by Ian
Kelling)

Patch 7.2c.001
Problem:    ":let x=['']  | let x += x" causes hang. (Matt Wozniski)
Solution:   Only insert elements up to the original length of the List.
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.2c.002
Problem:    fnameescape() doesn't handle a leading '+' or '>'. (Jan Minar)
Solution:   Escape a leading '+' and '>'.  And a single '-'.
Files:      runtime/doc/eval.txt, src/ex_getln.c

Patch 7.2c.003
Problem:    Searching for "foo\%[bar]\+" gives a "Corrupted regexp program"
            error. (Joachim Hofmann)
Solution:   Mark the \%[] item as not being simple.
Files:      src/regexp.c

On Vista access to system directories is virtualized. (Michael Mutschler)
Adjusted the manifest file to avoid this. (George Reilly)

Memory leak when using CTRL-C to cancel listing the jump list. (Dominique
Pelle)

Mac: Could not build with Perl interface.

==============================================================================
VERSION 7.3                                          version-7.3   version7.3

This section is about improvements made between version 7.2 and 7.3.

This release has hundreds of bug fixes and there are a few new features.  The
most notable new features are:


Persistent undo                                      new-persistent-undo
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Store undo information in a file.  Can undo to before when the file was read,
also for unloaded buffers. See  undo-persistence  (partly by Jordan Lewis)

Added the ":earlier 1f" and ":later 1f" commands.
Added file save counter to undo information.
Added the  undotree()  and  undofile()  functions.
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Also added the 'undoreload' option. This makes it possible to save the
current text when reloading the buffer, so that the reload can be undone.

More encryption   new-more-encryption

Support for Blowfish encryption. Added the 'cryptmethod' option.
Mostly by Mohsin Ahmed.

Also encrypt the text in the swap file and the undo file.

Conceal text   new-conceal

Added the +conceal feature. (Vince Negri)
This allows hiding stretches of text, based on syntax highlighting.
It also allows replacing a stretch of text by a character :syn-cchar .
The 'conceallevel' option specifies what happens with text matching a syntax
item that has the conceal attribute.
The 'concealcursor' option specifies what happens in the cursor line.

The help files conceal characters used to mark tags and examples.

Added the synconcealed() function and use it for :TOhtml. (Benjamin Fritz)

Added the 'cursorbind' option, keeps the cursor in two windows with the same
text in sync.

Lua interface   new-lua

Added the Lua interface. (Luis Carvalho)

Python3 interface   new-python3

Added the Python3 interface. It exists next to Python 2.x, both can be used
at the same time. See python3 (Roland Puntaier)

Changed   changed-7.3

The MS-Windows installer no longer requires the user to type anything in the
console windows. The installer now also works on 64 bit systems, including
the "Edit with Vim" context menu.
The gvim executable is 32 bits, the installed gvimext.dll is either a 32 or 64
bit version. (mostly by George Reilly)
Made the DOS installer work with more compilers.

The MS-Windows big gvim is now built with Python 2.7 and 3.1.2, Perl 5.12 and Ruby 1.9.1. You need the matching .dll files to use them.

The extra and language files are no longer distributed separately.
The source files for all systems are included in one distribution.

After using ":recover" or recovering a file in another way, ":x" and "ZZ" didn't save what you see. This could result in work being lost. Now the text after recovery is compared to the original file contents. When they differ the buffer is marked as modified.

When Vim is exiting because of a deadly signal, when v:dying is 2 or more, VimLeavePre, VimLeave, BufWinLeave and BufUnload autocommands are not executed.

Removed support for GTK 1. It was no longer maintained and required a lot of #ifdefs in the source code. GTK 2 should be available for every system.
(James Vega)

It is no longer allowed to set the 'encoding' option from a modeline. It would corrupt the text. (Patrick Texier)

Renamed runtime/spell/fixdup to runtime/spell/fixdup.vim.

Removed obsolete Mac code.

Updated spell files for Ubuntu locale names.

Switched from autoconf 2.63 to 2.65.

Removed Mupad indent and ftplugin files, they are not useful.

The maximum number of messages remembered in the history is now 200 (was 100).

Added   added-7.3

Added the 'relativenumber' option. (Markus Heidelberg)

Added the 'colorcolumn' option: highlight one or more columns in a window.
E.g. to highlight the column after 'textwidth'. (partly by Gregor Uhlenheuer)

Added support for NetBeans in a terminal. Added :nbstart and :nbclose .
(Xavier de Gaye)

More floating point functions: acos() , asin() , atan2() , cosh() , exp() , fmod() , log() , sinh() , tan() , tanh() . (Bill McCarthy)

Added the gettabvar() and settabvar() functions. (Yegappan Lakshmanan)

Added the strchars() , strwidth() and strdisplaywidth() functions.

Support GDK_SUPER_MASK for GTK on Mac. (Stephan Schulz)

Made CTRL and ALT modifier work for mouse wheel. (Benjamin Haskell)

Added support for horizontal scroll wheel. (Bjorn Winckler)

When the buffer is in diff mode, have :TOhtml create HTML to show the diff
side-by-side. (Christian Brabandt)

Various improvements to ":TOhtml" and the 2html.vim script. (Benjamin Fritz)

Add the 'L' item to 'cinoptions'. (Manuel Konig)

Improve Javascript indenting. Add "J" flag to 'cinoptions'. (Hari Kumar G)

Mac: Support disabling antialias. (LC Mi)

Mac: Add clipboard support in the Mac console. (Bjorn Winckler)

Make it possible to drag a tab page label to another position. (Paul B. Mahol)

Better implementation of creating the Color Scheme menu. (Juergen Kraemer)

In Visual mode with 'showcmd' display the number of bytes and characters.

Allow synIDattr() getting GUI attributes when built without GUI. (Matt
Wozniski)

Support completion for ":find". Added test 73. (Nazri Ramliy)

Command line completion for :ownsyntax and :setfiletype. (Dominique Pelle)

Command line completion for :lmap and :lunmap.

Support syntax and filetype completion for user commands. (Christian Brabandt)

Avoid use of the GTK main_loop() so that the GtkFileChooser can be used.
(James Vega)

When 'formatexpr' evaluates to non-zero fall back to internal formatting, also
for "gq". (James Vega)

Support :browse for commands that use an error file argument. (Lech Lorens)

Support wide file names in gvimext. (Szabolcs Horvat)

Improve test for joining lines. (Milan Vancura)
Make joining a range of lines much faster. (Milan Vancura)

Add patch to improve support of z/OS (OS/390). (Ralf Schandl)

Added the helphelp.txt file. Moved text from various.txt to it.

Added "q" item for 'statusline'. Added w:quickfix_title . (Lech Lorens)

Various improvements for VMS. (Zoltan Arpadffy)

New syntax files:
Haskell Cabal build file (Vincent Berthoux)
ChaiScript (Jason Turner)
Cucumber (Tim Pope)
Datascript (Dominique Pelle)
Fantom (Kamil Toman)
Liquid (Tim Pope)
Markdown (Tim Pope)
wavefront's obj file (Vincent Berthoux)
Perl 6 (Andy Lester)
SDC - Synopsys Design Constraints (Maurizio Tranchero)
SVG - Scalable Vector Graphics (Vincent Berthoux)
task data (John Florian)
task 42 edit (John Florian)

New filetype plugins:
Cucumber (Tim Pope)
Liquid (Tim Pope)
Logcheck (Debian)
Markdown (Tim Pope)
Perl 6 (Andy Lester)
Quickfix window (Lech Lorens)
Tcl (Robert L Hicks)

New indent plugins:
CUDA (Bram Moolenaar)
ChaiScript (Jason Turner)
Cucumber (Tim Pope)
LifeLines (Patrick Texier)
Liquid (Tim Pope)
Mail (Bram Moolenaar)
Perl 6 (Andy Lester)

Other new runtime files:
Breton spell file (Dominique Pelle)
Dvorak keymap (Ashish Shukla)
Korean translations. (SungHyun Nam)
Python 3 completion (Aaron Griffin)
Serbian menu translations (Aleksandar Jelenak)
Tetum spell files
Tutor Bairish (Sepp Hell)
Tutor in Esperanto. (Dominique Pellé)
Tutor in Portuguese.
Norwegian Tutor now also available as tutor.nb

Removed the Mupad runtime files, they were not maintained.

Fixed fixed-7.3

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Patch 7.2.001
Problem:    Mac: pseudo-ttys don't work properly on Leopard, resulting in the
            shell not to have a prompt, CTRL-C not working, etc.
Solution:   Don't use SVR4 compatible ptys, even though they are detected.
            (Ben Schmidt)
Files:      src/pty.c

Patch 7.2.002
Problem:    Leaking memory when displaying menus.
Solution:   Free allocated memory. (Dominique Pelle)
Files:      src/menu.c

Patch 7.2.003
Problem:    Typo in translated message.  Message not translated.
Solution:   Correct spelling. Add _(). (Dominique Pelle)
Files:      src/spell.c, src/version.c

Patch 7.2.004
Problem:    Cscope help message is not translated.
Solution:   Put it in _(). (Dominique Pelle)
Files:      src/if_cscope.c, src/if_cscope.h

Patch 7.2.005
Problem:    A few problems when profiling.  Using flag pointer instead of flag
            value.  Allocating zero bytes.  Not freeing used memory.
Solution:   Remove wrong '&' characters.  Skip dumping when there is nothing
            to dump.  Free used memory. (Dominique Pelle)
Files:      src/eval.c

Patch 7.2.006
Problem:    HTML files are not recognized by contents.
Solution:   Add a rule to the scripts file. (Nico Weber)
Files:      runtime/scripts.vim

Patch 7.2.007 (extra)
Problem:    Minor issues for VMS.
Solution:   Minor fixes for VMS.  Add float support. (Zoltan Arpadffy)
Files:      runtime/doc/os_vms.txt, src/os_vms_conf.h, src/Make_vms.mms,
            src/testdir/Make_vms.mms, src/testdir/test30.in,
            src/testdir/test54.in

Patch 7.2.008
Problem:    With a BufHidden autocommand that invokes ":bunload" the window
            count for a buffer can be wrong. (Bob Hiestand)
Solution:   Don't call enter_buffer() when already in that buffer.
Files:      src/buffer.c

Patch 7.2.009
Problem:    Can't compile with Perl 5.10 on MS-Windows. (Cesar Romani)
Solution:   Add the Perl_sv_free2 function for dynamic loading. (Dan Sharp)
Files:      src/if_perl.xs

Patch 7.2.010
Problem:    When using "K" in Visual mode not all characters are properly
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            escaped. (Ben Schmidt)
Solution: Use a function with the functionality of shellescape(). (Jan
            Minar)
Files: src/mbyte.c, src/misc2.c, src/normal.c

Patch 7.2.011
Problem: Get an error when inserting a float value from the expression
            register.
Solution: Convert the Float to a String automatically in the same place
            where a List would be converted to a String.
Files: src/eval.c

Patch 7.2.012
Problem: Compiler warnings when building with startup timing.
Solution: Add type casts.
Files: src/ex_cmds2.c

Patch 7.2.013
Problem: While waiting for the X selection Vim consumes a lot of CPU time
            and hangs until a response is received.
Solution: Sleep a bit when the selection event hasn't been received yet.
            Time out after a couple of seconds to avoid a hang when the
            selection owner isn't responding.
Files: src/ui.c

Patch 7.2.014
Problem: synstack() doesn't work in an empty line.
Solution: Accept column zero as a valid position.
Files: src/eval.c

Patch 7.2.015
Problem: "make all test install" doesn't stop when the test fails. (Daniel
            Shahaf)
Solution: When test.log contains failures exit with non-zero status.
Files: src/testdir/Makefile

Patch 7.2.016
Problem: The pattern being completed may be in freed memory when the
            command line is being reallocated. (Dominique Pelle)
Solution: Keep a pointer to the expand_T in the command line structure.
            Don't use <S-Tab> as CTRL-P when there are no results. Clear the
            completion when using a command line from the history.
Files: src/ex_getln.c

Patch 7.2.017
Problem: strlen() used on text that may not end in a NUL. (Dominique Pelle)
            Pasting a very big selection doesn't work.
Solution: Use the length passed to the XtSelectionCallbackProc() function.
            After getting the SelectionNotify event continue dispatching
            events until the callback is actually called. Also dispatch the
            PropertyNotify event.
Files: src/ui.c

Patch 7.2.018

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Problem:    Memory leak when substitute is aborted.
Solution:   Free the buffer allocated for the new text. (Dominique Pelle)
Files:      src/ex_cmds.c

Patch 7.2.019
Problem:    Completion of ":noautocmd" doesn't work and exists(":noautocmd")
            returns zero. (Ben Fritz)
Solution:   Add "noautocmd" to the list of modifiers and commands.
Files:      src/ex_cmds.h, src/ex_docmd.c

Patch 7.2.020
Problem:    Starting the GUI when the executable starts with 'k', but the KDE
            version no longer exists.
Solution:   Don't have "kvim" start the GUI.
Files:      src/main.c

Patch 7.2.021
Problem:    When executing autocommands getting the full file name may be
            slow. (David Kotchan)
Solution:   Postpone calling FullName_save() until autocmd_fname is used.
Files:      src/ex_docmd.c, src/fileio.c, src/globals.h

Patch 7.2.022 (extra)
Problem:    Testing is not possible when compiling with MingW.
Solution:   Add a MingW specific test Makefile. (Bill McCarthy)
Files:      Filelist, src/testdir/Make_ming.mak

Patch 7.2.023
Problem:    'cursorcolumn' is in the wrong place in a closed fold when the
            display is shifted left. (Gary Johnson)
Solution:   Subtract w_skipcol or w_leftcol when needed.
Files:      src/screen.c

Patch 7.2.024
Problem:    It's possible to set 'history' to a negative value and that causes
            an out-of-memory error.
Solution:   Check that 'history' has a positive value. (Doug Kearns)
Files:      src/option.c

Patch 7.2.025
Problem:    When a CursorHold event invokes system() it is retriggered over
            and over again.
Solution:   Don't reset did_cursorhold when getting K_IGNORE.
Files:      src/normal.c

Patch 7.2.026 (after 7.2.010)
Problem:    "K" doesn't use the length of the identifier but uses the rest of
            the line.
Solution:   Copy the desired number of characters first.
Files:      src/normal.c

Patch 7.2.027
Problem:    Can use cscope commands in the sandbox.
Solution:   Disallow them, they might not be safe.
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Files:      src/ex_cmds.h

Patch 7.2.028
Problem:    Confusing error message for missing ().
Solution:   Change "braces" to "parentheses". (Gary Johnson)
Files:      src/eval.c

Patch 7.2.029
Problem:    No completion for ":doautoall".
Solution:   Complete ":doautoall" like ":doautocmd".  (Doug Kearns)
Files:      src/ex_docmd.c

Patch 7.2.030 (after 7.2.027)
Problem:    Can't compile.
Solution:   Remove prematurely added ex_oldfiles.
Files:      src/ex_cmds.h

Patch 7.2.031
Problem:    Information in the viminfo file about previously edited files is
            not available to the user.  There is no way to get a complete list
            of files edited in previous Vim sessions.
Solution:   Add v:oldfiles and fill it with the list of old file names when
            first reading the viminfo file.  Add the ":oldfiles" command,
            ":browse oldfiles" and the "#<123" special file name.  Increase
            the default value for 'viminfo' from '20 to '100.
Files:      runtime/doc/cmdline.txt, runtime/doc/eval.txt,
            runtime/doc/starting.txt, runtime/doc/usr_21.txt, src/eval.c,
            src/ex_cmds.c, src/ex_cmds.h, src/ex_docmd.c, src/feature.h,
            src/fileio.c, src/main.c, src/mark.c, src/misc1.c,
            src/proto/eval.pro, src/proto/ex_cmds.pro, src/proto/mark.pro,
            src/option.c, src/structs.h, src/vim.h

Patch 7.2.032 (after 7.2.031)
Problem:    Can't build with EXITFREE defined. (Dominique Pelle)
Solution:   Change vv_string to vv_str.
Files:      src/eval.c

Patch 7.2.033
Problem:    When detecting a little endian BOM "ucs-2le" is used, but the text
            might be "utf-16le".
Solution:   Default to "utf-16le", it also works for "ucs-2le". (Jia Yanwei)
Files:      src/fileio.c, src/testdir/test42.ok

Patch 7.2.034
Problem:    Memory leak in spell info when deleting buffer.
Solution:   Free the memory. (Dominique Pelle)
Files:      src/buffer.c

Patch 7.2.035
Problem:    Mismatches between alloc/malloc, free/vim_free,
            realloc/vim_realloc.
Solution:   Use the right function. (Dominique Pelle)
Files:      src/gui_x11.c, src/mbyte.c, src/misc2.c, src/os_unix.c
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Patch 7.2.036 (extra)
Problem:    Mismatches between alloc/malloc, free/vim_free,
            realloc/vim_realloc.
Solution:   Use the right function. (Dominique Pelle)
Files:      src/gui_riscos.c, src/gui_w48.c, src/mbyte.c, src/os_vms.c,
            src/os_w32exe.c, src/os_win16.c

Patch 7.2.037
Problem:    Double free with GTK 1 and compiled with EXITFREE.
Solution:   Don't close display. (Dominique Pelle)
Files:      src/os_unix.c

Patch 7.2.038
Problem:    Overlapping arguments to memcpy().
Solution:   Use mch_memmove(). (Dominique Pelle)
Files:      src/if_xcmdsrv.c

Patch 7.2.039
Problem:    Accessing freed memory on exit when EXITFREE is defined.
Solution:   Call hash_init() on the v: hash table.
Files:      src/eval.c

Patch 7.2.040
Problem:    When using ":e ++ff=dos fname" and the file contains a NL without
            a CR before it and 'ffs' contains "unix" then the fileformat
            becomes unix.
Solution:   Ignore 'ffs' when using the ++ff argument. (Ben Schmidt)
            Also remove unreachable code.
Files:      src/fileio.c

Patch 7.2.041
Problem:    In diff mode, when using two tabs, each with two diffed buffers,
            editing a buffer of the other tab messes up the diff.  (Matt
            Mzyzik)
Solution:   Only copy options from a window where the buffer was edited that
            doesn't have 'diff' set or is for the current tab page.
            Also fix that window options for a buffer are stored with the
            wrong window.
Files:      src/buffer.c, src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c,
            src/ex_getln.c, src/if_sniff.c, src/main.c, src/netbeans.c,
            src/normal.c, src/popupmnu.c, src/proto/buffer.pro,
            src/proto/ex_cmds.pro src/quickfix.c, src/window.c

Patch 7.2.042
Problem:    When using winrestview() in a BufWinEnter autocommand the window
            is scrolled anyway. (Matt Zyzik)
Solution:   Don't recompute topline when above 'scrolloff' from the bottom.
            Don't always put the cursor halfway when entering a buffer.  Add
            "w_topline_was_set".
Files:      src/buffer.c, src/move.c, src/structs.h

Patch 7.2.043
Problem:    VMS: Too many characters are escaped in filename and shell
            commands.
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Solution:   Escape fewer characters. (Zoltan Arpadffy)
Files:      src/vim.h

Patch 7.2.044
Problem:    Crash because of STRCPY() being over protective of the destination
            size. (Dominique Pelle)
Solution:   Add -D_FORTIFY_SOURCE=1 to CFLAGS.  Use an intermediate variable
            for the pointer to avoid a warning.
Files:      src/auto/configure, src/configure.in, src/eval.c

Patch 7.2.045
Problem:    The Python interface has an empty entry in sys.path.
Solution:   Filter out the empty entry. (idea from James Vega)
Files:      src/if_python.c

Patch 7.2.046
Problem:    Wrong check for filling buffer with encoding. (Danek Duvall)
Solution:   Remove pointers. (Dominique Pelle)
Files:      src/mbyte.c

Patch 7.2.047
Problem:    Starting Vim with the -nb argument while it's not supported causes
            the other side to hang.
Solution:   When -nb is used while it's not supported exit Vim. (Xavier de
            Gaye)
Files:      src/main.c, src/vim.h

Patch 7.2.048
Problem:    v:prevcount is changed too often.  Counts are not multiplied when
            setting v:count.
Solution:   Set v:prevcount properly.  Multiply counts. (idea by Ben Schmidt)
Files:      src/eval.c, src/normal.c, src/proto/eval.pro

Patch 7.2.049 (extra)
Problem:    Win32: the clipboard doesn't support UTF-16.
Solution:   Change UCS-2 support to UTF-16 support. (Jia Yanwei)
Files:      src/gui_w32.c, src/gui_w48.c, src/mbyte.c, src/misc1.c,
            src/os_mswin.c, src/os_win32.c, src/proto/os_mswin.pro

Patch 7.2.050
Problem:    Warnings for not checking return value of fwrite(). (Chip Campbell)
Solution:   Use the return value.
Files:      src/spell.c

Patch 7.2.051
Problem:    Can't avoid 'wildignore' and 'suffixes' for glob() and globpath().
Solution:   Add an extra argument to these functions. (Ingo Karkat)
Files:      src/eval.c, src/ex_getln.c, src/proto/ex_getln.pro,
            runtime/doc/eval.txt, runtime/doc/options.txt

Patch 7.2.052
Problem:    synIDattr() doesn't support "sp" for special color.
Solution:   Recognize "sp" and "sp#".  (Matt Wozniski)
Files:      runtime/doc/eval.txt, src/eval.c
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Patch 7.2.053
Problem:    Crash when using WorkShop command ":ws foo". (Dominique Pelle)
Solution:   Avoid using a NULL pointer.
Files:      src/workshop.c

Patch 7.2.054
Problem:    Compilation warnings for format in getchar.c.
Solution:   Use fputs() instead of fprintf().  (Dominique Pelle)
Files:      src/getchar.c

Patch 7.2.055
Problem:    Various compiler warnings with strict checking.
Solution:   Avoid the warnings by using return values and renaming.
Files:      src/diff.c, src/eval.c, src/ex_cmds.c, src/ex_docmd.c,
            src/fileio.c, src/fold.c, src/globals.h, src/gui.c,
            src/gui_at_sb.c, src/gui_gtk_x11.c, src/gui_xmdlg.c,
            src/gui_xmebw.c, src/main.c, src/mbyte.c, src/message.c,
            src/netbeans.c, src/option.c, src/os_unix.c, src/spell.c,
            src/ui.c, src/window.c

Patch 7.2.056 (after 7.2.050)
Problem:    Tests 58 and 59 fail.
Solution:   Don't invoke fwrite() with a zero length. (Dominique Pelle)
Files:      src/spell.c

Patch 7.2.057 (after 7.2.056)
Problem:    Combination of int and size_t may not work.
Solution:   Use size_t for variable.
Files:      src/spell.c

Patch 7.2.058
Problem:    Can't add a patch name to the ":version" output.
Solution:   Add the extra_patches array.
Files:      src/version.c

Patch 7.2.059
Problem:    Diff display is not always updated.
Solution:   Update the display more often.
Files:      src/diff.c

Patch 7.2.060
Problem:    When a spell files has many compound rules it may take a very long
            time making the list of suggestions.  Displaying also can be slow
            when there are misspelled words.
            Can't parse some Hunspell .aff files.
Solution:   Check if a compounding can possibly work before trying a
            combination, if the compound rules don't contain wildcards.
            Implement using CHECKCOMPOUNDPATTERN.
            Ignore COMPOUNDRULES.  Ignore a comment after most items.
            Accept ONLYINCOMPOUND as an alias for NEEDCOMPOUND.
            Accept FORBIDDENWORD as an alias for BAD.
Files:      runtime/doc/spell.txt, src/spell.c
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Patch 7.2.061
Problem:    Can't create a funcref for an autoload function without loading
            the script first. (Marc Weber)
Solution:   Accept autoload functions that don't exist yet in function().
Files:      src/eval.c

Patch 7.2.062
Problem:    "[Scratch]" is not translated.
Solution:   Mark the string for translation. (Dominique Pelle)
Files:      src/buffer.c

Patch 7.2.063
Problem:    Warning for NULL argument of Perl_sys_init3().
Solution:   Use Perl_sys_init() instead. (partly by Dominique Pelle)
Files:      src/if_perl.xs

Patch 7.2.064
Problem:    Screen update bug when repeating "~" on a Visual block and the
            last line doesn't change.
Solution:   Keep track of changes for all lines.  (Moritz Orbach)
Files:      src/ops.c

Patch 7.2.065
Problem:    GTK GUI: the cursor disappears when doing ":vsp" and the Vim
            window is maximized.  (Dominique Pelle, Denis Smolyar)
Solution:   Don't change "Columns" back to an old value at a wrong moment.
            Do change "Rows" when it should not be a problem.
Files:      src/gui.c

Patch 7.2.066
Problem:    It's not easy to see whether 'encoding' is a multi-byte encoding.
Solution:   Add has('multi_byte_encoding').
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.2.067
Problem:    Session file can't load extra file when the path contains special
            characters.
Solution:   Escape the file name. (Lech Lorens)
Files:      src/ex_docmd.c

Patch 7.2.068
Problem:    Emacs tags file lines can be too long, resulting in an error
            message. (James Vega)
Solution:   Ignore lines with errors if they are too long.
Files:      src/tag.c

Patch 7.2.069 (after 7.2.060)
Problem:    Compiler warning for storing size_t in int.
Solution:   Add type cast.
Files:      src/spell.c

Patch 7.2.070
Problem:    Crash when a function returns a:000. (Matt Wozniski)
Solution:   Don't put the function struct on the stack, allocate it.  Free it
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            only when nothing in it is used.
Files:      src/eval.c

Patch 7.2.071 (extra)
Problem:    Win32: Handling netbeans events while Vim is busy updating the
            screen may cause a crash.
Solution:   Like with GTK, only handle netbeans messages in the main loop.
            (Xavier de Gaye)
Files:      src/gui_w48.c, src/netbeans.c

Patch 7.2.072 (extra)
Problem:    Compiler warning in Sniff code.
Solution:   Use return value of pipe(). (Dominique Pelle)
Files:      src/if_sniff.c

Patch 7.2.073
Problem:    ":set <xHome>" has the same output as ":set <Home>". (Matt
            Wozniski)
Solution:   Don't translate "x" keys to its alternative for ":set".
Files:      src/gui_mac.c, src/misc2.c, src/option.c, src/proto/misc2.pro

Patch 7.2.074 (extra, after 7.2.073)
Problem:    ":set <xHome>" has the same output as ":set <Home>". (Matt
            Wozniski)
Solution:   Don't translate "x" keys to its alternative for ":set".
Files:      src/gui_mac.c

Patch 7.2.075 (after 7.2.058)
Problem:    Explanation about making a diff for extra_patches is unclear.
Solution:   Adjust comment.
Files:      src/version.c

Patch 7.2.076
Problem:    rename(from, to) deletes the file if "from" and "to" are not equal
            but still refer to the same file.  E.g., on a FAT32 filesystem
            under Unix.
Solution:   Go through another file name.
Files:      src/fileio.c

Patch 7.2.077 (after 7.2.076)
Problem:    rename(from, to) doesn't work if "from" and "to" differ only in
            case on a system that ignores case in file names.
Solution:   Go through another file name.
Files:      src/fileio.c

Patch 7.2.078
Problem:    When deleting a fold that is specified with markers the cursor
            position may be wrong.  Folds may not be displayed properly after
            a delete.  Wrong fold may be deleted.
Solution:   Fix the problems. (mostly by Lech Lorens)
Files:      src/fold.c

Patch 7.2.079
Problem:    "killed" netbeans events are not handled correctly.
```

```
Solution:   A "killed" netbeans event is sent when the buffer is deleted or
            wiped out (in this case, the netbeans annotations in this buffer
            have been removed).  A user can still remove a sign with the
            command ":sign unplace" and this does not trigger a "killed"
            event.  (Xavier de Gaye)
Files:      runtime/doc/netbeans.txt, src/buffer.c, src/globals.h,
            src/netbeans.c, src/proto/netbeans.pro

Patch 7.2.080
Problem:    When typing a composing character just after starting completion
            may access memory before its allocation point. (Dominique Pelle)
Solution:   Don't delete before the completion start column.  Add extra checks
            for the offset not being negative.
Files:      src/edit.c

Patch 7.2.081
Problem:    Compiler warning for floating point overflow on VAX.
Solution:   For VAX use a smaller number. (Zoltan Arpadffy)
Files:      src/message.c

Patch 7.2.082
Problem:    When 'ff' is "mac" then "ga" on a ^J shows 0x0d instead of 0x0a.
            (Andy Wokula)
Solution:   Use NL for this situation. (Lech Lorens)
Files:      src/ex_cmds.c

Patch 7.2.083
Problem:    ":tag" does not return to the right tag entry from the tag stack.
Solution:   Don't change the current match when there is no argument.
            (Erik Falor)
Files:      src/tag.c

Patch 7.2.084
Problem:    Recursive structures are not handled properly in Python
            vim.eval().
Solution:   Keep track of references in a better way. (Yukihiro Nakadaira)
Files:      src/if_python.c

Patch 7.2.085
Problem:    ":set <M-b>=<Esc>b" does not work when 'encoding' is utf-8.
Solution:   Put the <M-b> character in the input buffer as valid utf-8.
            (partly by Matt Wozniski)
Files:      src/term.c

Patch 7.2.086
Problem:    Using ":diffget 1" in buffer 1 corrupts the text.
Solution:   Don't do anything when source and destination of ":diffget" or
            ":diffput" is the same buffer. (Dominique Pelle)
Files:      src/diff.c

Patch 7.2.087
Problem:    Adding URL to 'path' doesn't work to edit a file.
Solution:   Skip simplify_filename() for URLs. (Matt Wozniski)
Files:      src/misc2.c
```

```
Patch 7.2.088 (extra)
Problem:    OpenClipboard() may fail when another application is using the
            clipboard.
Solution:   Retry OpenClipboard() a few times. (Jianrong Yu)
Files:      src/os_mswin.c

Patch 7.2.089 (extra)
Problem:    Win32: crash when using Ultramon buttons.
Solution:   Don't use a WM_OLE message of zero size. (Ray Megal)
Files:      src/if_ole.cpp, src/gui_w48.c

Patch 7.2.090
Problem:    User command containing 0x80 in multi-byte character does not work
            properly. (Yasuhiro Matsumoto)
Solution:   Undo replacement of K_SPECIAL and CSI characters when executing
            the command.
Files:      src/ex_docmd.c

Patch 7.2.091
Problem:    ":cs help" output is not aligned for some languages.
Solution:   Compute character size instead of byte size. (Dominique Pelle)
Files:      src/if_cscope.c

Patch 7.2.092
Problem:    Some error messages are not translated.
Solution:   Add _() around the messages. (Dominique Pelle)
Files:      src/eval.c

Patch 7.2.093 (extra)
Problem:    Win32: inputdialog() and find/replace dialogs can't handle
            multi-byte text.
Solution:   Use the wide version of dialog functions when available. (Yanwei
            Jia)
Files:      src/gui_w32.c, src/gui_w48.c

Patch 7.2.094
Problem:    Compiler warning for signed/unsigned compare.
Solution:   Add type cast.  Also fix a few typos.
Files:      src/edit.c

Patch 7.2.095
Problem:    With Visual selection, "r" and then CTRL-C Visual mode is stopped
            but the highlighting is not removed.
Solution:   Call reset_VIsual().
Files:      src/normal.c

Patch 7.2.096
Problem:    After ":number" the "Press Enter" message may be on the wrong
            screen, if switching screens for shell commands.
Solution:   Reset info_message. (James Vega)
Files:      src/ex_cmds.c

Patch 7.2.097
```

```
Problem:    "!xterm&" doesn't work when 'shell' is "bash".
Solution:   Ignore SIGHUP after calling setsid(). (Simon Schubert)
Files:      src/os_unix.c

Patch 7.2.098
Problem:    Warning for signed/unsigned pointer.
Solution:   Add type cast.
Files:      src/eval.c

Patch 7.2.099
Problem:    Changing GUI options causes an unnecessary redraw when the GUI
            isn't active.
Solution:   Avoid the redraw. (Lech Lorens)
Files:      src/option.c

Patch 7.2.100
Problem:    When using ":source" on a FIFO or something else that can't rewind
            the first three bytes are skipped.
Solution:   Instead of rewinding read the first line and detect a BOM in that.
            (mostly by James Vega)
Files:      src/ex_cmds2.c

Patch 7.2.101 (extra)
Problem:    MSVC version not recognized.
Solution:   Add the version number to the list.  (Zhong Zhang)
Files:      src/Make_mvc.mak

Patch 7.2.102 (after 7.2.100)
Problem:    When 'encoding' is "utf-8" a BOM at the start of a Vim script is
            not removed. (Tony Mechelynck)
Solution:   When no conversion is taking place make a copy of the line without
            the BOM.
Files:      src/ex_cmds2.c

Patch 7.2.103
Problem:    When 'bomb' is changed the window title is updated to show/hide a
            "+", but the tab page label isn't. (Patrick Texier)
Solution:   Set "redraw_tabline" in most places where "need_maketitle" is set.
            (partly by Lech Lorens)
Files:      src/option.c

Patch 7.2.104
Problem:    When using ":saveas bar.c" the tab label isn't updated right away.
Solution:   Set redraw_tabline. (Francois Ingelrest)
Files:      src/ex_cmds.c

Patch 7.2.105
Problem:    Modeline setting for 'foldmethod' overrules diff options. (Ingo
            Karkat)
Solution:   Don't set 'foldmethod' and 'wrap' from a modeline when 'diff' is
            on.
Files:      src/option.c

Patch 7.2.106
```

```
Problem:    Endless loop when using "]s" in HTML when there are no
            misspellings. (Ingo Karkat)
Solution:   Break the search loop.  Also fix pointer alignment for systems
            with pointers larger than int.
Files:      src/spell.c

Patch 7.2.107
Problem:    When using a GUI dialog and ":echo" commands the messages are
            deleted after the dialog. (Vincent Birebent)
Solution:   Don't call msg_end_prompt() since there was no prompt.
Files:      src/message.c

Patch 7.2.108 (after 7.2.105)
Problem:    Can't build without the diff feature.
Solution:   Add #ifdef.
Files:      src/option.c

Patch 7.2.109
Problem:    'langmap' does not work for multi-byte characters.
Solution:   Add a list of mapped multi-byte characters. (based on work by
            Konstantin Korikov, Agathoklis Hatzimanikas)
Files:      runtime/doc/options.txt, src/edit.c, src/getchar.c, src/macros.h,
            src/normal.c, src/option.c, src/proto/option.pro, src/window.c

Patch 7.2.110
Problem:    Compiler warning for unused variable.
Solution:   Init the variable.
Files:      src/ex_docmd.c

Patch 7.2.111
Problem:    When using Visual block mode with 'cursorcolumn' it's unclear what
            is selected.
Solution:   Don't use 'cursorcolumn' highlighting inside the Visual selection.
            (idea by Dominique Pelle)
Files:      src/screen.c

Patch 7.2.112
Problem:    Cursor invisible in Visual mode when 'number' is set and cursor in
            first column. (Matti Niemenmaa, Renato Alves)
Solution:   Check that vcol_prev is smaller than vcol.
Files:      src/screen.c

Patch 7.2.113
Problem:    Crash for substitute() call using submatch(1) while there is no
            such submatch. (Yukihiro Nakadaira)
Solution:   Also check the start of the submatch is set, it can be NULL when
            an attempted match didn't work out.
Files:      src/regexp.c

Patch 7.2.114
Problem:    Using wrong printf format.
Solution:   Use "%ld" instead of "%d". (Dominique Pelle)
Files:      src/netbeans.c
```

```
Patch 7.2.115
Problem:    Some debugging code is never used.
Solution:   Remove nbtrace() and nbprt(). (Dominique Pelle)
Files:      src/nbdebug.c, src/nbdebug.h

Patch 7.2.116
Problem:    Not all memory is freed when EXITFREE is defined.
Solution:   Free allocated memory on exit. (Dominique Pelle)
Files:      src/ex_docmd.c, src/gui_gtk_x11.c, src/misc2.c, src/search.c,
            src/tag.c

Patch 7.2.117
Problem:    Location list incorrectly labelled "Quickfix List".
Solution:   Break out of both loops for finding window for location list
            buffer. (Lech Lorens)
Files:      src/buffer.c, src/quickfix.c, src/screen.c

Patch 7.2.118
Problem:    <PageUp> at the more prompt only does half a page.
Solution:   Make <PageUp> go up a whole page.  Also make 'f' go a page
            forward, but not quit the more prompt. (Markus Heidelberg)
Files:      src/message.c

Patch 7.2.119
Problem:    Status line is redrawn too often.
Solution:   Check ScreeenLinesUC[] properly. (Yukihiro Nakadaira)
Files:      src/screen.c

Patch 7.2.120
Problem:    When opening the quickfix window or splitting the window and
            setting the location list, the location list is copied and then
            deleted, which is inefficient.
Solution:   Don't copy the location list when not needed. (Lech Lorens)
Files:      src/quickfix.c, src/vim.h, src/window.c

Patch 7.2.121
Problem:    In gvim "!grep a *.c" spews out a lot of text that can't be
            stopped with CTRL-C.
Solution:   When looping to read and show text, do check for typed characters
            every two seconds.
Files:      src/os_unix.c

Patch 7.2.122
Problem:    Invalid memory access when the VimResized autocommand changes
            'columns' and/or 'lines'.
Solution:   After VimResized check for changed values. (Dominique Pelle)
Files:      src/screen.c

Patch 7.2.123
Problem:    Typing 'q' at more prompt for ":map" output still displays another
            line, causing another more prompt. (Markus Heidelberg)
Solution:   Quit listing maps when 'q' typed.
Files:      src/getchar.c
```

```
Patch 7.2.124
Problem:    Typing 'q' at more prompt for ":tselect" output still displays
            more lines, causing another more prompt. (Markus Heidelberg)
Solution:   Quit listing tags when 'q' typed.
Files:      src/tag.c

Patch 7.2.125
Problem:    Leaking memory when reading XPM bitmap for a sign.
Solution:   Don't allocate the memory twice. (Dominique Pelle)
Files:      src/gui_x11.c

Patch 7.2.126
Problem:    When EXITFREE is defined signs are not freed.
Solution:   Free all signs on exit.  Also free keymaps. (Dominique Pelle)
Files:      src/misc2.c, src/ex_cmds.c, src/proto/ex_cmds.pro

Patch 7.2.127
Problem:    When listing mappings and a wrapping line causes the more prompt,
            after typing 'q' there can be another more prompt. (Markus
            Heidelberg)
Solution:   Set "lines_left" to allow more lines to be displayed.
Files:      src/message.c

Patch 7.2.128 (after 7.2.055)
Problem:    Using ":lcd" makes session files not work.
Solution:   Compare return value of mch_chdir() properly. (Andreas Bernauer)
Files:      src/ex_docmd.c

Patch 7.2.129
Problem:    When opening a command window from input() it uses the search
            history.
Solution:   Use get_cmdline_type(). (James Vega)
Files:      src/ex_getln.c

Patch 7.2.130
Problem:    Vim may hang until CTRL-C is typed when using CTRL-Z.
Solution:   Avoid using pause().  Also use "volatile" for variables used in
            signal functions. (Dominique Pelle)
Files:      src/auto/configure, src/configure.in, src/config.h.in,
            src/globals.h, src/os_unix.c

Patch 7.2.131
Problem:    When 'keymap' is cleared may still use the cursor highlighting for
            when it's enabled.
Solution:   Reset 'iminsert' and 'imsearch'. (partly by Dominique Pelle)
            Also avoid ":setlocal" for these options have a global effect.
Files:      src/option.c

Patch 7.2.132
Problem:    When changing directory during a SwapExists autocmd freed memory
            may be accessed. (Dominique Pelle)
Solution:   Add the allbuf_lock flag.
Files:      src/ex_getln.c, src/globals.h, src/fileio.c,
            src/proto/ex_getln.pro
```

```
Patch 7.2.133
Problem:    ":diffoff!" changes settings in windows not in diff mode.
Solution:   Only change settings in other windows when 'diff' is set, always
            do it for the current window. (Lech Lorens)
Files:      src/diff.c

Patch 7.2.134
Problem:    Warning for discarding "const" from pointer.
Solution:   Don't pass const pointer to mch_memmove().
Files:      src/fileio.c

Patch 7.2.135
Problem:    Memory leak when redefining user command with complete argument.
Solution:   Free the old complete argument. (Dominique Pelle)
Files:      src/ex_docmd.c

Patch 7.2.136 (after 7.2.132)
Problem:    ":cd" is still possible in a SwapExists autocmd.
Solution:   Check the allbuf_lock flag in ex_cd().
Files:      src/ex_docmd.c

Patch 7.2.137
Problem:    When 'virtualedit' is set, a left shift of a blockwise selection
            that starts and ends inside a tab shifts too much. (Helmut
            Stiegler)
Solution:   Redo the block left shift code. (Lech Lorens)
Files:      src/ops.c, src/testdir/Makefile, src/testdir/test66.in,
            src/testdir/test66.ok

Patch 7.2.138 (extra part of 7.2.137)
Problem:    See 7.2.137.
Solution:   See 7.2.137.
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms

Patch 7.2.139
Problem:    Crash when 'virtualedit' is "all". (James Vega)
Solution:   Avoid overflow when column is MAXCOL. (Dominique Pelle)
Files:      src/misc2.c

Patch 7.2.140
Problem:    Diff highlighting isn't displayed before the Visual area if it
            starts at the cursor position. (Markus Heidelberg)
Solution:   Also check fromcol_prev.
Files:      src/screen.c

Patch 7.2.141
Problem:    When redrawing a character for bold spill this causes the next
            character to be redrawn as well.
Solution:   Only redraw one extra character. (Yukihiro Nakadaira)
Files:      src/screen.c
```

```
Patch 7.2.142
Problem:    Motif and Athena balloons don't use tooltip colors.
Solution:   Set the colors. (Matt Wozniski)
Files:      src/gui_beval.c

Patch 7.2.143
Problem:    No command line completion for ":cscope" command.
Solution:   Add the completion for ":cscope". (Dominique Pelle)
Files:      src/ex_docmd.c, src/ex_getln.c, src/if_cscope.c,
            src/proto/if_cscope.pro, src/vim.h

Patch 7.2.144
Problem:    When 't_Co' is set to the value it already had the color scheme is
            reloaded anyway.
Solution:   Only load the colorscheme when the t_Co value changes. (Dominique
            Pelle)
Files:      src/option.c

Patch 7.2.145
Problem:    White space in ":cscope find" is not ignored.
Solution:   Ignore the white space, but not when the leading white space is
            useful for the argument.
Files:      runtime/doc/if_scop.txt, src/if_cscope.c

Patch 7.2.146
Problem:    v:warningmsg isn't used for all warnings.
Solution:   Set v:warningmsg for relevant warnings. (Ingo Karkat)
Files:      src/fileio.c, src/misc1.c, src/option.c

Patch 7.2.147
Problem:    When compiled as small version and 'number' is on the cursor is
            displayed in the wrong position after a tab. (James Vega)
Solution:   Don't increment vcol when still displaying the line number.
Files:      src/screen.c

Patch 7.2.148
Problem:    When searching for "$" while 'hlsearch' is set, highlighting the
            character after the line does not work in the cursor column.
            Also highlighting for Visual mode after the line end when this
            isn't needed.  (Markus Heidelberg)
Solution:   Only compare the cursor column in the cursor line.  Only highlight
            for Visual selection after the last character when it's needed to
            see where the Visual selection ends.
Files:      src/screen.c

Patch 7.2.149
Problem:    Using return value of function that doesn't return a value results
            in reading uninitialized memory.
Solution:   Set the default to return zero.  Make cursor() return -1 on
            failure.  Let complete() return an empty string in case of an
            error.  (partly by Dominique Pelle)
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.2.150 (extra)
```

```
Problem:    Can't use tab pages from VisVim.
Solution:   Add tab page support to VisVim. (Adam Slater)
Files:      src/VisVim/Commands.cpp, src/VisVim/Resource.h,
            src/VisVim/VisVim.rc

Patch 7.2.151
Problem:    ":hist a" doesn't work like ":hist all" as the docs suggest.
Solution:   Make ":hist a" and ":hist al" work. (Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.2.152
Problem:    When using "silent echo x" inside ":redir" a next echo may start
            halfway the line. (Tony Mechelynck, Dennis Benzinger)
Solution:   Reset msg_col after redirecting silently.
Files:      src/ex_docmd.c, src/message.c, src/proto/message.pro

Patch 7.2.153
Problem:    Memory leak for ":recover empty_dir/".
Solution:   Free files[] when it becomes empty. (Dominique Pelle)
Files:      src/memline.c

Patch 7.2.154 (after 7.2.132)
Problem:    ":cd" is still possible in a SwapExists autocmd.
Solution:   Set allbuf_lock in do_swapexists().
Files:      src/memline.c

Patch 7.2.155
Problem:    Memory leak in ":function /pat".
Solution:   Free the memory. (Dominique Pelle)
Files:      src/eval.c

Patch 7.2.156 (after 7.2.143)
Problem:    No completion for :scscope and :lcscope commands.
Solution:   Implement the completion. (Dominique Pelle)
Files:      src/if_cscope.c, src/ex_docmd.c, src/proto/if_cscope.pro

Patch 7.2.157
Problem:    Illegal memory access when searching in path.
Solution:   Avoid looking at a byte after end of a string. (Dominique Pelle)
Files:      src/search.c

Patch 7.2.158
Problem:    Warnings from VisualC compiler.
Solution:   Add type casts. (George Reilly)
Files:      src/ops.c

Patch 7.2.159
Problem:    When $x_includes ends up being "NONE" configure fails.
Solution:   Check for $x_includes not to be "NONE" (Rainer)
Files:      src/auto/configure, src/configure.in

Patch 7.2.160
Problem:    Search pattern not freed on exit when 'rightleft' set.
Solution:   Free mr_pattern_alloced.
```

```
Files:      src/search.c

Patch 7.2.161
Problem:    Folds messed up in other tab page. (Vlad Irnov)
Solution:   Instead of going over all windows in current tab page go over all
            windows in all tab pages.  Also free memory for location lists in
            other tab pages when exiting. (Lech Lorens)
Files:      src/fileio.c, src/mark.c, src/misc1.c, src/misc2.c

Patch 7.2.162
Problem:    The quickfix window may get wrong filetype.
Solution:   Do not detect the filetype for the quickfix window. (Lech Lorens)
Files:      src/quickfix.c

Patch 7.2.163
Problem:    The command line window may get folding.
Solution:   Default to no/manual folding. (Lech Lorens)
Files:      src/ex_getln.c

Patch 7.2.164
Problem:    When 'showbreak' is set the size of the Visual block may be
            reported wrong. (Eduardo Daudt Flach)
Solution:   Temporarily make 'sbr' empty.
Files:      src/normal.c, src/ops.c

Patch 7.2.165
Problem:    The argument for the FuncUndefined autocmd event is expanded like
            a file name.
Solution:   Don't try expanding it. (Wang Xu)
Files:      src/fileio.c

Patch 7.2.166
Problem:    No completion for ":sign" command.
Solution:   Add ":sign" completion. (Dominique Pelle)
Files:      src/ex_cmds.c, src/ex_docmd.c, src/ex_getln.c, src/vim.h,
            src/proto/ex_cmds.pro

Patch 7.2.167
Problem:    Splint doesn't work well for checking the code.
Solution:   Add splint arguments in the Makefile.  Exclude some code from
            splint that it can't handle.  Tune splint arguments to give
            reasonable errors.  Add a filter for removing false warnings from
            splint output.  Many small changes to avoid warnings.  More to
            follow...
Files:      Filelist, src/Makefile, src/buffer.c, src/charset.c,
            src/cleanlint.vim, src/digraph.c, src/edit.c, src/ex_cmds.c,
            src/globals.h, src/ops.c, src/os_unix.c, src/os_unix.h,
            src/proto/buffer.pro, src/proto/edit.pro, src/screen.c,
            src/structs.h

Patch 7.2.168
Problem:    When no ctags program can be found, "make tags" attempts to
            execute the first C file.
Solution:   Default to "ctags" when no ctags program can be found.
```

```
Files:      src/configure.in, src/auto/configure

Patch 7.2.169
Problem:    Splint complains about a lot of things.
Solution:   Add type casts, #ifdefs and other changes to avoid warnings.
            Change colnr_T from unsigned to int.  Avoids mistakes with
            subtracting columns.
Files:      src/cleanlint.vim, src/diff.c, src/edit.c, src/ex_cmds.c,
            src/ex_cmds2.c, src/ex_docmd.c, src/proto/ex_cmds.pro,
            src/proto/spell.pro, src/quickfix.c, src/spell.c, src/structs.h,
            src/term.h, src/vim.h

Patch 7.2.170
Problem:    Using b_dev while it was not set. (Dominique Pelle)
Solution:   Add the b_dev_valid flag.
Files:      src/buffer.c, src/fileio.c, src/structs.h

Patch 7.2.171 (after 7.2.169)
Problem:    Compiler warnings. (Tony Mechelynck)
Solution:   Add function prototype. (Patrick Texier)  Init variable.
Files:      src/ex_cmds.c

Patch 7.2.172 (extra)
Problem:    Compiler warning.
Solution:   Adjust function prototype. (Patrick Texier)
Files:      src/os_mswin.c

Patch 7.2.173
Problem:    Without lint there is no check for unused function arguments.
Solution:   Use gcc -Wunused-parameter instead of lint.  For a few files add
            attributes to arguments that are known not to be used.
Files:      src/auto/configure, src/buffer.c, src/charset.c, src/diff.c,
            src/configure.in, src/config.h.in, src/edit.c, src/ex_cmds.c,
            src/ex_cmds2.c, src/version.c, src/vim.h

Patch 7.2.174
Problem:    Too many warnings from gcc -Wextra.
Solution:   Change initializer.  Add UNUSED.  Add type casts.
Files:      src/edit.c, src/eval.c, src/ex_cmds.c, src/ex_docmd.c,
            src/ex_getln.c, src/fileio.c, getchar.c, globals.h, main.c,
            memline.c, message.c, src/misc1.c, src/move.c, src/normal.c,
            src/option.c, src/os_unix.c, src/os_unix.h, src/regexp.c,
            src/search.c, src/tag.c

Patch 7.2.175
Problem:    Compiler warning in OpenBSD.
Solution:   Add type cast for NULL. (Dasn)
Files:      src/if_cscope.c

Patch 7.2.176
Problem:    Exceptions for splint are not useful.
Solution:   Remove the S_SPLINT_S ifdefs.
Files:      src/edit.c, src/ex_cmds.c, src/ex_docmd.c, src/os_unix.c,
            src/os_unix.h, src/os_unixx.h, src/structs.h, src/term.h
```

```
Patch 7.2.177
Problem:    Compiler warnings when using -Wextra
Solution:   Add UNUSED and type casts.
Files:      src/eval.c, src/ex_docmd.c, src/ex_eval.c, src/ex_getln.c,
            src/fileio.c, src/hardcopy.c, src/if_cscope.c, src/if_xcmdsrv.c,
            src/farsi.c, src/mark.c, src/menu.c

Patch 7.2.178
Problem:    Using negative value for device number might not work.
Solution:   Use a separate flag for whether ffv_dev was set.
Files:      src/misc2.c

Patch 7.2.179
Problem:    Using negative value for device number might not work.
Solution:   Use a separate flag for whether sn_dev was set.
Files:      src/ex_cmds2.c

Patch 7.2.180
Problem:    Some more compiler warnings when using gcc -Wextra.
Solution:   Add UNUSED and type casts.
Files:      src/buffer.c, src/ex_cmds.c, src/macros.h, src/main.c,
            src/menu.c, src/message.c, src/misc1.c, src/mbyte.c,
            src/normal.c, src/option.c, src/os_unix.c, src/quickfix.c,
            src/screen.c, src/search.c, src/spell.c, src/syntax.c, src/tag.c,
            src/term.c, src/ui.c

Patch 7.2.181
Problem:    Some more compiler warnings when using gcc -Wextra.
Solution:   Add UNUSED and type casts.
Files:      src/if_mzsch.c, src/gui.c, src/gui_gtk.c, src/gui_gtk_x11.c,
            src/gui_gtk_f.c, src/gui_beval.c, src/netbeans.c

Patch 7.2.182 (after 7.2.181)
Problem:    Compilation problems after previous patch for Motif.  Gvim with
            GTK crashes on startup.
Solution:   Add comma.  Init form structure to zeroes.
Files:      src/netbeans.c, src/gui_gtk_f.c

Patch 7.2.183
Problem:    Configure problem for sys/sysctl.h on OpenBSD. (Dasn)
Solution:   Add separate check for this header file.  Also switch to newer
            version of autoconf.
Files:      src/auto/configure, src/configure.in

Patch 7.2.184
Problem:    Some more compiler warnings when using gcc -Wextra.
Solution:   Add UNUSED and type casts.  Autoconf check for wchar_t.
Files:      src/auto/configure, src/config.h.in, src/configure.in,
            src/gui_athena.c, src/gui_x11.c, src/gui.c, src/gui_beval.c,
            src/gui_at_sb.c, src/gui_at_fs.c, src/gui_motif.c,
            src/gui_xmdlg.c, src/gui_xmebw.c, src/if_python.c, src/window.c,
            src/workshop.c
```

Patch 7.2.185
Problem: Some more compiler warnings when using gcc -Wextra.
Solution: Add UNUSED and type casts.
Files: src/Makefile, src/if_tlc.c, src/if_ruby.c

Patch 7.2.186
Problem: Some more compiler warnings when using gcc -Wextra.
Solution: Now with the intended if_tcl.c changes.
Files: src/if_tcl.c

Patch 7.2.187 (after 7.2.186)
Problem: Doesn't build with older versions of TCL. (Yongwei Wu)
Solution: Add #ifdefs. (Dominique Pelle)
Files: src/if_tcl.c

Patch 7.2.188
Problem: Crash with specific use of function calls. (Meikel Brandmeyer)
Solution: Make sure the items referenced by a function call are not freed
            twice. (based on patch from Nico Weber)
Files: src/eval.c

Patch 7.2.189
Problem: Possible hang for deleting auto-indent. (Dominique Pelle)
Solution: Make sure the position is not beyond the end of the line.
Files: src/edit.c

Patch 7.2.190
Problem: The register executed by @@ isn't restored.
Solution: Mark the executable register in the viminfo file.
Files: src/ops.c

Patch 7.2.191
Problem: Mzscheme interface doesn't work on Ubuntu.
Solution: Change autoconf rules. Define missing macro. Some changes to
            avoid gcc warnings. Remove per-buffer namespace. (Sergey Khorev)
Files: runtime/doc/if_mzsch.txt, src/Makefile, src/Make_ming.mak,
            src/Make_mvc.mak, src/auto/configure, src/configure.in,
            src/config.mk.in, src/eval.c, src/if_mzsch.c, src/if_mzsch.h,
            src/main.c, src/proto/if_mzsch.pro

Patch 7.2.192 (after 7.2.188)
Problem: Still a crash in the garbage collector for a very rare situation.
Solution: Make sure current_copyID is always incremented correctly. (Kent
            Sibilev)
Files: src/eval.c

Patch 7.2.193
Problem: Warning for uninitialized values.
Solution: Initialize all the struct items.
Files: src/eval.c

Patch 7.2.194 (extra)
Problem: MSVC: rem commands are echoed.
Solution: Add commands to switch off echo. (Wang Xu)

```
Files:      src/msvc2008.bat

Patch 7.2.195
Problem:    Leaking memory for the command Vim was started with.
Solution:   Remember the pointer and free it.
Files:      src/gui_gtk_x11.c

Patch 7.2.196 (after 7.2.167)
Problem:    Turns out splint doesn't work well enough to be usable.
Solution:   Remove splint support.
Files:      Filelist, src/cleanlint.vim

Patch 7.2.197
Problem:    Warning for uninitialized values.
Solution:   Initialize all the struct items of typebuf.
Files:      src/globals.h

Patch 7.2.198
Problem:    Size of buffer used for tgetent() may be too small.
Solution:   Use the largest known size everywhere.
Files:      src/vim.h

Patch 7.2.199
Problem:    Strange character in comment.
Solution:   Change to "message". (Yongwei Wu)
Files:      src/term.c

Patch 7.2.200
Problem:    Reading past end of string when navigating the menu bar or
            resizing the window.
Solution:   Add and use mb_ptr2len_len(). (partly by Dominique Pelle)
            Also add mb_ptr2cells_len() to prevent more trouble.
Files:      src/gui_gtk_x11.c, src/os_unix.c, src/globals.h, src/mbyte.c,
            src/proto/mbyte.pro

Patch 7.2.201
Problem:    Cannot copy/paste HTML to/from Firefox via the clipboard.
Solution:   Implement this for GTK.  Add the "html" value to 'clipboard'.
Files:      runtime/doc/options.txt, src/globals.h, src/gui_gtk_x11.c,
            src/mbyte.c, src/proto/mbyte.pro, src/option.c

Patch 7.2.202
Problem:    BufWipeout autocommand that edits another buffer causes problems.
Solution:   Check for the situation, give an error and quit the operation.
Files:      src/fileio.c

Patch 7.2.203
Problem:    When reloading a buffer or doing anything else with a buffer that
            is not displayed in a visible window, autocommands may be applied
            to the current window, folds messed up, etc.
Solution:   Instead of using the current window for the hidden buffer use a
            special window, splitting the current one temporarily.
Files:      src/fileio.c, src/globals.h, src/gui.c, src/if_perl.xs,
            src/progo/gui.pro, src/proto/window.pro, src/screen.c,
```

```
            src/structs.h, src/window.c

Patch 7.2.204 (extra)
Problem:    Win32: Can't build with Visual Studio 2010 beta 1.
Solution:   Fix the makefile. (George Reilly)
Files:      src/Make_mvc.mak

Patch 7.2.205 (extra)
Problem:    Win32: No support for High DPI awareness.
Solution:   Fix the manifest file. (George Reilly)
Files:      src/Make_mvc.mak, src/gvim.exe.mnf

Patch 7.2.206
Problem:    Win32: Can't build netbeans interface with Visual Studio 2010.
Solution:   Undefine ECONNREFUSED. (George Reilly)
Files:      src/netbeans.c

Patch 7.2.207
Problem:    Using freed memory with ":redrawstatus" when it works recursively.
Solution:   Prevent recursively updating the status line. (partly by Dominique
            Pelle)
Files:      src/screen.c

Patch 7.2.208
Problem:    "set novice" gives an error message, it should be ignored.
Solution:   Don't see "no" in "novice" as unsetting an option.  (Patrick
            Texier)
Files:      src/option.c

Patch 7.2.209
Problem:    For xxd setmode() is undefined on Cygwin.
Solution:   Include io.h. (Dominique Pelle)
Files:      src/xxd/xxd.c

Patch 7.2.210
Problem:    When a file that is being edited has its timestamp updated outside
            of Vim and ":checktime" is used still get a warning when writing
            the file. (Matt Mueller)
Solution:   Store the timestamp in b_mtime_read when the timestamp is the only
            thing that changed.
Files:      src/fileio.c

Patch 7.2.211
Problem:    Memory leak when expanding a series of file names.
Solution:   Use ga_clear_strings() instead of ga_clear().
Files:      src/misc1.c

Patch 7.2.212 (extra)
Problem:    Warnings for redefining SIG macros.
Solution:   Don't define them if already defined. (Bjorn Winckler)
Files:      src/os_mac.h

Patch 7.2.213
Problem:    Warning for using vsprintf().
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Solution:   Use vim_vsnprintf().
Files:      src/netbeans.c

Patch 7.2.214
Problem:    Crash with complete function for user command. (Andy Wokula)
Solution:   Avoid using a NULL pointer (Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.2.215
Problem:    ml_get error when using ":vimgrep".
Solution:   Load the memfile for the hidden buffer before putting it in a
            window.  Correct the order of splitting the window and filling
            the window and buffer with data.
Files:      src/fileio.c, src/proto/window.pro, src/quickfix.c, src/window.c

Patch 7.2.216
Problem:    Two error messages have the same number E812.
Solution:   Give one message a different number.
Files:      runtime/doc/autocmd.txt, runtime/doc/if_mzsch.txt, src/if_mzsch.c

Patch 7.2.217
Problem:    Running tests with valgrind doesn't work as advertised.
Solution:   Fix the line in the Makefile.
Files:      src/testdir/Makefile

Patch 7.2.218
Problem:    Cannot build GTK with hangul_input feature. (Dominique Pelle)
Solution:   Adjust #ifdef.  (SungHyun Nam)
Files:      src/gui.c

Patch 7.2.219 (extra)
Problem:    Photon GUI is outdated.
Solution:   Updates for QNX 6.4.0. (Sean Boudreau)
Files:      src/gui_photon.c

Patch 7.2.220 (after 7.2.215)
Problem:    a BufEnter autocommand that changes directory causes problems.
            (Ajit Thakkar)
Solution:   Disable autocommands when opening a hidden buffer in a window.
Files:      src/fileio.c

Patch 7.2.221
Problem:    X cut_buffer0 text is used as-is, it may be in the wrong encoding.
Solution:   Convert between 'enc' and latin1. (James Vega)
Files:      src/gui_gtk_x11.c, src/message.c, src/ops.c, src/proto/ui.pro,
            src/ui.c

Patch 7.2.222
Problem:    ":mksession" doesn't work properly with 'acd' set.
Solution:   Make it work. (Yakov Lerner)
Files:      src/ex_docmd.c

Patch 7.2.223
Problem:    When a script is run with ":silent" it is not able to give warning
```

            messages.
Solution: Add the ":unsilent" command.
Files: runtime/doc/various.txt, src/ex_cmds.h, src/ex_docmd.c

Patch 7.2.224
Problem: Crash when using 'completefunc'. (Ingo Karkat)
Solution: Disallow entering edit() recursively when doing completion.
Files: src/edit.c

Patch 7.2.225
Problem: When using ":normal" a saved character may be executed.
Solution: Also store old_char when saving typeahead.
Files: src/getchar.c, src/structs.h

Patch 7.2.226
Problem: ml_get error after deleting the last line. (Xavier de Gaye)
Solution: When adjusting marks a callback may be invoked. Adjust the cursor
            position before invoking deleted_lines_mark().
Files: src/ex_cmds.c, src/ex_docmd.c, src/if_mzsch.c, src/if_python.c,
            src/if_perl.xs, src/misc1.c

Patch 7.2.227
Problem: When using ":cd" in a script there is no way to track this.
Solution: Display the directory when 'verbose' is 5 or higher.
Files: src/ex_docmd.c

Patch 7.2.228
Problem: Cscope is limited to 8 connections.
Solution: Allocated the connection array to handle any number of
            connections. (Dominique Pelle)
Files: runtime/doc/if_cscop.txt, src/if_cscope.h, src/if_cscope.c

Patch 7.2.229
Problem: Warning for shadowed variable.
Solution: Rename "wait" to "wait_time".
Files: src/os_unix.c

Patch 7.2.230
Problem: A few old lint-style ARGUSED comments.
Solution: Change to the new UNUSED style.
Files: src/getchar.c

Patch 7.2.231
Problem: Warning for unreachable code.
Solution: Add #ifdef.
Files: src/if_perl.xs

Patch 7.2.232
Problem: Cannot debug problems with being in a wrong directory.
Solution: When 'verbose' is 5 or higher report directory changes.
Files: src/os_unix.c, src/os_unix.h, src/proto/os_unix.pro

Patch 7.2.233 (extra part of 7.2.232)
Problem: Cannot debug problems with being in a wrong directory.

```
Solution:   When 'verbose' is 5 or higher report directory changes.
Files:      src/os_msdos.c, src/os_mswin.c, src/os_riscos.c, src/os_mac.h

Patch 7.2.234
Problem:    It is not possible to ignore file names without a suffix.
Solution:   Use an empty entry in 'suffixes' for file names without a dot.
Files:      runtime/doc/cmdline.txt, src/misc1.c

Patch 7.2.235
Problem:    Using CTRL-O z= in Insert mode has a delay before redrawing.
Solution:   Reset msg_didout and msg_scroll.
Files:      src/misc1.c, src/spell.c

Patch 7.2.236
Problem:    Mac: Compiling with Ruby doesn't always work.
Solution:   In configure filter out the --arch argument (Bjorn Winckler)
Files:      src/configure.in, src/auto/configure

Patch 7.2.237
Problem:    Crash on exit when window icon not set.
Solution:   Copy terminal name when using it for the icon name.
Files:      src/os_unix.c

Patch 7.2.238
Problem:    Leaking memory when setting term to "builtin_dumb".
Solution:   Free memory when resetting term option t_Co.
Files:      src/option.c, src/proto/option.pro, src/term.c

Patch 7.2.239
Problem:    Using :diffpatch twice or when patching fails causes memory
            corruption and/or a crash.  (Bryan Venteicher)
Solution:   Detect missing output file.  Avoid using non-existing buffer.
Files:      src/diff.c

Patch 7.2.240
Problem:    Crash when using find/replace dialog repeatedly. (Michiel
            Hartsuiker)
Solution:   Avoid doing the operation while busy or recursively.  Also refuse
            replace when text is locked.
Files:      src/gui.c

Patch 7.2.241
Problem:    When using a combination of ":bufdo" and "doautoall" we may end up
            in the wrong directory. (Ajit Thakkar)
            Crash when triggering an autocommand in ":vimgrep".  (Yukihiro
            Nakadaira)
Solution:   Clear w_localdir and globaldir when using the aucmd_win.
            Use a separate flag to decide aucmd_win needs to be restored.
Files:      src/fileio.c, src/globals.h, src/structs.h

Patch 7.2.242
Problem:    Setting 'lazyredraw' causes the cursor column to be recomputed.
            (Tom Link)
Solution:   Only recompute the cursor column for a boolean option if changes
```

```
            the cursor position.
Files:      src/option.c

Patch 7.2.243
Problem:    Memory leak when using :vimgrep and resizing. (Dominique Pelle)
Solution:   Free memory for aucmd_win when resizing and don't allocate it
            twice.
Files:      src/screen.c

Patch 7.2.244
Problem:    When 'enc' is utf-8 and 'fenc' is latin1, writing a non-latin1
            character gives a conversion error without any hint what is wrong.
Solution:   When known add the line number to the error message.
Files:      src/fileio.c

Patch 7.2.245
Problem:    When 'enc' is "utf-16" and 'fenc' is "utf-8" writing a file does
            conversion while none should be done. (Yukihiro Nakadaira) When
            'fenc' is empty the file is written as utf-8 instead of utf-16.
Solution:   Do proper comparison of encodings, taking into account that all
            Unicode values for 'enc' use utf-8 internally.
Files:      src/fileio.c

Patch 7.2.246
Problem:    Cscope home page link is wrong.
Solution:   Update the URL. (Sergey Khorev)
Files:      runtime/doc/if_cscop.txt

Patch 7.2.247
Problem:    Mzscheme interface minor problem.
Solution:   Better error message when build fails. (Sergey Khorev)
Files:      src/if_mzsch.c

Patch 7.2.248 (extra)
Problem:    Mzscheme interface building minor problems.
Solution:   Update Win32 makefiles. (Sergey Khorev)
Files:      src/Make_cyg.mak, src/Make_ming.mak, src/Make_mvc.mak

Patch 7.2.249
Problem:    The script to check .po files can't handle '%' in plural forms.
Solution:   Remove "Plural-Forms:" from the checked string.
Files:      src/po/check.vim

Patch 7.2.250 (extra)
Problem:    Possible buffer overflow.
Solution:   Compute the remaining space. (Dominique Pelle)
Files:      src/GvimExt/gvimext.cpp

Patch 7.2.251 (after 7.2.044)
Problem:    Compiler adds invalid memory bounds check.
Solution:   Remove _FORTIFY_SOURCE=2 from CFLAGS. (Dominique Pelle)
Files:      src/auto/configure, src/configure.in

Patch 7.2.252
```

Problem: When using a multi-byte 'enc' the 'iskeyword' option cannot
            contain characters above 128.
Solution: Use mb_ptr2char_adv().
Files: src/charset.c

Patch 7.2.253
Problem: Netbeans interface: getLength always uses current buffer.
Solution: Use ml_get_buf() instead of ml_get(). (Xavier de Gaye)
Files: src/netbeans.c

Patch 7.2.254
Problem: Compiler warning for assigning size_t to int.
Solution: Use size_t for the variable. (George Reilly)
Files: src/fileio.c

Patch 7.2.255 (after 7.2.242)
Problem: Setting 'rightleft', 'linebreak' and 'wrap' may cause cursor to be
            in wrong place.
Solution: Recompute the cursor column for these options.
Files: src/option.c

Patch 7.2.256
Problem: When 'guifont' was not set GTK font dialog doesn't have a default.
            (Andreas Metzler)
Solution: Set default to DEFAULT_FONT. (James Vega)
Files: src/gui_gtk_x11.c

Patch 7.2.257
Problem: With GTK 2.17 lots of assertion error messages.
Solution: Remove check for static gravity. (Sebastian Droege)
Files: src/gui_gtk_f.c

Patch 7.2.258
Problem: v:beval_col and b:beval_text are wrong in UTF-8 text. (Tony
            Mechelynck)
Solution: Use byte number instead of character number for the column.
Files: src/ui.c

Patch 7.2.259
Problem: exists() doesn't work properly for an empty aucmd group.
Solution: Change how au_exists() handles a missing pattern. Also add a
            test for this. (Bob Hiestand)
Files: src/fileio.c, src/testdir/Makefile, src/testdir/test67.in,
            src/testdir/test67.ok

Patch 7.2.260 (extra part of 7.2.259)
Problem: exists() doesn't work properly for empty aucmd group.
Solution: Change how au_exists() handles a missing pattern. Also add a
            test for this. (Bob Hiestand)
Files: src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms

Patch 7.2.261

```
Problem:    When deleting lines with a specific folding configuration E38 may
            appear. (Shahaf)
Solution:   When adjusting nested folds for deleted lines take into account
            that they don't start at the top of the enclosing fold.
Files:      src/fold.c

Patch 7.2.262
Problem:    When using custom completion for a user command the pattern string
            goes beyond the cursor position. (Hari Krishna Dara)
Solution:   Truncate the string at the cursor position.
Files:      src/ex_getln.c, src/structs.h

Patch 7.2.263
Problem:    GTK2: when using the -geom argument with an offset from the right
            edge and the size is smaller than the default, the Vim window is
            not positioned properly.
Solution:   Use another function to set the size. (Vitaly Minko)
Files:      src/gui_gtk_x11.c

Patch 7.2.264
Problem:    GTK2: When the Vim window is maximized setting 'columns' or
            'lines' doesn't work.
Solution:   Unmaximize the window before setting the size. (Vitaly Minko)
Files:      src/gui.c, src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro

Patch 7.2.265
Problem:    When using ":silent broken" inside try/catch silency may persist.
            (dr-dr xp)
Solution:   Set msg_silent when there is an error and it's bigger than the
            saved value.
Files:      src/ex_docmd.c

Patch 7.2.266
Problem:    When an expression abbreviation is triggered, the typed character
            is unknown.
Solution:   Make the typed character available in v:char.
Files:      runtime/doc/map.txt, src/eval.c, src/getchar.c, src/ops.c,
            src/proto/eval.pro

Patch 7.2.267
Problem:    Crash for narrow window and double-width character.
Solution:   Check for zero width.  (Taro Muraoka)
Files:      src/charset.c

Patch 7.2.268
Problem:    Crash when using Python to set cursor beyond end of line.
            (winterTTr)
Solution:   Check the column to be valid.
Files:      src/if_python.c

Patch 7.2.269
Problem:    Many people struggle to find out why Vim startup is slow.
Solution:   Add the --startuptime command line flag.
Files:      runtime/doc/starting.txt, src/globals.h, src/feature.h,
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            src/main.c, src/macros.h

Patch 7.2.270
Problem:    Using ":@c" when the c register contains a CR causes the rest to
            be executed later. (Dexter Douglas)
Solution:   Don't check for typeahead to start with ':', keep executing
            commands until all added typeahead has been used.
Files:      src/ex_docmd.c

Patch 7.2.271
Problem:    Using freed memory in Motif GUI version when making a choice.
Solution:   Free memory only after using it. (Dominique Pelle)
Files:      src/gui_xmdlg.c

Patch 7.2.272
Problem:    "_.svz" is not recognized as a swap file. (David M. Besonen)
Solution:   Accept .s[uvw][a-z] as a swap file name extension.
Files:      src/memline.c

Patch 7.2.273
Problem:    Crash with redir to unknown array. (Christian Brabandt)
Solution:   Don't assign the redir result when there was an error.
Files:      src/eval.c

Patch 7.2.274
Problem:    Syntax folding doesn't work properly when adding a comment.
Solution:   Fix it and add a test. (Lech Lorens)
Files:      src/fold.c, src/testdir/test45.in, src/testdir/test45.ok

Patch 7.2.275
Problem:    Warning for unused argument and comparing signed and unsigned.
Solution:   Add type cast.
Files:      src/memline.c

Patch 7.2.276
Problem:    Crash when setting 'isprint' to a small bullet. (Raul Coronado)
Solution:   Check for the character to be < 256.  Also make it possible to
            specify a range of multi-byte characters. (Lech Lorens)
Files:      src/charset.c

Patch 7.2.277
Problem:    CTRL-Y in a diff'ed window may move the cursor outside of the
            window. (Lech Lorens)
Solution:   Limit the number of filler lines to the height of the window.
            Don't reset filler lines to zero for an empty buffer.
Files:      src/move.c

Patch 7.2.278
Problem:    Using magic number in the folding code.
Solution:   Use the defined MAX_LEVEL.
Files:      src/fold.c

Patch 7.2.279
Problem:    Invalid memory read with visual mode "r". (Dominique Pelle)
```

```
Solution:   Make sure the cursor position is valid.  Don't check the cursor
            position but the position being used.  And make sure we get the
            right line.
Files:      src/misc2.c, src/ops.c

Patch 7.2.280
Problem:    A redraw in a custom statusline with %! may cause a crash.
            (Yukihiro Nakadaira)
Solution:   Make a copy of 'statusline'.  Also fix typo in function name
            redraw_custom_statusline. (partly by Dominique Pelle)
Files:      src/screen.c

Patch 7.2.281
Problem:    'cursorcolumn' highlighting is wrong in diff mode.
Solution:   Adjust the column computation. (Lech Lorens)
Files:      src/screen.c

Patch 7.2.282
Problem:    A fold can't be closed.
Solution:   Initialize fd_small to MAYBE. (Lech Lorens)
Files:      src/fold.c

Patch 7.2.283
Problem:    Changing font while the window is maximized doesn't keep the
            window maximized.
Solution:   Recompute number of lines and columns after changing font. (James
            Vega)
Files:      src/gui_gtk_x11.c

Patch 7.2.284
Problem:    When editing the same buffer in two windows, one with folding,
            display may be wrong after changes.
Solution:   Call set_topline() to take care of side effects. (Lech Lorens)
Files:      src/misc1.c

Patch 7.2.285 (after 7.2.169)
Problem:    CTRL-U in Insert mode also deletes indent. (Andrey Voropaev)
Solution:   Fix mistake made in patch 7.2.169.
Files:      src/edit.c

Patch 7.2.286 (after 7.2.269)
Problem:    The "--startuptime=<file>" argument is not consistent with other
            arguments.
Solution:   Use "--startuptime <file>".  Added the +startuptime feature.
Files:      runtime/doc/eval.txt, runtime/doc/starting.txt,
            runtime/doc/various.txt, src/eval.c, src/main.c, src/version.c

Patch 7.2.287
Problem:    Warning from gcc 3.4 about uninitialized variable.
Solution:   Move assignment outside of #ifdef.
Files:      src/if_perl.xs

Patch 7.2.288
Problem:    Python 2.6 pyconfig.h redefines macros.
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Solution:   Undefine the macros before including pyconfig.h.
Files:      src/if_python.c

Patch 7.2.289
Problem:    Checking wrong struct member.
Solution:   Change tb_buf to tb_noremap. (Dominique Pelle)
Files:      src/getchar.c

Patch 7.2.290
Problem:    Not freeing memory from ":lmap", ":xmap" and ":menutranslate".
Solution:   Free the memory when exiting. (Dominique Pelle)
Files:      src/misc2.c

Patch 7.2.291
Problem:    Reading uninitialised memory in arabic mode.
Solution:   Use utfc_ptr2char_len() rather than utfc_ptr2char().  (Dominique
            Pelle)
Files:      src/screen.c

Patch 7.2.292
Problem:    Block right-shift doesn't work properly with multi-byte encoding
            and 'list' set.
Solution:   Add the missing "else". (Lech Lorens)
Files:      src/ops.c

Patch 7.2.293
Problem:    When setting 'comments' option it may be used in a wrong way.
Solution:   Don't increment after skipping over digits. (Yukihiro Nakadaira)
Files:      src/misc1.c

Patch 7.2.294
Problem:    When using TEMPDIRS dir name could get too long.
Solution:   Overwrite tail instead of appending each time.  Use mkdtemp() when
            available. (James Vega)
Files:      src/auto/configure, src/config.h.in, src/configure.in, src/fileio.c

Patch 7.2.295
Problem:    When using map() on a List the index is not known.
Solution:   Set v:key to the  index. (Hari Krishna Dara)
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.2.296
Problem:    Help message about startuptime is wrong. (Dominique Pelle)
Solution:   Remove the equal sign.
Files:      src/main.c

Patch 7.2.297
Problem:    Reading freed memory when writing ":reg" output to a register.
            (Dominique Pelle)
Solution:   Skip the register being written to.
Files:      src/ops.c

Patch 7.2.298
Problem:    ":vimgrep" crashes when there is an autocommand that sets a
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            window-local variable.
Solution: Initialize the w: hashtab for re-use. (Yukihiro Nakadaira)
Files: src/fileio.c

Patch 7.2.299
Problem: Crash when comment middle is longer than start.
Solution: Fix size computation. (Lech Lorens)
Files: src/misc1.c

Patch 7.2.300
Problem: Vim doesn't close file descriptors when forking and executing
            another command, e.g., ":shell".
Solution: Use FD_CLOEXEC when available. (James Vega)
Files: auto/configure, src/config.h.in, src/configure.in,
            src/ex_cmdds2.c, src/fileio.c, src/memfile.c, src/memline.c

Patch 7.2.301
Problem: Formatting is wrong when 'tw' is set to a small value.
Solution: Fix it and add tests. Also fix behavior of "1" in 'fo'. (Yukihiro
            Nakadaira)
Files: src/edit.c, src/testdir/Makefile, src/testdir/test68.in,
            src/testdir/test68.ok, src/testdir/test69.in,
            src/testdir/test69,ok

Patch 7.2.302 (extra part of 7.2.301)
Problem: Formatting wrong with small 'tw' value.
Solution: Add build rules for tests.
Files: src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms

Patch 7.2.303 (after 7.2.294)
Problem: Can't build on MS-Windows.
Solution: Add #ifdef around vim_settempdir(). (James Vega)
Files: src/fileio.c

Patch 7.2.304
Problem: Compiler warning for bad pointer cast.
Solution: Use another variable for int pointer.
Files: src/ops.c

Patch 7.2.305
Problem: Recursively redrawing causes a memory leak. (Dominique Pelle)
Solution: Disallow recursive screen updating.
Files: src/screen.c

Patch 7.2.306
Problem: shellescape("10%%", 1) only escapes first %. (Christian Brabandt)
Solution: Don't copy the character after the escaped one.
Files: src/misc2.c

Patch 7.2.307
Problem: Crash with a very long syntax match statement. (Guy Gur Ari)
Solution: When the offset does not fit in the two bytes available give an

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            error instead of continuing with invalid pointers.
Files:      src/regexp.c

Patch 7.2.308
Problem:    When using a regexp in the "\=" expression of a substitute
            command, submatch() returns empty strings for further lines.
            (Clockwork Jam)
Solution:   Save and restore the line number and line count when calling
            reg_getline().
Files:      src/regexp.c

Patch 7.2.309 (after 7.2.308)
Problem:    Warning for missing function prototype. (Patrick Texier)
Solution:   Add the prototype.
Files:      src/regexp.c

Patch 7.2.310
Problem:    When a filetype plugin in ~/.vim/ftdetect uses ":setfiletype" and
            the file starts with a "# comment" it gets "conf" filetype.
Solution:   Check for "conf" filetype after using ftdetect plugins.
Files:      runtime/filetype.vim

Patch 7.2.311
Problem:    Can't compile with FreeMiNT.
Solution:   Change #ifdef for limits.h. (Alan Hourihane)
Files:      src/fileio.c

Patch 7.2.312
Problem:    iconv() returns an invalid character sequence when conversion
            fails.  It should return an empty string. (Yongwei Wu)
Solution:   Be more strict about invalid characters in the input.
Files:      src/mbyte.c

Patch 7.2.313
Problem:    Command line completion doesn't work after "%:h" and similar.
Solution:   Expand these items before doing the completion.
Files:      src/ex_getln.c, src/misc1.c, src/proto/misc1.pro

Patch 7.2.314
Problem:    Missing function in small build.
Solution:   Always include concat_str.
Files:      src/misc1.c

Patch 7.2.315
Problem:    Python libs can't be found on 64 bit system.
Solution:   Add lib64 to the list of directories. (Michael Henry)
Files:      src/auto/configure, src/configure.in

Patch 7.2.316
Problem:    May get multiple _FORTIFY_SOURCE arguments. (Tony Mechelynck)
Solution:   First remove all these arguments and then add the one we want.
            (Dominique Pelle)
Files:      src/auto/configure, src/configure.in
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Patch 7.2.317
Problem:    Memory leak when adding a highlight group with unprintable
            characters, resulting in E669.
Solution:   Free the memory.  And fix a few typos. (Dominique Pelle)
Files:      src/syntax.c

Patch 7.2.318
Problem:    Wrong locale value breaks floating point numbers for gvim.
Solution:   Set the locale again after doing GUI inits. (Dominique Pelle)
Files:      src/main.c

Patch 7.2.319
Problem:    Motif: accessing freed memory when cancelling font dialog.
Solution:   Destroy the widget only after accessing it. (Dominique Pelle)
Files:      src/gui_xmdlg.c

Patch 7.2.320
Problem:    Unused function in Mzscheme interface.
Solution:   Remove the function and what depends on it. (Dominique Pelle)
Files:      src/if_mzsch.c, src/proto/if_mzsch.pro

Patch 7.2.321
Problem:    histadd() and searching with "*" fails to add entry to history
            when it is empty.
Solution:   Initialize the history. (Lech Lorens)
Files:      src/eval.c, src/normal.c

Patch 7.2.322
Problem:    Wrong indenting in virtual replace mode with CTRL-Y below a short
            line.
Solution:   Check for character to be NUL. (suggested by Lech Lorens)
Files:      src/edit.c

Patch 7.2.323 (extra)
Problem:    Balloon evaluation crashes on Win64.
Solution:   Change pointer types. (Sergey Khorev)
Files:      src/gui_w32.c

Patch 7.2.324
Problem:    A negative column argument in setpos() may cause a crash.
Solution:   Check for invalid column number. (James Vega)
Files:      src/eval.c, src/misc2.c

Patch 7.2.325
Problem:    A stray "w" in the startup vimrc file causes the edited file to be
            replaced with an empty file. (Stone Kang).
Solution:   Do not write a buffer when it has never been loaded.
Files:      src/fileio.c

Patch 7.2.326
Problem:    Win32: $HOME doesn't work when %HOMEPATH% is not defined.
Solution:   Use "\" for %HOMEPATH% when it is not defined.
Files:      src/misc1.c
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Patch 7.2.327
Problem:    Unused functions in Workshop.
Solution:   Add "#if 0" and minor cleanup. (Dominique Pelle)
Files:      src/workshop.c, src/integration.c, src/integration.h

Patch 7.2.328
Problem:    has("win64") does not return 1 on 64 bit MS-Windows version.
Solution:   Also check for _WIN64 besides WIN64.
Files:      src/eval.c

Patch 7.2.329
Problem:    "g_" doesn't position cursor correctly when in Visual mode and
            'selection' is "exclusive". (Ben Fritz)
Solution:   Call adjust_for_sel().
Files:      src/normal.c

Patch 7.2.330
Problem:    Tables for Unicode case operators are outdated.
Solution:   Add a Vim script for generating the tables.  Include tables for
            Unicode 5.2.
Files:      runtime/tools/README.txt, runtime/tools/unicode.vim, src/mbyte.c

Patch 7.2.331
Problem:    Can't interrupt "echo list" for a very long list.
Solution:   Call line_breakcheck() in list_join().
Files:      src/eval.c

Patch 7.2.332
Problem:    Crash when spell correcting triggers an autocommand that reloads
            the buffer.
Solution:   Make a copy of the line to be modified. (Dominique Pelle)
Files:      src/spell.c

Patch 7.2.333
Problem:    Warnings from static code analysis.
Solution:   Small changes to various lines. (Dominique Pelle)
Files:      src/buffer.c, src/edit.c, src/ex_getln.c, src/fileio.c,
            src/if_cscope.c, src/netbeans.c, src/ops.c, src/quickfix.c,
            src/syntax.c, src/ui.c

Patch 7.2.334
Problem:    Postponing keys in Netbeans interface does not work properly.
Solution:   Store the key string instead of the number.  Avoid an infinite
            loop. (Mostly by Xavier de Gaye)
Files:      src/netbeans.c, src/proto/netbeans.pro

Patch 7.2.335
Problem:    The CTRL-] command escapes too many characters.
Solution:   Use a different list of characters to be escaped. (Sergey Khorev)
Files:      src/normal.c

Patch 7.2.336
Problem:    MzScheme interface can't evaluate an expression.
Solution:   Add mzeval(). (Sergey Khorev)
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Files:      runtime/doc/eval.txt, runtime/doc/if_mzsch.txt,
            runtime/doc/usr_41.txt, src/eval.c, src/if_mzsch.c,
            src/proto/eval.pro, src/proto/if_mzsch.pro,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Makefile, src/testdir/main.aap, src/testdir/test1.in,
            src/testdir/test70.in, src/testdir/test70.ok

Patch 7.2.337
Problem:    The :compiler command doesn't function properly when invoked in a
            function.
Solution:   Add "g:" before "current_compiler". (Yukihiro Nakadaira)
Files:      src/ex_cmds2.c

Patch 7.2.338 (after 7.2.300)
Problem:    Part of FD_CLOEXEC change is missing.
Solution:   Include source file skipped because of typo.
Files:      src/ex_cmds2.c

Patch 7.2.339 (after 7.2.269)
Problem:    Part of --startuptime patch is missing.
Solution:   Add check for time_fd.
Files:      src/ex_cmds2.c

Patch 7.2.340
Problem:    Gcc warning for condition that can never be true. (James Vega)
Solution:   Use start_lvl instead flp->lvl.
Files:      src/fold.c

Patch 7.2.341
Problem:    Popup menu wraps to next line when double-wide character doesn't
            fit. (Jiang Ma)
Solution:   Display a ">" instead. (Dominique Pelle)
Files:      src/screen.c

Patch 7.2.342
Problem:    Popup menu displayed wrong in 'rightleft' mode when there are
            multi-byte characters.
Solution:   Adjust the column computations. (Dominique Pelle)
Files:      src/popupmnu.c

Patch 7.2.343 (after 7.2.338)
Problem:    Can't compile on Win32.
Solution:   Insert the missing '|'.
Files:      src/ex_cmds2.c

Patch 7.2.344 (after 7.2.343)
Problem:    Can't compile on some systems
Solution:   Move the #ifdef outside of the mch_open macro. (Patrick Texier)
Files:      src/ex_cmds2.c

Patch 7.2.345
Problem:    Tab line is not updated when the value of 'bt' is changed.
Solution:   Call redraw_titles(). (Lech Lorens)
Files:      src/option.c
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Patch 7.2.346
Problem:    Repeating a command with @: causes a mapping to be applied twice.
Solution:   Do not remap characters inserted in the typeahead buffer. (Kana
            Natsuno)
Files:      src/ops.c

Patch 7.2.347
Problem:    Crash when executing <expr> mapping redefines that same mapping.
Solution:   Save the values used before evaluating the expression.
Files:      src/getchar.c

Patch 7.2.348 (after 7.2.330)
Problem:    Unicode double-width characters are not up-to date.
Solution:   Produce the double-width table like the others.
Files:      runtime/tools/unicode.vim, src/mbyte.c

Patch 7.2.349
Problem:    CTRL-W gf doesn't put the new tab in the same place as "tab split"
            and "gf". (Tony Mechelynck)
Solution:   Store the tab number in cmdmod.tab.
Files:      src/window.c

Patch 7.2.350
Problem:    Win32: When changing font the window may jump from the secondary
            to the primary screen. (Michael Wookey)
Solution:   When the screen position was negative don't correct it to zero.
Files:      src/gui.c

Patch 7.2.351 (after 7.2.347)
Problem:    Can't build with some compilers.
Solution:   Move the #ifdef outside of a macro.  Cleanup the code.
Files:      src/getchar.c

Patch 7.2.352 (extra)
Problem:    Win64: Vim doesn't work when cross-compiled with MingW libraries.
Solution:   Always return TRUE for the WM_NCCREATE message. (Andy Kittner)
Files:      src/gui_w48.c

Patch 7.2.353
Problem:    No command line completion for ":profile".
Solution:   Complete the subcommand and file name.
Files:      src/ex_docmd.c, src/ex_cmds2.c, src/ex_getln.c,
            src/proto/ex_cmds2.pro, src/vim.h

Patch 7.2.354
Problem:    Japanese single-width double-byte characters not handled correctly.
Solution:   Put 0x8e in ScreenLines[] and the second byte in ScreenLines2[].
            (partly by Kikuchan)
Files:      src/screen.c

Patch 7.2.355
Problem:    Computing the cursor column in validate_cursor_col() is wrong when
            line numbers are used and 'n' is not in 'cpoptions', causing the
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            popup menu to be positioned wrong.
Solution: Correctly use the offset. (partly by Dominique Pelle)
Files: src/move.c

Patch 7.2.356
Problem: When 'foldmethod' is changed not all folds are closed as expected.
Solution: In foldUpdate() correct the start position and reset fd_flags when
            w_foldinvalid is set. (Lech Lorens)
Files: src/fold.c

Patch 7.2.357
Problem: When changing 'fileformat' from/to "mac" and there is a CR in the
            text the display is wrong.
Solution: Redraw the text when 'fileformat' is changed. (Ben Schmidt)
Files: src/option.c

Patch 7.2.358
Problem: Compiler warnings on VMS. (Zoltan Arpadffy)
Solution: Pass array itself instead its address. Return a value.
Files: src/gui_gtk_x11.c, src/os_unix.c

Patch 7.2.359
Problem: Crash when using the Netbeans join command.
Solution: Make sure the ml_flush_line() function is not used recursively.
            (Xavier de Gaye)
Files: src/memline.c

Patch 7.2.360
Problem: Ruby on MS-Windows: can't use sockets.
Solution: Call NtInitialize() during initialization. (Ariya Mizutani)
Files: src/if_ruby.c

Patch 7.2.361
Problem: Ruby 1.9 is not supported.
Solution: Add Ruby 1.9 support. (Masaki Suketa)
Files: src/Makefile, src/auto/configure, src/configure.in, src/if_ruby.c

Patch 7.2.362 (extra, after 7.2.352)
Problem: Win64: Vim doesn't work when cross-compiled with MingW libraries.
Solution: Instead of handling WM_NCCREATE, create wide text area window
            class if the parent window iw side. (Sergey Khorev)
Files: src/gui_w32.c, src/gui_w48.c

Patch 7.2.363
Problem: Can't dynamically load Perl 5.10.
Solution: Add the function Perl_croak_xs_usage. (Sergey Khorev)
Files: src/if_perl.xs

Patch 7.2.364 (extra)
Problem: Can't build gvimext.dll on Win 7 x64 using MinGW (John Marriott)
Solution: Check if _MSC_VER is defined. (Andy Kittner)
Files: src/GvimExt/gvimext.h

Patch 7.2.365 (extra)

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Problem:    MS-Windows with MingW: "File->Save As" does not work. (John
            Marriott)
Solution:   Correctly fill in structure size. (Andy Kittner)
Files:      src/gui_w48.c

Patch 7.2.366
Problem:    CTRL-B doesn't go back to the first line of the buffer.
Solution:   Avoid an overflow when adding MAXCOL.
Files:      src/move.c

Patch 7.2.367
Problem:    "xxd -r -p" doesn't work as documented.
Solution:   Skip white space. (James Vega)
Files:      src/xxd/xxd.c

Patch 7.2.368 (after 7.2.361)
Problem:    Ruby interface: Appending line doesn't work. (Michael Henry)
Solution:   Reverse check for NULL line. (James Vega)
Files:      src/if_ruby.c

Patch 7.2.369
Problem:    Error message is not easy to understand.
Solution:   Add quotes. (SungHyun Nam)
Files:      src/ex_cmds2.c

Patch 7.2.370 (after 7.2.356)
Problem:    A redraw may cause folds to be closed.
Solution:   Revert part of the previous patch.  Add a test. (Lech Lorens)
Files:      src/diff.c, src/fold.c, src/option.c, src/testdir/test45.in,
            src/testdir/test45.ok

Patch 7.2.371
Problem:    Build problems on Tandem NonStop.
Solution:   A few changes to #ifdefs (Joachim Schmitz)
Files:      src/auto/configure, src/configure.in, src/config.h.in, src/vim.h,
            src/if_cscope.c, src/osdef1.h.in, src/tag.c

Patch 7.2.372 (extra)
Problem:    Cross-compiling GvimExt and xxd doesn't work.
Solution:   Change the build files. (Markus Heidelberg)
Files:      src/INSTALLpc.txt, src/GvimExt/Make_ming.mak, src/Make_cyg.mak,
            src/Make_ming.mak, src/xxd/Make_cyg.mak

Patch 7.2.373
Problem:    Gcc 4.5 adds more error messages. (Chris Indy)
Solution:   Update default 'errorformat'.
Files:      src/option.h

Patch 7.2.374
Problem:    Ruby eval() doesn't understand Vim types.
Solution:   Add the vim_to_ruby() function.  (George Gensure)
Files:      src/eval.c, src/if_ruby.c

Patch 7.2.375
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Problem:    ml_get errors when using ":bprevious" in a BufEnter autocmd.
            (Dominique Pelle)
Solution:   Clear w_valid when entering another buffer.
Files:      src/buffer.c

Patch 7.2.376
Problem:    ml_get error when using SiSU syntax. (Nathan Thomas)
Solution:   If the match ends below the last line move it to the end of the
            last line.
Files:      src/syntax.c

Patch 7.2.377 (extra, after 7.2.372)
Problem:    Misplaced assignment.  Duplicate build line for gvimext.dll.
Solution:   Move setting CROSS_COMPILE to before ifneq.  Remove the wrong
            build line. (Markus Heidelberg)
Files:      src/Make_ming.mak

Patch 7.2.378
Problem:    C function declaration indented too much. (Rui)
Solution:   Don't see a line containing { or } as a type. (Matt Wozniski)
Files:      src/misc1.c

Patch 7.2.379
Problem:    'eventignore' is set to an invalid value inside ":doau". (Antony
            Scriven)
Solution:   Don't include the leading comma when the option was empty.
Files:      src/fileio.c

Patch 7.2.380 (after 7.2.363)
Problem:    Perl interface builds with 5.10.1 but not with 5.10.0.
Solution:   Change the #ifdefs. (Sergey Khorev)
Files:      src/if_perl.xs

Patch 7.2.381
Problem:    No completion for :behave.
Solution:   Add :behave completion.  Minor related fixes. (Dominique Pelle)
Files:      src/ex_docmd.c, src/ex_getln.c, src/proto/ex_docmd.pro, src/vim.h

Patch 7.2.382
Problem:    Accessing freed memory when closing the cmdline window when
            'bufhide' is set to "wipe".
Solution:   Check if the buffer still exists before invoking close_buffer()
            (Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.2.383
Problem:    Vim doesn't build cleanly with MSVC 2010.
Solution:   Change a few types. (George Reilly)
Files:      src/ex_cmds2.c, src/if_python.c, src/syntax.c

Patch 7.2.384 (extra)
Problem:    Vim doesn't build properly with MSVC 2010.
Solution:   Add the nmake version to the build file. (George Reilly)
Files:      src/Make_mvc.mak, src/testdir/Make_dos.mak
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Patch 7.2.385
Problem:    When in the command line window dragging status line only works
            for last-but-one window. (Jean Johner)
Solution:   Remove the code that disallows this.
Files:      src/ui.c

Patch 7.2.386
Problem:    Focus hack for KDE 3.1 causes problems for other window managers.
Solution:   Remove the hack. (forwarded by Joel Bradshaw)
Files:      src/gui_gtk.c

Patch 7.2.387
Problem:    Ruby with MingW still doesn't build all versions.
Solution:   More #ifdefs for the  Ruby code. (Sergey Khorev)
Files:      src/if_ruby.c

Patch 7.2.388 (extra part of 7.2.387)
Problem:    Ruby with MingW still doesn't build all versions.
Solution:   Different approach to build file. (Sergey Khorev)
Files:      src/Make_ming.mak

Patch 7.2.389
Problem:    synIDattr() cannot return the font.
Solution:   Support the "font" argument. (Christian Brabandt)
Files:      runtime/doc/eval.txt, src/eval.c, src/syntax.c

Patch 7.2.390
Problem:    In some situations the popup menu can be displayed wrong.
Solution:   Remove the popup menu if the cursor moved. (Lech Lorens)
Files:      src/edit.c

Patch 7.2.391
Problem:    Internal alloc(0) error when doing "CTRL-V $ c". (Martti Kuparinen)
Solution:   Fix computations in getvcol(). (partly by Lech Lorens)
Files:      src/charset.c, src/memline.c

Patch 7.2.392
Problem:    Netbeans hangs reading from a socket at the maximum block size.
Solution:   Use select() or poll(). (Xavier de Gaye)
Files:      src/vim.h, src/os_unixx.h, src/if_xcmdsrv.c, src/netbeans.c

Patch 7.2.393
Problem:    Mac: Can't build with different Xcode developer tools directory.
Solution:   make "Developer" directory name configurable. (Rainer Muller)
Files:      src/configure.in, src/auto/configure

Patch 7.2.394
Problem:    .lzma and .xz files are not supported.
Solution:   Recognize .lzma and .xz files so that they can be edited.
Files:      runtime/plugin/gzip.vim

Patch 7.2.395
Problem:    In help CTRL=] on g?g? escapes the ?, causing it to fail. (Tony
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            Mechelynck)
Solution:   Don't escape ? for a help command. (Sergey Khorev)
Files:      src/normal.c

Patch 7.2.396
Problem:    Get E38 errors. (Dasn)
Solution:   Set cursor to line 1 instead of 0. (Dominique Pelle)
Files:      src/popupmnu.c

Patch 7.2.397
Problem:    Redundant check for w_lines_valid.
Solution:   Remove the if.  (Lech Lorens)
Files:      src/fold.c

Patch 7.2.398
Problem:    When moving windows the cursor ends up in the wrong line.
Solution:   Set the window width and height properly. (Lech Lorens)
Files:      src/window.c

Patch 7.2.399 (extra, after 7.2.388)
Problem:    Cannot compile on MingW.
Solution:   Move ifneq to separate line. (Vlad Sandrini, Dominique Pelle)
Files:      src/Make_ming.mak

Patch 7.2.400 (after 7.2.387)
Problem:    Dynamic Ruby is not initialised properly for version 1.9.1.
            Ruby cannot create strings from NULL.
Solution:   Cleanup #ifdefs.  Handle NULL like an empty string.  Add
            ruby_init_stack. (Sergey Khorev)
Files:      src/if_ruby.c

Patch 7.2.401
Problem:    ":e dir<Tab>" with 'wildmode' set to "list" doesn't highlight
            directory names with a space. (Alexandre Provencio)
Solution:   Remove the backslash before checking if the name is a directory.
            (Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.2.402
Problem:    This gives a #705 error: let X = function('haslocaldir')
            let X = function('getcwd')
Solution:   Don't give E705 when the name is found in the hashtab. (Sergey
            Khorev)
Files:      src/eval.c

Patch 7.2.403 (after 7.2.400)
Problem:    Compiler warning for pointer type. (Tony Mechelynck)
Solution:   Move type cast to the right place.
Files:      src/if_ruby.c

Patch 7.2.404
Problem:    Pointers for composing characters are not properly initialized.
Solution:   Compute the size of the pointer, not what it points to. (Yukihiro
            Nakadaira)
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Files:      src/screen.c

Patch 7.2.405
Problem:    When built with small features the matching text is not
            highlighted for ":s/pat/repl/c".
Solution:   Remove the #ifdef for IncSearch. (James Vega)
Files:      src/syntax.c

Patch 7.2.406
Problem:    Patch 7.2.119 introduces uninit mem read. (Dominique Pelle)
Solution:   Only used ScreeenLinesC when ScreeenLinesUC is not zero. (Yukihiro
            Nakadaira)  Also clear ScreeenLinesC when allocating.
Files:      src/screen.c

Patch 7.2.407
Problem:    When using an expression in ":s" backslashes in the result are
            dropped. (Sergey Goldgaber, Christian Brabandt)
Solution:   Double backslashes.
Files:      src/regexp.c

Patch 7.2.408
Problem:    With ":g/the/s/foo/bar/" the '[ and '] marks can be set to a line
            that was not changed.
Solution:   Only set '[ and '] marks when a substitution was done.
Files:      src/ex_cmds.c

Patch 7.2.409
Problem:    Summary of number of substitutes is incorrect for ":folddo". (Jean
            Johner)
Solution:   Reset sub_nsubs and sub_nlines in global_exe().
Files:      src/ex_cmds.c

Patch 7.2.410
Problem:    Highlighting directories for completion doesn't work properly.
Solution:   Don't halve backslashes when not needed, expanded "~/".
            (Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.2.411
Problem:    When parsing 'cino' a comma isn't skipped properly.
Solution:   Skip the comma. (Lech Lorens)
Files:      src/misc1.c

Patch 7.2.412
Problem:    [ or ] followed by mouse click doesn't work.
Solution:   Reverse check for key being a mouse event. (Dominique Pelle)
Files:      src/normal.c

Patch 7.2.413
Problem:    Large file support is incorrect.
Solution:   Add AC_SYS_LARGEFILE to configure. (James Vega)
Files:      src/configure.in, src/config.h.in, src/auto/configure

Patch 7.2.414
```

```
Problem:    CTRK-K <space> <space> does not produce 0xa0 as expected. (Tony
            Mechelynck)
Solution:   Remove the Unicode range 0xe000 - 0xefff from digraphs, these are
            not valid characters.
Files:      src/digraph.c

Patch 7.2.415
Problem:    Win32: Can't open a remote file when starting Vim.
Solution:   Don't invoke cygwin_conv_path() for URLs. (Tomoya Adachi)
Files:      src/main.c

Patch 7.2.416
Problem:    Logtalk.dict is not installed.
Solution:   Add it to the install target. (Markus Heidelberg)
Files:      src/Makefile

Patch 7.2.417
Problem:    When 'shell' has an argument with a slash then 'shellpipe' is not
            set properly. (Britton Kerin)
Solution:   Assume there are no spaces in the path, arguments follow.
Files:      src/option.c

Patch 7.2.418
Problem:    Vim tries to set the background or foreground color in a terminal
            to -1.  (Graywh)  Happens with ":hi Normal ctermbg=NONE".
Solution:   When resetting the foreground or background color don't set the
            color, let the clear screen code do that.
Files:      src/syntax.c

Patch 7.2.419
Problem:    Memory leak in Motif when clicking on "Search Vim Help".
Solution:   Free string returned by XmTextGetString(). (Dominique Pelle)
Files:      src/gui_motif.c

Patch 7.2.420
Problem:    ":argedit" does not accept "++enc=utf8" as documented. (Dominique
            Pelle)
Solution:   Add the ARGOPT flag to ":argedit".
Files:      src/ex_cmds.h

Patch 7.2.421
Problem:    Folds are sometimes not updated properly and there is no way to
            force an update.
Solution:   Make "zx" and "zX" recompute folds (suggested by Christian
            Brabandt)
Files:      src/normal.c

Patch 7.2.422
Problem:    May get E763 when using spell dictionaries.
Solution:   Avoid utf-8 case folded character to be truncated to 8 bits and
            differ from latin1. (Dominique Pelle)
Files:      src/spell.c

Patch 7.2.423
```

```
Problem:    Crash when assigning s: to variable. (Yukihiro Nakadaira)
Solution:   Make ga_scripts contain pointer to scriptvar_T instead of
            scriptvar_T itself. (Dominique Pelle)
Files:      src/eval.c

Patch 7.2.424
Problem:    ":colorscheme" without an argument doesn't do anything.
Solution:   Make it echo the current color scheme name.  (partly by Christian
            Brabandt)
Files:      runtime/doc/syntax.txt, src/ex_cmds.h, src/ex_docmd.c

Patch 7.2.425
Problem:    Some compilers complain about fourth EX() argument.
Solution:   Add cast to long_u.
Files:      src/ex_cmds.h

Patch 7.2.426
Problem:    Commas in 'langmap' are not always handled correctly.
Solution:   Require commas to be backslash escaped. (James Vega)
Files:      src/option.c

Patch 7.2.427
Problem:    The swapfile is created using the destination of a symlink, but
            recovery doesn't follow symlinks.
Solution:   When recovering, resolve symlinks. (James Vega)
Files:      src/memline.c

Patch 7.2.428
Problem:    Using setqflist([]) to clear the error list doesn't work properly.
Solution:   Set qf_nonevalid to TRUE when appropriate. (Christian Brabandt)
Files:      src/quickfix.c

Patch 7.2.429
Problem:    A file that exists but access is denied may result in a "new file"
            message.  E.g. when its directory is unreadable.
Solution:   Specifically check for ENOENT to decide a file doesn't exist.
            (partly by James Vega)
Files:      src/fileio.c

Patch 7.2.430
Problem:    The ++bad argument is handled wrong, resulting in an invalid
            memory access.
Solution:   Use the bad_char field only for the replacement character, add
            bad_char_idx to store the position. (Dominique Pelle)
Files:      src/eval.c, src/ex_cmds.h, src/ex_docmd.c

Patch 7.2.431
Problem:    ":amenu" moves the cursor when in Insert mode.
Solution:   Use CTRL-\ CTRL-O instead of CTRL-O. (Christian Brabandt)
Files:      src/menu.c

Patch 7.2.432
Problem:    When menus are translated they can only be found by the translated
            name.  That makes ":emenu" difficult to use.
```

```
Solution:   Store the untranslated name and use it for completion and :emenu.
            (Liang Peng (Bezetek James), Edward L. Fox)
Files:      src/menu.c, src/structs.h

Patch 7.2.433
Problem:    Can't use cscope with QuickFixCmdPre and QuickFixCmdPost.
Solution:   Add cscope support for these autocmd events. (Bryan Venteicher)
Files:      runtime/doc/autocmd.txt, src/if_cscope.c

Patch 7.2.434 (after 7.2.432)
Problem:    Compilation fails without the multi-lang feature.
Solution:   Add #ifdefs. (John Marriott)
Files:      src/menu.c

Patch 7.2.435 (after 7.2.430)
Problem:    Crash when using bad_char_idx uninitialized. (Patrick Texier)
Solution:   Don't use bad_char_idx, reproduce the ++bad argument from bad_char.
Files:      src/eval.c, src/ex_cmds.h, src/ex_docmd.c

Patch 7.2.436
Problem:    Reproducible crash in syntax HL. (George Reilly, Dominique Pelle)
Solution:   Make sst_stacksize an int instead of short. (Dominique Pelle)
Files:      src/structs.h

Patch 7.2.437 (after 7.2.407)
Problem:    When "\\\n" appears in the expression result the \n doesn't result
            in a line break. (Andy Wokula)
Solution:   Also replace a \n after a backslash into \r.
Files:      src/regexp.c

Patch 7.2.438 (after 7.2.427)
Problem:    "vim -r" crashes.
Solution:   Don't use NULL pointer argument.
Files:      src/memline.c

Patch 7.2.439
Problem:    Invalid memory access when doing thesaurus completion and
            'infercase' is set.
Solution:   Use the minimal length of completed word and replacement.
            (Dominique Pelle)
Files:      src/edit.c

Patch 7.2.440
Problem:    Calling a function through a funcref, where the function deletes
            the funcref, leads to an invalid memory access.
Solution:   Make a copy of the function name. (Lech Lorens)
Files:      src/eval.c, src/testdir/test34.in, src/testdir/test34.ok

Patch 7.2.441
Problem:    When using ":earlier" undo information may be wrong.
Solution:   When changing alternate branches also adjust b_u_oldhead.
Files:      src/undo.c

Patch 7.2.442 (after 7.2.201)
```

```
Problem:    Copy/paste with OpenOffice doesn't work.
Solution:   Do not offer the HTML target when it is not supported. (James
            Vega)
Files:      src/gui_gtk_x11.c, src/option.c, src/proto/gui_gtk_x11.pro

Patch 7.2.443
Problem:    Using taglist() on a tag file with duplicate fields generates an
            internal error. (Peter Odding)
Solution:   Check for duplicate field names.
Files:      src/eval.c, src/proto/eval.pro, src/tag.c

Patch 7.2.444 (after 7.2.442)
Problem:    Can't build with GTK 1, gtk_selection_clear_targets() is not
            available. (Patrick Texier)
Solution:   Don't change the targets for GTK 1, set them once.
Files:      src/gui_gtk_x11.c, src/option.c

Patch 7.2.445
Problem:    Crash when using undo/redo and a FileChangedRO autocmd event that
            reloads the buffer. (Dominique Pelle)
Solution:   Do not allow autocommands while performing and undo or redo.
Files:      src/misc1.c, src/undo.c

Patch 7.2.446
Problem:    Crash in GUI when closing the last window in a tabpage. (ryo7000)
Solution:   Remove the tabpage from the list before freeing the window.
Files:      src/window.c

When writing a file, switching tab pages and selecting a word the file write
message would be displayed again.  This happened in Insert mode and with
'cmdheight' set to 2.

When using ":lang" to set a locale that uses a comma for decimal separator and
using GTK floating point numbers stop working.  Use gtk_disable_setlocale().
(James Vega)

"g8" didn't produce the right value on a NUL. (Dominique Pelle)

Use BASEMODLIBS instead of MODLIBS for Python configuration to pick up the
right compiler flags. (Michael Bienia)

Window title was not updated after dropping a file on Vim. (Hari G)

synstack() did not return anything when just past the end of the line.  Useful
when using the cursor position in Insert mode.

When entering a digraph or special character after a line that fits the window
the '?' or '^' on the next line is not redrawn. (Ian Kelling)

Composing characters in  :s  substitute text were dropped.

 exists()  was causing an autoload script to be loaded.

Filter out -pthread for cproto.
```

Make CTRL-L in command line mode respect 'ignorecase' and 'smartcase'. (Martin Toft)

Spell menu moved the cursor, causing Copy not to work. Spell replacement didn't work in 'compatible' mode.

Various small fixes from Dominique Pelle.

Fix that :mksession may generate "2argu" even though there is no such argument. (Peter Odding)

Fixes for time in clipboard request. Also fix ownership. (David Fries)

Fixed completion of file names with '%' and '*'.

Fixed MSVC makefile use of /Wp64 flag.

Correct use of long instead of off_t for file size. (James Vega)

Add a few #ifdefs to exclude functions that are not used. (Dominique Pelle)

Remove old and unused method to allocate memory for undo.

Fix definition of UINT_PTR for 64 bit systems.

Some versions of Ruby redefine rb_str_new2 to rb_str_new_cstr.

Window title not updated after file dropped.

Fixed crash for ":find" completion, might also happen in other path expansion usage.

When 'searchhl' causes a hang make CTRL-C disable 'searchhl'.

When resetting both 'title' and 'icon' the title would be set after a shell command.

Reset 'title' and 'icon' in test47 to avoid the xterm title getting messed up.

Fix for compiler warning about function prototype in pty.c.

Added 'window' to the options window.

Fixed: errors for allocating zero bytes when profiling an empty function.

Remove -arch flag from build flags for Perl. (Bjorn Wickler)

Fix 'autochdir' not showing up in :options window. (Dominique Pelle)

Fix: test 69 didn't work on MS-Windows. Test 72 beeped too often.

Avoid illegal memory access in spell suggestion. (Dominique Pelle)
Fix: crash in spell checking with a 0x300 character.

Avoid that running tests changes viminfo.

Fix: changing case of a character removed combining characters.
Fixed: CTRL-R in Insert mode doesn't insert composing characters.

Added the WOW64 flag to OLE registration, for 64 bit Windows systems.

Various fixes for coverity warnings.

Fix compile warnings, esp. for 64-bit systems. (Mike Williams)

Fix: :redir to a dictionary that is changed before ":redir END" causes a
memory access error.

Fix: terminal title not properly restored when there are multi-byte
characters. (partly by James Vega)

Set 'wrapscan' when checking the .po files. (Mike Williams)

Win32: Put quotes around the gvim.exe path for the "Open with" menu entry.

On MS-Windows sometimes files with number 4913 or higher are left behind.

'suffixesadd' was used for finding tags file.

Removed unused code.

Improved positioning of combining characters in GTK.

Made test 11 pass when there is no gzip program. (John Beckett)

Changed readfile() to ignore byte order marks, unless in binary mode.

On MS-Windows completion of shell commands didn't work.

An unprintable multi-byte character at the start of the screen line caused the
following text to be drawn at the wrong position.

Got ml_get errors when using undo with 'virtualedit'.

Call gui_mch_update() before triggering GuiEnter autocmd. (Ron Aaron)

Unix "make install" installed a few Amiga .info files.

Disallow setting 'ambiwidth' to "double" when 'listchars' or 'fillchars'
contains a character that would become double width.

Set 'wrapscan' when checking the .po files. (Mike Williams)

Fixed: using expression in command line may cause a crash.

Avoid warnings from the clang compiler. (Dominique Pelle)

Fix: Include wchar.h in charset.c for towupper().

Fixed: Using ":read file" in an empty buffer when 'compatible' is set caused an error. Was caused by patch 7.2.132.

Make the references to features in the help more consistent. (Sylvain Hitier)

==
VERSION 7.4   version-7.4 version7.4 vim-7.4

This section is about improvements made between version 7.3 and 7.4.

This release has hundreds of bug fixes and there are a few new features. The most notable new features are:

- New regexp engine   new-regexp-engine
- A more pythonic Python interface   better-python-interface

New regexp engine   new-regexp-engine

What is now called the "old" regexp engine uses a backtracking algorithm. It tries to match the pattern with the text in one way, and when that fails it goes back and tries another way. This works fine for simple patterns, but complex patterns can be very slow on longer text.

The new engine uses a state machine. It tries all possible alternatives at the current character and stores the possible states of the pattern. This is a bit slower for simple patterns, but much faster for complex patterns and long text.

Most notably, syntax highlighting for Javascript and XML files with long lines is now working fine. Previously Vim could get stuck.

More information here: two-engines

Better Python interface   better-python-interface

Added python-bindeval function. Unlike python-eval this one returns python-Dictionary , python-List and python-Function objects for dictionaries lists and functions respectively in place of their Python built-in equivalents (or None if we are talking about function references).
   For simple types this function returns Python built-in types and not only Python `str()` like python-eval does. On Python 3 it will return `bytes()` objects in place of `str()` ones avoiding possibility of UnicodeDecodeError.
   Interface of new objects mimics standard Python `dict()` and `list()` interfaces to some extent. Extent will be improved in the future.

Added special python-vars objects also available for python-buffer and python-window . They ease access to Vim script variables from Python.

Now you no longer need to alter `sys.path` to import your module: special hooks are responsible for importing from {rtp}/python2, {rtp}/python3 and {rtp}/pythonx directories (for Python 2, Python 3 and both respectively). See python-special-path .

Added possibility to work with tabpage s through python-tabpage object.

Added automatic conversion of Vim errors and exceptions to Python exceptions.

Changed the behavior of the python-buffers object: it now uses buffer numbers as keys in place of the index of the buffer in the internal buffer list. This should not break anything as the only way to get this index was iterating over python-buffers .

Added :pydo and :py3do commands.

Added the pyeval() and py3eval() functions.

Now in all places which previously accepted `str()` objects, `str()` and `unicode()` (Python 2) or `bytes()` and `str()` (Python 3) are accepted.

python-window has gained `.col` and `.row` attributes that are currently the only way to get internal window positions.

Added or fixed support for `dir()` in Vim Python objects.

Changed changed-7.4

Old Python versions (≤2.2) are no longer supported. Building with them did not work anyway.

Options:

Added ability to automatically save the selection into the system clipboard when using non-GUI version of Vim (autoselectplus in 'clipboard'). Also added ability to use the system clipboard as default register (previously only primary selection could be used). (Ivan Krasilnikov, Christian Brabandt, Bram Moolenaar)

Added a special 'shiftwidth' value that makes 'sw' follow 'tabstop'. As indenting via 'indentexpr' became tricky shiftwidth() function was added. Also added equivalent special value to 'softtabstop' option. (Christian Brabandt, so8res)

Show absolute number in number column when 'relativenumber' option is on. Now there are four combinations with 'number' and 'relativenumber'. (Christian Brabandt)

Commands:

:diffoff now saves the local values of some settings and restores them in place of blindly resetting them to the defaults. (Christian Brabandt)

Other:
	Lua interface now also uses userdata binded to Vim structures. (Taro Muraoka, Luis Carvalho)

	glob() and autocommand patterns used to work with the undocumented "\{n,m\}" item from a regexp. "\{" is now used for a literal "{", as this is normal in shell file patterns. Now used "\\\{n,m\}" to get "\{n,m}" in the regexp pattern.

Added added-7.4

Various syntax, indent and other plugins were added.

Added support for Lists and Dictionaries in viminfo . (Christian Brabandt)

Functions:
	Bitwise functions: and() , or() , invert() , xor() .

	Added luaeval() function. (Taro Muraoka, Luis Carvalho)

	Added sha256() function. (Tyru, Hirohito Higashi)

	Added wildmenumode() function. (Christian Brabandt)

	Debugging functions: screenattr() , screenchar() , screencol() , screenrow() . (Simon Ruderich, Bram Moolenaar)

	Added ability to use Dictionary-function s for sort() ing, via optional third argument. (Nikolay Pavlov)

	Added special expand() argument that expands to the current line number.

	Made it possible to force char2nr() to always give unicode codepoints regardless of current encoding. (Yasuhiro Matsumoto)

	Made it possible for functions generating file list generate List and not NL-separated string. (e.g. glob() , expand()) (Christian Brabandt)

	Functions that obtain variables from the specific window, tabpage or buffer scope dictionary can now return specified default value in place of empty string in case variable is not found. (gettabvar() , getwinvar() , getbufvar()) (Shougo Matsushita, Hirohito Higashi)

Autocommands:
	Added InsertCharPre event launched before inserting character. (Jakson A. Aquino)

	Added CompleteDone event launched after finishing completion in insert mode. (idea by Florian Klein)

Added QuitPre event launched when commands that can either close Vim or only some window(s) are launched.

Added TextChanged and TextChangedI events launched when text is changed.

Commands:
:syntime command useful for debugging.

Made it possible to remove all signs from the current buffer using :sign-unplace . (Christian Brabandt)

Added :language autocompletion. (Dominique Pelle)

Added more :command-complete completion types: :behave suboptions, color schemes, compilers, :cscope suboptions, files from 'path', :history suboptions, locale names, :syntime suboptions, user names. (Dominique Pelle)

Added :map-nowait creating mapping which when having lhs that is the prefix of another mapping's lhs will not allow Vim to wait for user to type more characters to resolve ambiguity, forcing Vim to take the shorter alternative: one with <nowait>.

Options:
Made it possible to ignore case when completing: 'wildignorecase'.

Added ability to delete comment leader when using J by `j` flag in 'formatoptions' (fo-table). (Lech Lorens)

Added ability to control indentation inside namespaces: cino-N . (Konstantin Lepa)

Added ability to control alignment inside `if` condition separately from alignment inside function arguments: cino-k . (Lech Lorens)

Other:
Improved support for cmd.exe. (Ben Fritz, Bram Moolenaar)

Added v:windowid variable containing current window number in GUI Vim. (Christian J. Robinson, Lech Lorens)

Added rxvt-unicode and SGR mouse support. (Yiding Jia, Hayaki Saito)

All changes in 7.4 fixed-7.4

Patch 7.3.001
Problem: When editing "src/main.c" and 'path' set to "./proto", ":find e<C-D" shows ./proto/eval.pro instead of eval.pro.
Solution: Check for path separator when comparing names. (Nazri Ramliy)
Files: src/misc1.c

```
Patch 7.3.002
Problem:    ":find" completion doesn't work when halfway an environment
            variable. (Dominique Pelle)
Solution:   Only use in-path completion when expanding file names. (Nazri
            Ramliy)
Files:      src/ex_docmd.c

Patch 7.3.003
Problem:    Crash with specific BufWritePost autocmd. (Peter Odding)
Solution:   Don't free the quickfix title twice. (Lech Lorens)
Files:      src/quickfix.c

Patch 7.3.004
Problem:    Crash when using very long regexp. (Peter Odding)
Solution:   Reset reg_toolong. (Carlo Teubner)
Files:      src/regexp.c

Patch 7.3.005
Problem:    Crash when using undotree(). (Christian Brabandt)
Solution:   Increase the list reference count.  Add a test for undotree()
            (Lech Lorens)
Files:      src/eval.c, src/testdir/Makefile, src/testdir/test61.in

Patch 7.3.006
Problem:    Can't build some multi-byte code with C89.
Solution:   Move code to after declarations. (Joachim Schmitz)
Files:      src/mbyte.c, src/spell.c

Patch 7.3.007
Problem:    Python code defines global "buffer".  Re-implements a grow-array.
Solution:   Use a grow-array instead of coding the same functionality.  Handle
            out-of-memory situation properly.
Files:      src/if_py_both.h

Patch 7.3.008
Problem:    'cursorbind' is kept in places where 'scrollbind' is reset.
Solution:   Reset 'cursorbind'.
Files:      src/buffer.c, src/diff.c, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/if_cscope.c, src/macros.h,
            src/quickfix.c, src/search.c, src/tag.c, src/window.c

Patch 7.3.009
Problem:    Win32: Crash on Windows when using a bad argument for strftime().
            (Christian Brabandt)
Solution:   Use the bad_param_handler(). (Mike Williams)
Files:      src/os_win32.c

Patch 7.3.010
Problem:    Mac GUI: Missing break statements.
Solution:   Add the break statements. (Dominique Pelle)
Files:      src/gui_mac.c

Patch 7.3.011
```

```
Problem:    X11 clipboard doesn't work in Athena/Motif GUI.  First selection
            after a shell command doesn't work.
Solution:   When using the GUI use XtLastTimestampProcessed() instead of
            changing a property.  (partly by Toni Ronkko)
            When executing a shell command disown the selection.
Files:      src/ui.c, src/os_unix.c

Patch 7.3.012
Problem:    Problems building with MingW.
Solution:   Adjust the MingW makefiles. (Jon Maken)
Files:      src/Make_ming.mak, src/GvimExt/Make_ming.mak

Patch 7.3.013
Problem:    Dynamic loading with Ruby doesn't work for 1.9.2.
Solution:   Handle rb_str2cstr differently.  Also support dynamic loading on
            Unix. (Jon Maken)
Files:      src/if_ruby.c

Patch 7.3.014
Problem:    Ending a line in a backslash inside an ":append" or ":insert"
            command in Ex mode doesn't work properly. (Ray Frush)
Solution:   Halve the number of backslashes, only insert a NUL after an odd
            number of backslashes.
Files:      src/ex_getln.c

Patch 7.3.015
Problem:    Test is using error message that no longer exists.
Solution:   Change E106 to E121. (Dominique Pelle)
Files:      src/testdir/test49.vim

Patch 7.3.016
Problem:    Netbeans doesn't work under Athena.
Solution:   Support Athena, just like Motif. (Xavier de Gaye)
Files:      runtime/doc/netbeans.txt, src/gui.c, src/main.c, src/netbeans.c

Patch 7.3.017
Problem:    smatch reports errors.
Solution:   Fix the reported errors. (Dominique Pelle)
Files:      src/spell.c, src/syntax.c

Patch 7.3.018 (after 7.3.012)
Problem:    Missing argument to windres in MingW makefiles.
Solution:   Add the argument that was wrapped in the patch. (Jon Maken)
Files:      src/Make_ming.mak, src/GvimExt/Make_ming.mak

Patch 7.3.019
Problem:    ":nbstart" can fail silently.
Solution:   Give an error when netbeans is not supported by the GUI. (Xavier
            de Gaye)
Files:      src/netbeans.c

Patch 7.3.020
Problem:    Cursor position wrong when joining multiple lines and
            'formatoptions' contains "a". (Moshe Kamensky)
```

```
Solution:   Adjust cursor position for skipped indent. (Carlo Teubner)
Files:      src/ops.c, src/testdir/test68.in, src/testdir/test68.ok

Patch 7.3.021
Problem:    Conflict for defining Boolean in Mac header files.
Solution:   Define NO_X11_INCLUDES. (Rainer Muller)
Files:      src/os_macosx.m, src/vim.h

Patch 7.3.022
Problem:    When opening a new window the 'spellcapcheck' option is cleared.
Solution:   Copy the correct option value. (Christian Brabandt)
Files:      src/option.c

Patch 7.3.023
Problem:    External program may hang when it tries to write to the tty.
Solution:   Don't close the slave tty until after the child exits. (Nikola
            Knezevic)
Files:      src/os_unix.c

Patch 7.3.024
Problem:    Named signs do not use a negative number as intended.
Solution:   Fix the numbering of named signs. (Xavier de Gaye)
Files:      src/ex_cmds.c

Patch 7.3.025
Problem:    ":mksession" does not square brackets escape file name properly.
Solution:   Improve escaping of file names. (partly by Peter Odding)
Files:      src/ex_docmd.c

Patch 7.3.026
Problem:    CTRL-] in a help file doesn't always work. (Tony Mechelynck)
Solution:   Don't escape special characters. (Carlo Teubner)
Files:      src/normal.c

Patch 7.3.027
Problem:    Opening a file on a network share is very slow.
Solution:   When fixing file name case append "\*" to directory, server and
            network share names. (David Anderson, John Beckett)
Files:      src/os_win32.c

Patch 7.3.028 (after 7.3.024)
Problem:    Signs don't show up. (Charles Campbell)
Solution:   Don't use negative numbers.  Also assign a number to signs that
            have a name of all digits to avoid using a sign number twice.
Files:      src/ex_cmds.c

Patch 7.3.029
Problem:    ":sort n" sorts lines without a number as number zero. (Beeyawned)
Solution:   Make lines without a number sort before lines with a number.  Also
            fix sorting negative numbers.
Files:      src/ex_cmds.c, src/testdir/test57.in, src/testdir/test57.ok

Patch 7.3.030
Problem:    Cannot store Dict and List in viminfo file.
```

```
Solution:   Add support for this. (Christian Brabandt)
Files:      runtime/doc/options.txt, src/eval.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/main.aap, src/testdir/test74.in,
            src/testdir/test74.ok

Patch 7.3.031
Problem:    Can't pass the X window ID to another application.
Solution:   Add v:windowid. (Christian J. Robinson, Lech Lorens)
Files:      runtime/doc/eval.txt, src/eval.c, src/gui.c, src/vim.h,
            src/os_unix.c

Patch 7.3.032
Problem:    maparg() doesn't return the flags, such as <buffer>, <script>,
            <silent>.  These are needed to save and restore a mapping.
Solution:   Improve maparg(). (also by Christian Brabandt)
Files:      runtime/doc/eval.txt, src/eval.c, src/getchar.c, src/gui_w48.c,
            src/message.c, src/proto/getchar.pro, src/proto/message.pro,
            src/structs.h src/testdir/test75.in, src/testdir/test75.ok

Patch 7.3.033 (after 7.3.032)
Problem:    Can't build without FEAT_LOCALMAP.
Solution:   Add an #ifdef. (John Marriott)
Files:      src/getchar.c

Patch 7.3.034
Problem:    Win32: may be loading .dll from the wrong directory.
Solution:   Go to the Vim executable directory when opening a library.
Files:      src/gui_w32.c, src/if_lua.c, src/if_mzsch.c, src/if_perl.xs,
            src/if_python.c, src/if_python3.c, src/if_ruby.c, src/mbyte.c,
            src/os_mswin.c, src/os_win32.c, src/proto/os_win32.pro

Patch 7.3.035 (after 7.3.034)
Problem:    Stray semicolon after if statement. (Hari G)
Solution:   Remove the semicolon.
Files:      src/os_win32.c

Patch 7.3.036
Problem:    Win32 GUI: When building without menus, the font for dialogs and
            tab page headers also changes.
Solution:   Define USE_SYSMENU_FONT always. (Harig G.)
Files:      src/gui_w32.c

Patch 7.3.037
Problem:    Compiler warnings for loss of data. (Mike Williams)
Solution:   Add type casts.
Files:      src/if_py_both.h, src/getchar.c, src/os_win32.c

Patch 7.3.038
Problem:    v:windowid isn't set on MS-Windows.
Solution:   Set it to the window handle. (Chris Sutcliffe)
Files:      runtime/doc/eval.txt, src/gui_w32.c
```

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Patch 7.3.039
Problem:    Crash when using skk.vim plugin.
Solution:   Get length of expression evaluation result only after checking for
            NULL.  (Noriaki Yagi, Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.3.040
Problem:    Comparing strings while ignoring case goes beyond end of the
            string when there are illegal bytes. (Dominique Pelle)
Solution:   Explicitly check for illegal bytes.
Files:      src/mbyte.c

Patch 7.3.041
Problem:    Compiler warning for accessing mediumVersion. (Tony Mechelynck)
Solution:   Use the pointer instead of the array itself. (Dominique Pelle)
Files:      src/version.c

Patch 7.3.042
Problem:    No spell highlighting when re-using an empty buffer.
Solution:   Clear the spell checking info only when clearing the options for a
            buffer. (James Vega)
Files:      src/buffer.c

Patch 7.3.043
Problem:    Can't load Ruby dynamically on Unix.
Solution:   Adjust the configure script. (James Vega)
Files:      src/Makefile, src/config.h.in, src/configure.in,
            src/auto/configure, src/if_ruby.c

Patch 7.3.044
Problem:    The preview window opened by the popup menu is larger than
            specified with 'previewheight'. (Benjamin Haskell)
Solution:   Use 'previewheight' if it's set and smaller.
Files:      src/popupmnu.c

Patch 7.3.045
Problem:    Compiler warning for uninitialized variable.
Solution:   Initialize the variable always.
Files:      src/getchar.c

Patch 7.3.046 (after 7.3.043)
Problem:    Can't build Ruby on MS-Windows.
Solution:   Add #ifdef, don't use WIN3264 before including vim.h.
Files:      src/if_ruby.c

Patch 7.3.047 (after 7.3.032)
Problem:    Missing makefile updates for test 75.
Solution:   Update the makefiles.
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Makefile, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.3.048
Problem:    ":earlier 1f" doesn't work after loading undo file.
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Solution:   Set b_u_save_nr_cur when loading an undo file. (Christian
            Brabandt)
            Fix only showing time in ":undolist"
Files:      src/undo.c

Patch 7.3.049
Problem:    PLT has rebranded their Scheme to Racket.
Solution:   Add support for Racket 5.x. (Sergey Khorev)
Files:      src/Make_cyg.mak, src/Make_ming.mak, src/Make_mvc.mak,
            src/auto/configure, src/configure.in, src/if_mzsch.c

Patch 7.3.050
Problem:    The link script is clumsy.
Solution:   Use the --as-needed linker option if available. (Kirill A.
            Shutemov)
Files:      src/Makefile, src/auto/configure, src/config.mk.in,
            src/configure.in, src/link.sh

Patch 7.3.051
Problem:    Crash when $PATH is empty.
Solution:   Check for vim_getenv() returning NULL. (Yasuhiro Matsumoto)
Files:      src/ex_getln.c, src/os_win32.c

Patch 7.3.052
Problem:    When 'completefunc' opens a new window all kinds of errors follow.
            (Xavier Deguillard)
Solution:   When 'completefunc' goes to another window or buffer and when it
            deletes text abort completion.  Add a test for 'completefunc'.
Files:      src/edit.c, src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test76.in, src/testdir/test76.ok

Patch 7.3.053
Problem:    complete() function doesn't reset complete direction.  Can't use
            an empty string in the list of matches.
Solution:   Set compl_direction to FORWARD.  Add "empty" key to allow empty
            words. (Kikuchan)
Files:      src/edit.c

Patch 7.3.054
Problem:    Can define a user command for :Print, but it doesn't work. (Aaron
            Thoma)
Solution:   Let user command :Print overrule the builtin command (Christian
            Brabandt)  Disallow :X and :Next as a user defined command.
Files:      src/ex_docmd.c

Patch 7.3.055
Problem:    Recursively nested lists and dictionaries cause a near-endless
            loop when comparing them with a copy. (ZyX)
Solution:   Limit recursiveness in a way that non-recursive structures can
            still be nested very deep.
Files:      src/eval.c, src/testdir/test55.in, src/testdir/test55.ok
```

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Patch 7.3.056
Problem:    "getline" argument in do_cmdline() shadows global.
Solution:   Rename the argument.
Files:      src/ex_docmd.c

Patch 7.3.057
Problem:    Segfault with command line abbreviation. (Randy Morris)
Solution:   Don't retrigger the abbreviation when abandoning the command line.
            Continue editing the command line after the error.
Files:      src/ex_getln.c

Patch 7.3.058
Problem:    Error "code converter not found" when loading Ruby script.
Solution:   Load Gem module. (Yasuhiro Matsumoto)
Files:      src/if_ruby.c

Patch 7.3.059
Problem:    Netbeans: Problem with recursively handling messages for Athena
            and Motif.
Solution:   Call netbeans_parse_messages() in the main loop, like it's done
            for GTK. (Xavier de Gaye)
Files:      src/gui_x11.c, src/netbeans.c

Patch 7.3.060
Problem:    Netbeans: crash when socket is disconnected unexpectedly.
Solution:   Don't cleanup when a read fails, put a message in the queue and
            disconnect later. (Xavier de Gaye)
Files:      src/netbeans.c

Patch 7.3.061
Problem:    Remote ":drop" does not respect 'autochdir'. (Peter Odding)
Solution:   Don't restore the directory when 'autochdir' is set. (Benjamin
            Fritz)
Files:      src/main.c

Patch 7.3.062
Problem:    Python doesn't work properly when installed in another directory
            than expected.
Solution:   Figure out home directory in configure and use Py_SetPythonHome()
            at runtime. (Roland Puntaier)
Files:      src/configure.in, src/auto/configure, src/if_python.c,
            src/if_python3.c

Patch 7.3.063
Problem:    Win32: Running a filter command makes Vim lose focus.
Solution:   Use SW_SHOWMINNOACTIVE instead of SW_SHOWMINIMIZED. (Hong Xu)
Files:      src/os_win32.c

Patch 7.3.064
Problem:    Win32: ":dis +" shows nothing, but "+p does insert text.
Solution:   Display the * register, since that's what will be inserted.
            (Christian Brabandt)
Files:      src/globals.h, src/ops.c
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Patch 7.3.065
Problem:    Can't get current line number in a source file.
Solution:   Add the <slnum> item, similar to <sfile>.
Files:      src/ex_docmd.c

Patch 7.3.066
Problem:    Crash when changing to another window while in a :vimgrep command.
            (Christian Brabandt)
Solution:   When wiping out the dummy before, remove it from aucmd_win.
Files:      src/quickfix.c

Patch 7.3.067 (after 7.3.058)
Problem:    Ruby: Init_prelude is not always available.
Solution:   Remove use of Init_prelude. (Yasuhiro Matsumoto)
Files:      src/if_ruby.c

Patch 7.3.068
Problem:    Using freed memory when doing ":saveas" and an autocommand sets
            'autochdir'. (Kevin Klement)
Solution:   Get the value of fname again after executing autocommands.
Files:      src/ex_cmds.c

Patch 7.3.069
Problem:    GTK: pressing Enter in inputdialog() doesn't work like clicking OK
            as documented.
Solution:   call gtk_entry_set_activates_default(). (Britton Kerin)
Files:      src/gui_gtk.c

Patch 7.3.070
Problem:    Can set environment variables in the sandbox, could be abused.
Solution:   Disallow it.
Files:      src/eval.c

Patch 7.3.071
Problem:    Editing a file in a window that's in diff mode resets 'diff'
            but not cursor binding.
Solution:   Reset cursor binding in two more places.
Files:      src/quickfix.c, src/option.c

Patch 7.3.072
Problem:    Can't complete file names while ignoring case.
Solution:   Add 'wildignorecase'.
Files:      src/ex_docmd.c, src/ex_getln.c, src/misc1.c, src/option.c,
            src/option.h, src/vim.h, src/runtime/options.txt

Patch 7.3.073
Problem:    Double free memory when netbeans command follows DETACH.
Solution:   Only free the node when owned. (Xavier de Gaye)
Files:      src/netbeans.c

Patch 7.3.074
Problem:    Can't use the "+ register like "* for yank and put.
Solution:   Add "unnamedplus" to the 'clipboard' option. (Ivan Krasilnikov)
Files:      runtime/doc/options.txt, src/eval.c, src/globals.h, src/ops.c,
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            src/option.c

Patch 7.3.075 (after 7.3.072)
Problem:    Missing part of 'wildignorecase'
Solution:   Also adjust expand()
Files:      src/eval.c

Patch 7.3.076
Problem:    Clang warnings for dead code.
Solution:   Remove it. (Carlo Teubner)
Files:      src/gui_gtk.c, src/if_ruby.c, src/misc2.c, src/netbeans.c,
            src/spell.c

Patch 7.3.077
Problem:    When updating crypt of swapfile fails there is no error message.
            (Carlo Teubner)
Solution:   Add the error message.
Files:      src/memline.c

Patch 7.3.078
Problem:    Warning for unused variable.
Solution:   Adjust #ifdefs.
Files:      src/ops.c

Patch 7.3.079
Problem:    Duplicate lines in makefile.
Solution:   Remove the lines. (Hong Xu)
Files:      src/Make_mvc.mak

Patch 7.3.080
Problem:    Spell doesn't work on VMS.
Solution:   Use different file names. (Zoltan Bartos, Zoltan Arpadffy)
Files:      src/spell.c

Patch 7.3.081
Problem:    Non-printable characters in 'statusline' cause trouble. (ZyX)
Solution:   Use transstr(). (partly by Caio Ariede)
Files:      src/screen.c

Patch 7.3.082
Problem:    Leaking file descriptor when hostname doesn't exist.
Solution:   Remove old debugging lines.
Files:      src/netbeans.c

Patch 7.3.083
Problem:    When a read() or write() is interrupted by a signal it fails.
Solution:   Add read_eintr() and write_eintr().
Files:      src/fileio.c, src/proto/fileio.pro, src/memfile.c, src/memline.c,
            src/os_unix.c, src/undo.c, src/vim.h

Patch 7.3.084
Problem:    When splitting the window, the new one scrolls with the cursor at
            the top.
Solution:   Compute w_fraction before setting the new height.
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Files:      src/window.c

Patch 7.3.085 (after 7.3.083)
Problem:    Inconsistency with preproc symbols.  void * computation.
Solution:   Include vimio.h from vim.h.  Add type cast.
Files:      src/eval.c, src/ex_cmds.c, src/ex_cmds2.c, src/fileio.c,
            src/if_cscope.c, src/if_sniff.c, src/main.c, src/memfile.c,
            src/memline.c, src/netbeans.c, src/os_msdos.c, src/os_mswin.c,
            src/os_win16.c, src/os_win32.c, src/spell.c, src/tag.c,
            src/undo.c, src/vim.h

Patch 7.3.086
Problem:    When using a mapping with an expression and there was no count,
            v:count has the value of the previous command. (ZyX)
Solution:   Also set v:count and v:count1 before getting the character that
            could be a command or a count.
Files:      src/normal.c

Patch 7.3.087
Problem:    EINTR is not always defined.
Solution:   Include errno.h in vim.h.
Files:      src/if_cscope.c, src/if_tcl.c, src/integration.c, src/memline.c,
            src/os_mswin.c, src/os_win16.c, src/os_win32.c, src/vim.h,
            src/workshop.c

Patch 7.3.088
Problem:    Ruby can't load Gems sometimes, may cause a crash.
Solution:   Undefine off_t.  Use ruby_process_options(). (Yasuhiro Matsumoto)
Files:      src/if_ruby.c

Patch 7.3.089
Problem:    Compiler warning on 64 bit MS-Windows.
Solution:   Add type cast. (Mike Williams)
Files:      src/netbeans.c

Patch 7.3.090
Problem:    Wrong help text for Cscope.
Solution:   Adjust the help text for "t". (Dominique Pelle)
Files:      src/if_cscope.c

Patch 7.3.091
Problem:    "vim -w foo" writes special key codes for removed escape
            sequences. (Josh Triplett)
Solution:   Don't write K_IGNORE codes.
Files:      src/getchar.c, src/misc1.c, src/term.c, src/vim.h

Patch 7.3.092
Problem:    Resizing the window when exiting.
Solution:   Don't resize when exiting.
Files:      src/term.c

Patch 7.3.093
Problem:    New DLL dependencies in MingW with gcc 4.5.0.
Solution:   Add STATIC_STDCPLUS, LDFLAGS and split up WINDRES. (Guopeng Wen)
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Files:      src/GvimExt/Make_ming.mak, src/Make_ming.mak

Patch 7.3.094
Problem:    Using abs() requires type cast to int.
Solution:   Use labs() so that the value remains long. (Hong Xu)
Files:      src/screen.c

Patch 7.3.095
Problem:    Win32: In Chinese tear-off menu doesn't work. (Weasley)
Solution:   Use menu_name_equal().  (Alex Jakushev)
Files:      src/menu.c

Patch 7.3.096
Problem:    "gvim -nb" is not interruptible.  Leaking file descriptor on
            netbeans connection error.
Solution:   Check for CTRL-C typed.  Free file descriptor.  (Xavier de Gaye)
Files:      src/netbeans.c

Patch 7.3.097
Problem:    Using ":call" inside "if 0" does not see that a function returns a
            Dict and gives error for "." as string concatenation.
Solution:   Use eval0() to skip over the expression.  (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.3.098
Problem:    Function that ignores error still causes called_emsg to be set.
            E.g. when expand() fails the status line is disabled.
Solution:   Move check for emsg_not_now() up. (James Vega)
Files:      src/message.c

Patch 7.3.099
Problem:    Crash when splitting a window with zero height. (Yukihiro
            Nakadaira)
Solution:   Don't set the fraction in a window with zero height.
Files:      src/window.c

Patch 7.3.100
Problem:    When using :normal v:count isn't set.
Solution:   Call normal_cmd() with toplevel set to TRUE.
Files:      src/ex_docmd.c

Patch 7.3.101
Problem:    ino_t defined with wrong size.
Solution:   Move including auto/config.h before other includes. (Marius
            Geminas)
Files:      src/if_ruby.c, src/if_lua.c

Patch 7.3.102
Problem:    When using ":make", typing the next command and then getting the
            "reload" prompt the next command is (partly) eaten by the reload
            prompt.
Solution:   Accept ':' as a special character at the reload prompt to accept
            the default choice and execute the command.
Files:      src/eval.c, src/fileio.c, src/gui.c, src/gui_xmdlg.c,
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            src/memline.c, src/message.c, src/proto/message.pro,
            src/gui_athena.c, src/gui_gtk.c, src/gui_mac.c, src/gui_motif.c,
            src/gui_photon.c, src/gui_w16.c, src/gui_w32.c, src/os_mswin.c
            src/proto/gui_athena.pro, src/proto/gui_gtk.pro,
            src/proto/gui_mac.pro, src/proto/gui_motif.pro,
            src/proto/gui_photon.pro, src/proto/gui_w16.pro,
            src/proto/gui_w32.pro

Patch 7.3.103
Problem:    Changing 'fileformat' and then using ":w" in an empty file sets
            the 'modified' option.
Solution:   In unchanged() don't ignore 'ff' for an empty file.
Files:      src/misc1.c, src/option.c, src/proto/option.pro, src/undo.c

Patch 7.3.104
Problem:    Conceal: using Tab for cchar causes problems. (ZyX)
Solution:   Do not accept a control character for cchar.
Files:      src/syntax.c

Patch 7.3.105
Problem:    Can't get the value of "b:changedtick" with getbufvar().
Solution:   Make it work. (Christian Brabandt)
Files:      src/eval.c

Patch 7.3.106
Problem:    When 'cursorbind' is set another window may scroll unexpectedly
            when 'scrollbind' is also set. (Xavier Wang)
Solution:   Don't call update_topline() if 'scrollbind' is set.
Files:      src/move.c

Patch 7.3.107
Problem:    Year number for :undolist can be confused with month or day.
Solution:   Change "%y" to "%Y".
Files:      src/undo.c

Patch 7.3.108
Problem:    Useless check for NULL when calling vim_free().
Solution:   Remove the check. (Dominique Pelle)
Files:      src/eval.c, src/ex_cmds.c, src/os_win32.c

Patch 7.3.109
Problem:    Processing new Esperanto spell file fails and crashes Vim.
            (Dominique Pelle)
Solution:   When running out of memory give an error.  Handle '?' in
            COMPOUNDRULE properly.
Files:      src/spell.c

Patch 7.3.110
Problem:    The "nbsp" item in 'listchars' isn't used for ":list".
Solution:   Make it work. (Christian Brabandt)
Files:      src/message.c

Patch 7.3.111 (after 7.3.100)
Problem:    Executing a :normal command in 'statusline' evaluation causes the
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            cursor to move. (Dominique Pelle)
Solution:   When updating the cursor for 'cursorbind' allow the cursor beyond
            the end of the line.  When evaluating 'statusline' temporarily
            reset 'cursorbind'.
Files:      src/move.c, src/screen.c

Patch 7.3.112
Problem:    Setting 'statusline' to "%!'asdf%' reads uninitialized memory.
Solution:   Check for NUL after %.
Files:      src/buffer.c

Patch 7.3.113
Problem:    Windows: Fall back directory for creating temp file is wrong.
Solution:   Use "." instead of empty string. (Hong Xu)
Files:      src/fileio.c

Patch 7.3.114
Problem:    Potential problem in initialization when giving an error message
            early.
Solution:   Initialize 'verbosefile' empty. (Ben Schmidt)
Files:      src/option.h

Patch 7.3.115
Problem:    Vim can crash when tmpnam() returns NULL.
Solution:   Check for NULL. (Hong Xu)
Files:      src/fileio.c

Patch 7.3.116
Problem:    'cursorline' is displayed too short when there are concealed
            characters and 'list' is set.  (Dennis Preiser)
Solution:   Check for 'cursorline' when 'list' is set. (Christian Brabandt)
Files:      src/screen.c

Patch 7.3.117
Problem:    On some systems --as-needed does not work, because the "tinfo"
            library is included indirectly from "ncurses". (Charles Campbell)
Solution:   In configure prefer using "tinfo" instead of "ncurses".
Files:      src/configure.in, src/auto/configure

Patch 7.3.118
Problem:    Ruby uses SIGVTALARM which makes Vim exit. (Alec Tica)
Solution:   Ignore SIGVTALARM. (Dominique Pelle)
Files:      src/os_unix.c

Patch 7.3.119
Problem:    Build problem on Mac. (Nicholas Stallard)
Solution:   Use "extern" instead of "EXTERN" for p_vfile.
Files:      src/option.h

Patch 7.3.120
Problem:    The message for an existing swap file is too long to fit in a 25
            line terminal.
Solution:   Make the message shorter. (Chad Miller)
Files:      src/memline.c
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Patch 7.3.121
Problem:    Complicated 'statusline' causes a crash. (Christian Brabandt)
Solution:   Check that the number of items is not too big.
Files:      src/buffer.c

Patch 7.3.122
Problem:    Having auto/config.mk in the repository causes problems.
Solution:   Remove auto/config.mk from the distribution.  In the toplevel
            Makefile copy it from the "dist" file.
Files:      Makefile, src/Makefile, src/auto/config.mk

Patch 7.3.123
Problem:    ml_get error when executing register being recorded into, deleting
            lines and 'conceallevel' is set. (ZyX)
Solution:   Don't redraw a line for concealing when it doesn't exist.
Files:      src/main.c

Patch 7.3.124
Problem:    When writing a file in binary mode it may be missing the final EOL
            if a file previously read was missing the EOL. (Kevin Goodsell)
Solution:   Move the write_no_eol_lnum into the buffer struct.
Files:      src/structs.h, src/fileio.c, src/globals.h, src/os_unix.c

Patch 7.3.125
Problem:    MSVC: Problem with quotes in link argument.
Solution:   Escape backslashes and quotes. (Weasley)
Files:      src/Make_mvc.mak

Patch 7.3.126
Problem:    Compiler warning for signed pointer.
Solution:   Use unsigned int argument for sscanf().
Files:      src/blowfish.c

Patch 7.3.127
Problem:    Compiler complains about comma.
Solution:   Remove comma after last enum element.
Files:      src/ex_cmds2.c

Patch 7.3.128
Problem:    Another compiler warning for signed pointer.
Solution:   Use unsigned int argument for sscanf().
Files:      src/mark.c

Patch 7.3.129
Problem:    Using integer like a boolean.
Solution:   Nicer check for integer being non-zero.
Files:      src/tag.c

Patch 7.3.130
Problem:    Variable misplaced in #ifdef.
Solution:   Move clipboard_event_time outside of #ifdef.
Files:      src/gui_gtk_x11.c
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Patch 7.3.131
Problem:    Including errno.h too often.
Solution:   Don't include errno.h in Unix header file.
Files:      src/os_unix.h

Patch 7.3.132
Problem:    C++ style comments.
Solution:   Change to C comments.
Files:      src/if_python3.c

Patch 7.3.133
Problem:    When using encryption it's not clear what method was used.
Solution:   In the file message show "blowfish" when using blowfish.
Files:      src/fileio.c

Patch 7.3.134
Problem:    Drag-n-drop doesn't work in KDE Dolphin.
Solution:   Add GDK_ACTION_MOVE flag. (Florian Degner)
Files:      src/gui_gtk_x11.c

Patch 7.3.135
Problem:    When there is no previous substitute pattern, the previous search
            pattern is used.  The other way around doesn't work.
Solution:   When there is no previous search pattern, use the previous
            substitute pattern if possible. (Christian Brabandt)
Files:      src/search.c

Patch 7.3.136
Problem:    Duplicate include of assert.h.
Solution:   Remove it.
Files:      src/if_cscope.c

Patch 7.3.137 (after 7.3.091)
Problem:    When 'lazyredraw' is set the screen may not be updated. (Ivan
            Krasilnikov)
Solution:   Call update_screen() before waiting for input.
Files:      src/misc1.c, src/getchar.c

Patch 7.3.138
Problem:    ":com" changes the multi-byte text of :echo. (Dimitar Dimitrov)
Solution:   Search for K_SPECIAL as a byte, not a character. (Ben Schmidt)
Files:      src/ex_docmd.c

Patch 7.3.139 (after 7.3.137)
Problem:    When 'lazyredraw' is set ":ver" output can't be read.
Solution:   Don't redraw the screen when at a prompt or command line.
Files:      src/getchar.c, src/message.c, src/misc1.c

Patch 7.3.140
Problem:    Crash when drawing the "$" at end-of-line for list mode just after
            the window border and 'cursorline' is set.
Solution:   Don't check for 'cursorline'. (Quentin Carbonneaux)
Files:      src/screen.c
```

```
Patch 7.3.141
Problem:    When a key code is not set get a confusing error message.
Solution:   Change the error message to say the key code is not set.
Files:      src/option.c, runtime/doc/options.txt

Patch 7.3.142
Problem:    Python stdout doesn't have a flush() method, causing an import to
            fail.
Solution:   Add a dummy flush() method. (Tobias Columbus)
Files:      src/if_py_both.h

Patch 7.3.143
Problem:    Memfile is not tested sufficiently.  Looking up blocks in a
            memfile is slow when there are many blocks.
Solution:   Add high level test and unittest.  Adjust the number of hash
            buckets to the number of blocks.  (Ivan Krasilnikov)
Files:      Filelist, src/Makefile, src/main.c, src/memfile.c,
            src/memfile_test.c src/structs.h src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mak,
            src/testdir/Makefile, src/testdir/test77.in, src/testdir/test77.ok

Patch 7.3.144
Problem:    Crash with ":python help(dir)". (Kearn Holliday)
Solution:   Fix the way the type is set on objects. (Tobias Columbus)
Files:      src/if_python.c

Patch 7.3.145 (after 7.3.144)
Problem:    Can't build with Python dynamically loading.
Solution:   Add dll_PyType_Ready.
Files:      src/if_python.c

Patch 7.3.146
Problem:    It's possible to assign to a read-only member of a dict.
            It's possible to create a global variable "0". (ZyX)
            It's possible to add a v: variable with ":let v:.name = 1".
Solution:   Add check for dict item being read-only.
            Check the name of g: variables.
            Disallow adding v: variables.
Files:      src/eval.c

Patch 7.3.147 (after 7.3.143)
Problem:    Can't build on HP-UX.
Solution:   Remove an unnecessary backslash. (John Marriott)
Files:      src/Makefile

Patch 7.3.148
Problem:    A syntax file with a huge number of items or clusters causes weird
            behavior, a hang or a crash. (Yukihiro Nakadaira)
Solution:   Check running out of IDs. (partly by Ben Schmidt)
Files:      src/syntax.c

Patch 7.3.149
Problem:    The cursor disappears after the processing of the 'setDot'
```

            netbeans command when vim runs in a terminal.
Solution: Show the cursor after a screen update. (Xavier de Gaye)
Files: src/netbeans.c

Patch 7.3.150
Problem: readline() does not return the last line when the NL is missing.
            (Hong Xu)
Solution: When at the end of the file Also check for a previous line.
Files: src/eval.c

Patch 7.3.151 (after 7.3.074)
Problem: When "unnamedplus" is in 'clipboard' the selection is sometimes
            also copied to the star register.
Solution: Avoid copy to the star register when undesired. (James Vega)
Files: src/ops.c

Patch 7.3.152
Problem: Xxd does not check for errors from library functions.
Solution: Add error checks. (Florian Zumbiehl)
Files: src/xxd/xxd.c

Patch 7.3.153 (after 7.3.152)
Problem: Compiler warning for ambiguous else, missing prototype.
Solution: Add braces. (Dominique Pelle) Add prototype for die().
Files: src/xxd/xxd.c

Patch 7.3.154 (after 7.3.148)
Problem: Can't compile with tiny features. (Tony Mechelynck)
Solution: Move #define outside of #ifdef.
Files: src/syntax.c

Patch 7.3.155
Problem: Crash when using map(), filter() and remove() on v:. (ZyX)
            Also for extend(). (Yukihiro Nakadaira)
Solution: Mark v: as locked. Also correct locking error messages.
Files: src/eval.c

Patch 7.3.156
Problem: Tty names possibly left unterminated.
Solution: Use vim_strncpy() instead of strncpy().
Files: src/pty.c

Patch 7.3.157
Problem: Superfluous assignment.
Solution: Remove assignment.
Files: src/misc1.c

Patch 7.3.158
Problem: Might use uninitialized memory in C indenting.
Solution: Init arrays to empty.
Files: src/misc1.c

Patch 7.3.159
Problem: Using uninitialized pointer when out of memory.

```
Solution:   Check for NULL return value.
Files:      src/mbyte.c

Patch 7.3.160
Problem:    Unsafe string copying.
Solution:   Use vim_strncpy() instead of strcpy().  Use vim_strcat() instead
            of strcat().
Files:      src/buffer.c, src/ex_docmd.c, src/hardcopy.c, src/menu.c,
            src/misc1.c, src/misc2.c, src/proto/misc2.pro, src/netbeans.c,
            src/os_unix.c, src/spell.c, src/syntax.c, src/tag.c

Patch 7.3.161
Problem:    Items on the stack may be too big.
Solution:   Make items static or allocate them.
Files:      src/eval.c, src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c,
            src/fileio.c, src/hardcopy.c, src/quickfix.c, src/main.c,
            src/netbeans.c, src/spell.c, src/tag.c, src/vim.h, src/xxd/xxd.c

Patch 7.3.162
Problem:    No error message when assigning to a list with an index out of
            range. (Yukihiro Nakadaira)
Solution:   Add the error message.
Files:      src/eval.c

Patch 7.3.163
Problem:    For the default of 'shellpipe' "mksh" and "pdksh" are not
            recognized.
Solution:   Recognize these shell names.
Files:      src/option.c

Patch 7.3.164
Problem:    C-indenting: a preprocessor statement confuses detection of a
            function declaration.
Solution:   Ignore preprocessor lines. (Lech Lorens)  Also recognize the style
            to put a comma before the argument name.
Files:      src/misc1.c, testdir/test3.in, testdir/test3.ok

Patch 7.3.165
Problem:    ":find" completion does not escape spaces in a directory name.
            (Isz)
Solution:   Add backslashes for EXPAND_FILES_IN_PATH. (Carlo Teubner)
Files:      src/ex_getln.c

Patch 7.3.166
Problem:    Buffer on the stack may be too big
Solution:   Allocate the space.
Files:      src/option.c

Patch 7.3.167
Problem:    When using the internal grep QuickFixCmdPost is not triggered.
            (Yukihiro Nakadaira)
Solution:   Change the place where autocommands are triggered.
Files:      src/quickfix.c
```

```
Patch 7.3.168
Problem:    When the second argument of input() contains a CR the text up to
            that is used without asking the user. (Yasuhiro Matsumoto)
Solution:   Change CR, NL and ESC in the text to a space.
Files:      src/getchar.c

Patch 7.3.169
Problem:    Freeing memory already freed, warning from static code analyzer.
Solution:   Initialize pointers to NULL, correct use of "mustfree". (partly by
            Dominique Pelle)
Files:      src/mis1.c

Patch 7.3.170
Problem:    VMS Makefile for testing was not updated for test77.
Solution:   Add test77 to the Makefile.
Files:      src/testdir/Make_vms.mms

Patch 7.3.171
Problem:    When the clipboard isn't supported: ":yank*" gives a confusing
            error message.
Solution:   Specifically mention that the register name is invalid.
            (Jean-Rene David)
Files:      runtime/doc/change.txt, src/ex_docmd.c, src/globals.h

Patch 7.3.172
Problem:    MS-Windows: rename() might delete the file if the name differs but
            it's actually the same file.
Solution:   Use the file handle to check if it's the same file. (Yukihiro
            Nakadaira)
Files:      src/if_cscope.c, src/fileio.c, src/os_win32.c,
            src/proto/os_win32.pro, src/vim.h

Patch 7.3.173
Problem:    After using setqflist() to make the quickfix list empty ":cwindow"
            may open the window anyway.  Also after ":vimgrep".
Solution:   Correctly check whether the list is empty. (Ingo Karkat)
Files:      src/quickfix.c

Patch 7.3.174
Problem:    When Exuberant ctags binary is exctags it's not found.
Solution:   Add configure check for exctags. (Hong Xu)
Files:      src/configure.in, src/auto/configure

Patch 7.3.175
Problem:    When 'colorcolumn' is set locally to a window, ":new" opens a
            window with the same highlighting but 'colorcolumn' is empty.
            (Tyru)
Solution:   Call check_colorcolumn() after clearing and copying options.
            (Christian Brabandt)
Files:      src/buffer.c

Patch 7.3.176
Problem:    Ruby linking doesn't work properly on Mac OS X.
Solution:   Fix the configure check for Ruby. (Bjorn Winckler)
```

```
Files:      src/configure.in, src/auto/configure

Patch 7.3.177
Problem:    MS-Windows: mkdir() doesn't work properly when 'encoding' is
            "utf-8".
Solution:   Convert to utf-16. (Yukihiro Nakadaira)
Files:      src/os_win32.c, src/os_win32.h, src/proto/os_win32.pro

Patch 7.3.178
Problem:    C-indent doesn't handle code right after { correctly.
Solution:   Fix detecting unterminated line. (Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.179
Problem:    C-indent doesn't handle colon in string correctly.
Solution:   Skip the string. (Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.180
Problem:    When both a middle part of 'comments' matches and an end part, the
            middle part was used erroneously.
Solution:   After finding the middle part match continue looking for a better
            end part match. (partly by Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.181
Problem:    When repeating the insert of CTRL-V or a digraph the display may
            not be updated correctly.
Solution:   Only call edit_unputchar() after edit_putchar(). (Lech Lorens)
Files:      src/edit.c

Patch 7.3.182 (after 7.3.180)
Problem:    Compiler warning for uninitialized variable.
Solution:   Add dummy initializer.
Files:      src/misc1.c

Patch 7.3.183 (after 7.3.174)
Problem:    When Exuberant ctags binary is exuberant-ctags it's not found.
Solution:   Add configure check for exuberant-ctags.
Files:      src/configure.in, src/auto/configure

Patch 7.3.184
Problem:    Static code analysis errors in riscOS.
Solution:   Make buffer size bigger. (Dominique Pelle)
Files:      src/gui_riscos.c

Patch 7.3.185
Problem:    ":windo g/pattern/q" closes windows and reports "N more lines".
            (Tim Chase)
Solution:   Remember what buffer ":global" started in. (Jean-Rene David)
Files:      src/ex_cmds.c

Patch 7.3.186
Problem:    When 'clipboard' contains "unnamed" or "unnamedplus" the value of
```

            v:register is wrong for operators without a specific register.
Solution: Adjust the register according to 'clipboard'. (Ingo Karkat)
Files: src/normal.c

Patch 7.3.187
Problem: The RISC OS port has obvious errors and is not being maintained.
Solution: Remove the RISC OS files and code.
Files: src/ascii.h, src/eval.c, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/fileio.c, src/globals.h, src/gui.c, src/gui.h,
            src/main.c, src/memfile.c, src/memline.c, src/misc1.c,
            src/proto.h, src/quickfix.c, src/search.c, src/structs.h,
            src/term.c, src/termlib.c, src/version.c, src/vim.h,
            src/gui_riscos.h, src/os_riscos.h, src/gui_riscos.c,
            src/os_riscos.c, runtime/doc/os_risc.txt

Patch 7.3.188
Problem: More RISC OS files to remove.
Solution: Remove them. Update the file list.
Files: src/proto/gui_riscos.pro, src/proto/os_riscos.pro, Filelist

Patch 7.3.189 (after 7.3.186)
Problem: Can't build without +clipboard feature. (Christian Ebert)
Solution: Add the missing #ifdef.
Files: src/normal.c

Patch 7.3.190
Problem: When there is a "containedin" syntax argument highlighting may be
            wrong. (Radek)
Solution: Reset current_next_list. (Ben Schmidt)
Files: src/syntax.c

Patch 7.3.191
Problem: Still some RISC OS stuff to remove.
Solution: Remove files and lines. (Hong Xu)
            Remove the 'osfiletype' option code.
Files: README_extra.txt, src/Make_ro.mak, src/INSTALL, src/Makefile,
            src/buffer.c, src/eval.c, src/feature.h, src/option.c,
            src/option.h, src/structs.h, src/version.c, src/pty.c, Filelist

Patch 7.3.192
Problem: Ex command ":s/ \?/ /g" splits multi-byte characters into bytes.
            (Dominique Pelle)
Solution: Advance over whole character instead of one byte.
Files: src/ex_cmds.c

Patch 7.3.193
Problem: In the command line window ":close" doesn't work properly. (Tony
            Mechelynck)
Solution: Use Ctrl_C instead of K_IGNORE for cmdwin_result. (Jean-Rene
            David)
Files: src/ex_docmd.c, src/ex_getln.c

Patch 7.3.194
Problem: When "b" is a symlink to directory "a", resolve("b/") doesn't

```
            result in "a/".  (ZyX)
Solution:   Remove the trailing slash. (Jean-Rene David)
Files:      src/eval.c

Patch 7.3.195
Problem:    "} else" causes following lines to be indented too much. (Rouben
            Rostamian)
Solution:   Better detection for the "else". (Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.196
Problem:    Can't intercept a character that is going to be inserted.
Solution:   Add the InsertCharPre autocommand event. (Jakson A. Aquino)
Files:      runtime/doc/autocmd.txt, runtime/doc/eval.txt,
            runtime/doc/map.txt, src/edit.c, src/eval.c, src/fileio.c,
            src/vim.h

Patch 7.3.197
Problem:    When a QuickfixCmdPost event removes all errors, Vim still tries
            to jump to the first error, resulting in E42.
Solution:   Get the number of error after the autocmd event. (Mike Lundy)
Files:      src/quickfix.c

Patch 7.3.198
Problem:    No completion for ":lang".
Solution:   Get locales to complete from. (Dominique Pelle)
Files:      src/eval.c, src/ex_cmds2.c, src/ex_getln.c,
            src/proto/ex_cmds2.pro, src/proto/ex_getln.pro, src/vim.h

Patch 7.3.199
Problem:    MS-Windows: Compilation problem of OLE with MingW compiler.
Solution:   Put #ifdef around declarations. (Guopeng Wen)
Files:      src/if_ole.h

Patch 7.3.200 (after 7.3.198)
Problem:    CTRL-D doesn't complete :lang.
Solution:   Add the missing part of the change. (Dominique Pelle)
Files:      src/ex_docmd.c

Patch 7.3.201 (after 7.3.195)
Problem:    "} else" still causes following lines to be indented too much.
Solution:   Better detection for the "else" block. (Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.202
Problem:    Cannot influence the indent inside a namespace.
Solution:   Add the "N" 'cino' parameter. (Konstantin Lepa)
Files:      runtime/doc/indent.txt, src/misc1.c, src/testdir/test3.in,
            src/testdir/test3.ok

Patch 7.3.203
Problem:    MS-Windows: Can't run an external command without a console window.
Solution:   Support ":!start /b cmd". (Xaizek)
Files:      runtime/doc/os_win32.txt, src/os_win32.c
```

```
Patch 7.3.204 (after 7.3.201)
Problem:    Compiler warning.
Solution:   Add type cast. (Mike Williams)
Files:      src/misc1.c

Patch 7.3.205
Problem:    Syntax "extend" doesn't work correctly.
Solution:   Avoid calling check_state_ends() recursively (Ben Schmidt)
Files:      src/syntax.c

Patch 7.3.206
Problem:    64bit MS-Windows compiler warning.
Solution:   Use HandleToLong() instead of type cast. (Mike Williams)
Files:      src/gui_w32.c

Patch 7.3.207
Problem:    Can't compile with MSVC with pentium4 and 64 bit.
Solution:   Only use SSE2 for 32 bit. (Mike Williams)
Files:      src/Make_mvc.mak

Patch 7.3.208
Problem:    Early terminated if statement.
Solution:   Remove the semicolon. (Lech Lorens)
Files:      src/gui_mac.c

Patch 7.3.209
Problem:    MSVC Install instructions point to wrong batch file.
Solution:   Add a batch file for use with MSVC 10.
Files:      src/msvc2010.bat, src/INSTALLpc.txt, Filelist

Patch 7.3.210
Problem:    Can't always find the file when using cscope.
Solution:   Add the 'cscoperelative' option. (Raghavendra D Prabhu)
Files:      runtime/doc/if_cscop.txt, runtime/doc/options.txt,
            src/if_cscope.c

Patch 7.3.211 (after 7.3.210)
Problem:    Compiler warning.
Solution:   Add type cast.
Files:      src/if_cscope.c

Patch 7.3.212
Problem:    With Python 3.2 ":py3" fails.
Solution:   Move PyEval_InitThreads() to after Py_Initialize(). (Roland
            Puntaier)  Check abiflags in configure. (Andreas Behr)
Files:      src/if_python3.c, src/auto/configure, src/configure.in

Patch 7.3.213
Problem:    Javascript object literal is not indented correctly.
Solution:   Make a special case for when "J1" is in 'cino'. (Luc Deschenaux)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.214
```

```
Problem:    The text displayed by ":z-" isn't exactly like old Vi.
Solution:   Add one to the start line number. (ChangZhuo Chen)
Files:      src/ex_cmds.c

Patch 7.3.215 (after 7.3.210)
Problem:    Wrong file names in previous patch. (Toothpik)
Solution:   Include the option changes.
Files:      src/option.c, src/option.h

Patch 7.3.216
Problem:    When recovering a file a range of lines is missing. (Charles Jie)
Solution:   Reset the index when advancing to the next pointer block.  Add a
            test to verify recovery works.
Files:      src/memline.c, src/testdir/test78.in, src/testdir/test78.ok,
            src/testdir/Makefile, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.3.217
Problem:    Inside an "if" a ":wincmd" causes problems.
Solution:   When skipping commands let ":wincmd" skip over its argument.
Files:      src/ex_docmd.c

Patch 7.3.218 (after 7.3.212)
Problem:    Tiny configuration problem with Python 3.
Solution:   Add abiflags in one more place. (Andreas Behr)
Files:      src/auto/configure, src/configure.in

Patch 7.3.219
Problem:    Can't compile with GTK on Mac.
Solution:   Add some #ifdef trickery. (Ben Schmidt)
Files:      src/os_mac_conv.c, src/os_macosx.m, src/vim.h

Patch 7.3.220
Problem:    Python 3: vim.error is a 'str' instead of an 'Exception' object,
            so 'except' or 'raise' it causes a 'SystemError' exception.
            Buffer objects do not support slice assignment.
            When exchanging text between Vim and Python, multibyte texts become
            garbage or cause Unicode Exceptions, etc.
            'py3file' tries to read in the file as Unicode, sometimes causes
            UnicodeDecodeException
Solution:   Fix the problems. (lilydjwg)
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.3.221
Problem:    Text from the clipboard is sometimes handled as linewise, but not
            consistently.
Solution:   Assume the text is linewise when it ends in a CR or NL.
Files:      src/gui_gtk_x11.c, src/gui_mac.c, src/ops.c, src/os_msdos.c,
            src/os_mswin.c, src/os_qnx.c, src/ui.c

Patch 7.3.222
Problem:    Warning for building GvimExt.
Solution:   Comment-out the DESCRIPTION line. (Mike Williams)
```

```
Files:      src/GvimExt/gvimext.def, src/GvimExt/gvimext_ming.def

Patch 7.3.223
Problem:    MingW cross compilation doesn't work with tiny features.
Solution:   Move acp_to_enc(), enc_to_utf16() and utf16_to_enc() outside of
            "#ifdef CLIPBOARD".  Fix typo in makefile.
Files:      src/Make_ming.mak, src/os_mswin.c

Patch 7.3.224
Problem:    Can't pass dict to sort function.
Solution:   Add the optional {dict} argument to sort(). (ZyX)
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.3.225
Problem:    Using "\n" in a substitute inside ":s" does not result in a line
            break.
Solution:   Change behavior inside vim_regexec_nl().   Add tests.  (Motoya
            Kurotsu)
Files:      src/regexp.c, src/testdir/test79.in, src/testdir/test79.ok,
            src/testdir/test80.in, src/testdir/test80.ok,
            src/testdir/Makefile, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.3.226
Problem:    On a 64 bit system "syn sync fromstart" is very slow.  (Bjorn
            Steinbrink)
Solution:   Store the state when starting to parse from the first line.
Files:      src/syntax.c

Patch 7.3.227 (after 7.3.221)
Problem:    Mac OS doesn't have the linewise clipboard fix.
Solution:   Also change the Mac OS file. (Bjorn Winckler)
Files:      src/os_macosx.m

Patch 7.3.228
Problem:    "2gj" does not always move to the correct position.
Solution:   Get length of line after moving to a next line. (James Vega)
Files:      src/normal.c

Patch 7.3.229
Problem:    Using fork() makes gvim crash on Mac when build with
            CoreFoundation.
Solution:   Disallow fork() when __APPLE__ is defined. (Hisashi T Fujinaka)
Files:      src/gui.c

Patch 7.3.230
Problem:    ":wundo" and ":rundo" don't unescape their argument.  (Aaron
            Thoma)
Solution:   Use FILE1 instead of XFILE.
Files:      src/ex_cmds.h

Patch 7.3.231
Problem:    Runtime file patches failed.
```

```
Solution:   Redo the patches made against the patched files instead of the
            files in the mercurial repository.
Files:      runtime/doc/indent.txt, runtime/doc/os_win32.txt

Patch 7.3.232
Problem:    Python doesn't compile without +multi_byte
Solution:   Use "latin1" when MULTI_BYTE is not defined.
Files:      src/if_py_both.h

Patch 7.3.233
Problem:    ":scriptnames" and ":breaklist" show long file names.
Solution:   Shorten to use "~/" when possible. (Jean-Rene David)
Files:      src/ex_cmds2.c

Patch 7.3.234
Problem:    With GTK menu may be popping down.
Solution:   Use event time instead of GDK_CURRENT_TIME. (Hong Xu)
Files:      src/gui.c, src/gui.h, src/gui_gtk.c, src/gui_gtk_x11.c

Patch 7.3.235
Problem:    ";" gets stuck on a "t" command, it's not useful.
Solution:   Add the ';' flag in 'cpo'. (Christian Brabandt)
Files:      runtime/doc/motion.txt, runtime/doc/options.txt, src/option.h,
            src/search.c src/testdir/test81.in, src/testdir/test81.ok,
            src/testdir/Makefile, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.3.236 (after 7.3.232)
Problem:    Python 3 doesn't compile without +multi_byte
Solution:   Use "latin1" when MULTI_BYTE is not defined. (lilydjwg)
Files:      src/if_python3.c

Patch 7.3.237
Problem:    "filetype" completion doesn't work on Windows. (Yue Wu)
Solution:   Don't use a glob pattern for the directories, use a list of
            directories. (Dominique Pelle)
Files:      src/ex_getln.c

Patch 7.3.238
Problem:    Compiler warning for conversion.
Solution:   Add type cast. (Mike Williams)
Files:      src/ex_getln.c

Patch 7.3.239
Problem:    Python corrects the cursor column without taking 'virtualedit'
            into account. (lilydjwg)
Solution:   Call check_cursor_col_win().
Files:      src/if_py_both.h, src/mbyte.c, src/misc2.c, src/normal.c,
            src/proto/mbyte.pro, src/proto/misc2.pro

Patch 7.3.240
Problem:    External commands can't use pipes on MS-Windows.
Solution:   Implement pipes and use them when 'shelltemp' isn't set. (Vincent
```

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            Berthoux)
Files:      src/eval.c, src/ex_cmds.c, src/misc2.c, src/os_unix.c,
            src/os_win32.c, src/proto/misc2.pro, src/ui.c

Patch 7.3.241
Problem:    Using CTRL-R CTRL-W on the command line may insert only part of
            the word.
Solution:   Use the cursor position instead of assuming it is at the end of
            the command. (Tyru)
Files:      src/ex_getln.c

Patch 7.3.242
Problem:    Illegal memory access in after_pathsep().
Solution:   Check that the pointer is not at the start of the file name.
            (Dominique Pelle)
Files:      src/misc2.c

Patch 7.3.243
Problem:    Illegal memory access in readline().
Solution:   Swap the conditions. (Dominique Pelle)
Files:      src/eval.c

Patch 7.3.244
Problem:    MS-Windows: Build problem with old compiler. (John Beckett)
Solution:   Only use HandleToLong() when available. (Mike Williams)
Files:      src/gui_w32.c

Patch 7.3.245
Problem:    Python 3.2 libraries not correctly detected.
Solution:   Add the suffix to the library name. (Niclas Zeising)
Files:      src/auto/configure, src/configure.in

Patch 7.3.246 (after 7.3.235)
Problem:    Repeating "f4" in "4444" skips one 4.
Solution:   Check the t_cmd flag. (Christian Brabandt)
Files:      src/search.c

Patch 7.3.247
Problem:    Running tests changes the users viminfo file.  Test for patch
            7.3.246 missing.
Solution:   Add "nviminfo" to the 'viminfo' option.  Include the test.
Files:      src/testdir/test78.in, src/testdir/test81.in

Patch 7.3.248
Problem:    PC Install instructions missing install instructions.
Solution:   Step-by-step explanation. (Michael Soyka)
Files:      src/INSTALLpc.txt

Patch 7.3.249
Problem:    Wrong indenting for array initializer.
Solution:   Detect '}' in a better way. (Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.250
```

```
Problem:    Python: Errors in Unicode characters not handled nicely.
Solution:   Add the surrogateescape error handler. (lilydjwg)
Files:      src/if_python3.c

Patch 7.3.251
Problem:    "gH<Del>" deletes the current line, except when it's the last
            line.
Solution:   Set the "include" flag to indicate the last line is to be deleted.
Files:      src/normal.c, src/ops.c

Patch 7.3.252 (after 7.3.247)
Problem:    Tests fail. (David Northfield)
Solution:   Add missing update for .ok file.
Files:      src/testdir/test81.ok

Patch 7.3.253
Problem:    "echo 'abc' > ''" returns 0 or 1, depending on 'ignorecase'.
            Checks in mb_strnicmp() for illegal and truncated bytes are
            wrong.  Should not assume that byte length is equal before case
            folding.
Solution:   Add utf_safe_read_char_adv() and utf_strnicmp(). Add a test for
            this. (Ivan Krasilnikov)
Files:      src/mbyte.c src/testdir/test82.in, src/testdir/test82.ok,
            src/testdir/Makefile, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.3.254
Problem:    The coladd field is not reset when setting the line number for a
            ":call" command.
Solution:   Reset it.
Files:      src/eval.c

Patch 7.3.255
Problem:    When editing a file such as "File[2010-08-15].vim" an E16 error is
            given. (Manuel Stol)
Solution:   Don't give an error for failing to compile the regexp.
Files:      src/ex_docmd.c, src/misc1.c, src/vim.h

Patch 7.3.256
Problem:    Javascript indenting not sufficiently tested.
Solution:   Add more tests. (Luc Deschenaux)  Mark the lines that are indented
            wrong.
Files:      src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.257
Problem:    Not all completions are available to user commands.
Solution:   Add "color", "compiler", "file_in_path" and "locale". (Dominique
            Pelle)
Files:      src/ex_docmd.c, runtime/doc/map.txt

Patch 7.3.258
Problem:    MS-Windows: The edit with existing vim context menu entries can be
            unwanted.
```

```
Solution:   Let a registry entry disable them. (Jerome Vuarand)
Files:      src/GvimExt/gvimext.cpp

Patch 7.3.259
Problem:    Equivalence classes only work for latin characters.
Solution:   Add the Unicode equivalence characters. (Dominique Pelle)
Files:      runtime/doc/pattern.txt, src/regexp.c, src/testdir/test44.in,
            src/testdir/test44.ok

Patch 7.3.260
Problem:    CursorHold triggers on an incomplete mapping. (Will Gray)
Solution:   Don't trigger CursorHold when there is typeahead.
Files:      src/fileio.c

Patch 7.3.261
Problem:    G++ error message erroneously recognized as error.
Solution:   Ignore "In file included from" line also when it ends in a colon.
            (Fernando Castillo)
Files:      src/option.h

Patch 7.3.262
Problem:    Photon code style doesn't match Vim style.
Solution:   Clean up some of it.  (Elias Diem)
Files:      src/gui_photon.c

Patch 7.3.263
Problem:    Perl and Tcl have a few code style problems.
Solution:   Clean it up.  (Elias Diem)
Files:      src/if_perl.xs, src/if_tcl.c

Patch 7.3.264
Problem:    When the current directory name contains wildcard characters, such
            as "foo[with]bar", the tags file can't be found.  (Jeremy
            Erickson)
Solution:   When searching for matching files also match without expanding
            wildcards.  This is a bit of a hack.
Files:      src/vim.h, src/misc1.c, src/misc2.c

Patch 7.3.265
Problem:    When storing a pattern in search history there is no proper check
            for the separator character.
Solution:   Pass the separator character to in_history(). (Taro Muraoka)
Files:      src/ex_getln.c

Patch 7.3.266
Problem:    In gvim with iBus typing space in Insert mode doesn't work.
Solution:   Clear xim_expected_char after checking it.
Files:      src/mbyte.c

Patch 7.3.267
Problem:    Ruby on Mac OS X 10.7 may crash.
Solution:   Avoid alloc(0). (Bjorn Winckler)
Files:      src/if_ruby.c
```

```
Patch 7.3.268
Problem:    Vim freezes when executing an external command with zsh.
Solution:   Use O_NOCTTY both in the master and slave. (Bjorn Winckler)
Files:      src/os_unix.c

Patch 7.3.269
Problem:    'shellcmdflag' only works with one flag.
Solution:   Split into multiple arguments. (Gary Johnson)
Files:      src/os_unix.c

Patch 7.3.270
Problem:    Illegal memory access.
Solution:   Swap conditions. (Dominique Pelle)
Files:      src/ops.c

Patch 7.3.271
Problem:    Code not following Vim coding style.
Solution:   Fix the style. (Elias Diem)
Files:      src/gui_photon.c

Patch 7.3.272
Problem:    ":put =list" does not add an empty line for a trailing empty
            item.
Solution:   Add a trailing NL when turning a list into a string.
Files:      src/eval.c

Patch 7.3.273
Problem:    A BOM in an error file is seen as text. (Aleksey Baibarin)
Solution:   Remove the BOM from the text before evaluating. (idea by Christian
            Brabandt)
Files:      src/quickfix.c, src/mbyte.c, src/proto/mbyte.pro,
            src/testdir/test10.in

Patch 7.3.274
Problem:    With concealed characters tabs do not have the right size.
Solution:   Use VCOL_HLC instead of vcol. (Eiichi Sato)
Files:      src/screen.c

Patch 7.3.275
Problem:    MS-Windows: When using a black background some screen updates
            cause the window to flicker.
Solution:   Add WS_CLIPCHILDREN to CreateWindow().  (René Aguirre)
Files:      src/gui_w32.c

Patch 7.3.276
Problem:    GvimExt sets $LANG in the wrong way.
Solution:   Save the environment and use it for gvim. (Yasuhiro Matsumoto)
Files:      src/GvimExt/gvimext.cpp

Patch 7.3.277
Problem:    MS-Windows: some characters do not show in dialogs.
Solution:   Use the wide methods when available. (Yanwei Jia)
Files:      src/gui_w32.c, src/gui_w48.c, src/os_mswin.c, src/os_win32.c,
            src/os_win32.h
```

```
Patch 7.3.278
Problem:    Passing the file name to open in VisVim doesn't work.
Solution:   Adjust the index and check for end of buffer. (Jiri Sedlak)
Files:      src/VisVim/Commands.cpp

Patch 7.3.279
Problem:    With GTK, when gvim is full-screen and a tab is opened and using a
            specific monitor configuration the window is too big.
Solution:   Adjust the window size like on MS-Windows. (Yukihiro Nakadaira)
Files:      src/gui.c, src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro

Patch 7.3.280
Problem:    ":lmake" does not update the quickfix window title.
Solution:   Update the title. (Lech Lorens)
Files:      src/quickfix.c, src/testdir/test10.in, src/testdir/test10.ok

Patch 7.3.281
Problem:    After using "expand('%:8')" the buffer name is changed.
Solution:   Make a copy of the file name before shortening it.
Files:      src/eval.c

Patch 7.3.282
Problem:    When using input() and :echo in a loop the displayed text is
            incorrect. (Benjamin Fritz)
Solution:   Only restore the cursor position when there is a command line.
            (Ben Schmidt)
Files:      src/ex_getln.c

Patch 7.3.283
Problem:    An expression mapping with a multi-byte character containing a
            0x80 byte gets messed up. (ZyX)
Solution:   Unescape the expression before evaluating it (Yukihiro Nakadaira)
Files:      src/getchar.c

Patch 7.3.284
Problem:    The str2special() function doesn't handle multi-byte characters
            properly.
Solution:   Recognize multi-byte characters. (partly by Vladimir Vichniakov)
Files:      src/getchar.c, src/message.c, src/misc2.c

Patch 7.3.285 (after 7.3.284)
Problem:    Mapping <Char-123> no longer works.
Solution:   Properly check for "char-".  Add a test for it.
Files:      src/misc2.c, src/testdir/test75.in, src/testdir/test75.ok

Patch 7.3.286
Problem:    Crash when using "zd" on a large number of folds. (Sam King)
Solution:   Recompute pointer after reallocating array.  Move fewer entries
            when making room.
Files:      src/fold.c

Patch 7.3.287
Problem:    Can't compile with MSVC and tiny options.
```

```
Solution:   Move variables and #ifdefs. (Sergey Khorev)
Files:      src/os_win32.c

Patch 7.3.288
Problem:    has('python') may give an error message for not being able to load
            the library after using python3.
Solution:   Only give the error when the verbose argument is true.
Files:      src/if_python.c, src/if_python3.c

Patch 7.3.289
Problem:    Complete function isn't called when the leader changed.
Solution:   Call ins_compl_restart() when the leader changed.  (Taro Muraoka)
Files:      src/edit.c

Patch 7.3.290
Problem:    When a BufWriteCmd autocommand resets 'modified' this doesn't
            change older buffer states to be marked as 'modified' like
            ":write" does.  (Yukihiro Nakadaira)
Solution:   When the BufWriteCmd resets 'modified' then adjust the undo
            information like ":write" does.
Files:      src/fileio.c

Patch 7.3.291
Problem:    Configure doesn't work properly with Python3.
Solution:   Put -ldl before $LDFLAGS. Add PY3_NO_RTLD_GLOBAL. (Roland
            Puntaier)
Files:      src/config.h.in, src/auto/configure, src/configure.in

Patch 7.3.292
Problem:    Crash when using fold markers and selecting a visual block that
            includes a folded line and goes to end of line. (Sam Lidder)
Solution:   Check for the column to be MAXCOL. (James Vega)
Files:      src/screen.c

Patch 7.3.293
Problem:    MSVC compiler has a problem with non-ASCII characters.
Solution:   Avoid non-ASCII characters. (Hong Xu)
Files:      src/ascii.h, src/spell.c

Patch 7.3.294 (after 7.3.289)
Problem:    Patch 289 causes more problems than it solves.
Solution:   Revert the patch until a better solution is found.
Files:      src/edit.c

Patch 7.3.295
Problem:    When filtering text with an external command Vim may not read all
            the output.
Solution:   When select() is interrupted loop and try again. (James Vega)
Files:      src/os_unix.c

Patch 7.3.296
Problem:    When writing to an external command a zombie process may be left
            behind.
Solution:   Wait on the process. (James Vega)
```

```
Files:      src/os_unix.c

Patch 7.3.297
Problem:    Can't load Perl 5.14 dynamically.
Solution:   Add code in #ifdefs. (Charles Cooper)
Files:      if_perl.xs

Patch 7.3.298
Problem:    Built-in colors are different from rgb.txt.
Solution:   Adjust the color values. (Benjamin Haskell)
Files:      src/gui_photon.c, src/gui_w48.c

Patch 7.3.299
Problem:    Source code not in Vim style.
Solution:   Adjust the style. (Elias Diem)
Files:      src/gui_photon.c

Patch 7.3.300
Problem:    Python doesn't parse multi-byte argument correctly.
Solution:   Use "t" instead of "s". (lilydjwg)
Files:      src/if_py_both.h

Patch 7.3.301
Problem:    When 'smartindent' and 'copyindent' are set a Tab is used even
            though 'expandtab' is set.
Solution:   Do not insert Tabs. Add a test. (Christian Brabandt)
Files:      src/misc1.c, src/testdir/test19.in, src/testdir/test19.ok

Patch 7.3.302 (after 7.3.301)
Problem:    Test 19 fails without 'smartindent' and +eval.
Solution:   Don't use ":exe". Source small.vim.
Files:      src/testdir/test19.in

Patch 7.3.303 (after 7.3.296)
Problem:    Compilation error.
Solution:   Correct return type from int to pid_t. (Danek Duvall)
Files:      src/os_unix.c

Patch 7.3.304
Problem:    Strawberry Perl doesn't work on MS-Windows.
Solution:   Use xsubpp if needed. (Yasuhiro Matsumoto)
Files:      src/Make_ming.mak, src/Make_mvc.mak

Patch 7.3.305
Problem:    Auto-loading a function while editing the command line causes
            scrolling up the display.
Solution:   Don't set msg_scroll when defining a function and the user is not
            typing. (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.3.306
Problem:    When closing a window there is a chance that deleting a scrollbar
            triggers a GUI resize, which uses the window while it is not in a
            valid state.
```

```
Solution:   Set the buffer pointer to NULL to be able to detect the invalid
            situation.  Fix a few places that used the buffer pointer
            incorrectly.
Files:      src/buffer.c, src/ex_cmds.c, src/term.c, src/window.c

Patch 7.3.307
Problem:    Python 3 doesn't support slice assignment.
Solution:   Implement slices. (Brett Overesch, Roland Puntaier)
Files:      src/if_python3.c

Patch 7.3.308
Problem:    Writing to 'verbosefile' has problems, e.g. for :highlight.
Solution:   Do not use a separate verbose_write() function but write with the
            same code that does redirecting. (Yasuhiro Matsumoto)
Files:      src/message.c

Patch 7.3.309 (after 7.3.307)
Problem:    Warnings for pointer types.
Solution:   Change PySliceObject to PyObject.
Files:      src/if_python3.c

Patch 7.3.310
Problem:    Code not following Vim style.
Solution:   Fix the style. (Elias Diem)
Files:      src/gui_photon.c

Patch 7.3.311 (replaces 7.3.289)
Problem:    Complete function isn't called when the leader changed.
Solution:   Allow the complete function to return a dictionary with a flag
            that indicates ins_compl_restart() is to be called when the leader
            changes. (Taro Muraoka)
Files:      runtime/insert.txt, src/edit.c, src/eval.c, src/proto/eval.pro

Patch 7.3.312 (after 7.3.306)
Problem:    Can't compile with tiny features.
Solution:   Add #ifdef around win_valid().
Files:      src/buffer.c

Patch 7.3.313 (after 7.3.307)
Problem:    One more warning when compiling with dynamic Python 3.
Solution:   Change PySliceObject to PyObject.
Files:      src/if_python3.c

Patch 7.3.314 (after 7.3.304)
Problem:    Missing parenthesis.
Solution:   Add it. (Benjamin R. Haskell)
Files:      src/Make_mvc.mak

Patch 7.3.315
Problem:    Opening a window before forking causes problems for GTK.
Solution:   Fork first, create the window in the child and report back to the
            parent process whether it worked.  If successful the parent exits,
            if unsuccessful the child exits and the parent continues in the
            terminal. (Tim Starling)
```

```
Files:      src/gui.c

Patch 7.3.316 (after 7.3.306)
Problem:    Crash when 'colorcolumn' is set and closing buffer.
Solution:   Check for w_buffer to be NULL. (Yasuhiro Matsumoto)
Files:      src/option.c

Patch 7.3.317
Problem:    Calling debug.debug() in Lua may cause Vim to hang.
Solution:   Add a better debug method. (Rob Hoelz, Luis Carvalho)
Files:      src/if_lua.c

Patch 7.3.318
Problem:    "C" on the last line deletes that line if it's blank.
Solution:   Only delete the last line for a delete operation. (James Vega)
Files:      src/ops.c

Patch 7.3.319 (after 7.3.311)
Problem:    Redobuff doesn't always include changes of the completion leader.
Solution:   Insert backspaces as needed. (idea by Taro Muraoka)
Files:      src/edit.c

Patch 7.3.320
Problem:    When a 0xa0 character is in a sourced file the error message for
            unrecognized command does not show the problem.
Solution:   Display 0xa0 as <a0>.
Files:      src/ex_docmd.c

Patch 7.3.321
Problem:    Code not following Vim style.
Solution:   Fix the style. (Elias Diem)
Files:      src/os_qnx.c

Patch 7.3.322
Problem:    #ifdef for PDP_RETVAL doesn't work, INT_PTR can be a typedef.
Solution:   Check the MSC version and 64 bit flags. (Sergiu Dotenco)
Files:      src/os_mswin.c

Patch 7.3.323
Problem:    The default 'errorformat' does not ignore some "included from"
            lines.
Solution:   Add a few more patterns. (Ben Boeckel)
Files:      src/option.h

Patch 7.3.324 (after 7.3.237)
Problem:    Completion for ":compiler" shows color scheme names.
Solution:   Fix the directory name. (James Vega)
Files:      src/ex_getln.c

Patch 7.3.325
Problem:    A duplicated function argument gives an internal error.
Solution:   Give a proper error message. (based on patch by Tyru)
Files:      src/eval.c
```

```
Patch 7.3.326
Problem:    MingW 4.6 no longer supports the -mno-cygwin option.
Solution:   Split the Cygwin and MingW makefiles. (Matsushita Shougo)
Files:      src/GvimExt/Make_cyg.mak, src/GvimExt/Make_ming.mak,
            src/Make_cyg.mak, src/Make_ming.mak, src/xxd/Make_ming.mak,
            Filelist

Patch 7.3.327
Problem:    When jumping to a help tag a closed fold doesn't open.
Solution:   Save and restore KeyTyped. (Yasuhiro Matsumoto)
Files:      src/ex_cmds.c

Patch 7.3.328
Problem:    When command line wraps the cursor may be displayed wrong when
            there are multi-byte characters.
Solution:   Position the cursor before drawing the text. (Yasuhiro Matsumoto)
Files:      src/ex_getln.c

Patch 7.3.329
Problem:    When skipping over code from ":for" to ":endfor" get an error for
            calling a dict function. (Yasuhiro Matsumoto)
Solution:   Ignore errors when skipping over :call command.
Files:      src/ex_docmd.c, src/eval.c

Patch 7.3.330
Problem:    When longjmp() is invoked if the X server gives an error the state
            is not properly restored.
Solution:   Reset vgetc_busy. (Yukihiro Nakadaira)
Files:      src/main.c

Patch 7.3.331
Problem:    "vit" selects wrong text when a tag name starts with the same text
            as an outer tag name. (Ben Fritz)
Solution:   Add "\>" to the pattern to check for word boundary.
Files:      src/search.c

Patch 7.3.332 (after 7.3.202)
Problem:    Indent after "public:" is not increased in C++ code. (Lech Lorens)
Solution:   Check for namespace after the regular checks. (partly by Martin
            Gieseking)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.333
Problem:    Using "." to repeat a Visual delete counts the size in bytes, not
            characters.  (Connor Lane Smith)
Solution:   Store the virtual column numbers instead of byte positions.
Files:      src/normal.c

Patch 7.3.334
Problem:    Latest MingW about XSUBPP referencing itself. (Gongqian Li)
Solution:   Rename the first use to XSUBPPTRY.
Files:      src/Make_ming.mak

Patch 7.3.335
```

```
Problem:    When 'imdisable' is reset from an autocommand in Insert mode it
            doesn't take effect.
Solution:   Call im_set_active() in Insert mode. (Taro Muraoka)
Files:      src/option.c

Patch 7.3.336
Problem:    When a tags file specifies an encoding different from 'enc' it
            may hang and using a pattern doesn't work.
Solution:   Convert the whole line.  Continue reading the header after the
            SORT tag.  Add test83. (Yukihiro Nakadaira)
Files:      src/tag.c, src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test83-tags2, src/testdir/test83-tags3,
            src/testdir/test83.in, src/testdir/test83.ok

Patch 7.3.337 (after 7.3.295)
Problem:    Screen doesn't update after resizing the xterm until a character
            is typed.
Solution:   When the select call is interrupted check do_resize. (Taylor
            Hedberg)
Files:      src/os_unix.c

Patch 7.3.338
Problem:    Using getchar() in an expression mapping doesn't work well.
Solution:   Don't save and restore the typeahead. (James Vega)
Files:      src/getchar.c, src/testdir/test34.ok

Patch 7.3.339
Problem:    "make shadow" doesn't link all test files.
Solution:   Add a line in Makefile and Filelist.
Files:      src/Makefile, Filelist

Patch 7.3.340
Problem:    When 'verbosefile' is set ftplugof.vim can give an error.
Solution:   Only remove filetypeplugin autocommands when they exist. (Yasuhiro
            Matsumoto)
Files:      runtime/ftplugof.vim

Patch 7.3.341
Problem:    Local help files are only listed in help.txt, not in translated
            help files.
Solution:   Also find translated help files. (Yasuhiro Matsumoto)
Files:      src/ex_cmds.c

Patch 7.3.342
Problem:    Code not in Vim style.
Solution:   Fix the style. (Elias Diem)
Files:      src/os_amiga.c, src/os_mac_conv.c, src/os_win16.c

Patch 7.3.343
Problem:    No mouse support for urxvt.
Solution:   Implement urxvt mouse support, also for > 252 columns.  (Yiding
            Jia)
```

```
Files:      src/feature.h, src/keymap.h, src/option.h, src/os_unix.c,
            src/term.c, src/version.c

Patch 7.3.344
Problem:    Problem with GUI startup related to XInitThreads.
Solution:   Use read() and write() instead of fputs() and fread(). (James
            Vega)
Files:      src/gui.c

Patch 7.3.345
Problem:    When switching language with ":lang" the window title doesn't
            change until later.
Solution:   Update the window title right away. (Dominique Pelle)
Files:      src/ex_cmds2.c

Patch 7.3.346
Problem:    It's hard to test netbeans commands.
Solution:   Process netbeans commands after :sleep. (Xavier de Gaye)
Files:      runtime/doc/netbeans.txt, src/ex_docmd.c, src/netbeans.c

Patch 7.3.347
Problem:    When dropping text from a browser on Vim it receives HTML even
            though "html" is excluded from 'clipboard'. (Andrei Avk)
Solution:   Fix the condition for TARGET_HTML.
Files:      src/gui_gtk_x11.c

Patch 7.3.348
Problem:    "call range(1, 947948399)" causes a crash. (ZyX)
Solution:   Avoid a loop in the out of memory message.
Files:      src/misc2.c

Patch 7.3.349
Problem:    When running out of memory during startup trying to open a
            swapfile will loop forever.
Solution:   Let findswapname() set dirp to NULL if out of memory.
Files:      src/memline.c

Patch 7.3.350
Problem:    Block of code after ":lua << EOF" may not work. (Paul Isambert)
Solution:   Recognize the ":lua" command, skip to EOF.
Files:      src/eval.c

Patch 7.3.351
Problem:    Text formatting uses start of insert position when it should not.
            (Peter Wagenaar)
Solution:   Do not use Insstart when intentionally formatting.
Files:      src/edit.c

Patch 7.3.352
Problem:    When completing methods dict functions and script-local functions
            get in the way.
Solution:   Sort function names starting with "<" to the end. (Yasuhiro
            Matsumoto)
Files:      src/ex_getln.c
```

```
Patch 7.3.353 (after 7.3.343)
Problem:    Missing part of the urxvt patch.
Solution:   Add the change in term.c
Files:      src/term.c

Patch 7.3.354
Problem:    ":set backspace+=eol" doesn't work when 'backspace' has a
            backwards compatible value of 2.
Solution:   Convert the number to a string. (Hirohito Higashi)
Files:      src/option.c

Patch 7.3.355
Problem:    GTK warnings when using netrw.vim. (Ivan Krasilnikov)
Solution:   Do not remove the beval event handler twice.
Files:      src/option.c

Patch 7.3.356
Problem:    Using "o" with 'cindent' set may freeze Vim. (lolilolicon)
Solution:   Skip over {} correctly. (Hari G)
Files:      src/misc1.c

Patch 7.3.357
Problem:    Compiler warning in MS-Windows console build.
Solution:   Adjust return type of PrintHookProc(). (Mike Williams)
Files:      src/os_mswin.c

Patch 7.3.358 (after 7.3.353)
Problem:    Mouse support doesn't work properly.
Solution:   Add HMT_URXVT. (lilydjwg, James McCoy)
Files:      src/term.c

Patch 7.3.359
Problem:    Command line completion shows dict functions.
Solution:   Skip dict functions for completion. (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.3.360
Problem:    Interrupting the load of an autoload function may cause a crash.
Solution:   Do not use the hashitem when not valid. (Yukihiro Nakadaira)
Files:      src/eval.c

Patch 7.3.361
Problem:    Accessing memory after it is freed when EXITFREE is defined.
Solution:   Don't access curwin when firstwin is NULL. (Dominique Pelle)
Files:      src/buffer.c

Patch 7.3.362
Problem:    ml_get error when using ":g" with folded lines.
Solution:   Adjust the line number for changed_lines(). (Christian Brabandt)
Files:      src/ex_cmds.c

Patch 7.3.363
Problem:    C indenting is wrong after #endif followed by a semicolon.
```

```
Solution:   Add special handling for a semicolon in a line by itself. (Lech
            Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.364 (after 7.3.353)
Problem:    Can't compile on HP-UX. (John Marriott)
Solution:   Only use TTYM_URXVT when it is defined.
Files:      src/term.c

Patch 7.3.365
Problem:    Crash when using a large Unicode character in a file that has
            syntax highlighting. (ngollan)
Solution:   Check for going past the end of the utf tables. (Dominique Pelle)
Files:      src/mbyte.c

Patch 7.3.366
Problem:    A tags file with an extremely long name causes errors.
Solution:   Ignore tags that are too long. (Arno Renevier)
Files:      src/tag.c

Patch 7.3.367
Problem:    :wundo and :rundo use a wrong checksum.
Solution:   Include the last line when computing the hash. (Christian Brabandt)
Files:      src/undo.c

Patch 7.3.368
Problem:    Gcc complains about redefining _FORTIFY_SOURCE.
Solution:   Undefine it before redefining it.
Files:      src/Makefile, src/configure.in, src/auto/configure

Patch 7.3.369
Problem:    When compiled with Gnome get an error message when using --help.
Solution:   Don't fork. (Ivan Krasilnikov)
Files:      src/main.c

Patch 7.3.370
Problem:    Compiler warns for unused variable in Lua interface.
Solution:   Remove the variable.
Files:      src/if_lua.c

Patch 7.3.371
Problem:    Crash in autocomplete. (Greg Weber)
Solution:   Check not going over allocated buffer size.
Files:      src/misc2.c

Patch 7.3.372
Problem:    When using a command line mapping to <Up> with file name
            completion to go one directory up, 'wildchar' is inserted.
            (Yasuhiro Matsumoto)
Solution:   Set the KeyTyped flag.
Files:      src/ex_getln.c

Patch 7.3.373 (after 7.3.366)
Problem:    A tags file with an extremely long name may cause an infinite loop.
```

```
Solution:   When encountering a long name switch to linear search.
Files:      src/tag.c

Patch 7.3.374
Problem:    ++encoding does not work properly.
Solution:   Recognize ++encoding before ++enc. (Charles Cooper)
Files:      src/ex_docmd.c

Patch 7.3.375
Problem:    Duplicate return statement.
Solution:   Remove the superfluous one. (Dominique Pelle)
Files:      src/gui_mac.c

Patch 7.3.376
Problem:    Win32: Toolbar repainting does not work when the mouse pointer
            hovers over a button.
Solution:   Call DefWindowProc() when not handling an event. (Sergiu Dotenco)
Files:      src/gui_w32.c

Patch 7.3.377
Problem:    No support for bitwise AND, OR, XOR and invert.
Solution:   Add and(), or(), invert() and xor() functions.
Files:      src/eval.c, src/testdir/test49.in, src/testdir/test65.in,
            src/testdir/test65.ok, runtime/doc/eval.txt

Patch 7.3.378
Problem:    When cross-compiling the check for uint32_t fails.
Solution:   Only give a warning message. (Maksim Melnikau)
Files:      src/configure.in, src/auto/configure

Patch 7.3.379
Problem:    C-indenting wrong for static enum.
Solution:   Skip over "static". (Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.380
Problem:    C-indenting wrong for a function header.
Solution:   Skip to the start paren. (Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.381
Problem:    Configure silently skips interfaces that won't work.
Solution:   Add the --enable-fail_if_missing argument. (Shlomi Fish)
Files:      src/Makefile, src/configure.in, src/auto/configure

Patch 7.3.382 (after 7.3.376)
Problem:    IME characters are inserted twice.
Solution:   Do not call DefWindowProc() if the event was handled. (Yasuhiro
            Matsumoto)
Files:      src/gui_w32.c

Patch 7.3.383
Problem:    For EBCDIC pound sign is defined as 't'.
Solution:   Correctly define POUND.
```

```
Files:      src/ascii.h

Patch 7.3.384
Problem:    Mapping CTRL-K in Insert mode breaks CTRL-X CTRL-K for dictionary
            completion.
Solution:   Add CTRL-K to the list of recognized keys. (James McCoy)
Files:      src/edit.c

Patch 7.3.385
Problem:    When using an expression mapping on the command line the cursor
            ends up in the wrong place. (Yasuhiro Matsumoto)
Solution:   Save and restore msg_col and msg_row when evaluating the
            expression.
Files:      src/getchar.

Patch 7.3.386
Problem:    Test 83 fails when iconv does not support cp932. (raf)
Solution:   Test if conversion works. (Yukihiro Nakadaira)
Files:      src/testdir/test83.in

Patch 7.3.387 (after 7.3.386)
Problem:    Test 83 may fail for some encodings.
Solution:   Set 'encoding' to utf-8 earlier.
Files:      src/testdir/test83.in

Patch 7.3.388
Problem:    Crash on exit when EXITFREE is defined and using tiny features.
Solution:   Check for NULL window pointer. (Dominique Pelle)
Files:      src/buffer.c

Patch 7.3.389
Problem:    After typing at a prompt the "MORE" message appears too soon.
Solution:   reset lines_left in msg_end_prompt(). (Eswald)
Files:      src/message.c

Patch 7.3.390
Problem:    Using NULL buffer pointer in a window.
Solution:   Check for w_buffer being NULL in more places. (Bjorn Winckler)
Files:      src/ex_cmds.c, src/quickfix.c, src/window.c

Patch 7.3.391
Problem:    Can't check if the XPM_W32 feature is enabled.
Solution:   Add xpm_w32 to the list of features. (kat)
Files:      src/eval.c

Patch 7.3.392
Problem:    When setting 'undofile' while the file is already loaded but
            unchanged, try reading the undo file. (Andy Wokula)
Solution:   Compute a checksum of the text when 'undofile' is set. (Christian
            Brabandt)
Files:      src/option.c, src/testdir/test72.in, src/testdir/test72.ok

Patch 7.3.393
Problem:    Win32: When resizing Vim it is always moved to the primary monitor
```

            if the secondary monitor is on the left.
Solution: Use the nearest monitor. (Yukihiro Nakadaira)
Files: src/gui_w32.c

Patch 7.3.394
Problem: When placing a mark while starting up a screen redraw messes up
            the screen. (lith)
Solution: Don't redraw while still starting up. (Christian Brabandt)
Files: src/screen.c

Patch 7.3.395 (after 7.3.251)
Problem: "dv?bar" in the last line deletes too much and breaks undo.
Solution: Only adjust the cursor position when it's after the last line of
            the buffer. Add a test. (Christian Brabandt)
Files: src/ops.c, src/testdir/test43.in, src/testdir/test43.ok

Patch 7.3.396
Problem: After forcing an operator to be characterwise it can still become
            linewise when spanning whole lines.
Solution: Don't make the operator linewise when motion_force was set.
            (Christian Brabandt)
Files: src/ops.c

Patch 7.3.397
Problem: ":helpgrep" does not work properly when 'encoding' is not utf-8 or
            latin1.
Solution: Convert non-ascii lines to 'encoding'. (Yasuhiro Matsumoto)
Files: src/quickfix.c, src/spell.c, src/misc2.c, src/proto/misc2.pro

Patch 7.3.398
Problem: When creating more than 10 location lists and adding items one by
            one a previous location may be used. (Audrius Kažukauskas)
Solution: Clear the location list completely when adding the tenth one.
Files: src/quickfix.c

Patch 7.3.399
Problem: ":cd" doesn't work when the path contains wildcards. (Yukihiro
            Nakadaira)
Solution: Ignore wildcard errors when the EW_NOTWILD flag is used.
Files: src/misc1.c

Patch 7.3.400
Problem: Compiler warnings for shadowed variables.
Solution: Remove or rename the variables.
Files: src/charset.c, src/digraph.c, src/edit.c, src/eval.c, src/fold.c,
            src/getchar.c, src/message.c, src/misc2.c, src/move.c,
            src/netbeans.c, src/option.c, src/os_unix.c, src/screen.c,
            src/search.c, src/spell.c, src/syntax.c, src/tag.c, src/window.c

Patch 7.3.401
Problem: A couple more shadowed variables.
Solution: Rename the variables.
Files: src/netbeans.c

```
Patch 7.3.402
Problem:    When jumping to the first error a line of the buffer is sometimes
            redrawn on top of the list of errors.
Solution:   Do not call update_topline_redraw() if the display was scrolled
            up.
Files:      src/quickfix.c

Patch 7.3.403
Problem:    ":helpgrep" does not trigger QuickFixCmd* autocommands.
Solution:   Trigger the autocommands. (Christian Brabandt)
Files:      src/quickfix.c

Patch 7.3.404
Problem:    When a complete function uses refresh "always" redo will not work
            properly.
Solution:   Do not reset compl_leader when compl_opt_refresh_always is set.
            (Yasuhiro Matsumoto)
Files:      src/edit.c

Patch 7.3.405
Problem:    When xterm gets back the function keys it may delete the urxvt
            mouse termcap code.
Solution:   Check for the whole code, not just the start. (Egmont Koblinger)
Files:      src/keymap.h, src/misc2.c, src/term.c

Patch 7.3.406
Problem:    Multi-byte characters in b:browsefilter are not handled correctly.
Solution:   First use convert_filter() normally and then convert to wide
            characters. (Taro Muraoka)
Files:      src/gui_w48.c

Patch 7.3.407
Problem:    ":12verbose call F()" may duplicate text while trying to truncate.
            (Thinca)
Solution:   Only truncate when there is not enough room.  Also check the byte
            length of the buffer.
Files:      src/buffer.c, src/eval.c, src/ex_getln.c, src/message.c,
            src/proto/message.pro

Patch 7.3.408 (after 7.3.406)
Problem:    Missing declaration.
Solution:   Add the declaration. (John Marriott)
Files:      src/gui_w48.c

Patch 7.3.409
Problem:    The license in pty.c is unclear.
Solution:   Add a comment about the license.
Files:      src/pty.c

Patch 7.3.410
Problem:    Compiler error for // comment. (Joachim Schmitz)
Solution:   Turn into /* comment */.
Files:      src/message.c
```

```
Patch 7.3.411
Problem:    Pasting in Visual mode using the "" register does not work. (John
            Beckett)
Solution:   Detect that the write is overwriting the pasted register.
            (Christian Brabandt)
Files:      src/normal.c

Patch 7.3.412
Problem:    Storing a float in a session file has an additional '&'.
Solution:   Remove the '&'. (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.3.413
Problem:    Build warnings on MS-Windows.
Solution:   Add type casts. (Mike Williams)
Files:      src/ex_getln.c, src/message.c, src/term.c

Patch 7.3.414
Problem:    Using CTRL-A on "000" drops the leading zero, while on "001" it
            doesn't.
Solution:   Detect "000" as an octal number. (James McCoy)
Files:      src/charset.c

Patch 7.3.415 (after 7.3.359)
Problem:    Completion of functions stops once a dictionary is encountered.
            (James McCoy)
Solution:   Return an empty string instead of NULL.
Files:      src/eval.c

Patch 7.3.416 (after 7.3.415)
Problem:    Compiler warning for wrong pointer.
Solution:   Add type cast.
Files:      src/eval.c

Patch 7.3.417 (after 7.3.395)
Problem:    Test 43 fails with a tiny build.
Solution:   Only run test 43 with at least a small build.
Files:      src/testdir/test43.in

Patch 7.3.418
Problem:    When a user complete function returns -1 an error message is
            given.
Solution:   When -2 is returned stop completion silently. (Yasuhiro Matsumoto)
Files:      src/edit.

Patch 7.3.419
Problem:    DBCS encoding in a user command does not always work.
Solution:   Skip over DBCS characters. (Yasuhiro Matsumoto)
Files:      src/ex_docmd.c

Patch 7.3.420
Problem:    "it" and "at" don't work properly with a dash in the tag name.
Solution:   Require a space to match the tag name. (Christian Brabandt)
Files:      src/search.c
```

Patch 7.3.421
Problem: Get E832 when setting 'undofile' in vimrc and there is a file to
            be edited on the command line. (Toothpik)
Solution: Do not try reading the undo file for a file that wasn't loaded.
Files: src/option.c

Patch 7.3.422
Problem: Python 3 does not have __members__.
Solution: Add "name" and "number" in another way. (lilydjwg)
Files: src/if_py_both.h, src/if_python3.c

Patch 7.3.423
Problem: Small mistakes in comments, proto and indent.
Solution: Fix the mistakes.
Files: src/ex_cmds2.c, src/structs.h, src/ui.c, src/proto/ex_docmd.pro

Patch 7.3.424
Problem: Win16 version missing some functions.
Solution: Add #defines for the functions.
Files: src/gui_w16.c

Patch 7.3.425 (after 7.3.265)
Problem: Search history lines are duplicated. (Edwin Steiner)
Solution: Convert separator character from space to NUL.
Files: src/ex_getln.c

Patch 7.3.426
Problem: With '$' in 'cpoptions' the $ is not displayed in the first
            column.
Solution: Use -1 instead of 0 as a special value. (Hideki Eiraku and
            Hirohito Higashi)
Files: src/edit.c, src/globals.h, src/move.c, src/screen.c, src/search.c

Patch 7.3.427
Problem: readfile() can be slow with long lines.
Solution: Use realloc() instead of alloc(). (John Little)
Files: src/eval.c

Patch 7.3.428
Problem: Win32: an xpm file without a mask crashes Vim.
Solution: Fail when the mask is missing. (Dave Bodenstab)
Files: src/xpm_w32.c

Patch 7.3.429
Problem: When 'cpoptions' includes "E" "c0" in the first column is an
            error. The redo register is then set to the erroneous command.
Solution: Do not set the redo register if the command fails because of an
            empty region. (Hideki Eiraku)
Files: src/getchar.c, src/normal.c, src/proto/getchar.pro

Patch 7.3.430
Problem: When a custom filetype detection uses "augroup END" the conf
            fileytpe detection does not have the filetypedetect group.

```
Solution:   Always end the group and include filetypedetect in the conf
            autocommand. (Lech Lorens)
Files:      runtime/filetype.vim

Patch 7.3.431
Problem:    Fetching a key at a prompt may be confused by escape sequences.
            Especially when getting a prompt at a VimEnter autocommand.
            (Alex Efros)
Solution:   Properly handle escape sequences deleted by check_termcode().
Files:      src/getchar.c, src/misc1.c, src/term.c, src/proto/term.pro

Patch 7.3.432
Problem:    ACLs are not supported for ZFS or NFSv4 on Solaris.
Solution:   Add configure check and code. (Danek Duvall)
Files:      src/configure.in, src/auto/configure, src/config.h.in,
            src/os_unix.c

Patch 7.3.433
Problem:    Using continued lines in a Vim script can be slow.
Solution:   Instead of reallocating for every line use a growarray. (Yasuhiro
            Matsumoto)
Files:      src/ex_cmds2.c

Patch 7.3.434
Problem:    Using join() can be slow.
Solution:   Compute the size of the result before allocation to avoid a lot of
            allocations and copies. (Taro Muraoka)
Files:      src/eval.c

Patch 7.3.435
Problem:    Compiler warning for unused variable.
Solution:   Move the variable inside #ifdef.
Files:      src/ex_cmds2.c

Patch 7.3.436
Problem:    Compiler warnings for types on Windows.
Solution:   Add type casts. (Mike Williams)
Files:      src/eval.c

Patch 7.3.437
Problem:    Continue looping inside FOR_ALL_TAB_WINDOWS even when already done.
Solution:   Use goto instead of break. (Hirohito Higashi)
Files:      src/fileio.c, src/globals.h

Patch 7.3.438
Problem:    There is no way to avoid ":doautoall" reading modelines.
Solution:   Add the <nomodeline> argument. Adjust documentation.
Files:      src/fileio.c, runtime/doc/autocmd.txt

Patch 7.3.439
Problem:    Compiler warnings to size casts in Perl interface.
Solution:   Use XS macros. (James McCoy)
Files:      src/if_perl.xs, src/typemap
```

```
Patch 7.3.440
Problem:    Vim does not support UTF8_STRING for the X selection.
Solution:   Add UTF8_STRING atom support. (Alex Efros) Use it only when
            'encoding' is set to Unicode.
Files:      src/ui.c

Patch 7.3.441
Problem:    Newer versions of MzScheme (Racket) require earlier (trampolined)
            initialisation.
Solution:   Call mzscheme_main() early in main(). (Sergey Khorev)
Files:      src/Make_mvc.mak, src/if_mzsch.c, src/main.c,
            src/proto/if_mzsch.pro

Patch 7.3.442 (after 7.3.438)
Problem:    Still read modelines for ":doautocmd".
Solution:   Move check for <nomodeline> to separate function.
Files:      src/fileio.c, src/ex_docmd.c, src/proto/fileio.pro,
            runtime/doc/autocmd.txt

Patch 7.3.443
Problem:    MS-Windows: 'shcf' and 'shellxquote' defaults are not very good.
Solution:   Make a better guess when 'shell' is set to "cmd.exe". (Ben Fritz)
Files:      src/option.c, runtime/doc/options.txt

Patch 7.3.444
Problem:    ":all!" and ":sall!" give error E477, even though the
            documentation says these are valid commands.
Solution:   Support the exclamation mark. (Hirohito Higashi)
Files:      src/ex_cmds.h, src/testdir/test31.in, src/testdir/test31.ok

Patch 7.3.445 (after 7.3.443)
Problem:    Can't properly escape commands for cmd.exe.
Solution:   Default 'shellxquote' to '('.  Append ')' to make '(command)'.
            No need to use "/s" for 'shellcmdflag'.
Files:      src/misc2.c, src/option.c, src/os_win32.c

Patch 7.3.446 (after 7.3.445)
Problem:    Win32: External commands with special characters don't work.
Solution:   Add the 'shellxescape' option.
Files:      src/misc2.c, src/option.c, src/option.h, runtime/doc/options.txt

Patch 7.3.447 (after 7.3.446)
Problem:    Win32: External commands with "start" do not work.
Solution:   Unescape part of the command. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.3.448 (after 7.3.447)
Problem:    Win32: Still a problem with "!start /b".
Solution:   Escape only '|'. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.3.449
Problem:    Crash when a BufWinLeave autocommand closes the only other window.
            (Daniel Hunt)
```

```
Solution:   Abort closing a buffer when it becomes the only one.
Files:      src/buffer.c, src/proto/buffer.pro, src/ex_cmds.c, src/ex_getln.c,
            src/misc2.c, src/quickfix.c, src/window.c, src/proto/window.pro

Patch 7.3.450 (after 7.3.448)
Problem:    Win32: Still a problem with "!start /b".
Solution:   Fix pointer use. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.3.451
Problem:    Tcl doesn't work on 64 MS-Windows.
Solution:   Make it work. (Dave Bodenstab)
Files:      src/Make_mvc.mak, src/if_tcl.c

Patch 7.3.452
Problem:    Undo broken when pasting close to the last line. (Andrey Radev)
Solution:   Use a flag to remember if the deleted included the last line.
            (Christian Brabandt)
Files:      src/ops.c

Patch 7.3.453
Problem:    Pasting in the command line is slow.
Solution:   Don't redraw if there is another character to read. (Dominique
            Pelle)
Files:      src/ex_getln.c

Patch 7.3.454
Problem:    Re-allocating memory slows Vim down.
Solution:   Use realloc() in ga_grow(). (Dominique Pelle)
Files:      src/misc2.c

Patch 7.3.455
Problem:    Using many continuation lines can be slow.
Solution:   Adjust the reallocation size to the current length.
Files:      src/ex_cmds2.c

Patch 7.3.456
Problem:    ":tab drop file" has several problems, including moving the
            current window and opening a new tab for a file that already has a
            window.
Solution:   Refactor ":tab drop" handling. (Hirohito Higashi)
Files:      src/buffer.c, src/testdir/test62.in, src/testdir/test62.ok

Patch 7.3.457
Problem:    When setting $VIMRUNTIME later the directory for fetching
            translated messages is not adjusted.
Solution:   Put bindtextdomain() in vim_setenv().
Files:      src/misc1.c

Patch 7.3.458
Problem:    Crash when calling smsg() during startup.
Solution:   Don't use 'shortmess' when it is not set yet.
Files:      src/option.c
```

```
Patch 7.3.459
Problem:    Win32: Warnings for type conversion.
Solution:   Add type casts. (Mike Williams)
Files:      src/misc2.c, src/os_win32.c

Patch 7.3.460
Problem:    Win32: UPX does not compress 64 bit binaries.
Solution:   Mention and add the alternative: mpress. (Dave Bodenstab)
Files:      src/INSTALLpc.txt, src/Make_ming.mak

Patch 7.3.461
Problem:    The InsertCharPre autocommand event is not triggered during
            completion and when typing several characters quickly.
Solution:   Also trigger InsertCharPre during completion.  Do not read ahead
            when an InsertCharPre autocommand is defined. (Yasuhiro Matsumoto)
Files:      src/edit.c, src/fileio.c, src/proto/fileio.pro

Patch 7.3.462
Problem:    When using ":loadview" folds may be closed unexpectedly.
Solution:   Take into account foldlevel. (Xavier de Gaye)
Files:      src/fold.c

Patch 7.3.463
Problem:    When using ":s///c" the cursor is moved away from the match.
            (Lawman)
Solution:   Don't move the cursor when do_ask is set. (Christian Brabandt)
Files:      src/ex_cmds.c

Patch 7.3.464
Problem:    Compiler warning for sprintf.
Solution:   Put the length in a variable. (Dominique Pelle)
Files:      src/version.c

Patch 7.3.465
Problem:    Cannot get file name with newline from glob().
Solution:   Add argument to glob() and expand() to indicate they must return a
            list. (Christian Brabandt)
Files:      runtime/doc/eval.txt, src/eval.c, src/ex_getln.c, src/vim.h

Patch 7.3.466
Problem:    Get ml_get error hen ":behave mswin" was used and selecting
            several lines.  (A. Sinan Unur)
Solution:   Adjust the end of the operation. (Christian Brabandt)
Files:      src/ops.c

Patch 7.3.467
Problem:    Cursor positioned wrong at the command line when regaining focus
            and using some input method.
Solution:   Do not position the cursor in command line mode.
Files:      src/mbyte.c

Patch 7.3.468
Problem:    For some compilers the error file is not easily readable.
Solution:   Use QuickFixCmdPre for more commands. (Marcin Szamotulski)
```

```
Files:      runtime/doc/autocmd.txt, src/quickfix.c

Patch 7.3.469
Problem:    Compiler warning for unused argument without some features.
Solution:   Add UNUSED.
Files:      src/buffer.c

Patch 7.3.470
Problem:    Test 62 fails when compiled without GUI and X11.
Solution:   Don't test :drop when it is not supported.
Files:      src/testdir/test62.in

Patch 7.3.471
Problem:    Can't abort listing placed signs.
Solution:   Check "got_int". (Christian Brabandt)
Files:      src/buffer.c, src/ex_cmds.c

Patch 7.3.472
Problem:    Crash when using ":redraw" in a BufEnter autocommand and
            switching to another tab. (??)
Solution:   Move triggering the autocommands to after correcting the
            option values. Also check the row value to be out of bounds.
            (Christian Brabandt, Sergey Khorev)
Files:      src/screen.c, src/window.c

Patch 7.3.473
Problem:    'cursorbind' does not work correctly in combination with
            'virtualedit' set to "all".
Solution:   Copy coladd. (Gary Johnson)
Files:      src/move.c

Patch 7.3.474
Problem:    Perl build with gcc 4 fails.
Solution:   Remove XS() statements. (Yasuhiro Matsumoto)
Files:      src/if_perl.xs

Patch 7.3.475
Problem:    In a terminal with few colors the omnicomplete menu may be hard to
            see when using the default colors.
Solution:   Use more explicit colors. (suggested by Alex Henrie)
Files:      src/syntax.c

Patch 7.3.476
Problem:    When selecting a block, using "$" to include the end of each line
            and using "A" and typing a backspace strange things happen.
            (Yuangchen Xie)
Solution:   Avoid using a negative length. (Christian Brabandt)
Files:      src/ops.c

Patch 7.3.477
Problem:    Using ":echo" to output enough lines to scroll, then using "j" and
            "k" at the more prompt, displays the command on top of the output.
            (Marcin Szamotulski)
Solution:   Put the output below the command. (Christian Brabandt)
```

```
Files:      src/eval.c

Patch 7.3.478
Problem:    Memory leak using the ':rv!' command when reading dictionary or
            list global variables i.e. with 'viminfo' containing !.
Solution:   Free the typeval. (Dominique Pelle)
Files:      src/eval.c

Patch 7.3.479
Problem:    When 'cursorline' is set the line number highlighting can't be set
            separately.
Solution:   Add "CursorLineNr". (Howard Buchholz)
Files:      src/option.c, src/screen.c, src/syntax.c, src/vim.h

Patch 7.3.480
Problem:    When using ":qa" and there is a changed buffer picking the buffer
            to jump to is not very good.
Solution:   Consider current and other tab pages. (Hirohito Higashi)
Files:      src/ex_cmds2.c

Patch 7.3.481
Problem:    Changing 'virtualedit' in an operator function to "all" does not
            have the desired effect. (Aaron Bohannon)
Solution:   Save, reset and restore virtual_op when executing an operator
            function.
Files:      src/normal.c

Patch 7.3.482
Problem:    With 'cursorbind' set moving up/down does not always keep the same
            column.
Solution:   Set curswant appropriately. (Gary Johnson)
Files:      src/move.c

Patch 7.3.483  (after 7.3.477)
Problem:    More prompt shows up too often.
Solution:   Instead of adding a line break, only start a new line in the
            message history. (Christian Brabandt)
Files:      src/eval.c, src/message.c, src/proto/message.pro

Patch 7.3.484
Problem:    The -E and --echo-wid command line arguments are not mentioned in
            "vim --help".
Solution:   Add the help lines. (Dominique Pelle)
Files:      src/main.c

Patch 7.3.485
Problem:    When building Vim LDFLAGS isn't passed on to building xxd.
Solution:   Pass the LDFLAGS value. (James McCoy)
Files:      src/Makefile

Patch 7.3.486
Problem:    Build error with mingw64 on Windows 7.
Solution:   Avoid the step of going through vimres.res. (Guopeng Wen)
Files:      src/Make_ming.mak
```

Patch 7.3.487
Problem: When setting 'timeoutlen' or 'ttimeoutlen' the column for vertical
            movement is reset unnecessarily.
Solution: Do not set w_set_curswant for every option. Add a test for this.
            (Kana Natsuno) Add the P_CURSWANT flag for options.
Files: src/option.c, src/testdir/test84.in, src/testdir/test84.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.3.488
Problem: ":help!" in a help file does not work as documented.
Solution: When in a help file don't give an error message. (thinca)
Files: src/ex_cmds.c

Patch 7.3.489
Problem: CTRL-] in Insert mode does not expand abbreviation when used in a
            mapping. (Yichao Zhou)
Solution: Special case using CTRL-]. (Christian Brabandt)
Files: src/getchar.c, src/edit.c

Patch 7.3.490
Problem: Member confusion in Lua interface.
Solution: Fix it. Add luaeval(). (Taro Muraoka, Luis Carvalho)
Files: runtime/doc/if_lua.txt, src/eval.c, src/if_lua.c,
            src/proto/if_lua.pro

Patch 7.3.491
Problem: No tests for Lua.
Solution: Add some simple tests for Lua. (Luis Carvalho)
Files: src/testdir/test1.in, src/testdir/test85.in, src/testdir/test85.ok
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.3.492
Problem: Can't indent conditions separately from function arguments.
Solution: Add the 'k' flag in 'cino'. (Lech Lorens)
Files: runtime/doc/indent.txt, src/misc1.c, src/testdir/test3.in,
            src/testdir/test3.ok

Patch 7.3.493 (after 7.3.492)
Problem: Two unused variables.
Solution: Remove them. (Hong Xu)
Files: src/misc1.c

Patch 7.3.494 (after 7.3.491)
Problem: Can't compile with Lua 5.1 or dynamic Lua.
Solution: Fix dll_ methods. Fix luado(). (Muraoka Taro, Luis Carvalho)
Files: src/if_lua.c

Patch 7.3.495 (after 7.3.492)
Problem: Compiler warnings.

```
Solution:   Add function declaration.  Remove "offset" argument.
Files:      src/misc1.c

Patch 7.3.496
Problem:    MS-DOS: When "diff" trips over difference in line separators some
            tests fail.
Solution:   Make some .ok files use unix line separators. (David Pope)
Files:      src/testdir/Make_dos.mak, src/testdir/Make_ming.mak

Patch 7.3.497
Problem:    Crash when doing ":python print" and compiled with gcc and
            the optimizer enabled.
Solution:   Avoid the crash, doesn't really fix the problem. (Christian
            Brabandt)
Files:      src/if_py_both.h

Patch 7.3.498
Problem:    The behavior of the "- register changes depending on value of
            the 'clipboard' option. (Szamotulski)
Solution:   Also set the "- register when the register is "*" or "+".
            (Christian Brabandt)
Files:      src/ops.c

Patch 7.3.499
Problem:    When using any interface language when Vim is waiting for a child
            process it gets confused by a child process started through the
            interface.
Solution:   Always used waitpid() instead of wait(). (Yasuhiro Matsumoto)
Files:      src/os_unix.c

Patch 7.3.500
Problem:    Ming makefile unconditionally sets WINVER.
Solution:   Only defined when not already defined. (Yasuhiro Matsumoto)
Files:      src/Make_ming.mak

Patch 7.3.501
Problem:    Error for "flush" not being defined when using Ruby command.
Solution:   Defined "flush" as a no-op method. (Kent Sibilev)
Files:      src/if_ruby.c

Patch 7.3.502
Problem:    Netbeans insert halfway a line actually appends to the line.
Solution:   Insert halfway the line. (Brian Victor)
Files:      src/netbeans.c

Patch 7.3.503 (after 7.3.501)
Problem:    Warning for unused argument.
Solution:   Add UNUSED.
Files:      src/if_ruby.c

Patch 7.3.504
Problem:    Commands in help files are not highlighted.
Solution:   Allow for commands in backticks.  Adjust CTRL-] to remove the
            backticks.
```

```
Files:      src/ex_cmds.c

Patch 7.3.505
Problem:    Test 11 fails on MS-Windows in some versions.
Solution:   Fix #ifdefs for whether filtering through a pipe is possible. Move
            setting b_no_eol_lnum back to where it was before patch 7.3.124.
            (David Pope)
Files:      src/feature.h, src/eval.c, src/ex_cmds.c, src/fileio.c

Patch 7.3.506
Problem:    GTK gives an error when selecting a non-existent file.
Solution:   Add a handler to avoid the error. (Christian Brabandt)
Files:      src/gui_gtk.c

Patch 7.3.507
Problem:    When exiting with unsaved changes, selecting an existing file in
            the file dialog, there is no dialog to ask whether the existing
            file should be overwritten. (Felipe G. Nievinski)
Solution:   Call check_overwrite() before writing. (Christian Brabandt)
Files:      src/ex_cmds.c, src/ex_cmds2.c, src/proto/ex_cmds.pro

Patch 7.3.508
Problem:    Default for v:register is not set.
Solution:   Init v:register in eval_init(). Correct for 'clipboard' before the
            main loop. (Ingo Karkat)
Files:      src/eval.c, src/main.c

Patch 7.3.509
Problem:    ":vimgrep" fails when 'autochdir' is set.
Solution:   A more generic solution for changing directory. (Ben Fritz)
Files:      src/quickfix.c

Patch 7.3.510
Problem:    Test 77 fails on Solaris 7. (Michael Soyka)
Solution:   Replace any tabs with spaces.
Files:      src/testdir/test77.in

Patch 7.3.511
Problem:    Using a FileReadCmd autocommand that does ":e! {file}" may cause a
            crash. (Christian Brabandt)
Solution:   Properly restore curwin->w_s.
Files:      src/fileio.c

Patch 7.3.512
Problem:    undofile() returns a useless name when passed an empty string.
Solution:   Return an empty string. (Christian Brabandt)
Files:      src/eval.c

Patch 7.3.513
Problem:    Cannot use CTRL-E and CTRL-Y with "r".
Solution:   Make CTRL-E and CTRL-Y work like in Insert mode. (Christian
            Brabandt)
Files:      src/edit.c, src/normal.c, src/proto/edit.pro
```

```
Patch 7.3.514
Problem:    No completion for :history command.
Solution:   Add the completion and update the docs. Also fix ":behave"
            completion. (Dominique Pelle)
Files:      runtime/doc/cmdline.txt, runtime/doc/map.txt, src/ex_docmd.c,
            src/ex_getln.c, src/vim.h

Patch 7.3.515
Problem:    'wildignorecase' only applies to the last part of the path.
Solution:   Also ignore case for letters earlier in the path.
Files:      src/misc1.c

Patch 7.3.516
Problem:    extend(o, o) may crash Vim.
Solution:   Fix crash and add test. (Thinca and Hirohito Higashi)
Files:      src/eval.c, src/testdir/test55.in, src/testdir/test55.ok

Patch 7.3.517
Problem:    Crash when using "vipvv". (Alexandre Provencio)
Solution:   Don't let the text length become negative.
Files:      src/ops.c

Patch 7.3.518
Problem:    When 'encoding' is a double-byte encoding ":helptags" may not find
            tags correctly.
Solution:   Use vim_strbyte() instead of vim_strchr(). (Yasuhiro Matsumoto)
Files:      src/ex_cmds.c

Patch 7.3.519
Problem:    When completefunction returns it cannot indicate end of completion
            mode.
Solution:   Recognize completefunction returning -3.  (Matsushita Shougo)
Files:      src/edit.c

Patch 7.3.520
Problem:    gvim starts up slow on Ubuntu 12.04.
Solution:   Move the call to gui_mch_init_check() to after fork(). (Yasuhiro
            Matsumoto)  Do check $DISPLAY being set.
Files:      src/gui.c, src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro

Patch 7.3.521
Problem:    Using "z=" on a multi-byte character may cause a crash.
Solution:   Don't use strlen() on an int pointer.
Files:      src/spell.c

Patch 7.3.522
Problem:    Crash in vim_realloc() when using MEM_PROFILE.
Solution:   Avoid using a NULL argument. (Dominique Pelle)
Files:      src/eval.c

Patch 7.3.523
Problem:    ":diffupdate" doesn't check for files changed elsewhere.
Solution:   Add the ! flag. (Christian Brabandt)
Files:      runtime/doc/diff.txt, src/diff.c, src/ex_cmds.h
```

```
Patch 7.3.524 (after 7.3.523)
Problem:    Missing comma.
Solution:   Add the comma.
Files:      src/version.c

Patch 7.3.525
Problem:    Compiler warning on 64 bit MS-Windows.
Solution:   Add type cast. (Mike Williams)
Files:      src/ex_getln.c

Patch 7.3.526
Problem:    Confusing indenting for #ifdef.
Solution:   Remove and add indent. (Elias Diem)
Files:      src/normal.c

Patch 7.3.527
Problem:    Clang complains about non-ASCII characters in a string.
Solution:   Change to \x88 form. (Dominique Pelle)
Files:      src/charset.c

Patch 7.3.528
Problem:    Crash when closing last window in a tab. (Alex Efros)
Solution:   Use common code in close_last_window_tabpage(). (Christian
            Brabandt)
Files:      src/window.c

Patch 7.3.529
Problem:    Using a count before "v" and "V" does not work (Kikyous)
Solution:   Make the count select that many characters or lines. (Christian
            Brabandt)
Files:      src/normal.c

Patch 7.3.530 (after 7.3.520)
Problem:    gvim does not work when 'guioptions' includes "f". (Davido)
Solution:   Call gui_mch_init_check() when running GUI in the foreground.
            (Yasuhiro Matsumoto)
Files:      src/gui.c

Patch 7.3.531 (after 7.3.530)
Problem:    GUI does not work on MS-Windows.
Solution:   Add the missing #ifdef. (Patrick Avery)
Files:      src/gui.c

Patch 7.3.532
Problem:    Compiler warning from Clang.
Solution:   Use a different way to point inside a string. (Dominique Pelle)
Files:      src/syntax.c

Patch 7.3.533
Problem:    Memory leak when writing undo file.
Solution:   Free the ACL. (Dominique Pelle)
Files:      src/undo.c
```

```
Patch 7.3.534 (after 7.3.461)
Problem:    When using an InsertCharPre autocommand autoindent fails.
Solution:   Proper handling of v:char. (Alexey Radkov)
Files:      src/edit.c

Patch 7.3.535
Problem:    Many #ifdefs for MB_MAXBYTES.
Solution:   Also define MB_MAXBYTES without the +multi_byte feature.  Fix
            places where the buffer didn't include space for a NUL byte.
Files:      src/arabic.c, src/edit.c, src/eval.c, src/getchar.c, src/mbyte.c,
            src/misc1.c, src/screen.c, src/spell.c, src/vim.h

Patch 7.3.536
Problem:    When spell checking the German sharp s is not seen as a word
            character. (Aexl Bender)
Solution:   In utf_islower() return true for the sharp s. Note: also need
            updated spell file for this to take effect.
Files:      src/mbyte.c

Patch 7.3.537
Problem:    Unnecessary call to init_spell_chartab().
Solution:   Delete the call.
Files:      src/spell.c

Patch 7.3.538
Problem:    'efm' does not handle Tabs in pointer lines.
Solution:   Add Tab support. Improve tests. (Lech Lorens)
Files:      src/quickfix.c, src/testdir/test10.in, src/testdir/test10.ok

Patch 7.3.539
Problem:    Redrawing a character on the command line does not work properly
            for multi-byte characters.
Solution:   Count the number of bytes in a character. (Yukihiro Nakadaira)
Files:      src/ex_getln.c

Patch 7.3.540
Problem:    Cursor is left on the text instead of the command line.
Solution:   Don't call setcursor() in command line mode.
Files:      src/getchar.c

Patch 7.3.541
Problem:    When joining lines comment leaders need to be removed manually.
Solution:   Add the 'j' flag to 'formatoptions'. (Lech Lorens)
Files:      runtime/doc/change.txt, src/edit.c, src/ex_docmd.c, src/misc1.c,
            src/normal.c, src/ops.c, src/option.h, src/proto/misc1.pro,
            src/proto/ops.pro, src/search.c, src/testdir/test29.in,
            src/testdir/test29.ok

Patch 7.3.542 (after 7.3.506)
Problem:    Function is sometimes unused.
Solution:   Add #ifdef.
Files:      src/gui_gtk.c

Patch 7.3.543
```

```
Problem:    The cursor is in the wrong line after using ":copen". (John
            Beckett)
Solution:   Invoke more drastic redraw method.
Files:      src/eval.c

Patch 7.3.544
Problem:    There is no good way to close a quickfix window when closing the
            last ordinary window.
Solution:   Add the QuitPre autocommand.
Files:      src/ex_docmd.c, src/fileio.c, src/vim.h

Patch 7.3.545
Problem:    When closing a window or buffer autocommands may close it too,
            causing problems for where the autocommand was invoked from.
Solution:   Add the w_closing and b_closing flags.  When set disallow ":q" and
            ":close" to prevent recursive closing.
Files:      src/structs.h, src/buffer.c, src/ex_docmd.c, src/window.c

Patch 7.3.546
Problem:    Bogus line break.
Solution:   Remove the line break.
Files:      src/screen.c

Patch 7.3.547 (after 7.3.541)
Problem:    Compiler warning for uninitialized variable.
Solution:   Initialize it.
Files:      src/ops.c

Patch 7.3.548
Problem:    Compiler warning on 64 bit Windows.
Solution:   Add type cast. (Mike Williams)
Files:      src/ops.c

Patch 7.3.549
Problem:    In 'cinoptions' "0s" is interpreted as one shiftwidth. (David
            Pineau)
Solution:   Use the zero as zero. (Lech Lorens)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.550 (after 7.3.541)
Problem:    With "j" in 'formatoptions' a list leader is not removed. (Gary
            Johnson)
Solution:   Don't ignore the start of a three part comment. (Lech Lorens)
Files:      src/ops.c, src/testdir/test29.in, src/testdir/test29.ok

Patch 7.3.551
Problem:    When using :tablose a TabEnter autocommand is triggered too early.
            (Karthick)
Solution:   Don't trigger *Enter autocommands before closing the tab.
            (Christian Brabandt)
Files:      src/buffer.c, src/eval.c, src/ex_cmds2.c, src/fileio.c,
            src/proto/window.pro, src/window.c

Patch 7.3.552
```

```
Problem:    Formatting inside comments does not use the "2" flag in
            'formatoptions'.
Solution:   Support the "2" flag.  (Tor Perkins)
Files:      src/vim.h, src/ops.c, src/edit.c, src/misc1.c,
            src/testdir/test68.in, src/testdir/test68.ok

Patch 7.3.553
Problem:    With double-width characters and 'listchars' containing "precedes"
            the text is displayed one cell off.
Solution:   Check for double-width character being overwritten by the
            "precedes" character. (Yasuhiro Matsumoto)
Files:      src/screen.c

Patch 7.3.554 (after 7.3.551)
Problem:    Compiler warning for unused argument.
Solution:   Add UNUSED.
Files:      src/window.c

Patch 7.3.555
Problem:    Building on IBM z/OS fails.
Solution:   Adjust configure. Use the QUOTESED value from config.mk instead of
            the hard coded one in Makefile. (Stephen Bovy)
Files:      src/configure.in, src/auto/configure, src/Makefile

Patch 7.3.556
Problem:    Compiler warnings on 64 bit Windows.
Solution:   Add type casts. (Mike Williams)
Files:      src/misc1.c

Patch 7.3.557
Problem:    Crash when an autocommand wipes out a buffer when it is hidden.
Solution:   Restore the current window when needed. (Christian Brabandt)
Files:      src/buffer.c

Patch 7.3.558
Problem:    Memory access error. (Gary Johnson)
Solution:   Allocate one more byte. (Dominique Pelle)
Files:      src/misc1.c

Patch 7.3.559
Problem:    home_replace() does not work with 8.3 filename.
Solution:   Make ":p" expand 8.3 name to full path. (Yasuhiro Matsumoto)
Files:      src/eval.c, src/misc1.c

Patch 7.3.560
Problem:    Get an error for a locked argument in extend().
Solution:   Initialize the lock flag for a dictionary. (Yukihiro Nakadaira)
Files:      src/eval.c

Patch 7.3.561
Problem:    Using refresh: always in a complete function breaks the "."
            command. (Val Markovic)
Solution:   Add match leader to the redo buffer. (Yasuhiro Matsumoto)
Files:      src/edit.c
```

```
Patch 7.3.562
Problem:    ":profdel" should not work when the +profile feature is disabled.
Solution:   Call ex_ni(). (Yasuhiro Matsumoto)
Files:      src/ex_cmds2.c

Patch 7.3.563 (after 7.3.557)
Problem:    Can't build with tiny features.
Solution:   Add #ifdef.
Files:      src/buffer.c

Patch 7.3.564 (after 7.3.559)
Problem:    Warning for pointer conversion.
Solution:   Add type cast.
Files:      src/misc1.c

Patch 7.3.565
Problem:    Can't generate proto file for Python 3.
Solution:   Add PYTHON3_CFLAGS to LINT_CFLAGS.
Files:      src/Makefile

Patch 7.3.566 (after 7.3.561)
Problem:    Redo after completion does not work correctly when refresh: always
            is not used. (Raymond Ko)
Solution:   Check the compl_opt_refresh_always flag. (Christian Brabandt)
Files:      src/edit.c

Patch 7.3.567
Problem:    Missing copyright notice.
Solution:   Add Vim copyright notice. (Taro Muraoka)
Files:      src/dehqx.py

Patch 7.3.568
Problem:    Bad indents for #ifdefs.
Solution:   Add and remove spaces. (Elias Diem)
Files:      src/globals.h

Patch 7.3.569
Problem:    Evaluating Vim expression in Python is insufficient.
Solution:   Add vim.bindeval().  Also add pyeval() and py3eval(). (ZyX)
Files:      runtime/doc/eval.txt, runtime/doc/if_pyth.txt, src/eval.c,
            src/if_lua.c, src/if_py_both.h, src/if_python.c, src/if_python3.c,
            src/proto/eval.pro, src/proto/if_python.pro,
            src/proto/if_python3.pro, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Makefile,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.570
Problem:    ":vimgrep" does not obey 'wildignore'.
Solution:   Apply 'wildignore' and 'suffixes' to ":vimgrep". (Ingo Karkat)
Files:      src/ex_cmds2.c, src/proto/ex_cmds2.pro, src/quickfix.c, src/spell.c
```

Patch 7.3.571
Problem: Duplicated condition.
Solution: Remove one. (Dominique Pelle)
Files: src/os_win32.c

Patch 7.3.572
Problem: Duplicate statement in if and else. (Dominique Pelle)
Solution: Remove the condition and add a TODO.
Files: src/gui_xmebw.c

Patch 7.3.573
Problem: Using array index before bounds checking.
Solution: Swap the parts of the condition. (Dominique Pelle)
Files: src/ops.c

Patch 7.3.574
Problem: When pasting a register in the search command line a CTRL-L
            character is not pasted. (Dominique Pelle)
Solution: Escape the CTRL-L. (Christian Brabandt)
Files: src/ex_getln.c

Patch 7.3.575
Problem: "ygt" tries to yank instead of giving an error. (Daniel Mueller)
Solution: Check for a pending operator.
Files: src/normal.c

Patch 7.3.576
Problem: Formatting of lists inside comments is not right yet.
Solution: Use another solution and add a test. (Tor Perkins)
Files: src/edit.c, src/misc1.c, src/testdir/test68.in,
            src/testdir/test69.ok

Patch 7.3.577
Problem: Size of memory does not fit in 32 bit unsigned.
Solution: Use Kbyte instead of byte. Call GlobalMemoryStatusEx() instead of
            GlobalMemoryStatus() when available.
Files: src/misc2.c, src/option.c, src/os_amiga.c, src/os_msdos.c,
            src/os_win16.c, src/os_win32.c

Patch 7.3.578
Problem: Misplaced declaration.
Solution: Move declaration to start of block.
Files: src/if_py_both.h

Patch 7.3.579 (after 7.3.569)
Problem: Can't compile with Python 2.5.
Solution: Use PyCObject when Capsules are not available.
Files: src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.3.580
Problem: Warning on 64 bit MS-Windows.
Solution: Add type cast. (Mike Williams)
Files: src/if_py_both.h

Patch 7.3.581
Problem: Problems compiling with Python.
Solution: Pick UCS2 or UCS4 function at runtime. (lilydjwg)
Files: src/if_python.c

Patch 7.3.582 (after 7.3.576)
Problem: Missing parts of the test OK file.
Solution: Add the missing parts.
Files: src/testdir/test68.ok

Patch 7.3.583
Problem: PyObject_NextNotImplemented is not defined before Python 2.7.
            (Danek Duvall)
Solution: Add #ifdefs.
Files: src/if_python.c

Patch 7.3.584
Problem: PyCObject is not always defined.
Solution: Use PyObject instead.
Files: src/if_py_both.h, src/if_python.c

Patch 7.3.585
Problem: Calling changed_bytes() too often.
Solution: Move changed_bytes() out of a loop. (Tor Perkins)
Files: src/edit.c

Patch 7.3.586
Problem: When compiling with Cygwin or MingW MEMORYSTATUSEX is not defined.
Solution: Set the default for WINVER to 0x0500.
Files: src/Make_ming.mak, src/Make_cyg.mak

Patch 7.3.587
Problem: Compiler warning for local var shadowing global var.
Solution: Rename the var and move it to an inner block. (Christian Brabandt)
Files: src/buffer.c

Patch 7.3.588
Problem: Crash on NULL pointer.
Solution: Fix the immediate problem by checking for NULL. (Lech Lorens)
Files: src/window.c

Patch 7.3.589
Problem: Crash when $HOME is not set.
Solution: Check for a NULL pointer. (Chris Webb)
Files: src/misc1.c

Patch 7.3.590
Problem: The '< and '> marks cannot be set directly.
Solution: Allow setting '< and '>. (Christian Brabandt)
Files: src/mark.c

Patch 7.3.591
Problem: Can only move to a tab by absolute number.
Solution: Move a number of tabs to the left or the right. (Lech Lorens)

```
Files:      runtime/doc/tabpage.txt, src/ex_cmds.h, src/ex_docmd.c,
            src/testdir/test62.in, src/testdir/test62.ok, src/window.c

Patch 7.3.592
Problem:    Vim on GTK does not support g:browsefilter.
Solution:   Add a GtkFileFilter to the file chooser. (Christian Brabandt)
Files:      src/gui_gtk.c

Patch 7.3.593
Problem:    No easy way to decide if b:browsefilter will work.
Solution:   Add the browsefilter feature.
Files:      src/gui_gtk.c, src/eval.c, src/vim.h

Patch 7.3.594
Problem:    The X command server doesn't work perfectly. It sends an empty
            reply for as-keys requests.
Solution:   Remove duplicate ga_init2(). Do not send a reply for as-keys
            requests. (Brian Burns)
Files:      src/if_xcmdsrv.c

Patch 7.3.595
Problem:    The X command server responds slowly
Solution:   Change the loop that waits for replies. (Brian Burns)
Files:      src/if_xcmdsrv.c

Patch 7.3.596
Problem:    Can't remove all signs for a file or buffer.
Solution:   Support "*" for the sign id. (Christian Brabandt)
Files:      runtime/doc/sign.txt, src/buffer.c, src/ex_cmds.c,
            src/proto/buffer.pro

Patch 7.3.597
Problem:    'clipboard' "autoselect" only applies to the * register. (Sergey
            Vakulenko)
Solution:   Make 'autoselect' work for the + register. (Christian Brabandt)
            Add the "autoselectplus" option in 'clipboard' and the "P" flag in
            'guioptions'.
Files:      runtime/doc/options.txt, src/normal.c, src/ops.c, src/screen.c,
            src/ui.c, src/globals.h, src/proto/ui.pro, src/option.h, src/gui.c

Patch 7.3.598
Problem:    Cannot act upon end of completion. (Taro Muraoka)
Solution:   Add an autocommand event that is triggered when completion has
            finished. (Idea by Florian Klein)
Files:      src/edit.c, src/fileio.c, src/vim.h

Patch 7.3.599 (after 7.3.597)
Problem:    Missing change in one file.
Solution:   Patch for changed clip_autoselect().
Files:      src/option.c

Patch 7.3.600
Problem:    <f-args> is not expanded properly with DBCS encoding.
Solution:   Skip over character instead of byte. (Yukihiro Nakadaira)
```

```
Files:      src/ex_docmd.c

Patch 7.3.601
Problem:    Bad code style.
Solution:   Insert space, remove parens.
Files:      src/farsi.c

Patch 7.3.602
Problem:    Missing files in distribution.
Solution:   Update the list of files.
Files:      Filelist

Patch 7.3.603
Problem:    It is possible to add replace builtin functions by calling
            extend() on g:.
Solution:   Add a flag to a dict to indicate it is a scope.  Check for
            existing functions. (ZyX)
Files:      src/buffer.c, src/eval.c, src/proto/eval.pro, src/structs.h,
            src/testdir/test34.in, src/testdir/test34.ok, src/window.c

Patch 7.3.604
Problem:    inputdialog() doesn't use the cancel argument in the console.
            (David Fishburn)
Solution:   Use the third argument. (Christian Brabandt)
Files:      src/eval.c

Patch 7.3.605 (after 7.3.577)
Problem:    MS-Windows: Can't compile with older compilers. (Titov Anatoly)
Solution:   Add #ifdef for MEMORYSTATUSEX.
Files:      src/os_win32.c

Patch 7.3.606
Problem:    CTRL-P completion has a problem with multi-byte characters.
Solution:   Check for next character being NUL properly.  (Yasuhiro Matsumoto)
Files:      src/search.c, src/macros.h

Patch 7.3.607
Problem:    With an 8 color terminal the selected menu item is black on black,
            because darkGrey as bg is the same as black.
Solution:   Swap fg and bg colors. (James McCoy)
Files:      src/syntax.c

Patch 7.3.608
Problem:    winrestview() does not always restore the view correctly.
Solution:   Call win_new_height() and win_new_width(). (Lech Lorens)
Files:      src/eval.c, src/proto/window.pro, src/window.c

Patch 7.3.609
Problem:    File names in :checkpath! output are garbled.
Solution:   Check for \zs in the pattern. (Lech Lorens)
Files:      src/search.c, src/testdir/test17.in, src/testdir/test17.ok

Patch 7.3.610
Problem:    Cannot operate on the text that a search pattern matches.
```

```
Solution:   Add the "gn" and "gN" commands. (Christian Brabandt)
Files:      runtime/doc/index.txt, runtime/doc/visual.txt, src/normal.c,
            src/proto/search.pro, src/search.c, src/testdir/test53.in,
            src/testdir/test53.ok

Patch 7.3.611
Problem:    Can't use Vim dictionary as self argument in Python.
Solution:   Fix the check for the "self" argument. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.612
Problem:    Auto formatting messes up text when 'fo' contains "2". (ZyX)
Solution:   Decrement "less_cols". (Tor Perkins)
Files:      src/misc1.c, src/testdir/test68.in, src/testdir/test68.ok

Patch 7.3.613
Problem:    Including Python's config.c in the build causes trouble.  It is
            not clear why it was there.
Solution:   Omit the config file. (James McCoy)
Files:      src/Makefile, src/auto/configure, src/configure.in

Patch 7.3.614
Problem:    Number argument gets turned into a number while it should be a
            string.
Solution:   Add flag to the call_vim_function() call. (Yasuhiro Matsumoto)
Files:      src/edit.c, src/eval.c, src/proto/eval.pro

Patch 7.3.615
Problem:    Completion for a user command does not recognize backslash before
            a space.
Solution:   Recognize escaped characters. (Yasuhiro Matsumoto)
Files:      src/ex_docmd.c

Patch 7.3.616 (after 7.3.610)
Problem:    Can't compile without +visual.
Solution:   Add #ifdef.
Files:      src/normal.c

Patch 7.3.617 (after 7.3.615)
Problem:    Hang on completion.
Solution:   Skip over the space. (Yasuhiro Matsumoto)
Files:      src/ex_docmd.c

Patch 7.3.618 (after 7.3.616)
Problem:    Still doesn't compile with small features.
Solution:   Move current_search() out of #ifdef. (Dominique Pelle)
Files:      src/normal.c, src/search.c

Patch 7.3.619
Problem:    When executing a shell command Vim may become slow to respond.
Solution:   Don't wait after every processed message. (idea by Yasuhiro
            Matsumoto)
Files:      src/os_win32.c
```

```
Patch 7.3.620
Problem:    Building with recent Ruby on Win32 doesn't work.
Solution:   Add a separate argument for the API version. (Yasuhiro Matsumoto)
Files:      src/Make_ming.mak, src/Make_mvc.mak

Patch 7.3.621
Problem:    Compiler warnings on 64 bit windows.
Solution:   Add type casts. (Mike Williams)
Files:      src/ex_docmd.c, src/search.c

Patch 7.3.622
Problem:    XPM library for Win32 can't be found.
Solution:   Suggest using the one from the Vim ftp site.
Files:      src/Make_mvc.mak

Patch 7.3.623
Problem:    Perl 5.14 commands crash Vim on MS-Windows.
Solution:   Use perl_get_sv() instead of GvSV(). (Raymond Ko)
Files:      src/if_perl.xs

Patch 7.3.624
Problem:    When cancelling input() it returns the third argument. That should
            only happen for inputdialog().
Solution:   Check if inputdialog() was used. (Hirohito Higashi)
Files:      src/eval.c

Patch 7.3.625
Problem:    "gn" does not handle zero-width matches correctly.
Solution:   Handle zero-width patterns specially. (Christian Brabandt)
Files:      src/search.c

Patch 7.3.626
Problem:    Python interface doesn't build with Python 2.4 or older.
Solution:   Define Py_ssize_t. (Benjamin Bannier)
Files:      src/if_py_both.h

Patch 7.3.627
Problem:    When using the "n" flag with the ":s" command a \= substitution
            will not be evaluated.
Solution:   Do perform the evaluation, so that a function can be invoked at
            every matching position without changing the text. (Christian
            Brabandt)
Files:      src/ex_cmds.c

Patch 7.3.628
Problem:    ":open" does not allow for a !, which results in a confusing error
            message. (Shawn Wilson)
Solution:   Allow ! on ":open". (Christian Brabandt)
Files:      src/ex_cmds.h

Patch 7.3.629
Problem:    There is no way to make 'shiftwidth' follow 'tabstop'.
Solution:   When 'shiftwidth' is zero use the value of 'tabstop'. (Christian
            Brabandt)
```

```
Files:      src/edit.c, src/ex_getln.c, src/fold.c, src/misc1.c, src/ops.c,
            src/option.c, src/proto/option.pro

Patch 7.3.630
Problem:    "|" does not behave correctly when 'virtualedit' is set.
Solution:   Call validate_virtcol(). (David Bürgin)
Files:      src/normal.c

Patch 7.3.631
Problem:    Cannot complete user names.
Solution:   Add user name completion.  (Dominique Pelle)
Files:      runtime/doc/map.txt, src/auto/configure, src/config.h.in,
            src/configure.in, src/ex_docmd.c, src/ex_getln.c, src/misc1.c,
            src/misc2.c, src/proto/misc1.pro, src/vim.h

Patch 7.3.632
Problem:    Cannot select beyond 222 columns with the mouse in xterm.
Solution:   Add support for SGR mouse tracking. (Hayaki Saito)
Files:      runtime/doc/options.txt, src/feature.h, src/keymap.h, src/misc2.c,
            src/option.h, src/os_unix.c, src/term.c, src/version.c

Patch 7.3.633
Problem:    Selection remains displayed as selected after selecting another
            text.
Solution:   Call xterm_update() before select(). (Andrew Pimlott)
Files:      src/os_unix.c

Patch 7.3.634
Problem:    Month/Day format for undo is confusing. (Marcin Szamotulski)
Solution:   Always use Year/Month/Day, should work for everybody.
Files:      src/undo.c

Patch 7.3.635
Problem:    Issue 21: System call during startup sets 'lines' to a wrong
            value. (Karl Yngve)
Solution:   Don't set the shell size while the GUI is still starting up.
            (Christian Brabandt)
Files:      src/ui.c

Patch 7.3.636 (after 7.3.625)
Problem:    Not all zero-width matches handled correctly for "gn".
Solution:   Move zero-width detection to a separate function. (Christian
            Brabandt)
Files:      src/search.c

Patch 7.3.637
Problem:    Cannot catch the error caused by a foldopen when there is no fold.
            (ZyX, Issue 48)
Solution:   Do not break out of the loop early when inside try/catch.
            (Christian Brabandt) Except when there is a syntax error.
Files:      src/ex_docmd.c, src/globals.h

Patch 7.3.638
Problem:    Unnecessary redraw of the previous character.
```

```
Solution:   Check if the character is double-width. (Jon Long)
Files:      src/screen.c

Patch 7.3.639
Problem:    It's not easy to build Vim on Windows with XPM support.
Solution:   Include the required files, they are quite small.  Update the
            MSVC makefile to use them.  Binary files are in the next patch.
            (Sergey Khorev)
Files:      src/xpm/COPYRIGHT, src/xpm/README.txt, src/xpm/include/simx.h,
            src/xpm/include/xpm.h, src/Make_mvc.mak, src/bigvim.bat,
            src/bigvim64.bat, Filelist

Patch 7.3.640
Problem:    It's not easy to build Vim on Windows with XPM support.
Solution:   Binary files for 7.3.639. (Sergey Khorev)
Files:      src/xpm/x64/lib/libXpm.lib, src/xpm/x86/lib/libXpm.a,
            src/xpm/x86/lib/libXpm.lib

Patch 7.3.641
Problem:    ":mkview" uses ":normal" instead of ":normal!" for folds. (Dan)
Solution:   Add the bang. (Christian Brabandt)
Files:      src/fold.c

Patch 7.3.642
Problem:    Segfault with specific autocommands.  Was OK after 7.3.449 and
            before 7.3.545. (Richard Brown)
Solution:   Pass TRUE for abort_if_last in the call to close_buffer().
            (Christian Brabandt)
Files:      src/window.c

Patch 7.3.643 (after 7.3.635)
Problem:    MS-Windows: When starting gvim maximized 'lines' and 'columns' are
            wrong. (Christian Robinson)
Solution:   Move the check for gui.starting from ui_get_shellsize() to
            check_shellsize().
Files:      src/ui.c, src/term.c

Patch 7.3.644
Problem:    Dead code for BeOS GUI.
Solution:   Remove unused __BEOS__ stuff.
Files:      src/gui.c

Patch 7.3.645
Problem:    No tests for patch 7.3.625 and 7.3.637.
Solution:   Add more tests for the "gn" command and try/catch. (Christian
            Brabandt)
Files:      src/testdir/test53.in, src/testdir/test53.ok,
            src/testdir/test55.in, src/testdir/test55.ok

Patch 7.3.646
Problem:    When reloading a buffer the undo file becomes unusable unless ":w"
            is executed. (Dmitri Frank)
Solution:   After reloading the buffer write the undo file. (Christian
            Brabandt)
```

```
Files:      src/fileio.c

Patch 7.3.647
Problem:    "gnd" doesn't work correctly in Visual mode.
Solution:   Handle Visual mode differently in "gn". (Christian Brabandt)
Files:      src/search.c, src/testdir/test53.in, src/testdir/test53.ok

Patch 7.3.648
Problem:    Crash when using a very long file name. (ZyX)
Solution:   Properly check length of buffer space.
Files:      src/buffer.c

Patch 7.3.649
Problem:    When 'clipboard' is set to "unnamed" small deletes end up in the
            numbered registers. (Ingo Karkat)
Solution:   Use the original register name to decide whether to put a delete
            in a numbered register. (Christian Brabandt)
Files:      src/ops.c

Patch 7.3.650
Problem:    Completion after ":help \{-" gives an error message and messes up
            the command line.
Solution:   Cancel the tag search if the pattern can't be compiled. (Yasuhiro
            Matsumoto)
Files:      src/tag.c

Patch 7.3.651
Problem:    Completion after ":help \{-" gives an error message.
Solution:   Prepend a backslash.
Files:      src/ex_cmds.c

Patch 7.3.652
Problem:    Workaround for Python crash isn't perfect.
Solution:   Change the type of the length argument. (Sean Estabrooks)
Files:      src/if_py_both.h

Patch 7.3.653
Problem:    MingW needs build rule for included XPM files.  Object directory
            for 32 and 64 builds is the same, also for MSVC.
Solution:   Add MingW build rule to use included XPM files.  Add the CPU or
            architecture to the object directory name. (Sergey Khorev)
Files:      src/Make_ming.mak, src/Make_mvc.mak, src/xpm/README.txt

Patch 7.3.654
Problem:    When creating a Vim dictionary from Python objects an empty key
            might be used.
Solution:   Do not use empty keys, throw an IndexError. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.655
Problem:    64 bit MingW xpm .a file is missing.
Solution:   Add the file. (Sergey Khorev)
Files:      src/xpm/x64/lib/libXpm.a
```

```
Patch 7.3.656
Problem:    Internal error in :pyeval.
Solution:   Handle failed object conversion. (ZyX)
Files:      src/if_python.c, src/if_python3.c

Patch 7.3.657
Problem:    Python bindings silently truncate string values containing NUL.
Solution:   Fail when a string contains NUL. (ZyX)
Files:      src/if_python.c, src/if_python3.c

Patch 7.3.658
Problem:    NUL bytes truncate strings when converted from Python.
Solution:   Handle truncation as an error. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c

Patch 7.3.659
Problem:    Recent Python changes are not tested.
Solution:   Add tests for Python bindings. (ZyX)
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.660
Problem:    ":help !" jumps to help for ":!".
Solution:   Adjust check for tag header line. (Andy Wokula)
Files:      src/tag.c

Patch 7.3.661 (after 7.3.652)
Problem:    SEGV in Python code.
Solution:   Initialize len to zero.  Use the right function depending on
            version. (Maxim Philippov)
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.3.662
Problem:    Can't build Ruby interface with Ruby 1.9.3.
Solution:   Add missing functions. (V. Ondruch)
Files:      src/if_ruby.c

Patch 7.3.663
Problem:    End of color scheme name not clear in E185. (Aaron Lewis)
Solution:   Put the name in single quotes.
Files:      src/ex_docmd.c

Patch 7.3.664
Problem:    Buffer overflow in unescaping text. (Raymond Ko)
Solution:   Limit check for multi-byte character to 4 bytes.
Files:      src/mbyte.c

Patch 7.3.665
Problem:    MSVC 11 is not supported. (Raymond Ko)
Solution:   Recognize MSVC 11. (Gary Willoughby)
Files:      src/Make_mvc.mak

Patch 7.3.666
Problem:    With MSVC 11 Win32.mak is not found.
```

```
Solution:   Add the SDK_INCLUDE_DIR variable. (Raymond Ko)
Files:      src/Make_mvc.mak

Patch 7.3.667
Problem:    Unused variables in Perl interface.
Solution:   Adjust #ifdefs.
Files:      src/if_perl.xs

Patch 7.3.668
Problem:    Building with Perl loaded dynamically  still uses static library.
Solution:   Adjust use of PL_thr_key. (Ken Takata)
Files:      src/if_perl.xs

Patch 7.3.669
Problem:    When building with Cygwin loading Python dynamically fails.
Solution:   Use DLLLIBRARY instead of INSTSONAME. (Ken Takata)
Files:      src/configure.in, src/auto/configure

Patch 7.3.670
Problem:    Python: memory leaks when there are exceptions.
Solution:   Add DICTKEY_UNREF in the right places. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.671
Problem:    More Python code can be shared between Python 2 and 3.
Solution:   Move code to if_py_both.h. (ZyX)
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.3.672
Problem:    Not possible to lock/unlock lists in Python interface.
Solution:   Add .locked and .scope attributes. (ZyX)
Files:      runtime/doc/if_pyth.txt, src/if_py_both.h, src/if_python.c,
            src/if_python3.c, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.673
Problem:    Using "gN" while 'selection' is "exclusive" misses one character.
            (Ben Fritz)
Solution:   Check the direction when compensating for exclusive selection.
            (Christian Brabandt)
Files:      src/search.c

Patch 7.3.674
Problem:    Can't compile with Lua/dyn on Cygwin.
Solution:   Adjust configure to use the right library name. (Ken Takata)
Files:      src/configure.in, src/auto/configure

Patch 7.3.675
Problem:    Using uninitialized memory with very long file name.
Solution:   Put NUL after text when it is truncated. (ZyX)
Files:      src/buffer.c

Patch 7.3.676
Problem:    Ruby compilation on Windows 32 bit doesn't work.
```

```
Solution:   Only use some functions for 64 bit. (Ken Takata)
Files:      src/if_ruby.c

Patch 7.3.677
Problem:    buf_spname() is used inconsistently.
Solution:   Make the return type a char_u pointer.  Check the size of the
            returned string.
Files:      src/buffer.c, src/proto/buffer.pro, src/ex_cmds2.c,
            src/ex_docmd.c, src/memline.c, src/screen.c

Patch 7.3.678
Problem:    Ruby .so name may not be correct.
Solution:   Use the LIBRUBY_SO entry from the config. (Vit Ondruch)
Files:      src/configure.in, src/auto/configure

Patch 7.3.679
Problem:    Ruby detection uses Config, newer Ruby versions use RbConfig.
Solution:   Detect the need to use RbConfig. (Vit Ondruch)
Files:      src/configure.in, src/auto/configure

Patch 7.3.680
Problem:    Some files missing in the list of distributed files.
Solution:   Add lines for new files.
Files:      Filelist

Patch 7.3.681 (after 7.3.680)
Problem:    List of distributed files picks up backup files.
Solution:   Make tutor patterns more specific.
Files:      Filelist

Patch 7.3.682 (after 7.3.677)
Problem:    Compiler complains about incompatible types.
Solution:   Remove type casts. (hint by Danek Duvall)
Files:      src/edit.c

Patch 7.3.683
Problem:    ":python" may crash when vimbindeval() returns None.
Solution:   Check for v_string to be NULL. (Yukihiro Nakadaira)
Files:      src/if_py_both.h

Patch 7.3.684
Problem:    "make test" does not delete lua.vim.
Solution:   Add lua.vim to the clean target. (Simon Ruderich)
Files:      src/testdir/Makefile, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_vms.mms

Patch 7.3.685
Problem:    No test for what patch 7.3.673 fixes.
Solution:   Add a test. (Christian Brabandt)
Files:      src/testdir/test53.in, src/testdir/test53.ok

Patch 7.3.686
Problem:    Using CTRL-\ e mappings is useful also when entering an
            expression, but it doesn't work. (Marcin Szamotulski)
```

```
Solution:   Allow using CTRL-\ e when entering an expression if it was not
            typed.
Files:      src/ex_getln.c

Patch 7.3.687
Problem:    Test 16 fails when $DISPLAY is not set.
Solution:   Skip the test when $DISPLAY is not set.
Files:      src/testdir/test16.in

Patch 7.3.688
Problem:    Python 3.3 is not supported.
Solution:   Add Python 3.3 support (Ken Takata)
Files:      src/if_python3.c

Patch 7.3.689
Problem:    MzScheme and Lua may use a NULL string.
Solution:   Use an empty string instead of NULL. (Yukihiro Nakadaira)
Files:      src/if_lua.c, src/if_mzsch.c

Patch 7.3.690
Problem:    When the current directory name is exactly the maximum path length
            Vim may crash.
Solution:   Only add "/" when there is room. (Danek Duvall)
Files:      src/os_unix.c

Patch 7.3.691
Problem:    State specific to the Python thread is discarded.
Solution:   Keep state between threads. (Paul)
Files:      src/if_python.c

Patch 7.3.692
Problem:    Can't build GTK version with GTK 2.0.
Solution:   Put GtkFileFilter declaration in the right place. (Yegappan
            Lakshmanan)
Files:      src/gui_gtk.c

Patch 7.3.693
Problem:    Can't make 'softtabstop' follow 'shiftwidth'.
Solution:   When 'softtabstop' is negative use the value of 'shiftwidth'.
            (so8res)
Files:      src/edit.c, src/option.c, src/proto/option.pro

Patch 7.3.694
Problem:    Now that 'shiftwidth' may use the value of 'tabstop' it is not so
            easy to use in indent files.
Solution:   Add the shiftwidth() function. (so8res)
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.3.695
Problem:    Balloon cannot show multi-byte text.
Solution:   Properly deal with multi-byte characters. (Dominique Pelle)
Files:      src/gui_beval.c, src/ui.c

Patch 7.3.696
```

```
Problem:    Message about added spell language can be wrong.
Solution:   Give correct message. Add g:menutrans_set_lang_to to allow for
            translation. (Jiri Sedlak)
Files:      runtime/menu.vim

Patch 7.3.697
Problem:    Leaking resources when setting GUI font.
Solution:   Free the font. (Ken Takata)
Files:      src/syntax.c

Patch 7.3.698
Problem:    Python 3 does not preserve state between commands.
Solution:   Preserve the state. (Paul Ollis)
Files:      src/if_python.c, src/if_python3.c

Patch 7.3.699
Problem:    When 'ttymouse' is set to "sgr" manually, it is overruled by
            automatic detection.
Solution:   Do not use automatic detection when 'ttymouse' was set manually.
            (Hayaki Saito)
Files:      src/term.c

Patch 7.3.700
Problem:    Cannot detect URXVT and SGR mouse support.
Solution:   add +mouse_urxvt and +mouse_sgr. (Hayaki Saito)
Files:      src/feature.h, src/eval.c

Patch 7.3.701
Problem:    MS-Windows: Crash with stack overflow when setting 'encoding'.
Solution:   Handle that loading the iconv library may be called recursively.
            (Jiri Sedlak)
Files:      src/os_win32.c

Patch 7.3.702
Problem:    Nmake from VS6 service pack 6 is not recognized.
Solution:   Detect the version number. (Jiri Sedlak)
Files:      src/Make_mvc.mak

Patch 7.3.703
Problem:    When 'undofile' is reset the hash is computed unnecessarily.
Solution:   Only compute the hash when the option was set. (Christian Brabandt)
Files:      src/option.c

Patch 7.3.704
Problem:    Repeating "cgn" does not always work correctly.
Solution:   Also fetch the operator character. (Christian Brabandt)
Files:      src/normal.c

Patch 7.3.705
Problem:    Mouse features are not sorted properly. (Tony Mechelynck)
Solution:   Put the mouse features in alphabetical order.
Files:      src/version.c

Patch 7.3.706 (after 7.3.697)
```

```
Problem:    Can't build Motif version.
Solution:   Fix wrongly named variable. (Ike Devolder)
Files:      src/syntax.c

Patch 7.3.707 (after 7.3.701)
Problem:    Problems loading a library for a file name with non-latin
            characters.
Solution:   Use wide system functions when possible. (Ken Takata)
Files:      src/os_win32.c, src/os_win32.h

Patch 7.3.708
Problem:    Filler lines above the first line may be hidden when opening Vim.
Solution:   Change how topfill is computed. (Christian Brabandt)
Files:      src/diff.c, src/testdir/test47.in, src/testdir/test47.ok

Patch 7.3.709
Problem:    Compiler warning for unused argument.
Solution:   Add UNUSED.
Files:      src/eval.c

Patch 7.3.710 (after 7.3.704)
Problem:    Patch 7.3.704 breaks "fn".
Solution:   Add check for ca.cmdchar. (Christian Brabandt)
Files:      src/normal.c

Patch 7.3.711 (after 7.3.688)
Problem:    vim.current.buffer is not available. (lilydjwg)
Solution:   Use py3_PyUnicode_AsUTF8 instead of py3_PyUnicode_AsUTF8String.
            (Ken Takata)
Files:      src/if_python3.c

Patch 7.3.712
Problem:    Nmake from VS2010 SP1 is not recognized.
Solution:   Add the version number. (Ken Takata)
Files:      src/Make_mvc.mak

Patch 7.3.713
Problem:    printf() can only align to bytes, not characters.
Solution:   Add the "S" item. (Christian Brabandt)
Files:      runtime/doc/eval.txt, src/message.c

Patch 7.3.714
Problem:    Inconsistency: :set can be used in the sandbox, but :setlocal and
            :setglobal cannot. (Michael Henry)
Solution:   Fix the flags for :setlocal and :setglobal. (Christian Brabandt)
Files:      src/ex_cmds.h

Patch 7.3.715
Problem:    Crash when calling setloclist() in BufUnload autocmd. (Marcin
            Szamotulski)
Solution:   Set w_llist to NULL when it was freed.  Also add a test.
            (Christian Brabandt)
Files:      src/quickfix.c, src/testdir/test49.ok, src/testdir/test49.vim
```

```
Patch 7.3.716
Problem:    Error on exit when using Python 3.
Solution:   Remove PythonIO_Fini(). (Roland Puntaier)
Files:      src/if_python3.c

Patch 7.3.717
Problem:    When changing the font size, only MS-Windows limits the window
            size.
Solution:   Also limit the window size on other systems. (Roland Puntaier)
Files:      src/gui.c

Patch 7.3.718
Problem:    When re-using the current buffer the buffer-local options stay.
Solution:   Re-initialize the buffer-local options. (Christian Brabandt)
Files:      src/buffer.c

Patch 7.3.719
Problem:    Cannot run new version of cproto, it fails on missing include
            files.
Solution:   Add lots of #ifndef PROTO
Files:      src/os_amiga.c, src/os_amiga.h, src/gui_w16.c, src/gui_w48.c,
            src/gui_w32.c, src/vimio.h, src/os_msdos.c, src/os_msdos.h,
            src/os_win16.h, src/os_win16.c, src/os_win32.h, src/os_win32.c,
            src/os_mswin.c, src/gui_photon.c, src/os_unix.h, src/os_beos.c,
            src/os_beos.h

Patch 7.3.720
Problem:    Proto files are outdated.
Solution:   Update the newly generated proto files.
Files:      src/proto/digraph.pro, src/proto/fold.pro, src/proto/misc1.pro,
            src/proto/move.pro, src/proto/screen.pro, src/proto/search.pro,
            src/proto/os_win32.pro, src/proto/os_mswin.pro,
            src/proto/os_beos.pro

Patch 7.3.721
Problem:    Ruby interface defines local functions globally.
Solution:   Make the functions static.
Files:      src/if_ruby.c

Patch 7.3.722
Problem:    Perl flags may contain "-g", which breaks "make proto".
Solution:   Filter out the "-g" flag for cproto. (Ken Takata)
Files:      src/Makefile

Patch 7.3.723
Problem:    Various tiny problems.
Solution:   Various tiny fixes.
Files:      src/gui_mac.c, src/xpm_w32.c, src/netbeans.c, src/sha256.c,
            src/if_sniff.c, README.txt

Patch 7.3.724
Problem:    Building with Ruby and Tcl on MS-Windows 64 bit does not work.
Solution:   Remove Ruby and Tcl from the big MS-Windows build.
Files:      src/bigvim64.bat
```

Patch 7.3.725
Problem: :aboveleft and :belowright have no effect on :copen.
Solution: Check for cmdmod.split. (Christian Brabandt)
Files: src/quickfix.c

Patch 7.3.726
Problem: Typos and duplicate info in README.
Solution: Fix the text.
Files: README.txt

Patch 7.3.727
Problem: Can't always find Win32.mak when building GvimExt.
Solution: Use same mechanism as in Make_mvc.mak. (Cade Foster)
Files: src/GvimExt/Makefile

Patch 7.3.728
Problem: Cannot compile with MzScheme interface on Ubuntu 12.10.
Solution: Find the collects directory under /usr/share.
Files: src/configure.in, src/auto/configure

Patch 7.3.729
Problem: Building with Ruby fails on some systems.
Solution: Remove "static" and add #ifndef PROTO. (Ken Takata)
Files: src/if_ruby.c

Patch 7.3.730
Problem: Crash in PHP file when using syntastic. (Ike Devolder)
Solution: Avoid using NULL pointer. (Christian Brabandt)
Files: src/quickfix.c

Patch 7.3.731
Problem: Py3Init_vim() is exported unnecessarily.
Solution: Make it static. (Ken Takata)
Files: src/if_python3.c

Patch 7.3.732
Problem: Compiler warnings for function arguments.
Solution: Use inteptr_t instead of long.
Files: src/if_mzsch.c, src/main.c

Patch 7.3.733
Problem: Tests fail when including MzScheme.
Solution: Change #ifdefs for vim_main2().
Files: src/main.c

Patch 7.3.734
Problem: Cannot put help files in a sub-directory.
Solution: Make :helptags work for sub-directories. (Charles Campbell)
Files: src/ex_cmds.c

Patch 7.3.735
Problem: Cannot build Ruby 1.9 with MingW or Cygwin.
Solution: Add another include directory. (Ken Takata)

```
Files:      src/Make_cyg.mak, src/Make_ming.mak

Patch 7.3.736
Problem:    File name completion in input() escapes white space. (Frederic
            Hardy)
Solution:   Do not escape white space. (Christian Brabandt)
Files:      src/ex_getln.c

Patch 7.3.737
Problem:    When using do_cmdline() recursively did_endif is not reset,
            causing messages to be overwritten.
Solution:   Reset did_endif. (Christian Brabandt)
Files:      src/ex_docmd.c

Patch 7.3.738 (after 7.3.730)
Problem:    Unused function argument.
Solution:   Remove it. (Christian Brabandt)
Files:      src/quickfix.c

Patch 7.3.739
Problem:    Computing number of lines may have an integer overflow.
Solution:   Check for MAXCOL explicitly. (Dominique Pelle)
Files:      src/move.c

Patch 7.3.740
Problem:    IOC tool complains about undefined behavior for int.
Solution:   Change to unsigned int. (Dominique Pelle)
Files:      src/hashtab.c, src/misc2.c

Patch 7.3.741 (after 7.3.737)
Problem:    Tiny build fails.
Solution:   Move #ifdef. (Ike Devolder)
Files:      src/ex_docmd.c

Patch 7.3.742
Problem:    Leaking memory when :vimgrep restores the directory.
Solution:   Free the allocated memory. (Christian Brabandt)
Files:      src/quickfix.c

Patch 7.3.743 (after 7.3.741)
Problem:    Tiny build still fails.
Solution:   Add #else in the right place.
Files:      src/ex_docmd.c

Patch 7.3.744
Problem:    64 bit compiler warning.
Solution:   Add type cast. (Mike Williams)
Files:      src/ex_cmds.c

Patch 7.3.745
Problem:    Automatically setting 'ttymouse' doesn't work.
Solution:   Reset the "option was set" flag when using the default.
Files:      src/option.c, src/proto/option.pro, src/term.c
```

```
Patch 7.3.746
Problem:    Memory leaks when using location lists.
Solution:   Set qf_title to something. (Christian Brabandt)
Files:      src/eval.c, src/quickfix.c

Patch 7.3.747
Problem:    When characters are concealed text aligned with tabs are no longer
            aligned, e.g. at ":help :index".
Solution:   Compensate space for tabs for concealed characters. (Dominique
            Pelle)
Files:      src/screen.c

Patch 7.3.748
Problem:    Cannot properly test conceal mode.
Solution:   Add the screencol() and screenrow() functions.  Use them in
            test88. (Simon Ruderich)
Files:      runtime/doc/eval.txt, src/eval.c, src/proto/screen.pro,
            src/screen.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms
            src/testdir/Makefile, src/testdir/test88.in,
            src/testdir/test88.ok,

Patch 7.3.749
Problem:    Python interface doesn't build without the multi-byte feature.
Solution:   Add #ifdef. (Ken Takata)
Files:      src/if_py_both.h

Patch 7.3.750
Problem:    The justify macro does not always work correctly.
Solution:   Fix off-by-one error (James McCoy)
Files:      runtime/macros/justify.vim

Patch 7.3.751
Problem:    Test 61 is flaky, it fails once in a while.
Solution:   When it fails retry once.
Files:      src/testdir/Makefile

Patch 7.3.752
Problem:    Test 49 script file doesn't fold properly.
Solution:   Add a colon.
Files:      src/testdir/test49.vim

Patch 7.3.753
Problem:    When there is a QuitPre autocommand using ":q" twice does not work
            for exiting when there are more files to edit.
Solution:   Do not decrement quitmore in an autocommand. (Techlive Zheng)
Files:      src/ex_docmd.c, src/fileio.c, src/proto/fileio.pro

Patch 7.3.754
Problem:    Latest nmake is not recognized.
Solution:   Add nmake version 11.00.51106.1. (Raymond Ko)
Files:      src/Make_mvc.mak
```

```
Patch 7.3.755
Problem:    Autoconf doesn't find Python 3 if it's called "python".
Solution:   Search for "python2" and "python3" first, then "python".
Files:      src/configure.in, src/auto/configure

Patch 7.3.756
Problem:    A location list can get a wrong count in :lvimgrep.
Solution:   Check if the list was changed by autocommands. (mostly by
            Christian Brabandt)
Files:      src/quickfix.c

Patch 7.3.757
Problem:    Issue 96: May access freed memory when a put command triggers
            autocommands. (Dominique Pelle)
Solution:   Call u_save() before getting y_array.
Files:      src/ops.c

Patch 7.3.758
Problem:    Matchit plugin does not handle space in #ifdef.
Solution:   Change matching pattern to allow spaces. (Mike Morearty)
Files:      runtime/macros/matchit.vim

Patch 7.3.759
Problem:    MS-Windows: Updating the tabline is slow when there are many tabs.
Solution:   Disable redrawing while performing the update. (Arseny Kapoulkine)
Files:      src/gui_w48.c

Patch 7.3.760
Problem:    dv_ deletes the white space before the line.
Solution:   Move the cursor to the first non-white. (Christian Brabandt)
Files:      src/normal.c, src/testdir/test19.in, src/testdir/test19.ok

Patch 7.3.761
Problem:    In Visual mode a "-p does not work. (Marcin Szamotulski)
Solution:   Avoid writing to "- before putting it. (Christian Brabandt)
Files:      src/normal.c, src/testdir/test48.in, src/testdir/test48.ok

Patch 7.3.762 (after 7.3.759)
Problem:    On some systems the tabline is not redrawn.
Solution:   Call RedrawWindow(). (Charles Peacech)
Files:      src/gui_w48.c

Patch 7.3.763
Problem:    Jumping to a mark does not open a fold if it is in the same line.
            (Wiktor Ruben)
Solution:   Also compare the column after the jump. (Christian Brabandt)
Files:      src/normal.c

Patch 7.3.764
Problem:    Not all message translation files are installed.
Solution:   Also install the converted files.
Files:      src/po/Makefile

Patch 7.3.765
```

```
Problem:    Segfault when doing "cclose" on BufUnload in a python function.
            (Sean Reifschneider)
Solution:   Skip window with NULL buffer. (Christian Brabandt)
Files:      src/main.c, src/window.c

Patch 7.3.766
Problem:    ":help cpo-*" jumps to the wrong place.
Solution:   Make it equivalent to ":help cpo-star".
Files:      src/ex_cmds.c

Patch 7.3.767
Problem:    (Win32) The _errno used for iconv may be the wrong one.
Solution:   Use the _errno from iconv.dll. (Ken Takata)
Files:      src/mbyte.c

Patch 7.3.768
Problem:    settabvar() and setwinvar() may move the cursor.
Solution:   Save and restore the cursor position when appropriate. (idea by
            Yasuhiro Matsumoto)
Files:      src/edit.c

Patch 7.3.769
Problem:    'matchpairs' does not work with multi-byte characters.
Solution:   Make it work. (Christian Brabandt)
Files:      src/misc1.c, src/option.c, src/proto/option.pro, src/search.c,
            src/testdir/test69.in, src/testdir/test69.ok

Patch 7.3.770
Problem:    Vim.h indentation is inconsistent.
Solution:   Adjust the indentation. (Elias Diem)
Files:      src/vim.h

Patch 7.3.771 (after 7.3.769)
Problem:    Uninitialized variable. (Yasuhiro Matsumoto)
Solution:   Set x2 to -1.
Files:      src/option.c

Patch 7.3.772
Problem:    Cursor is at the wrong location and below the end of the file
            after doing substitutions with confirm flag: %s/x/y/c
            (Dominique Pelle)
Solution:   Update the cursor position. (Christian Brabandt & Dominique)
Files:      src/ex_cmds.c

Patch 7.3.773 (after 7.3.767)
Problem:    Crash when OriginalFirstThunk is zero.
Solution:   Skip items with OriginalFirstThunk not set. (Ken Takata)
Files:      src/mbyte.c

Patch 7.3.774
Problem:    Tiny GUI version misses console dialog feature.
Solution:   Define FEAT_CON_DIALOG when appropriate. (Christian Brabandt)
Files:      src/feature.h, src/gui.h
```

```
Patch 7.3.775
Problem:    Cygwin and Mingw builds miss dependency on gui_w48.c.
Solution:   Add a build rule. (Ken Takata)
Files:      src/Make_cyg.mak, src/Make_ming.mak

Patch 7.3.776
Problem:    ml_get error when searching, caused by curwin not matching curbuf.
Solution:   Avoid changing curbuf. (Lech Lorens)
Files:      src/charset.c, src/eval.c, src/mark.c, src/proto/charset.pro,
            src/proto/mark.pro, src/regexp.c, src/syntax.c,

Patch 7.3.777
Problem:    When building with Gnome locale gets reset.
Solution:   Set locale after gnome_program_init(). (Christian Brabandt)
Files:      src/gui_gtk_x11.c

Patch 7.3.778
Problem:    Compiler error for adding up two pointers. (Titov Anatoly)
Solution:   Add a type cast. (Ken Takata)
Files:      src/mbyte.c

Patch 7.3.779
Problem:    Backwards search lands in wrong place when started on a multibyte
            character.
Solution:   Do not set extra_col for a backwards search. (Sung Pae)
Files:      src/search.c, src/testdir/test44.in, src/testdir/test44.ok

Patch 7.3.780
Problem:    char2nr() and nr2char() always use 'encoding'.
Solution:   Add argument to use utf-8 characters. (Yasuhiro Matsumoto)
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.3.781
Problem:    Drawing with 'guifontwide' can be slow.
Solution:   Draw multiple characters at a time. (Taro Muraoka)
Files:      src/gui.c

Patch 7.3.782
Problem:    Windows: IME composition may use a wrong font.
Solution:   Use 'guifontwide' for IME when it is set. (Taro Muraoka)
Files:      runtime/doc/options.txt, src/gui.c, src/gui_w48.c,
            src/proto/gui_w16.pro, src/proto/gui_w32.pro

Patch 7.3.783
Problem:    Crash when mark is not set. (Dominique Pelle)
Solution:   Check for NULL.
Files:      src/normal.c

Patch 7.3.784 (after 7.3.781)
Problem:    Error when 'guifontwide' has a comma.
Solution:   Use gui.wide_font. (Taro Muraoka)
Files:      src/gui_w48.c

Patch 7.3.785 (after 7.3.776)
```

```
Problem:    Crash with specific use of search pattern.
Solution:   Initialize reg_buf to curbuf.
Files:      src/regexp.c

Patch 7.3.786
Problem:    Python threads don't run in the background (issue 103).
Solution:   Move the statements to manipulate thread state.
Files:      src/if_python.c

Patch 7.3.787
Problem:    With 'relativenumber' set it is not possible to see the absolute
            line number.
Solution:   For the cursor line show the absolute line number instead of a
            zero. (Nazri Ramliy)
Files:      src/screen.c

Patch 7.3.788
Problem:    When only using patches build fails on missing nl.po.
Solution:   Create an empty nl.po file.
Files:      src/po/Makefile

Patch 7.3.789 (after 7.3.776)
Problem:    "\k" in regexp does not work in other window.
Solution:   Use the right buffer. (Yukihiro Nakadaira)
Files:      src/mbyte.c, src/proto/mbyte.pro, src/regexp.c

Patch 7.3.790
Problem:    After reloading a buffer the modelines are not processed.
Solution:   call do_modelines(). (Ken Takata)
Files:      src/fileio.c

Patch 7.3.791
Problem:    MzScheme interface doesn't work properly.
Solution:   Make it work better. (Sergey Khorev)
Files:      runtime/doc/if_mzsch.txt, src/configure.in, src/auto/configure,
            src/eval.c, src/if_mzsch.c, src/if_mzsch.h, src/Make_ming.mak,
            src/Make_mvc.mak, src/os_unix.c, src/proto/eval.pro,
            src/testdir/test70.in, src/testdir/test70.ok

Patch 7.3.792
Problem:    ":substitute" works differently without confirmation.
Solution:   Do not change the text when asking for confirmation, only display
            it.
Files:      src/ex_cmds.c

Patch 7.3.793 (after 7.3.792)
Problem:    New interactive :substitute behavior is not tested.
Solution:   Add tests. (Christian Brabandt)
Files:      src/testdir/test80.in, src/testdir/test80.ok

Patch 7.3.794
Problem:    Tiny build fails. (Tony Mechelynck)
Solution:   Adjust #ifdefs.
Files:      src/charset.c
```

```
Patch 7.3.795
Problem:    MzScheme does not build with tiny features.
Solution:   Add #ifdefs.  Also add UNUSED to avoid warnings.  And change
            library ordering.
Files:      src/if_mzsch.c, src/Makefile

Patch 7.3.796
Problem:    "/[^\n]" does match at a line break.
Solution:   Make it do the same as "/.". (Christian Brabandt)
Files:      src/regexp.c, src/testdir/test79.in, src/testdir/test79.ok

Patch 7.3.797 (after 7.3.792)
Problem:    Compiler warning for size_t to int conversion. (Skeept)
Solution:   Add type casts.
Files:      src/ex_cmds.c

Patch 7.3.798 (after 7.3.791)
Problem:    MzScheme: circular list does not work correctly.
Solution:   Separate Mac-specific code from generic code. (Sergey Khorev)
Files:      src/if_mzsch.c, src/testdir/test70.in

Patch 7.3.799
Problem:    The color column is not correct when entering a buffer. (Ben
            Fritz)
Solution:   Call check_colorcolumn() if 'textwidth' changed. (Christian
            Brabandt)
Files:      src/buffer.c

Patch 7.3.800
Problem:    The " mark is not adjusted when inserting lines. (Roland Eggner)
Solution:   Adjust the line number. (Christian Brabandt)
Files:      src/mark.c

Patch 7.3.801
Problem:    ":window set nu?" displays the cursor line. (Nazri Ramliy)
Solution:   Do not update the cursor line when conceallevel is zero or the
            screen has scrolled. (partly by Christian Brabandt)
Files:      src/window.c

Patch 7.3.802
Problem:    After setting 'isk' to a value ending in a comma appending to the
            option fails.
Solution:   Disallow a trailing comma for 'isk' and similar options.
Files:      src/charset.c

Patch 7.3.803 (after 7.3.792)
Problem:    Substitute with confirmation and then "q" does not replace
            anything.  (John McGowan)
Solution:   Do not break the loop, skip to the end.
Files:      src/ex_cmds.c, src/testdir/test80.in, src/testdir/test80.ok

Patch 7.3.804 (after 7.3.799)
Problem:    Compiler warning for tiny build. (Tony Mechelynck)
```

```
Solution:   Add #ifdefs around variable.
Files:      src/buffer.c

Patch 7.3.805
Problem:    Lua version 5.2 is not detected properly on Arch Linux.
Solution:   Adjust autoconf. (lilydjwg)
Files:      src/configure.in, src/auto/configure

Patch 7.3.806
Problem:    Compiler warnings in Perl code when building with Visual studio
            2012. (skeept)
Solution:   Add type casts. (Christian Brabandt, 2013 Jan 30)
Files:      src/if_perl.xs

Patch 7.3.807
Problem:    Popup menu does not work properly with the preview window, folds
            and 'cursorcolumn'.
Solution:   Redraw the popup menu after redrawing windows. (Christian
            Brabandt)
Files:      src/screen.c

Patch 7.3.808
Problem:    Python threads still do not work properly.
Solution:   Fix both Python 2 and 3.  Add tests. (Ken Takata)
Files:      src/if_python.c, src/if_python3.c, src/testdir/test86.in,
            src/testdir/test86.ok, src/testdir/test87.in,
            src/testdir/test87.ok

Patch 7.3.809
Problem:    The dosinst.c program has a buffer overflow. (Thomas Gwae)
Solution:   Ignore $VIMRUNTIME if it is too long.
Files:      src/dosinst.c

Patch 7.3.810
Problem:    'relativenumber' is reset unexpectedly. (François Ingelrest)
Solution:   After an option was reset also reset the global value. Add a test.
            (Christian Brabandt)
Files:      src/option.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test89.in,
            src/testdir/test89.ok

Patch 7.3.811
Problem:    Useless termresponse parsing for SGR mouse.
Solution:   Skip the parsing. (Hayaki Saito)
Files:      src/term.c

Patch 7.3.812
Problem:    When 'indentexpr' moves the cursor "curswant" not restored.
Solution:   Restore "curswant". (Sung Pae)
Files:      src/misc1.c

Patch 7.3.813
```

```
Problem:    The CompleteDone event is not triggered when there are no pattern
            matches. (Jianjun Mao)
Solution:   Trigger the event. (Christian Brabandt)
Files:      src/edit.c

Patch 7.3.814
Problem:    Can't input multibyte characters on Win32 console if 'encoding' is
            different from current codepage.
Solution:   Use convert_input_safe() instead of convert_input().  Make
            string_convert_ext() return an error for incomplete input. (Ken
            Takata)
Files:      src/mbyte.c, src/os_win32.c

Patch 7.3.815
Problem:    Building with Cygwin and Ruby doesn't work.
Solution:   Copy some things from the MingW build file. (Ken Takata)
Files:      src/Make_cyg.mak

Patch 7.3.816
Problem:    Can't compute a hash.
Solution:   Add the sha256() function. (Tyru, Hirohito Higashi)
Files:      runtime/doc/eval.txt, src/eval.c, src/proto/sha256.pro,
            src/sha256.c, src/testdir/test90.in, src/testdir/test90.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.3.817
Problem:    Test 89 fails with tiny and small features.
Solution:   Add sourcing small.vim.
Files:      src/testdir/test89.in

Patch 7.3.818
Problem:    When test 40 fails because of a bad build it may leave files
            behind that cause it to fail later.
Solution:   Let the file names start with "X".
Files:      src/testdir/test40.in

Patch 7.3.819
Problem:    Compiling without +eval and with Python isn't working.
Solution:   Add the eval feature when building with Python.
Files:      src/if_py_both.h, src/feature.h, src/eval.c, src/ex_docmd.c,
            src/normal.c, src/ex_docmd.c, src/gui_gtk_x11.c

Patch 7.3.820
Problem:    Build errors and warnings when building with small features and
            Lua, Perl or Ruby.
Solution:   Add #ifdefs and UNUSED.
Files:      src/if_perl.xs, src/if_lua.c, src/if_ruby.c

Patch 7.3.821
Problem:    Build with OLE and Cygwin is broken. (Steve Hall)
Solution:   Select static or shared stdc library. (Ken Takata)
Files:      src/Make_cyg.mak
```

```
Patch 7.3.822 (after 7.3.799)
Problem:    Crash when accessing freed buffer.
Solution:   Get 'textwidth' in caller of enter_buffer(). (Christian Brabandt)
Files:      src/buffer.c

Patch 7.3.823 (after 7.3.821)
Problem:    Building with Cygwin: '-lsupc++' is not needed.
Solution:   Remove it. (Ken Takata)
Files:      src/Make_cyg.mak

Patch 7.3.824
Problem:    Can redefine builtin functions.  (ZyX)
Solution:   Disallow adding a function to g:.
Files:      src/eval.c

Patch 7.3.825
Problem:    With Python errors are not always clear.
Solution:   Print the stack trace, unless :silent is used. (ZyX)
Files:      src/if_python3.c, src/if_python.c

Patch 7.3.826
Problem:    List of features in :version output is hard to read.
Solution:   Make columns. (Nazri Ramliy)
Files:      src/version.c

Patch 7.3.827 (after 7.3.825)
Problem:    Python tests fail.
Solution:   Adjust the output for the stack trace.
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.ok

Patch 7.3.828
Problem:    Mappings are not aware of wildmenu mode.
Solution:   Add wildmenumode(). (Christian Brabandt)
Files:      src/eval.c, runtime/doc/eval.txt

Patch 7.3.829
Problem:    When compiled with the +rightleft feature 'showmatch' also shows a
            match for the opening paren.  When 'revins' is set the screen may
            scroll.
Solution:   Only check the opening paren when the +rightleft feature was
            enabled.  Do not show a match that is not visible. (partly by
            Christian Brabandt)
Files:      src/search.c

Patch 7.3.830
Problem:    :mksession confuses bytes, columns and characters when positioning
            the cursor.
Solution:   Use w_virtcol with "|" instead of w_cursor.col with "l".
Files:      src/ex_docmd.c

Patch 7.3.831
Problem:    Clumsy to handle the situation that a variable does not exist.
```

```
Solution:   Add default value to getbufvar() et al. (Shougo Matsushita,
            Hirohito Higashi)
Files:      runtime/doc/eval.txt, src/eval.c src/testdir/test91.in,
            src/testdir/test91.ok, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile

Patch 7.3.832
Problem:    Compiler warning.
Solution:   Add type cast. (Mike Williams)
Files:      src/version.c

Patch 7.3.833
Problem:    In the terminal the scroll wheel always scrolls the active window.
Solution:   Scroll the window under the mouse pointer, like in the GUI.
            (Bradie Rao)
Files:      src/edit.c, src/normal.c

Patch 7.3.834
Problem:    Ruby 2.0 has a few API changes.
Solution:   Add handling of Ruby 2.0. (Yasuhiro Matsumoto)
Files:      src/if_ruby.c

Patch 7.3.835
Problem:    "xxd -i" fails on an empty file.
Solution:   Do output the closing } for an empty file. (partly by Lawrence
            Woodman)
Files:      src/xxd/xxd.c

Patch 7.3.836
Problem:    Clipboard does not work on Win32 when compiled with Cygwin.
Solution:   Move the Win32 clipboard code to a separate file and use it when
            building with os_unix.c. (Frodak Baksik, Ken Takata)
Files:      src/Make_bc5.mak, src/Make_cyg.mak, src/Make_ivc.mak,
            src/Make_ming.mak, src/Make_mvc.mak, src/Make_w16.mak,
            src/Makefile, src/config.h.in, src/configure.in,
            src/auto/configure, src/feature.h, src/globals.h, src/mbyte.c,
            src/os_mswin.c, src/os_unix.c, src/os_win32.c, src/proto.h,
            src/proto/os_mswin.pro, src/proto/winclip.pro, src/term.c,
            src/vim.h, src/winclip.c

Patch 7.3.837 (after 7.3.826)
Problem:    Empty lines in :version output when 'columns' is 320.
Solution:   Simplify the logic of making columns. (Nazri Ramliy, Roland
            Eggner)
Files:      src/version.c

Patch 7.3.838 (after 7.3.830)
Problem:    Insufficient testing for mksession.
Solution:   Add tests. (mostly by Roland Eggner)
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
```

```
            src/testdir/test92.in, src/testdir/test92.ok,
            src/testdir/test93.in, src/testdir/test93.ok,
            src/ex_docmd.c

Patch 7.3.839
Problem:    Some files missing in the list of distributed files.
Solution:   Add lines for new files.
Files:      Filelist

Patch 7.3.840
Problem:    "\@<!" in regexp does not work correctly with multi-byte
            characters, especially cp932.
Solution:   Move column to start of multi-byte character. (Yasuhiro Matsumoto)
Files:      src/regexp.c

Patch 7.3.841
Problem:    When a "cond ? one : two" expression has a subscript it is not
            parsed correctly. (Andy Wokula)
Solution:   Handle a subscript also when the type is unknown. (Christian
            Brabandt)
Files:      src/eval.c

Patch 7.3.842
Problem:    Compiler warning for signed/unsigned pointer.
Solution:   Add type cast. (Christian Brabandt)
Files:      src/eval.c

Patch 7.3.843 (after 7.3.841)
Problem:    Missing test file changes.
Solution:   Change the tests.
Files:      src/testdir/test49.vim, src/testdir/test49.ok

Patch 7.3.844
Problem:    Enum is not indented correctly with "public" etc.
Solution:   Skip "public", "private" and "protected". (Hong Xu)
Files:      src/misc1.c

Patch 7.3.845 (after 7.3.844)
Problem:    Enum indenting is not tested.
Solution:   Add tests. (Hong Xu)
Files:      src/testdir/test3.in, src/testdir/test3.ok

Patch 7.3.846
Problem:    Missing proto files.
Solution:   Add the files.
Files:      Filelist, src/proto/os_beos.pro

Patch 7.3.847
Problem:    Test 55 fails when messages are translated.
Solution:   Set language to C. (Ken Takata)
Files:      src/testdir/test55.in

Patch 7.3.848
Problem:    Can't build with Ruby 2.0 when using MinGW x64 or MSVC10.
```

```
Solution:   Fix it. Also detect RUBY_PLATFORM and RUBY_INSTALL_NAME for x64.
            (Ken Takata)
Files:      src/Make_cyg.mak, src/Make_ming.mak, src/if_ruby.c

Patch 7.3.849
Problem:    ":g//" gives "Pattern not found error" with E486.  Should not use
            the error number, it's not a regular error message.
Solution:   Use a normal message. (David Bürgin)
Files:      src/ex_cmds.c

Patch 7.3.850
Problem:    ":vimgrep //" matches everywhere.
Solution:   Make it use the previous search pattern. (David Bürgin)
Files:      runtime/doc/quickfix.txt, src/quickfix.c

Patch 7.3.851
Problem:    Using an empty pattern with :sort silently continues when there is
            no previous search pattern.
Solution:   Give an error message. (David Bürgin)
Files:      src/ex_cmds.c

Patch 7.3.852
Problem:    system() breaks clipboard text. (Yukihiro Nakadaira)
Solution:   Use Xutf8TextPropertyToTextList(). (Christian Brabandt)
            Also do not put the text in the clip buffer if conversion fails.
Files:      src/ui.c, src/ops.c

Patch 7.3.853
Problem:    Using "ra" in multiple lines on multi-byte characters leaves a few
            characters not replaced.
Solution:   Adjust the end column only in the last line. (Yasuhiro Matsumoto)
Files:      src/testdir/test69.in, src/testdir/test69.ok, src/ops.c

Patch 7.3.854
Problem:    After using backspace in insert mode completion, CTRL-N and CTRL-P
            do not highlight the right entry. (Olivier Teuliere)
Solution:   Set the current item to the shown item after using backspace.
Files:      src/edit.c

Patch 7.3.855
Problem:    Compiler warnings.
Solution:   Add type casts. (Mike Williams)
Files:      src/misc1.c

Patch 7.3.856
Problem:    When calling system() multi-byte clipboard contents is garbled.
Solution:   Save and restore the clipboard contents.  (Yukihiro Nakadaira)
Files:      src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro, src/ops.c,
            src/proto/ops.pro, src/os_unix.c, src/proto/ui.pro, src/ui.c

Patch 7.3.857
Problem:    The QuitPre autocommand event does not trigger for :qa and :wq.
Solution:   Trigger the event. (Tatsuro Fujii)
Files:      src/ex_docmd.c
```

```
Patch 7.3.858
Problem:    "gv" selects the wrong area after some operators.
Solution:   Save and restore the type of selection. (Christian Brabandt)
Files:      src/testdir/test66.in, src/testdir/test66.ok, src/normal.c

Patch 7.3.859
Problem:    'ambiwidth' must be set by the user.
Solution:   Detects East Asian ambiguous width (UAX #11) state of the terminal
            at the start-up time and 'ambiwidth' accordingly.  (Hayaki Saito)
Files:      src/main.c, src/option.c, src/term.c, src/term.h,
            src/proto/term.pro

Patch 7.3.860
Problem:    When using --remote-expr try/catch does not work. (Andrey Radev)
Solution:   Set emsg_silent instead of emsg_skip.
Files:      src/main.c

Patch 7.3.861
Problem:    ":setlocal number" clears global value of 'relativenumber'.
Solution:   Do it properly. (Markus Heidelberg)
Files:      src/testdir/test89.in, src/testdir/test89.ok, src/option.c

Patch 7.3.862
Problem:    Dragging the status line can be slow.
Solution:   Look ahead and drop the drag event if there is a next one.
Files:      src/eval.c, src/misc1.c, src/proto/misc1.pro, src/normal.c

Patch 7.3.863 (after 7.3.859)
Problem:    Problem with 'ambiwidth' detection for ANSI terminal.
Solution:   Work around not recognizing a term response. (Hayaki Saito)
Files:      src/term.c

Patch 7.3.864 (after 7.3.862)
Problem:    Can't build without the mouse feature.
Solution:   Add an #ifdef. (Ike Devolder)
Files:      src/misc1.c

Patch 7.3.865 (after 7.3.862)
Problem:    Mouse position may be wrong.
Solution:   Let vungetc() restore the mouse position.
Files:      src/getchar.c

Patch 7.3.866
Problem:    Not serving the X selection during system() isn't nice.
Solution:   When using fork() do not loose the selection, keep serving it.
            Add a loop similar to handling I/O. (Yukihiro Nakadaira)
Files:      src/os_unix.c

Patch 7.3.867
Problem:    Matchparen does not update match when using auto-indenting.
            (Marc Aldorasi)
Solution:   Add the TextChanged and TextChangedI autocommand events.
Files:      runtime/plugin/matchparen.vim, src/main.c, src/edit.c,
```

```
            src/globals.h, src/vim.h, src/fileio.c, src/proto/fileio.pro,
            runtime/doc/autocmd.txt

Patch 7.3.868
Problem:    When at the hit-return prompt and using "k" while no text has
            scrolled off screen, then using "j", an empty line is displayed.
Solution:   Only act on "k" when text scrolled off screen.  Also accept
            page-up and page-down.  (cptstubing)
Files:      src/message.c

Patch 7.3.869
Problem:    bufwinnr() matches buffers in other tabs.
Solution:   For bufwinnr() and ? only match buffers in the current tab.
            (Alexey Radkov)
Files:      src/buffer.c, src/diff.c, src/eval.c, src/ex_docmd.c,
            src/if_perl.xs, src/proto/buffer.pro

Patch 7.3.870
Problem:    Compiler warnings when using MingW 4.5.3.
Solution:   Do not use MAKEINTRESOURCE. Adjust #if. (Ken Takata)
Files:      src/gui_w32.c, src/gui_w48.c, src/os_mswin.c, src/os_win32.c,
            src/os_win32.h

Patch 7.3.871
Problem:    search('^$', 'c') does not use the empty match under the cursor.
Solution:   Special handling of the 'c' flag. (Christian Brabandt)
            Add tests.
Files:      src/search.c, src/testdir/test14.in, src/testdir/test14.ok

Patch 7.3.872
Problem:    On some systems case of file names is always ignored, on others
            never.
Solution:   Add the 'fileignorecase' option to control this at runtime.
            Implies 'wildignorecase'.
Files:      src/buffer.c, src/edit.c, src/ex_cmds2.c, src/ex_getln.c,
            src/fileio.c, src/misc1.c, src/misc2.c, src/option.c,
            src/option.h, src/vim.h, runtime/doc/options.txt

Patch 7.3.873
Problem:    Cannot easily use :s to make title case.
Solution:   Have "\L\u" result in title case. (James McCoy)
Files:      src/regexp.c, src/testdir/test79.in, src/testdir/test79.ok,
            src/testdir/test80.in, src/testdir/test80.ok

Patch 7.3.874
Problem:    Comparing file names does not handle multi-byte characters
            properly.
Solution:   Implement multi-byte handling.
Files:      src/misc1.c, src/misc2.c

Patch 7.3.875 (after 7.3.866)
Problem:    Build problem with some combination of features.
Solution:   Use FEAT_XCLIPBOARD instead of FEAT_CLIPBOARD.
Files:      src/os_unix.c
```

Patch 7.3.876
Problem: #if indents are off.
Solution: Insert a space where appropriate. (Taro Muraoka)
Files: src/gui.c

Patch 7.3.877 (after 7.3.871)
Problem: Forward searching with search() is broken.
Solution: Fix it and add tests. (Sung Pae)
Files: src/search.c, src/testdir/test14.in, src/testdir/test14.ok

Patch 7.3.878
Problem: 'fileignorecase' is missing in options window and quickref.
Solution: Add the option.
Files: runtime/optwin.vim, runtime/doc/quickref.txt

Patch 7.3.879
Problem: When using an ex command in operator pending mode, using Esc to
            abort the command still executes the operator. (David Bürgin)
Solution: Clear the operator when the ex command fails. (Christian Brabandt)
Files: src/normal.c

Patch 7.3.880
Problem: When writing viminfo, old history lines may replace lines written
            more recently by another Vim instance.
Solution: Mark history entries that were read from viminfo and overwrite
            them when merging with the current viminfo.
Files: src/ex_getln.c

Patch 7.3.881
Problem: Python list does not work correctly.
Solution: Fix it and add a test. (Yukihiro Nakadaira)
Files: src/testdir/test86.in, src/testdir/test86.ok, src/if_py_both.h

Patch 7.3.882
Problem: CursorHold may trigger after receiving the termresponse.
Solution: Set the did_cursorhold flag. (Hayaki Saito)
Files: src/term.c

Patch 7.3.883 (after 7.3.880)
Problem: Can't build with some combination of features.
Solution: Adjust #ifdefs.
Files: src/ex_getln.c

Patch 7.3.884
Problem: Compiler warning for variable shadowing another. (John Little)
Solution: Rename the variable. (Christian Brabandt)
Files: src/term.c

Patch 7.3.885
Problem: Double free for list and dict in Lua. (Shougo Matsu)
Solution: Do not unref list and dict. (Yasuhiro Matsumoto)
Files: src/if_lua.c

```
Patch 7.3.886
Problem:    Can't build with multi-byte on Solaris 10.
Solution:   Add #ifdef X_HAVE_UTF8_STRING. (Laurent Blume)
Files:      src/ui.c

Patch 7.3.887
Problem:    No tests for Visual mode operators, what 7.3.879 fixes.
Solution:   Add a new test file. (David Bürgin)
Files:      src/testdir/test94.in, src/testdir/test94.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.3.888
Problem:    Filename completion with 'fileignorecase' does not work for
            multi-byte characters.
Solution:   Make 'fileignorecase' work properly. (Hirohito Higashi)
Files:      src/misc2.c

Patch 7.3.889
Problem:    Can't build with Ruby 2.0 on a 64 bit system.
Solution:   Define rb_fix2int and rb_num2int. (Kohei Suzuki)
Files:      src/if_ruby.c

Patch 7.3.890
Problem:    Test 79 fails on Windows. (Michael Soyka)
Solution:   Add comment below line causing an error.
Files:      src/testdir/test79.in

Patch 7.3.891
Problem:    Merging viminfo history doesn't work well.
Solution:   Don't stop when one type of history is empty. Don't merge history
            when writing viminfo.
Files:      src/ex_getln.c

Patch 7.3.892 (after 7.3.891)
Problem:    Still merging problems for viminfo history.
Solution:   Do not merge lines when writing, don't write old viminfo lines.
Files:      src/ex_getln.c, src/ex_cmds.c, src/proto/ex_getln.pro

Patch 7.3.893
Problem:    Crash when using b:, w: or t: after closing the buffer, window or
            tabpage.
Solution:   Allocate the dictionary instead of having it part of the
            buffer/window/tabpage struct. (Yukihiro Nakadaira)
Files:      src/buffer.c, src/eval.c, src/fileio.c, src/structs.h,
            src/window.c, src/proto/eval.pro

Patch 7.3.894
Problem:    Using wrong RUBY_VER causing Ruby build to break.
Solution:   Correct the RUBY_VER value. (Yongwei Wu)
Files:      src/bigvim.bat

Patch 7.3.895
```

```
Problem:    Valgrind error in test 91. (Issue 128)
Solution:   Pass scope name to find_var_in_ht().
Files:      src/eval.c

Patch 7.3.896
Problem:    Memory leaks in Lua interface.
Solution:   Fix the leaks, add tests. (Yukihiro Nakadaira)
Files:      src/testdir/test85.in, src/testdir/test85.ok, src/if_lua.c

Patch 7.3.897
Problem:    Configure doesn't always find the shared library.
Solution:   Change the configure script. (Ken Takata)
Files:      src/configure.in, src/auto/configure

Patch 7.3.898
Problem:    Memory leak reported by valgrind in test 91.
Solution:   Only use default argument when needed.
Files:      src/eval.c, src/testdir/test91.in, src/testdir/test91.ok

Patch 7.3.899
Problem:    #if indents are off.
Solution:   Fix the indents.
Files:      src/os_unix.c

Patch 7.3.900
Problem:    Not obvious that some mouse features are mutual-exclusive.
Solution:   Add a comment.
Files:      src/feature.h

Patch 7.3.901
Problem:    Outdated comment, ugly condition.
Solution:   Update a few comments, break line.
Files:      src/getchar.c, src/misc1.c, src/undo.c

Patch 7.3.902
Problem:    When deleting last buffer in other tab the tabline is not updated.
Solution:   Set the redraw_tabline flag. (Yukihiro Nakadaira)
Files:      src/window.c

Patch 7.3.903 (after 7.3.892)
Problem:    Crash on exit writing viminfo. (Ron Aaron)
Solution:   Check for the history to be empty.
Files:      src/ex_getln.c

Patch 7.3.904 (after 7.3.893)
Problem:    Using memory freed by the garbage collector.
Solution:   Mark items in aucmd_win as used.
Files:      src/eval.c

Patch 7.3.905 (after 7.3.903)
Problem:    Crash when writing viminfo. (Ron Aaron)
Solution:   Prevent freed history info to be used.
Files:      src/ex_getln.c
```

```
Patch 7.3.906
Problem:    The "sleep .2" for running tests does not work on Solaris.
Solution:   Fall back to using "sleep 1". (Laurent Blume)
Files:      src/testdir/Makefile

Patch 7.3.907
Problem:    Python uses IndexError when a dict key is not found.
Solution:   Use KeyError instead. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.908
Problem:    Possible crash when using a list in Python.
Solution:   Return early if the list is NULL. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.909
Problem:    Duplicate Python code.
Solution:   Move more items to if_py_both.h. (ZyX)  Also avoid compiler
            warnings for missing initializers.
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.910
Problem:    Python code in #ifdef branches with only minor differences.
Solution:   Merge the #ifdef branches. (ZyX)
Files:      src/if_py_both.h, src/if_python.c

Patch 7.3.911
Problem:    Python: Access to Vim variables is not so easy.
Solution:   Define vim.vars and vim.vvars. (ZyX)
Files:      runtime/doc/if_pyth.txt, src/eval.c, src/globals.h,
            src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.912
Problem:    Typing a ":" command at the hit-enter dialog does not work if the
            "file changed" dialog happens next.
Solution:   Check for changed files before giving the hit-enter dialog.
Files:      src/message.c

Patch 7.3.913 (after 7.3.905)
Problem:    Still a crash when writing viminfo.
Solution:   Add checks for NULL pointers. (Ron Aaron)
Files:      src/ex_getln.c

Patch 7.3.914
Problem:    ~/.viminfo is messed up when running tests.
Solution:   Set the viminfo filename.
Files:      src/testdir/test89.in, src/testdir/test94.in

Patch 7.3.915
Problem:    When reading a file with encoding conversion fails at the end the
            next encoding in 'fencs' is not used.
```

```
Solution:   Retry with another encoding when possible. (Taro Muraoka)
Files:      src/fileio.c

Patch 7.3.916
Problem:    Using freed memory when pasting with the mouse (Issue 130).
Solution:   Get the byte value early. (hint by Dominique Pelle)
Files:      src/buffer.c

Patch 7.3.917
Problem:    When a path ends in a backslash appending a comma has the wrong
            effect.
Solution:   Replace a trailing backslash with a slash. (Nazri Ramliy)
Files:      src/misc1.c, src/testdir/test73.in, src/testdir/test73.ok

Patch 7.3.918
Problem:    Repeating an Ex command after using a Visual motion does not work.
Solution:   Check for an Ex command being used. (David Bürgin)
Files:      src/normal.c

Patch 7.3.919 (after 7.3.788)
Problem:    An empty nl.po file does not work with an old msgfmt.
Solution:   Put a single # in the file. (Laurent Blume)
Files:      src/po/Makefile

Patch 7.3.920
Problem:    Compiler warning for size_t to int.
Solution:   Add a type cast. (Mike Williams)
Files:      src/misc1.c

Patch 7.3.921 (after 7.3.697)
Problem:    Trying to create a fontset handle when 'guifontset' is not set.
Solution:   Add curly braces around the code block. (Max Kirillov)
Files:      src/syntax.c

Patch 7.3.922
Problem:    No test for what 7.3.918 fixes.
Solution:   Add a test. (David Bürgin)
Files:      src/testdir/test94.in, src/testdir/test94.ok

Patch 7.3.923
Problem:    Check for X11 header files fails on Solaris.
Solution:   Only use -Werror for gcc. (Laurent Blume)
Files:      src/configure.in, src/auto/configure

Patch 7.3.924
Problem:    Python interface can't easily access options.
Solution:   Add vim.options, vim.window.options and vim.buffer.options. (ZyX)
Files:      runtime/doc/if_pyth.txt, src/eval.c, src/if_py_both.h,
            src/if_python.c, src/if_python3.c, src/option.c,
            src/proto/eval.pro, src/proto/option.pro, src/testdir/test86.in,
            src/testdir/test86.ok, src/testdir/test87.in,
            src/testdir/test87.ok, src/vim.h

Patch 7.3.925
```

Problem: Typos in source files.
Solution: Fix the typos. (Ken Takata)
Files: runtime/plugin/matchparen.vim, runtime/tools/vim_vs_net.cmd,
            src/GvimExt/gvimext.cpp, src/INSTALLvms.txt, src/Make_cyg.mak,
            src/Make_mvc.mak, src/Make_sas.mak, src/Make_vms.mms,
            src/Make_w16.mak, src/Makefile, src/VisVim/OleAut.cpp,
            src/VisVim/README_VisVim.txt, src/auto/configure, src/buffer.c,
            src/configure.in, src/diff.c, src/dosinst.c, src/edit.c,
            src/eval.c, src/ex_cmds2.c, src/ex_docmd.c, src/ex_eval.c,
            src/farsi.c, src/feature.h, src/fileio.c, src/glbl_ime.cpp,
            src/gui.c, src/gui_athena.c, src/gui_beval.c, src/gui_gtk_x11.c,
            src/gui_mac.c, src/gui_motif.c, src/gui_photon.c, src/gui_w16.c,
            src/gui_w32.c, src/gui_w48.c, src/gui_xmebw.c, src/gui_xmebwp.h,
            src/hardcopy.c, src/if_cscope.c, src/if_mzsch.c, src/if_ole.cpp,
            src/if_perl.xs, src/if_py_both.h, src/if_python.c,
            src/if_python3.c, src/if_ruby.c, src/main.aap, src/mbyte.c,
            src/memfile.c, src/memline.c, src/misc1.c, src/misc2.c,
            src/nbdebug.c, src/normal.c, src/ops.c, src/os_amiga.c,
            src/os_mac.h, src/os_msdos.c, src/os_mswin.c, src/os_win16.h,
            src/os_win32.c, src/os_win32.h, src/quickfix.c, src/screen.c,
            src/search.c, src/spell.c, src/structs.h, src/syntax.c,
            src/window.c, vimtutor.com

Patch 7.3.926
Problem: Autocommands are triggered by setwinvar() et al. Missing BufEnter
            on :tabclose. Duplicate WinEnter on :tabclose. Wrong order of
            events for :tablose and :tabnew.
Solution: Fix these autocommand events. (ZyX)
Files: runtime/doc/eval.txt, src/buffer.c, src/eval.c, src/ex_cmds2.c,
            src/fileio.c, src/proto/window.pro, src/testdir/test62.in,
            src/testdir/test62.ok, src/window.c

Patch 7.3.927
Problem: Missing combining characters when putting text in a register.
Solution: Include combining characters. (David Bürgin)
Files: src/getchar.c, src/testdir/test44.in, src/testdir/test44.ok

Patch 7.3.928 (after 7.3.924)
Problem: Can't build with strict C compiler.
Solution: Move declaration to start of block. (Taro Muraoka)
Files: src/if_py_both.h

Patch 7.3.929 (after 7.3.924)
Problem: Compiler warning for unused variable. Not freeing unused string.
Solution: Remove the variable. Clear the options.
Files: src/option.c

Patch 7.3.930
Problem: MSVC 2012 update is not recognized.
Solution: Update the version in the makefile. (Raymond Ko)
Files: src/Make_mvc.mak

Patch 7.3.931

Problem: No completion for :xmap and :smap. (Yukihiro Nakadaira)
Solution: Add the case statements. (Christian Brabandt)
Files: src/ex_docmd.c

Patch 7.3.932
Problem: Compiler warning for uninitialized variable. (Tony Mechelynck)
Solution: Initialize the variable.
Files: src/option.c

Patch 7.3.933
Problem: Ruby on Mac crashes due to GC failure.
Solution: Init the stack from main(). (Hiroshi Shirosaki)
Files: src/main.c, src/if_ruby.c, src/proto/if_ruby.pro

Patch 7.3.934
Problem: E381 and E380 make the user think nothing happened.
Solution: Display the message indicating what error list is now active.
            (Christian Brabandt)
Files: src/quickfix.c

Patch 7.3.935 (after 7.3.933)
Problem: Ruby: Init stack works differently on 64 bit systems.
Solution: Handle 64 bit systems and also static library. (Yukihiro
            Nakadaira)
Files: src/if_ruby.c

Patch 7.3.936 (after 7.3.935)
Problem: Ruby 1.8: Missing piece for static linking on 64 bit systems.
Solution: Define ruby_init_stack() (Hiroshi Shirosaki)
            Also fix preprocessor indents.
Files: src/if_ruby.c

Patch 7.3.937
Problem: More can be shared between Python 2 and 3.
Solution: Move code to if_py_both.h. (ZyX)
Files: src/if_python.c, src/if_python3.c, src/if_py_both.h

Patch 7.3.938
Problem: Python: not easy to get to window number.
Solution: Add vim.window.number. (ZyX)
Files: runtime/doc/if_pyth.txt, src/if_py_both.h, src/proto/window.pro,
            src/window.c

Patch 7.3.939
Problem: Using Py_BuildValue is inefficient sometimes.
Solution: Use PyLong_FromLong(). (ZyX)
Files: src/if_py_both.h

Patch 7.3.940
Problem: Python: Can't get position of window.
Solution: Add window.row and window.col. (ZyX)
Files: runtime/doc/if_pyth.txt, src/if_py_both.h

Patch 7.3.941

```
Problem:    Stuff in if_py_both.h is ordered badly.
Solution:   Reorder by type. (ZyX)
Files:      src/if_py_both.h, src/if_python.c

Patch 7.3.942
Problem:    Python: SEGV in Buffer functions.
Solution:   Call CheckBuffer() at the right time. (ZyX)
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.3.943
Problem:    Python: Negative indices were failing.
Solution:   Fix negative indices. Add tests. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/testdir/test86.in,
            src/testdir/test86.ok, src/testdir/test87.in,
            src/testdir/test87.ok

Patch 7.3.944
Problem:    External program receives the termresponse.
Solution:   Insert a delay and discard input. (Hayaki Saito)
Files:      src/term.c

Patch 7.3.945
Problem:    Python: List of buffers is not very useful.
Solution:   Make vim.buffers a map. No iterator yet. (ZyX)
Files:      runtime/doc/if_pyth.txt, src/if_py_both.h, src/if_python3.c,
            src/if_python.c, src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.946
Problem:    Sometimes get stuck in waiting for cursor position report,
            resulting in keys starting with <Esc>[ not working.
Solution:   Only wait for more characters after <Esc>[ if followed by '?', '>'
            or a digit.
Files:      src/term.c

Patch 7.3.947
Problem:    Python: No iterator for vim.list and vim.bufferlist.
Solution:   Add the iterators. Also fix name of FunctionType. Add tests for
            vim.buffers.  (ZyX)
Files:      runtime/doc/if_pyth.txt, src/eval.c, src/if_py_both.h,
            src/if_python3.c, src/if_python.c, src/proto/eval.pro,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.948
Problem:    Cannot build with Python 2.2
Solution:   Make Python interface work with Python 2.2
            Make 2.2 the first supported version. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.ok, src/configure.in, src/auto/configure

Patch 7.3.949
Problem:    Python: no easy access to tabpages.
Solution:   Add vim.tabpages and vim.current.tabpage. (ZyX)
```

```
Files:      runtime/doc/if_pyth.txt, src/if_py_both.h, src/if_python3.c,
            src/if_python.c, src/proto/if_python3.pro,
            src/proto/if_python.pro, src/proto/window.pro, src/structs.h,
            src/window.c

Patch 7.3.950
Problem:    Python: Stack trace printer can't handle messages.
Solution:   Make KeyErrors use PyErr_SetObject. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.951
Problem:    Python exceptions have problems.
Solution:   Change some IndexErrors to TypeErrors. Make “line number out of
            range” an IndexError.  Make “unable to get option value” a
            RuntimeError. Make all PyErr_SetString messages start with
            lowercase letter and use _(). (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.952
Problem:    Python: It's not easy to change window/buffer/tabpage.
Solution:   Add ability to assign to vim.current.{tabpage,buffer,window}.
            (ZyX)
Files:      runtime/doc/if_pyth.txt, src/if_py_both.h

Patch 7.3.953
Problem:    Python: string exceptions are deprecated.
Solution:   Make vim.error an Exception subclass. (ZyX)
Files:      src/if_python.c, src/if_python3.c

Patch 7.3.954
Problem:    No check if PyObject_IsTrue fails.
Solution:   Add a check for -1 value. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.955
Problem:    Python: Not enough tests.
Solution:   Add tests for vim.{current,window*,tabpage*}. (ZyX)
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.956
Problem:    Python vim.bindeval() causes SIGABRT.
Solution:   Make pygilstate a local variable. (Yukihiro Nakadaira)
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.3.957
Problem:    Python does not have a "do" command like Perl or Lua.
Solution:   Add the ":py3do" command. (Lilydjwg)
Files:      runtime/doc/if_pyth.txt, src/ex_cmds.h, src/ex_docmd.c,
            src/if_python3.c, src/proto/if_python3.pro

Patch 7.3.958
Problem:    Python: Iteration destructor not set.
```

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Solution:   Put IterDestructor to use. (ZyX)
Files:      src/if_py_both.c

Patch 7.3.959 (after 7.3.957)
Problem:    Missing error number.
Solution:   Assign an error number.
Files:      src/if_python3.c

Patch 7.3.960
Problem:    Compiler warning for unused variable.
Solution:   Put declaration in #ifdef.
Files:      src/window.c

Patch 7.3.961
Problem:    Tests 86 and 87 fail when using another language than English.
Solution:   Set the language to C in the test. (Dominique Pelle)
Files:      src/testdir/test86.in, src/testdir/test87.in,
            src/testdir/test87.ok

Patch 7.3.962
Problem:    Python tests are not portable.
Solution:   Use shiftwidth instead of iminsert. (ZyX)
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.963
Problem:    Setting curbuf without curwin causes trouble.
Solution:   Add switch_buffer() and restore_buffer().  Block autocommands to
            avoid trouble.
Files:      src/eval.c, src/proto/eval.pro, src/proto/window.pro,
            src/if_py_both.h, src/window.c, src/testdir/test86.ok

Patch 7.3.964
Problem:    Python: not so easy to access tab pages.
Solution:   Add window.tabpage, make window.number work with non-current tab
            pages. (ZyX)
Files:      runtime/doc/if_pyth.txt, src/if_py_both.h, src/if_python3.c,
            src/if_python.c, src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.965
Problem:    Python garbage collection not working properly.
Solution:   Add support for garbage collection. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.966
Problem:    There is ":py3do" but no ":pydo".
Solution:   Add the ":pydo" command. (Lilydjwg)
Files:      runtime/doc/if_pyth.txt, src/ex_cmds.h, src/ex_docmd.c,
            src/if_py_both.h, src/if_python.c, src/if_python3.c,
            src/proto/if_python.pro

Patch 7.3.967 (after 7.3.965)
Problem:    Build fails on Mac OSX. (Greg Novack)
Solution:   Undefine clear().
```

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Files:      src/if_py_both.h

Patch 7.3.968
Problem:    Multi-byte support is only available when compiled with "big"
            features.
Solution:   Include multi-byte by default, with "normal" features.
Files:      src/feature.h

Patch 7.3.969
Problem:    Can't build with Python 3 and without Python 2.
Solution:   Adjust #ifdef. (Xavier de Gaye)
Files:      src/window.c

Patch 7.3.970
Problem:    Syntax highlighting can be slow.
Solution:   Include the NFA regexp engine.  Add the 'regexpengine' option to
            select which one is used. (various authors, including Ken Takata,
            Andrei Aiordachioaie, Russ Cox, Xiaozhou Liua, Ian Young)
Files:      src/Make_cyg.mak, src/Make_ming.mak, src/Make_mvc.mak,
            src/Makefile, src/regexp.c, src/regexp.h, src/regexp_nfa.c,
            src/structs.h, src/testdir/Makefile, src/testdir/test64.in,
            src/testdir/test64.ok, Filelist, runtime/doc/pattern.txt,
            runtime/doc/option.txt, src/option.c, src/option.h,
            src/testdir/test95.in, src/testdir/test95.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.3.971
Problem:    No support for VS2012 static code analysis.
Solution:   Add the ANALYZE option. (Mike Williams)
Files:      src/Make_mvc.mak

Patch 7.3.972
Problem:    Cursor not restored after InsertEnter autocommand if it moved to
            another line.
Solution:   Also restore if the saved line number is still valid.  Allow
            setting v:char to skip restoring.
Files:      src/edit.c, runtime/doc/autocmd.txt

Patch 7.3.973
Problem:    Compiler warnings. Crash on startup. (Tony Mechelynck)
Solution:   Change EMSG2 to EMSGN. Make array one character longer.
Files:      src/regexp_nfa.c

Patch 7.3.974
Problem:    Can't build with ruby 1.8.5.
Solution:   Only use ruby_init_stack() when RUBY_INIT_STACK is defined.
            (Yukihiro Nakadaira)
Files:      src/if_ruby.c

Patch 7.3.975
Problem:    Crash in regexp parsing.
Solution:   Correctly compute the end of allocated memory.
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Files:      src/regexp_nfa.c

Patch 7.3.976
Problem:    Can't build on HP-UX.
Solution:   Remove modern initialization. (John Marriott)
Files:      src/regexp_nfa.c

Patch 7.3.977
Problem:    Compiler warnings on 64 bit Windows.
Solution:   Add type casts. (Mike Williams)  Also fix some white space and
            uncomment what was commented-out for testing.
Files:      src/regexp_nfa.c

Patch 7.3.978
Problem:    Regexp debug logs don't have a good name.
Solution:   Use clear names and make it possible to write logs for the old and
            new engines separately. (Taro Muraoka)
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.3.979
Problem:    Complex NFA regexp doesn't work.
Solution:   Set actual state stack end instead of using an arbitrary number.
            (Yasuhiro Matsumoto)
Files:      src/regexp_nfa.c

Patch 7.3.980
Problem:    Regexp logs may contain garbage. Character classes don't work
            correctly for multi-byte characters.
Solution:   Check for end of post list.  Only use "is" functions for
            characters up to 255. (Ken Takata)
Files:      src/regexp_nfa.c

Patch 7.3.981
Problem:    In the old regexp engine \i, \I, \f and \F don't work on
            multi-byte characters.
Solution:   Dereference pointer properly.
Files:      src/regexp.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.982
Problem:    In the new regexp engine \p does not work on multi-byte
            characters.
Solution:   Don't point to an integer but the characters.
Files:      src/regexp_nfa.c, src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.983
Problem:    Unnecessary temp variable.
Solution:   Remove the variable.
Files:      src/regexp_nfa.c

Patch 7.3.984
Problem:    A Visual mapping that uses CTRL-G works differently when started
            from Insert mode. (Ein Brown)
Solution:   Reset old_mapped_len when handling typed text in Select mode.
Files:      src/normal.c
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Patch 7.3.985
Problem:    GTK vim not started as gvim doesn't set WM_CLASS property to a
            useful value.
Solution:   Call g_set_prgname() on startup. (James McCoy)
Files:      src/gui_gtk_x11.c

Patch 7.3.986
Problem:    Test 95 doesn't pass when 'encoding' isn't utf-8. (Yasuhiro
            Matsumoto)
Solution:   Force 'encoding' to be utf-8.
Files:      src/testdir/test95.in

Patch 7.3.987
Problem:    No easy to run an individual test.  Tests 64 fails when
            'encoding' is not utf-8.
Solution:   Add individual test targets to the Makefile.  Move some lines from
            test 64 to 95.
Files:      src/Makefile, src/testdir/test64.in, src/testdir/test64.ok,
            src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.988
Problem:    New regexp engine is slow.
Solution:   Break out of the loop when the state list is empty.
Files:      src/regexp_nfa.c

Patch 7.3.989
Problem:    New regexp engine compares negative numbers to character.
Solution:   Add missing case statements.
Files:      src/regexp_nfa.c

Patch 7.3.990
Problem:    Memory leak in new regexp engine.
Solution:   Jump to end of function to free memory. (Dominique Pelle)
Files:      src/regexp_nfa.c

Patch 7.3.991
Problem:    More can be shared by Python 2 and 3.
Solution:   Move more stuff to if_py_both. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test87.ok

Patch 7.3.992
Problem:    Python: Too many type casts.
Solution:   Change argument types. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.993
Problem:    Python: Later patch does things slightly differently.
Solution:   Adjusted argument type changes. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.994
Problem:    Python: using magic constants.
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Solution:   Use descriptive values for ml_flags. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c

Patch 7.3.995
Problem:    Python: Module initialization is duplicated.
Solution:   Move to shared file. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.996
Problem:    Python: Can't check types of what is returned by bindeval().
Solution:   Add vim.List, vim.Dictionary and vim.Function types. (ZyX)
Files:      runtime/doc/if_pyth.txt, src/if_py_both.h, src/testdir/test86.in,
            src/testdir/test86.ok, src/testdir/test87.in,
            src/testdir/test87.ok

Patch 7.3.997
Problem:    Vim and Python exceptions are different.
Solution:   Make Vim exceptions be Python exceptions. (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.998
Problem:    Python: garbage collection issues.
Solution:   Fix the GC issues: Use proper DESTRUCTOR_FINISH: avoids negative
            refcounts, use PyObject_GC_* for objects with tp_traverse and
            tp_clear, add RangeTraverse and RangeClear, use Py_XDECREF in some
            places. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.999
Problem:    New regexp engine sets curbuf temporarily.
Solution:   Use reg_buf instead, like the old engine.
Files:      src/regexp_nfa.c

Patch 7.3.1000 (whoa!)
Problem:    Typo in char value causes out of bounds access.
Solution:   Fix character value.  (Klemens Baum)
Files:      src/regexp.c

Patch 7.3.1001
Problem:    Duplicate condition in if.
Solution:   Remove one condition.
Files:      src/regexp_nfa.c

Patch 7.3.1002
Problem:    Valgrind errors for Python interface.
Solution:   Fix memory leaks when running tests. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1003
Problem:    Python interface does not compile with Python 2.2
Solution:   Fix thread issues and True/False. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.in, src/testdir/test86.ok,
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            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1004
Problem:    No error when option could not be set.
Solution:   Report an error. (ZyX)
Files:      src/if_py_both.h, src/option.c, src/proto/option.pro,
            src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.1005
Problem:    Get stuck on regexp "\n*" and on "%s/^\n\+/\r".
Solution:   Fix handling of matching a line break. (idea by Hirohito Higashi)
Files:      src/regexp_nfa.c

Patch 7.3.1006
Problem:    NFA engine not used for "\_[0-9]".
Solution:   Enable this, fixed in patch 1005.
Files:      src/regexp_nfa.c

Patch 7.3.1007
Problem:    Can't build on Minix 3.2.1.
Solution:   Add a condition to an #ifdef. (Gautam Tirumala)
Files:      src/memfile.c

Patch 7.3.1008
Problem:    Test 95 fails on MS-Windows.
Solution:   Set 'nomore'. Change \i to \f.  Change multi-byte character to
            something that is not matching \i. (Ken Takata)
Files:      src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.1009
Problem:    Compiler warning for ambiguous else.
Solution:   Add curly braces.
Files:      src/if_py_both.h

Patch 7.3.1010
Problem:    New regexp: adding \Z makes every character match.
Solution:   Only apply ireg_icombine for composing characters.
            Also add missing change from patch 1008. (Ken Takata)
Files:      src/regexp_nfa.c, src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.1011
Problem:    New regexp engine is inefficient with multi-byte characters.
Solution:   Handle a character at a time instead of a byte at a time.  Also
            make \Z partly work.
Files:      src/regexp_nfa.c, src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.1012
Problem:    \Z does not work properly with the new regexp engine.
Solution:   Make \Z work.  Add tests.
Files:      src/regexp_nfa.c, src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.1013
Problem:    New regexp logging is a bit messy.
Solution:   Consistently use #defines, add explanatory comment. (Taro Muraoka)
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Files:      src/regexp_nfa.c

Patch 7.3.1014
Problem:    New regexp state dump is hard to read.
Solution:   Make the state dump more pretty. (Taro Muraoka)
Files:      src/regexp_nfa.c

Patch 7.3.1015
Problem:    New regexp engine: Matching composing characters is wrong.
Solution:   Fix matching composing characters.
Files:      src/regexp_nfa.c, src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.1016
Problem:    Unused field in nfa_state.
Solution:   Remove lastthread.
Files:      src/regexp.h, src/regexp_nfa.c

Patch 7.3.1017
Problem:    Zero width match changes length of match.
Solution:   For a zero width match put new states in the current position in
            the state list.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok,
            src/regexp.h

Patch 7.3.1018
Problem:    New regexp engine wastes memory.
Solution:   Allocate prog with actual number of states, not estimated maximum
            number of sates.
Files:      src/regexp_nfa.c

Patch 7.3.1019
Problem:    These do not work with the new regexp engine: \%o123, \%x123,
            \%d123, \%u123 and \%U123.
Solution:   Implement these items.
Files:      src/regexp_nfa.c

Patch 7.3.1020
Problem:    Not all patterns are tested with auto / old / new engine.
Solution:   Test patterns with three values of 'regexpengine'.
Files:      src/testdir/test64.in, src/testdir/test64.ok,
            src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.1021
Problem:    New regexp engine does not ignore order of composing chars.
Solution:   Ignore composing chars order.
Files:      src/regexp_nfa.c, src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.1022
Problem:    Compiler warning for shadowed variable. (John Little)
Solution:   Move declaration, rename variables.
Files:      src/regexp_nfa.c

Patch 7.3.1023
Problem:    Searching for composing char only and using \Z has different
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            results.
Solution:   Make it match the composing char, matching everything is not
            useful.
Files:      src/regexp_nfa.c, src/testdir/test95.in, src/testdir/test95.ok

Patch 7.3.1024
Problem:    New regexp: End of matching pattern not set correctly. (Cesar
            Romani)
Solution:   Quit the loop after finding the match.  Store nfa_has_zend in the
            program.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok,
            src/regexp.h

Patch 7.3.1025
Problem:    New regexp: not matching newline in string. (Marc Weber)
Solution:   Check for "\n" character.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1026
Problem:    New regexp: pattern that includes a new-line matches too early.
            (John McGowan)
Solution:   Do not start searching in the second line.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1027
Problem:    New regexp performance: Calling no_Magic() very often.
Solution:   Remove magicness inline.
Files:      src/regexp_nfa.c

Patch 7.3.1028
Problem:    New regexp performance: Copying a lot of position state.
Solution:   Only copy the sub-expressions that are being used.
Files:      src/regexp_nfa.c, src/regexp.h

Patch 7.3.1029
Problem:    New regexp performance: Unused position state being copied.
Solution:   Keep track of which positions are actually valid.
Files:      src/regexp_nfa.c

Patch 7.3.1030 (after 7.3.1028)
Problem:    Can't build for debugging.
Solution:   Fix struct member names.
Files:      src/regexp_nfa.c

Patch 7.3.1031
Problem:    Compiler warnings for shadowed variable. (John Little)
Solution:   Move the variable declarations to the scope where they are used.
Files:      src/regexp_nfa.c

Patch 7.3.1032
Problem:    "\ze" is not supported by the new regexp engine.
Solution:   Make "\ze" work.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok
```

```
Patch 7.3.1033
Problem:    "\1" .. "\9" are not supported in the new regexp engine.
Solution:   Implement them.  Add a few more tests.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok,
            src/regexp.h

Patch 7.3.1034
Problem:    New regexp code using strange multi-byte code.
Solution:   Use the normal code to advance and backup pointers.
Files:      src/regexp_nfa.c

Patch 7.3.1035
Problem:    Compiler warning on 64 bit windows.
Solution:   Add type cast. (Mike Williams)
Files:      src/if_py_both.h

Patch 7.3.1036
Problem:    Can't build on HP-UX.
Solution:   Give the union a name. (John Marriott)
Files:      src/regexp_nfa.c

Patch 7.3.1037
Problem:    Look-behind matching is very slow on long lines.
Solution:   Add a byte limit to how far back an attempt is made.
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test64.in,
            src/testdir/test64.ok

Patch 7.3.1038
Problem:    Crash when using Cscope.
Solution:   Avoid negative argument to vim_strncpy(). (Narendran
            Gopalakrishnan)
Files:      src/if_cscope.c

Patch 7.3.1039
Problem:    New regexp engine does not support \%23c, \%<23c and the like.
Solution:   Implement them. (partly by Yasuhiro Matsumoto)
Files:      src/regexp.h, src/regexp_nfa.c, src/testdir/test64.in,
            src/testdir/test64.ok

Patch 7.3.1040
Problem:    Python: Problems with debugging dynamic build.
Solution:   Python patch 1. (ZyX)
Files:      src/if_python.c, src/if_python3.c

Patch 7.3.1041
Problem:    Python: Invalid read valgrind errors.
Solution:   Python patch 2: defer DICTKEY_UNREF until key is no longer needed.
            (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1042
Problem:    Python: can't assign to vim.Buffer.name.
Solution:   Python patch 3. (ZyX)
Files:      runtime/doc/if_pyth.txt, src/ex_cmds.c, src/if_py_both.h,
```

```
            src/if_python3.c, src/if_python.c, src/proto/ex_cmds.pro,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1043
Problem:    Python: Dynamic compilation with 2.3 fails.
Solution:   Python patch 4. (ZyX)
Files:      src/if_python.c

Patch 7.3.1044
Problem:    Python: No {Buffer,TabPage,Window}.valid attributes.
Solution:   Python patch 5: add .valid (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1045
Problem:    Python: No error handling for VimToPython function.
Solution:   Python patch 6. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1046
Problem:    Python: Using Py_BuildValue for building strings.
Solution:   Python patch 7 and 7.5: Replace Py_BuildValue with
            PyString_FromString. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1047
Problem:    Python: dir() does not work properly.
Solution:   Python patch 8.  Add __dir__ method to all objects with custom
            tp_getattr supplemented by __members__ attribute for at least
            python-2* versions.  __members__ is not mentioned in python-3*
            dir() output even if it is accessible. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1048
Problem:    Python: no consistent naming.
Solution:   Python patch 9: Rename d to dict and lookupDict to lookup_dict.
            (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1049
Problem:    Python: no consistent naming
Solution:   Python patch 10: Rename DICTKEY_GET_NOTEMPTY to DICTKEY_GET. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1050
Problem:    Python: Typo in pyiter_to_tv.
Solution:   Python patch 11. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1051
```

```
Problem:    Python: possible memory leaks.
Solution:   Python patch 12: fix the leaks (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1052
Problem:    Python: possible SEGV and negative refcount.
Solution:   Python patch 13: Fix IterIter function. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1053
Problem:    Python: no flag for types with tp_traverse+tp_clear.
Solution:   Python patch 14: Add Py_TPFLAGS_HAVE_GC. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1054 (after 7.3.1042)
Problem:    Can't build without the +autocmd feature. (Elimar Riesebieter)
Solution:   Fix use of buf and curbuf.
Files:      src/ex_cmds.c, src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.1055
Problem:    Negated collection does not match newline.
Solution:   Handle newline differently. (Hiroshi Shirosaki)
Files:      src/regexp_nfa.c, src/testdir/test64.ok, src/testdir/test64.in

Patch 7.3.1056
Problem:    Python: possible memory leaks.
Solution:   Python patch 15. (ZyX) Fix will follow later.
Files:      src/eval.c, src/if_py_both.h, src/proto/eval.pro

Patch 7.3.1057
Problem:    Python: not enough compatibility.
Solution:   Python patch 16: Make OutputWritelines support any sequence object
            (ZyX) Note: tests fail
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1058
Problem:    Call of funcref does not succeed in other script.
Solution:   Python patch 17: add get_expanded_name(). (ZyX)
Files:      src/eval.c, src/proto/eval.pro

Patch 7.3.1059
Problem:    Python: Using fixed size buffers.
Solution:   Python patch 18: Use python's own formatter. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.1060
Problem:    Python: can't repr() a function.
Solution:   Python patch 19: add FunctionRepr(). (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1061
Problem:    Python: Dictionary is not standard.
Solution:   Python patch 20: Add standard methods and fields. (ZyX)
```

```
Files:      runtime/doc/if_pyth.txt, src/eval.c, src/if_py_both.h,
            src/if_python3.c, src/if_python.c, src/proto/eval.pro,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1062
Problem:    Python: List is not standard.
Solution:   Python patch 21: Add standard methods and fields. (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1063
Problem:    Python: Function is not standard.
Solution:   Python patch 22: make Function subclassable. (ZyX)
Files:      src/eval.c, src/if_py_both.h, src/proto/eval.pro,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1064
Problem:    Python: insufficient error checking.
Solution:   Python patch 23. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1065
Problem:    Python: key mapping is not standard.
Solution:   Python patch 24: use PyMapping_Keys. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.1066
Problem:    Python: Insufficient exception and error testing.
Solution:   Python patch 25. (ZyX)
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1067
Problem:    Python: documentation lags behind.
Solution:   Python patch 26. (ZyX)
Files:      runtime/doc/if_pyth.txt

Patch 7.3.1068
Problem:    Python: Script is auto-loaded on function creation.
Solution:   Python patch 27. (ZyX)
Files:      src/eval.c, src/if_py_both.h, src/proto/eval.pro,
            src/testdir/test86.ok, src/testdir/test87.ok, src/vim.h

Patch 7.3.1069
Problem:    Python: memory leaks.
Solution:   Python patch 28: Purge out DICTKEY_CHECK_EMPTY macros. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1070
Problem:    Vim crashes in Python tests. Compiler warning for unused function.
Solution:   Disable the tests for now. Move the function.
Files:      src/if_py_both.h, src/if_python.c, src/testdir/test86.in,
```

```
            src/testdir/test87.in

Patch 7.3.1071
Problem:    New regexp engine: backreferences don't work correctly.
Solution:   Add every possible start/end position on the state stack.
Files:      src/regexp_nfa.c, src/regexp.h, src/testdir/test64.in,
            src/testdir/test64.ok

Patch 7.3.1072
Problem:    Compiler warning for uninitialized variable.
Solution:   Initialize it.
Files:      src/regexp_nfa.c

Patch 7.3.1073
Problem:    New regexp engine may run out of states.
Solution:   Allocate states dynamically.  Also make the test report errors.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok,
            src/testdir/test95.in

Patch 7.3.1074
Problem:    Compiler warning for printf format. (Manuel Ortega)
Solution:   Add type casts.
Files:      src/if_py_both.h

Patch 7.3.1075
Problem:    Compiler warning for storing a long_u in an int.
Solution:   Declare the number as an int. (Mike Williams)
Files:      src/regexp_nfa.c

Patch 7.3.1076
Problem:    New regexp engine: \@= and \& don't work.
Solution:   Make these items work.  Add column info to logging.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1077
Problem:    Python: Allocating dict the wrong way, causing a crash.
Solution:   Use py_dict_alloc(). Fix some exception problems. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1078
Problem:    New regexp engine: \@! doesn't work.
Solution:   Implement the negated version of \@=.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1079
Problem:    Test 87 fails.
Solution:   Fix the test for Python 3.3. (ZyX)  Make it pass on 32 bit systems.
Files:      src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1080
Problem:    Test 86 fails.
Solution:   Comment out the parts that don't work.  Make it pass on 32 bit
            systems.
Files:      src/testdir/test86.in, src/testdir/test86.ok
```

```
Patch 7.3.1081
Problem:    Compiler warnings on 64-bit Windows.
Solution:   Change variable types. (Mike Williams)
Files:      src/if_py_both.h, src/regexp_nfa.c

Patch 7.3.1082
Problem:    New regexp engine: Problem with \@= matching.
Solution:   Save and restore nfa_match.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1083
Problem:    New regexp engine: Does not support \%^ and \%$.
Solution:   Support matching start and end of file.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1084
Problem:    New regexp engine: only accepts up to \{,10}.
Solution:   Remove upper limit.  Remove dead code with NFA_PLUS.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1085
Problem:    New regexp engine: Non-greedy multi doesn't work.
Solution:   Implement \{-}.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1086
Problem:    Old regexp engine accepts illegal range, new one doesn't.
Solution:   Also accept the illegal range with the new engine.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1087
Problem:    A leading star is not seen as a normal char when \{} follows.
Solution:   Save and restore the parse state properly.
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test64.in,
            src/testdir/test64.ok

Patch 7.3.1088
Problem:    New regexp engine: \@<= and \@<! are not implemented.
Solution:   Implement look-behind matching.  Fix off-by-one error in old
            regexp engine.
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test64.in,
            src/testdir/test64.ok

Patch 7.3.1089
Problem:    Tests 86 and 87 fail on MS-Windows. (Ken Takata)
Solution:   Fix platform-specific stuff. (ZyX)
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1090
Problem:    New regexp engine does not support \z1 .. \z9 and \z(.
Solution:   Implement the syntax submatches.
Files:      src/regexp.h, src/regexp_nfa.c
```

```
Patch 7.3.1091
Problem:    New regexp engine: no error when using \z1 or \z( where it does
            not work.
Solution:   Give an error message.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.3.1092
Problem:    Can't build with regexp debugging.  NFA debug output shows wrong
            pattern.
Solution:   Fix debugging code for recent changes.  Add the pattern to the
            program.
Files:      src/regexp_nfa.c, src/regexp.h

Patch 7.3.1093
Problem:    New regexp engine: When a sub expression is empty \1 skips a
            character.
Solution:   Make \1 try the current position when the match is empty.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1094
Problem:    New regexp engine: Attempts to match "^" at every character.
Solution:   Only try "^" at the start of a line.
Files:      src/regexp_nfa.c

Patch 7.3.1095
Problem:    Compiler warnings for shadowed variables. (Christian Brabandt)
Solution:   Rename new_state() to alloc_state().  Remove unnecessary
            declaration.
Files:      src/regexp_nfa.c

Patch 7.3.1096
Problem:    Python: popitem() was not defined in a standard way.
Solution:   Remove the argument from popitem(). (ZyX)
Files:      runtime/doc/if_pyth.txt, src/if_py_both.h, src/testdir/test86.in,
            src/testdir/test86.ok, src/testdir/test87.in,
            src/testdir/test87.ok

Patch 7.3.1097
Problem:    Python: a few recently added items are not documented.
Solution:   Update the documentation. (ZyX)
Files:      runtime/doc/if_pyth.txt

Patch 7.3.1098
Problem:    Python: Possible memory leaks
Solution:   Add Py_XDECREF() calls. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1099
Problem:    Python: Changing directory with os.chdir() causes problems for
            Vim's notion of directories.
Solution:   Add vim.chdir() and vim.fchdir(). (ZyX)
Files:      runtime/doc/if_pyth.txt, src/ex_docmd.c, src/if_py_both.h,
            src/if_python3.c, src/if_python.c, src/proto/ex_docmd.pro,
```

```
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1100
Problem:    Python: a few more memory problems.
Solution:   Add and remove Py_XDECREF(). (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1101
Problem:    Configure doesn't find Python 3 on Ubuntu 13.04.
Solution:   First try distutils.sysconfig. Also fix some indents.  (Ken
            Takata)
Files:      src/configure.in, src/auto/configure

Patch 7.3.1102
Problem:    Completion of ":py3do" and ":py3file" does not work after ":py3".
Solution:   Make completion work. (Taro Muraoka)
Files:      src/ex_docmd.c

Patch 7.3.1103
Problem:    New regexp engine: overhead in saving and restoring.
Solution:   Make saving and restoring list IDs faster.  Don't copy or check \z
            subexpressions when they are not used.
Files:      src/regexp_nfa.c

Patch 7.3.1104
Problem:    New regexp engine does not handle "~".
Solution:   Add support for "~".
Files:      src/regexp_nfa.c, src/testdir/test24.in, src/testdir/test24.ok

Patch 7.3.1105
Problem:    New regexp engine: too much code in one function.  Dead code.
Solution:   Move the recursive nfa_regmatch call to a separate function.
            Remove the dead code.
Files:      src/regexp_nfa.c

Patch 7.3.1106
Problem:    New regexp engine: saving and restoring lastlist in the states
            takes a lot of time.
Solution:   Use a second lastlist value for the first recursive call.
Files:      src/regexp.h, src/regexp_nfa.c

Patch 7.3.1107
Problem:    Compiler warnings for unused variables.
Solution:   Put the variables inside #ifdef.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.3.1108
Problem:    Error message for os.fchdir() (Charles Peacech)
Solution:   Clear the error. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1109
```

```
Problem:    Building on MS-Windows doesn't see changes in if_py_both.h.
Solution:   Add a dependency. (Ken Takata)
Files:      src/Make_bc5.mak, src/Make_cyg.mak, src/Make_ming.mak,
            src/Make_mvc.mak

Patch 7.3.1110
Problem:    New regexp matching: Using \@= and the like can be slow.
Solution:   Decide whether to first try matching the zero-width part or what
            follows, whatever is more likely to fail.
Files:      src/regexp_nfa.c

Patch 7.3.1111
Problem:    nfa_recognize_char_class() implementation is inefficient.
Solution:   Use bits in an int instead of chars in a string. (Dominique Pelle)
Files:      src/regexp_nfa.c, src/testdir/test36.in, src/testdir/test36.ok

Patch 7.3.1112
Problem:    New regexp engine: \%V not supported.
Solution:   Implement \%V.  Add tests.
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test64.in,
            src/testdir/test64.ok

Patch 7.3.1113
Problem:    New regexp engine: \%'m not supported.
Solution:   Implement \%'m.  Add tests.
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test64.in,
            src/testdir/test64.ok

Patch 7.3.1114 (after 7.3.1110)
Problem:    Can't build without the syntax feature.
Solution:   Add #ifdefs. (Erik Falor)
Files:      src/regexp_nfa.c

Patch 7.3.1115
Problem:    Many users don't like the cursor line number when 'relativenumber'
            is set.
Solution:   Have four combinations with 'number' and 'relativenumber'.
            (Christian Brabandt)
Files:      runtime/doc/options.txt, src/option.c, src/screen.c,
            src/testdir/test89.in, src/testdir/test89.ok

Patch 7.3.1116
Problem:    Can't build without Visual mode.
Solution:   Add #ifdefs.
Files:      src/regexp_nfa.c

Patch 7.3.1117
Problem:    New regexp engine: \%[abc] not supported.
Solution:   Implement \%[abc].  Add tests.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1118
Problem:    Match failure rate is not very specific.
Solution:   Tune the failure rate for match items.
```

```
Files:      src/regexp_nfa.c

Patch 7.3.1119
Problem:    Flags in 'cpo' are search for several times.
Solution:   Store the result and re-use the flags.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.3.1120
Problem:    Crash when regexp logging is enabled.
Solution:   Avoid using NULL pointers. Advance over count argument.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.3.1121
Problem:    New regexp engine: adding states that are not used.
Solution:   Don't add the states.
Files:      src/regexp_nfa.c

Patch 7.3.1122
Problem:    New regexp engine: \@> not supported.
Solution:   Implement \%>.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1123
Problem:    Can't build tiny Vim on MS-Windows.
Solution:   Adjust #ifdef around using modif_fname(). (Mike Williams)
Files:      src/misc1.c

Patch 7.3.1124
Problem:    Python: Crash on MS-Windows when os.fchdir() is not available.
Solution:   Check for _chdir to be NULL. (Ken Takata)
Files:      src/if_py_both.h

Patch 7.3.1125
Problem:    Error for using \%V in a pattern in tiny Vim.
Solution:   Allow using \%V but never match. (Dominique Pelle)
Files:      src/regexp_nfa.c

Patch 7.3.1126
Problem:    Compiler warning for uninitialized variable. (Tony Mechelynck)
Solution:   Assign something to the variable.
Files:      src/regexp_nfa.c

Patch 7.3.1127
Problem:    No error for using empty \%[].
Solution:   Give error message.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.3.1128
Problem:    Now that the NFA engine handles everything every failure is a
            syntax error.
Solution:   Remove the syntax_error flag.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.3.1129
```

```
Problem:    Can't see what pattern in syntax highlighting is slow.
Solution:   Add the ":syntime" command.
Files:      src/structs.h, src/syntax.c, src/ex_cmds.h, src/ex_docmd.c,
            src/proto/syntax.pro, src/ex_cmds2.c, src/proto/ex_cmds2.pro,
            runtime/doc/syntax.txt

Patch 7.3.1130 (after 7.3.1129)
Problem:    Can't build with anything but huge features.
Solution:   Check for FEAT_PROFILE. (Yasuhiro Matsumoto)
Files:      src/ex_docmd.c, src/structs.h, src/syntax.c

Patch 7.3.1131
Problem:    New regexp engine is a bit slow.
Solution:   Do not clear the state list.  Don't copy syntax submatches when
            not used.
Files:      src/regexp_nfa.c

Patch 7.3.1132
Problem:    Crash when debugging regexp.
Solution:   Do not try to dump subexpr that were not set.  Skip over count of
            \% items.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.3.1133
Problem:    New regexp engine is a bit slow.
Solution:   Skip ahead to a character that must match.  Don't try matching a
            "^" patter past the start of line.
Files:      src/regexp_nfa.c, src/regexp.h

Patch 7.3.1134
Problem:    Running test 49 takes a long time.
Solution:   Don't have it grep all files.
Files:      src/testdir/test49.vim

Patch 7.3.1135
Problem:    Compiler warning for unused argument.
Solution:   Add UNUSED.
Files:      src/syntax.c

Patch 7.3.1136
Problem:    ":func Foo" does not show attributes.
Solution:   Add "abort", "dict" and "range". (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.3.1137
Problem:    New regexp engine: collections are slow.
Solution:   Handle all characters in one go.
Files:      src/regexp_nfa.c

Patch 7.3.1138
Problem:    New regexp engine: neglist no longer used.
Solution:   Remove the now unused neglist.
Files:      src/regexp_nfa.c
```

```
Patch 7.3.1139
Problem:    New regexp engine: negated flag is hardly used.
Solution:   Add separate _NEG states, remove negated flag.
Files:      src/regexp_nfa.c, src/regexp.h

Patch 7.3.1140
Problem:    New regexp engine: trying expensive match while the result is not
            going to be used.
Solution:   Check for output state already being in the state list.
Files:      src/regexp_nfa.c

Patch 7.3.1141
Problem:    Win32: Check for available memory is not reliable and adds
            overhead.
Solution:   Remove mch_avail_mem(). (Mike Williams)
Files:      src/os_win32.c, src/os_win32.h

Patch 7.3.1142
Problem:    Memory leak in ":syntime report".
Solution:   Clear the grow array. (Dominique Pelle)
Files:      src/syntax.c

Patch 7.3.1143
Problem:    When mapping NUL it is displayed as an X.
Solution:   Check for KS_ZERO instead of K_ZERO. (Yasuhiro Matsumoto)
Files:      src/message.c

Patch 7.3.1144
Problem:    "RO" is not translated everywhere.
Solution:   Put inside _(). (Sergey Alyoshin)
Files:      src/buffer.c, src/screen.c

Patch 7.3.1145
Problem:    New regexp engine: addstate() is called very often.
Solution:   Optimize adding the start state.
Files:      src/regexp_nfa.c

Patch 7.3.1146
Problem:    New regexp engine: look-behind match not checked when followed by
            zero-width match.
Solution:   Do the look-behind match before adding the zero-width state.
Files:      src/regexp_nfa.c

Patch 7.3.1147
Problem:    New regexp engine: regstart is only used to find the first match.
Solution:   Use regstart whenever adding the start state.
Files:      src/regexp_nfa.c

Patch 7.3.1148
Problem:    No command line completion for ":syntime".
Solution:   Implement the completion. (Dominique Pelle)
Files:      runtime/doc/map.txt, src/ex_cmds.h, src/ex_docmd.c,
            src/ex_getln.c, src/proto/syntax.pro, src/syntax.c, src/vim.h
```

```
Patch 7.3.1149
Problem:    New regexp engine: Matching plain text could be faster.
Solution:   Detect a plain text match and handle it specifically.  Add
            vim_regfree().
Files:      src/regexp.c, src/regexp.h, src/regexp_nfa.c,
            src/proto/regexp.pro, src/buffer.c, src/edit.c, src/eval.c,
            src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c, src/ex_eval.c,
            src/ex_getln.c, src/fileio.c, src/gui.c, src/misc1.c, src/misc2.c,
            src/option.c, src/syntax.c, src/quickfix.c, src/search.c,
            src/spell.c, src/tag.c, src/window.c, src/screen.c, src/macros.h,
            src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1150
Problem:    New regexp engine: Slow when a look-behind match does not have a
            width specified.
Solution:   Try to compute the maximum width.
Files:      src/regexp_nfa.c

Patch 7.3.1151
Problem:    New regexp engine: Slow when a look-behind match is followed by a
            zero-width match.
Solution:   Postpone the look-behind match more often.
Files:      src/regexp_nfa.c

Patch 7.3.1152
Problem:    In tiny build ireg_icombine is undefined. (Tony Mechelynck)
Solution:   Add #ifdef.
Files:      src/regexp_nfa.c

Patch 7.3.1153
Problem:    New regexp engine: Some look-behind matches are very expensive.
Solution:   Postpone invisible matches further, until a match is almost found.
Files:      src/regexp_nfa.c

Patch 7.3.1154
Problem:    New regexp_nfa engine: Unnecessary code.
Solution:   Remove unnecessary code.
Files:      src/regexp_nfa.c

Patch 7.3.1155
Problem:    MS-DOS: "make test" uses external rmdir command.
Solution:   Rename "rmdir" to "rd". (Taro Muraoka)
Files:      src/testdir/Make_dos.mak

Patch 7.3.1156
Problem:    Compiler warnings. (dv1445)
Solution:   Initialize variables, even when the value isn't really used.
Files:      src/regexp_nfa.c, src/eval.c

Patch 7.3.1157
Problem:    New regexp engine fails on "\(\<command\)\@<=.*"
Solution:   Fix rule for postponing match.  Further tune estimating whether
            postponing works better.  Add test.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok
```

```
Patch 7.3.1158
Problem:    Crash when running test 86. (Jun Takimoto)
Solution:   Define PY_SSIZE_T_CLEAN early. (Elimar Riesebieter)
Files:      src/if_python.c, src/if_python3.c

Patch 7.3.1159
Problem:    The round() function is not always available. (Christ van
            Willegen)
Solution:   Use the solution from f_round().
Files:      src/ex_cmds2.c, src/eval.c, src/proto/eval.pro

Patch 7.3.1160
Problem:    Mixing long and pointer doesn't always work.
Solution:   Avoid cast to pointer.
Files:      src/undo.c

Patch 7.3.1161
Problem:    Python: PyList_SetItem() is inefficient.
Solution:   Use PyList_SET_ITEM() (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1162
Problem:    Python: Memory leaks
Solution:   Add more Py_DECREF(). (ZyX)
Files:      src/if_py_both.h, src/if_python.c

Patch 7.3.1163
Problem:    Not easy to load Python modules.
Solution:   Search "python2", "python3" and "pythonx" directories in
            'runtimepath' for Python modules. (ZyX)
Files:      runtime/doc/if_pyth.txt, src/configure.in, src/ex_cmds2.c,
            src/if_py_both.h, src/if_python.c, src/if_python3.c,
            src/testdir/test86.in, src/testdir/test87.in, src/auto/configure

Patch 7.3.1164
Problem:    Can't test what is actually displayed on screen.
Solution:   Add the screenchar() and screenattr() functions.
Files:      src/eval.c, runtime/doc/eval.txt

Patch 7.3.1165
Problem:    HP-UX compiler can't handle zero size array. (Charles Cooper)
Solution:   Make the array one item big.
Files:      src/regexp.h, src/regexp_nfa.c

Patch 7.3.1166
Problem:    Loading Python modules is not tested.
Solution:   Enable commented-out tests, add missing files. (ZyX)
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok,
            src/testdir/python2/module.py, src/testdir/python3/module.py,
            src/testdir/pythonx/module.py, src/testdir/pythonx/modulex.py,
            Filelist
```

Patch 7.3.1167
Problem: Python configure check doesn't reject Python 2 when requesting
            Python 3. Some systems need -pthreads instead of -pthread.
Solution: Adjust configure accordingly. (Andrei Olsen)
Files: src/configure.in, src/auto/configure

Patch 7.3.1168
Problem: Python "sane" configure checks give a warning message.
Solution: Use single quotes instead of escaped double quotes. (Ben Fritz)
Files: src/configure.in, src/auto/configure

Patch 7.3.1169
Problem: New regexp engine: some work is done while executing a pattern,
            even though the result is predictable.
Solution: Do the work while compiling the pattern.
Files: src/regexp_nfa.c

Patch 7.3.1170
Problem: Patch 7.3.1058 breaks backwards compatibility, not possible to use
            a function reference as a string. (lilydjwg)
Solution: Instead of translating the function name only translate "s:".
Files: src/eval.c

Patch 7.3.1171
Problem: Check for digits and ascii letters can be faster.
Solution: Use a trick with one comparison. (Dominique Pelle)
Files: src/macros.h

Patch 7.3.1172
Problem: Python 2: loading modules doesn't work well.
Solution: Fix the code. Add more tests. (ZyX)
Files: runtime/doc/if_pyth.txt, src/if_py_both.h, src/if_python.c,
            src/testdir/python2/module.py, src/testdir/python3/module.py,
            src/testdir/python_after/after.py,
            src/testdir/python_before/before.py, src/testdir/test86.in,
            src/testdir/test86.ok, src/testdir/test87.in,
            src/testdir/test87.ok, Filelist

Patch 7.3.1173
Problem: Python 2 tests don't have the same output everywhere.
Solution: Make the Python 2 tests more portable. (ZyX)
Files: src/testdir/test86.in, src/testdir/test86.ok

Patch 7.3.1174
Problem: Python 2 and 3 use different ways to load modules.
Solution: Use the same method. (ZyX)
Files: runtime/doc/if_pyth.txt, src/if_py_both.h, src/if_python3.c,
            src/if_python.c

Patch 7.3.1175
Problem: Using isalpha() and isalnum() can be slow.
Solution: Use range checks. (Mike Williams)
Files: src/ex_docmd.c, src/macros.h

```
Patch 7.3.1176
Problem:    Compiler warnings on 64 bit system.
Solution:   Add type casts. (Mike Williams)
Files:      src/eval.c, src/if_py_both.h

Patch 7.3.1177
Problem:    Wasting memory on padding.
Solution:   Reorder struct fields. (Dominique Pelle)
Files:      src/structs.h, src/fileio.c

Patch 7.3.1178
Problem:    Can't put all Vim config files together in one directory.
Solution:   Load ~/.vim/vimrc if ~/.vimrc does not exist. (Lech Lorens)
Files:      runtime/doc/gui.txt, runtime/doc/starting.txt, src/gui.c,
            src/main.c, src/os_amiga.h, src/os_dos.h, src/os_unix.h

Patch 7.3.1179
Problem:    When a global mapping starts with the same characters as a
            buffer-local mapping Vim waits for a character to be typed to find
            out whether the global mapping is to be used. (Andy Wokula)
Solution:   Use the local mapping without waiting. (Michael Henry)
Files:      runtime/doc/map.txt, src/getchar.c

Patch 7.3.1180
Problem:    When current directory changes, path from cscope may no longer be
            valid. (AS Budden)
Solution:   Always store the absolute path. (Christian Brabandt)
Files:      src/if_cscope.c

Patch 7.3.1181
Problem:    Wrong error message for 1.0[0].
Solution:   Check for funcref and float separately. (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.3.1182
Problem:    'backupcopy' default on MS-Windows does not work for hard and soft
            links.
Solution:   Check for links. (David Pope, Ken Takata)
Files:      src/fileio.c, src/os_win32.c, src/proto/os_win32.pro

Patch 7.3.1183
Problem:    Python tests 86 and 87 fail.
Solution:   Add "empty" files. (ZyX)
Files:      src/testdir/python_before/before_1.py,
            src/testdir/python_before/before_2.py

Patch 7.3.1184
Problem:    Highlighting is sometimes wrong. (Axel Bender)
Solution:   Fetch regline again when returning from recursive regmatch.
Files:      src/regexp_nfa.c

Patch 7.3.1185
Problem:    New regexp engine: no match with ^ after \n. (SungHyun Nam)
Solution:   Fix it, add a test.
```

```
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1186
Problem:    Python 3: test 87 may crash.
Solution:   Use _PyArg_Parse_SizeT instead of PyArg_Parse. (Jun Takimoto)
Files:      src/if_python3.c

Patch 7.3.1187 (after 7.3.1170)
Problem:    "s:" is recognized but "<SID>" is not. (ZyX)
Solution:   Translate "<SID>" like "s:".
Files:      src/eval.c

Patch 7.3.1188
Problem:    Newline characters messing up error message.
Solution:   Remove the newlines. (Kazunobu Kuriyama)
Files:      src/gui_x11.c

Patch 7.3.1189 (after 7.3.1185)
Problem:    Highlighting is still wrong sometimes. (Dominique Pelle)
Solution:   Also restore reginput properly.
Files:      src/regexp_nfa.c

Patch 7.3.1190
Problem:    Compiler warning for parentheses. (Christian Wellenbrock)
Solution:   Change #ifdef.
Files:      src/ex_docmd.c

Patch 7.3.1191
Problem:    Backreference to previous line doesn't work. (Lech Lorens)
Solution:   Implement looking in another line.
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test64.in,
            src/testdir/test64.ok

Patch 7.3.1192
Problem:    Valgrind reports errors when using backreferences. (Dominique
            Pelle)
Solution:   Do not check the end of submatches.
Files:      src/regexp_nfa.c

Patch 7.3.1193
Problem:    fail_if_missing not used for Python 3.
Solution:   Give an error when Python 3 can't be configured. (Andrei Olsen)
Files:      src/configure.in, src/auto/configure

Patch 7.3.1194
Problem:    Yaml highlighting is slow.
Solution:   Tune the estimation of pattern failure chance.
Files:      src/regexp_nfa.c

Patch 7.3.1195
Problem:    Compiler warning for uninitialized variable. (Tony Mechelynck)
Solution:   Set the length to the matching backref.
Files:      src/regexp.c
```

```
Patch 7.3.1196
Problem:    Old regexp engine does not match pattern with backref correctly.
            (Dominique Pelle)
Solution:   Fix setting status.  Test multi-line patterns better.
Files:      src/regexp.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1197
Problem:    ":wviminfo!" does not write history previously read from a viminfo
            file.  (Roland Eggner)
Solution:   When not merging history write all entries.
Files:      src/ex_cmds.c, src/ex_getln.c, src/proto/ex_getln.pro

Patch 7.3.1198
Problem:    Build error when using Perl 5.18.0 and dynamic loading.
Solution:   Change #ifdefs for Perl_croak_xs_usage. (Ike Devolder)
Files:      src/if_perl.xs

Patch 7.3.1199
Problem:    When evaluating 'foldexpr' causes an error this is silently
            ignored and evaluation is retried every time.
Solution:   Set emsg_silent instead of emsg_off. Stop evaluating 'foldexpr' is
            it is causing errors.  (Christian Brabandt)
Files:      src/fold.c

Patch 7.3.1200
Problem:    When calling setline() from Insert mode, using CTRL-R =, undo does
            not work properly. (Israel Chauca)
Solution:   Sync undo after evaluating the expression. (Christian Brabandt)
Files:      src/edit.c, src/testdir/test61.in, src/testdir/test61.ok

Patch 7.3.1201
Problem:    When a startup script creates a preview window, it probably
            becomes the current window.
Solution:   Make another window the current one. (Christian Brabandt)
Files:      src/main.c

Patch 7.3.1202 (after 7.3.660)
Problem:    Tags are not found in case-folded tags file. (Darren cole, Issue
            90)
Solution:   Take into account that when case folding was used for the tags
            file "!rm" sorts before the "!_TAG" header lines.
Files:      src/tag.c

Patch 7.3.1203
Problem:    Matches from matchadd() might be highlighted incorrectly when they
            are at a fixed position and inserting lines. (John Szakmeister)
Solution:   Redraw all lines below a change if there are highlighted matches.
            (idea by Christian Brabandt)
Files:      src/screen.c

Patch 7.3.1204
Problem:    Calling gettabwinvar() in 'tabline' cancels Visual mode. (Hirohito
            Higashi)
Solution:   Don't always use goto_tabpage_tp().
```

```
Files:      src/window.c, src/proto/window.pro, src/eval.c, src/if_py_both.h

Patch 7.3.1205
Problem:    logtalk.dict is not removed on uninstall.
Solution:   Remove the file. (Kazunobu Kuriyama)
Files:      src/Makefile

Patch 7.3.1206
Problem:    Inconsistent function argument declarations.
Solution:   Use ANSI style.
Files:      src/if_py_both.h

Patch 7.3.1207
Problem:    New regexp engine: no match found on "#if FOO". (Lech Lorens)
Solution:   When adding a state gets skipped don't adjust the index.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1208
Problem:    Compiler warnings on MS-Windows.
Solution:   Add type cast.  Move variable declaration. (Mike Williams)
Files:      src/option.c, src/os_mswin.c

Patch 7.3.1209
Problem:    No completion for ":tabdo".
Solution:   Add tabdo to the list of modifiers. (Dominique Pelle)
Files:      src/ex_docmd.c

Patch 7.3.1210 (after 7.3.1182)
Problem:    'backupcopy' default on MS-Windows is wrong when 'encoding' equals
            the current codepage.
Solution:   Change the #else block. (Ken Takata)
Files:      src/os_win32.c

Patch 7.3.1211
Problem:    MS-Windows: When 'encoding' differs from the current codepage
            ":hardcopy" does not work properly.
Solution:   Use TextOutW() and SetDlgItemTextW(). (Ken Takata)
Files:      src/os_mswin.c, src/vim.rc

Patch 7.3.1212
Problem:    "make test" on MS-Windows does not report failure like Unix does.
Solution:   Make it work like on Unix. (Taro Muraoka)
Files:      src/testdir/Make_dos.mak

Patch 7.3.1213
Problem:    Can't build with small features and Python.
Solution:   Adjust #ifdefs.
Files:      src/eval.c, src/buffer.c, src/eval.c, src/window.c

Patch 7.3.1214
Problem:    Missing declaration for init_users() and realloc_post_list().
            (Salman Halim)
Solution:   Add the declarations.
Files:      src/misc1.c, src/regexp_nfa.c
```

```
Patch 7.3.1215
Problem:    Compiler warning for function not defined.
Solution:   Add #ifdef.
Files:      src/misc1.c

Patch 7.3.1216
Problem:    Configure can't find Motif on Ubuntu.
Solution:   Search for libXm in /usr/lib/*-linux-gnu.
Files:      src/configure.in, src/auto/configure

Patch 7.3.1217
Problem:    New regexp engine: Can't handle \%[[ao]]. (Yukihiro Nakadaira)
Solution:   Support nested atoms inside \%[].
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1218
Problem:    "make test" on MS-Windows does not clean all temporary files and
            gives some unnecessary message.
Solution:   Clean the right files.  Create .failed files. (Ken Takata)
Files:      src/testdir/Make_dos.mak

Patch 7.3.1219
Problem:    No test for using []] inside \%[].
Solution:   Add a test.
Files:      src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1220
Problem:    MS-Windows: When using wide font italic and bold are not included.
Solution:   Support wide-bold, wide-italic and wide-bold-italic. (Ken Takata,
            Taro Muraoka)
Files:      src/gui.c, src/gui.h, src/gui_w48.c

Patch 7.3.1221
Problem:    When build flags change "make distclean" run into a configure
            error.
Solution:   When CFLAGS changes delete auto/config.cache.  Also avoid adding
            duplicate text to flags. (Ken Takata)
Files:      src/Makefile, src/configure.in, src/auto/configure

Patch 7.3.1222
Problem:    Cannot execute some tests from the src directly.
Solution:   Add missing targets.
Files:      src/Makefile

Patch 7.3.1223
Problem:    Tests fail on MS-Windows.
Solution:   Avoid depending on OS version. Use DOS commands instead of Unix
            commands. (Taro Muraoka, Ken Takata)
Files:      src/testdir/test17.in, src/testdir/test50.in,
            src/testdir/test71.in, src/testdir/test77.in

Patch 7.3.1224
Problem:    Clang gives warnings on xxd.
```

```
Solution:   Change how to use part of a string. (Dominique Pelle) Also avoid
            warning for return not reached.
Files:      src/xxd/xxd.c, src/regexp_nfa.c

Patch 7.3.1225
Problem:    Compiler warnings when building with Motif.
Solution:   Change set_label() argument. (Kazunobu Kuriyama)
Files:      src/gui_motif.c

Patch 7.3.1226
Problem:    Python: duplicate code.
Solution:   Share code between OutputWrite() and OutputWritelines(). (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.1227
Problem:    Inconsistent string conversion.
Solution:   Use 'encoding' instead of utf-8. Use METH_O in place of
            METH_VARARGS where appropriate. (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.1228
Problem:    Python: various inconsistencies and problems.
Solution:   StringToLine now supports both bytes() and unicode() objects.
            Make function names consistent.  Fix memory leak fixed in
            StringToLine. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c

Patch 7.3.1229
Problem:    Python: not so easy to delete/restore translating.
Solution:   Make macros do translation of exception messages. (ZyX)
            Note: this breaks translations!
Files:      src/if_py_both.h, src/if_python3.c

Patch 7.3.1230
Problem:    Python: Exception messages are not clear.
Solution:   Make exception messages more verbose. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.1231
Problem:    Python: use of numbers not consistent.
Solution:   Add support for Number protocol. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.1232
Problem:    Python: inconsistencies in variable names.
Solution:   Rename variables. (ZyX)
Files:      src/eval.c, src/if_py_both.h

Patch 7.3.1233
Problem:    Various Python problems.
Solution:   Fix VimTryEnd. Crash with debug build and PYTHONDUMPREFS=1. Memory
            leaks in StringToLine(), BufferMark() and convert_dl. (ZyX)
```

```
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.3.1234 (after 7.3.1229)
Problem:    Python: Strings are not marked for translation.
Solution:   Add N_() where appropriate. (ZyX)
Files:      src/if_py_both.h

Patch 7.3.1235
Problem:    In insert mode CTRL-] is not inserted, on the command-line it is.
Solution:   Don't insert CTRL-] on the command line. (Yukihiro Nakadaira)
Files:      src/ex_getln.c

Patch 7.3.1236
Problem:    Python: WindowSetattr() missing support for NUMBER_UNSIGNED.
Solution:   Add NUMBER_UNSIGNED, add more tests. Various fixes. (ZyX)
Files:      src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/testdir/pythonx/failing.py,
            src/testdir/pythonx/failing_import.py, src/testdir/test86.in,
            src/testdir/test86.ok, src/testdir/test87.in,
            src/testdir/test87.ok, src/testdir/pythonx/topmodule/__init__.py,
            src/testdir/pythonx/topmodule/submodule/__init__.py,
            src/testdir/pythonx/topmodule/submodule/subsubmodule/__init__.py,
            src/testdir/pythonx/topmodule/submodule/subsubmodule/subsubsubmodule.py

Patch 7.3.1237
Problem:    Python: non-import errors not handled correctly.
Solution:   Let non-ImportError exceptions pass the finder. (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.ok, src/testdir/test87.ok

Patch 7.3.1238
Problem:    Crash in Python interface on 64 bit machines.
Solution:   Change argument type of PyString_AsStringAndSize. (Taro Muraoka,
            Jun Takimoto)
Files:      src/if_python.c

Patch 7.3.1239
Problem:    Can't build with Python and MSVC10.
Solution:   Move #if outside of macro. (Taro Muraoka)
Files:      src/if_py_both.h

Patch 7.3.1240
Problem:    Memory leak in findfile().
Solution:   Free the memory. (Christian Brabandt)
Files:      src/eval.c

Patch 7.3.1241 (after 7.3.1236)
Problem:    Some test files missing from the distribution.
Solution:   Update the list of files.
Files:      Filelist

Patch 7.3.1242
Problem:    No failure when trying to use a number as a string.
Solution:   Give an error when StringToLine() is called with an instance of
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            the wrong type. (Jun Takimoto)
Files:      src/if_py_both.h

Patch 7.3.1243
Problem:    New regexp engine: back references in look-behind match don't
            work. (Lech Lorens)
Solution:   Copy the submatches before a recursive match. Also fix function
            prototypes.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1244
Problem:    MS-Windows: confirm() dialog text may not fit.
Solution:   Use GetTextWidthEnc() instead of GetTextWidth(). (Yasuhiro
            Matsumoto)
Files:      src/gui_w32.c

Patch 7.3.1245
Problem:    MS-Windows: confirm() dialog text may still not fit.
Solution:   Use GetTextWidthEnc() instead of GetTextWidth() in two more
            places. (Yasuhiro Matsumoto)
Files:      src/gui_w32.c

Patch 7.3.1246
Problem:    When setting 'winfixheight' and resizing the window causes the
            window layout to be wrong.
Solution:   Add frame_check_height() and frame_check_width() (Yukihiro
            Nakadaira)
Files:      src/window.c

Patch 7.3.1247
Problem:    New regexp engine: '[ ]\@!\p\%([ ]\@!\p\)*:' does not always match.
Solution:   When there is a PIM add a duplicate state that starts at another
            position.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1248
Problem:    Still have old hacking code for Input Method.
Solution:   Add 'imactivatefunc' and 'imstatusfunc' as a generic solution to
            Input Method activation. (Yukihiro Nakadaira)
Files:      runtime/doc/options.txt, src/fileio.c, src/mbyte.c, src/option.c,
            src/option.h, src/proto/fileio.pro

Patch 7.3.1249
Problem:    Modeline not recognized when using "Vim" instead of "vim".
Solution:   Also accept "Vim".
Files:      src/buffer.c

Patch 7.3.1250
Problem:    Python tests fail on MS-Windows.
Solution:   Change backslashes to slashes. (Taro Muraoka)
Files:      src/testdir/test86.in, src/testdir/test87.in

Patch 7.3.1251
Problem:    Test 61 messes up viminfo.
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Solution:   Specify a separate viminfo file.
Files:      src/testdir/test61.in

Patch 7.3.1252
Problem:    gvim does not find the toolbar bitmap files in ~/vimfiles/bitmaps
            if the corresponding menu command contains additional characters
            like the shortcut marker '&' or if you use a non-english locale.
Solution:   Use menu->en_dname or menu->dname. (Martin Gieseking)
Files:      src/gui_w32.c

Patch 7.3.1253 (after 7.3.1200)
Problem:    Still undo problem after using CTRL-R = setline(). (Hirohito
            Higashi)
Solution:   Set the ins_need_undo flag.
Files:      src/edit.c

Patch 7.3.1254 (after 7.3.1252)
Problem:    Can't build without the multi-lang feature. (John Marriott)
Solution:   Add #ifdef.
Files:      src/gui_w32.c

Patch 7.3.1255
Problem:    Clang warnings when building with Athena.
Solution:   Add type casts. (Dominique Pelle)
Files:      src/gui_at_fs.c

Patch 7.3.1256
Problem:    Can't build without eval or autocmd feature.
Solution:   Add #ifdefs.
Files:      src/mbyte.c, src/window.c

Patch 7.3.1257
Problem:    With GNU gettext() ":lang de_DE.utf8" does not always result in
            German messages.
Solution:   Clear the $LANGUAGE environment variable.
Files:      src/ex_cmds2.c

Patch 7.3.1258
Problem:    Using submatch() may crash Vim. (Ingo Karkat)
Solution:   Restore the number of subexpressions used.
Files:      src/regexp_nfa.c

Patch 7.3.1259
Problem:    No test for patch 7.3.1258
Solution:   Add a test entry.
Files:      src/testdir/test64.in, src/testdir/test64.ok

Patch 7.3.1260
Problem:    User completion does not get the whole command line in the command
            line window.
Solution:   Pass on the whole command line. (Daniel Thau)
Files:      src/ex_getln.c, src/structs.h

Patch 7.3.1261 (after patch 7.3.1179)
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Problem:    A buffer-local language mapping from a keymap stops a global
            insert mode mapping from working. (Ron Aaron)
Solution:   Do not wait for more characters to be typed only when the mapping
            was defined with <nowait>.
Files:      runtime/doc/map.txt, src/eval.c, src/getchar.c,
            src/testdir/test75.in, src/testdir/test75.ok

Patch 7.3.1262
Problem:    Crash and compilation warnings with Cygwin.
Solution:   Check return value of XmbTextListToTextProperty(). Add type casts.
            Adjust #ifdefs. (Lech Lorens)
Files:      src/main.c, src/os_unix.c, src/ui.c

Patch 7.3.1263
Problem:    Typo in short option name.
Solution:   Change "imse" to "imsf".
Files:      src/option.c

Patch 7.3.1264 (after 7.3.1261)
Problem:    Missing m_nowait.
Solution:   Include missing part of the patch.
Files:      src/structs.h

Patch 7.3.1265 (after 7.3.1249)
Problem:    Accepting "Vim:" for a modeline causes errors too often.
Solution:   Require "Vim:" to be followed by "set".
Files:      src/buffer.c

Patch 7.3.1266
Problem:    QNX: GUI fails to start.
Solution:   Remove the QNX-specific #ifdef. (Sean Boudreau)
Files:      src/gui.c

Patch 7.3.1267
Problem:    MS-Windows ACL support doesn't work well.
Solution:   Implement more ACL support. (Ken Takata)
Files:      src/os_win32.c

Patch 7.3.1268
Problem:    ACL support doesn't work when compiled with MingW.
Solution:   Support ACL on MingW. (Ken Takata)
Files:      src/os_win32.c, src/os_win32.h

Patch 7.3.1269
Problem:    Insert completion keeps entry selected even though the list has
            changed. (Olivier Teuliere)
Solution:   Reset compl_shown_match and compl_curr_match. (Christian Brabandt)
Files:      src/edit.c

Patch 7.3.1270
Problem:    Using "Vp" in an empty buffer can't be undone. (Hauke Petersen)
Solution:   Save one line in an empty buffer. (Christian Brabandt)
Files:      src/ops.c
```

```
Patch 7.3.1271 (after 7.3.1260)
Problem:    Command line completion does not work.
Solution:   Move setting xp_line down. (Daniel Thau)
Files:      src/ex_getln.c

Patch 7.3.1272
Problem:    Crash when editing Ruby file. (Aliaksandr Rahalevich)
Solution:   Reallocate the state list when necessary.
Files:      src/regexp_nfa.c

Patch 7.3.1273
Problem:    When copying a location list the index might be wrong.
Solution:   Set the index to one when using the first entry. (Lech Lorens)
Files:      src/quickfix.c

Patch 7.3.1274
Problem:    When selecting an entry from a location list it may pick an
            arbitrary window or open a new one.
Solution:   Prefer using a window related to the location list. (Lech Lorens)
Files:      src/quickfix.c

Patch 7.3.1275
Problem:    "gn" does not work when the match is a single character.
Solution:   Fix it, add a test. (Christian Brabandt)
Files:      src/search.c, src/testdir/test53.in, src/testdir/test53.ok

Patch 7.3.1276
Problem:    When using a cscope connection resizing the window may send
            SIGWINCH to cscope and it quits.
Solution:   Call setpgid(0, 0) in the child process. (Narendran Gopalakrishnan)
Files:      src/if_cscope.c

Patch 7.3.1277
Problem:    In diff mode 'cursorline' also draws in the non-active window.
            When 'nu' and 'sbr' are set the 'sbr' string is not underlined.
Solution:   Only draw the cursor line in the current window. Combine the
            'cursorline' and other highlighting attributes. (Christian
            Brabandt)
Files:      src/screen.c

Patch 7.3.1278
Problem:    When someone sets the screen size to a huge value with "stty" Vim
            runs out of memory before reducing the size.
Solution:   Limit Rows and Columns in more places.
Files:      src/gui.c, src/gui_gtk_x11.c, src/option.c, src/os_unix.c,
            src/proto/term.pro, src/term.c

Patch 7.3.1279
Problem:    Compiler warning for variable uninitialized. (Tony Mechelynck)
Solution:   Add an init.
Files:      src/ex_getln.c

Patch 7.3.1280
Problem:    Reading memory already freed since patch 7.3.1247. (Simon
```

            Ruderich, Dominique Pelle)
Solution: Copy submatches before reallocating the state list.
Files: src/regexp_nfa.c

Patch 7.3.1281
Problem: When 'ttymouse' is set to "xterm2" clicking in column 123 moves
            the cursor to column 96. (Kevin Goodsell)
Solution: Decode KE_CSI.
Files: src/term.c

Patch 7.3.1282 (after 7.3.1277)
Problem: 'cursorline' not drawn in any other window. (Charles Campbell)
Solution: Do draw the cursor line in other windows.
Files: src/screen.c

Patch 7.3.1283
Problem: Test 71 fails on MS-Windows.
Solution: Put the binary data in a separate file. (Ken Takata)
Files: src/testdir/test71.in, src/testdir/test71a.in

Patch 7.3.1284
Problem: Compiler warnings in MS-Windows clipboard handling.
Solution: Add type casts. (Ken Takata)
Files: src/winclip.c

Patch 7.3.1285
Problem: No tests for picking a window when selecting an entry in a
            location list. Not picking the right window sometimes.
Solution: Add test 96. Set usable_win appropriately. (Lech Lorens)
Files: src/quickfix.c, src/testdir/Makefile, src/testdir/test96.in,
            src/testdir/test96.ok, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.3.1286
Problem: Check for screen size missing for Athena and Motif.
Solution: Add call to limit_screen_size().
Files: src/gui_x11.c

Patch 7.3.1287
Problem: Python SystemExit exception is not handled properly.
Solution: Catch the exception and give an error. (Yasuhiro Matsumoto, Ken
            Takata)
Files: runtime/doc/if_pyth.txt, src/if_py_both.h, src/if_python.c,
            src/if_python3.c

Patch 7.3.1288
Problem: The first ":echo 'hello'" command output doesn't show. Mapping
            for <S-F3> gets triggered during startup.
Solution: Add debugging code for the termresponse. When receiving the "Co"
            entry and when setting 'ambiwidth' redraw right away if possible.
            Add redraw_asap(). Don't set 'ambiwidth' if it already had the
            right value. Do the 'ambiwidth' check in the second row to avoid
            confusion with <S-F3>.

```
Files:      src/term.c, src/screen.c, src/proto/screen.pro

Patch 7.3.1289
Problem:    Get GLIB warning when removing a menu item.
Solution:   Reference menu-id and also call gtk_container_remove().  (Ivan
            Krasilnikov)
Files:      src/gui_gtk.c

Patch 7.3.1290 (after 7.3.1253)
Problem:    CTRL-R = in Insert mode changes the start of the insert position.
            (Ingo Karkat)
Solution:   Only break undo, don't start a new insert.
Files:      src/edit.c

Patch 7.3.1291 (after 7.3.1288)
Problem:    Compiler warnings for uninitialized variables. (Tony Mechelynck)
Solution:   Initialize the variables.
Files:      src/screen.c

Patch 7.3.1292
Problem:    Possibly using invalid pointer when searching for window. (Raichoo)
Solution:   Use "firstwin" instead of "tp_firstwin" for current tab.
Files:      src/window.c

Patch 7.3.1293
Problem:    Put in empty buffer cannot be undone.
Solution:   Save one more line for undo. (Ozaki)
Files:      src/ops.c

Patch 7.3.1294
Problem:    ":diffoff" resets options.
Solution:   Save and restore option values. (Christian Brabandt)
Files:      src/diff.c, src/structs.h, src/option.c

Patch 7.3.1295
Problem:    glob() and globpath() do not handle escaped special characters
            properly.
Solution:   Handle escaped characters differently. (Adnan Zafar)
Files:      src/testdir/Makefile, src/testdir/test97.in,
            src/testdir/test97.ok, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms, src/fileio.c,
            src/misc1.c

Patch 7.3.1296
Problem:    Only MS-Windows limits the GUI window size to what fits on the
            monitor.
Solution:   Limit the size for all systems. (Daniel Harding)
Files:      src/ui.c

Patch 7.3.1297
Problem:    findfile() directory matching does not work when a star follows
            text. (Markus Braun)
Solution:   Make a wildcard work properly. (Christian Brabandt)
```

```
Files:      src/misc2.c, src/testdir/test89.in, src/testdir/test89.ok

Patch 7.3.1298 (after 7.3.1297)
Problem:    Crash.
Solution:   Use STRCPY() instead of STRCAT() and allocate one more byte.
Files:      src/misc2.c

Patch 7.3.1299
Problem:    Errors when doing "make proto".  Didn't do "make depend" for a
            while.
Solution:   Add #ifdefs.  Update dependencies.  Update proto files.
Files:      src/if_python3.c, src/os_win32.c, src/Makefile,
            src/proto/ex_docmd.pro, src/proto/if_python.pro,
            src/proto/if_python3.pro, src/proto/gui_w16.pro,
            src/proto/gui_w32.pro, src/proto/os_win32.pro

Patch 7.3.1300
Problem:    Mac: tiny and small build fails.
Solution:   Don't include os_macosx.m in tiny build. Include mouse support in
            small build. (Kazunobu Kuriyama)
Files:      src/configure.in, src/auto/configure, src/vim.h

Patch 7.3.1301
Problem:    Some tests fail on MS-Windows.
Solution:   Fix path separators in test 89 and 96.  Omit test 97, escaping
            works differently.  Make findfile() work on MS-Windows.
Files:      src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/test89.in,
            src/testdir/test96.in, src/misc2.c

Patch 7.3.1302
Problem:    Test 17 fails on MS-Windows.  Includes line break in file name
            everywhere.
Solution:   Fix 'fileformat'. Omit CR-LF from a line read from an included
            file.
Files:      src/search.c, src/testdir/test17.in, src/testdir/test17.ok

Patch 7.3.1303 (after 7.3.1290)
Problem:    Undo is synced whenever CTRL-R = is called, breaking some plugins.
Solution:   Only break undo when calling setline() or append().
Files:      src/globals.h, src/eval.c, src/edit.c, src/testdir/test61.in,
            src/testdir/test61.ok

Patch 7.3.1304
Problem:    Test 89 still fails on MS-Windows.
Solution:   Set 'shellslash'. (Taro Muraoka)
Files:      src/testdir/test89.in

Patch 7.3.1305
Problem:    Warnings from 64 bit compiler.
Solution:   Add type casts.
Files:      src/misc2.c

Patch 7.3.1306
```

Problem: When redrawing the screen during startup the intro message may be
            cleared.
Solution: Redisplay the intro message when appropriate.
Files: src/screen.c, src/version.c, src/proto/version.pro

Patch 7.3.1307
Problem: MS-Windows build instructions are outdated.
Solution: Adjust for building on Windows 7. Drop Windows 95/98/ME support.
Files: Makefile, nsis/gvim.nsi

Patch 7.3.1308
Problem: Typos in MS-Windows build settings and README.
Solution: Minor changes to MS-Windows files.
Files: src/msvc2008.bat, src/msvc2010.bat, src/VisVim/README_VisVim.txt

Patch 7.3.1309
Problem: When a script defines a function the flag to wait for the user to
            hit enter is reset.
Solution: Restore the flag. (Yasuhiro Matsumoto) Except when the user was
            typing the function.
Files: src/eval.c

Patch 7.3.1310
Problem: Typos in nsis script. Can use better compression.
Solution: Fix typos. Use lzma compression. (Ken Takata)
Files: nsis/gvim.nsi

Patch 7.3.1311
Problem: Compiler warnings on Cygwin.
Solution: Add type casts. Add windows include files. (Ken Takata)
Files: src/mbyte.c, src/ui.c

Patch 7.3.1312 (after 7.3.1287)
Problem: Not giving correct error messages for SystemExit().
Solution: Move E858 into an else. (Ken Takata)
Files: src/if_py_both.h

Patch 7.3.1313
Problem: :py and :py3 don't work when compiled with Cygwin or MingW with 64
            bit.
Solution: Add -DMS_WIN64 to the build command. (Ken Takata)
Files: src/Make_cyg.mak, src/Make_ming.mak

Patch 7.3.1314
Problem: Test 87 fails with Python 3.3.
Solution: Filter the error messages. (Taro Muraoka)
Files: src/testdir/test87.in

Patch 7.4a.001
Problem: Script to update syntax menu is outdated.
Solution: Add the missing items.
Files: runtime/makemenu.vim

Patch 7.4a.002

```
Problem:    Valgrind errors in test 89. (Simon Ruderich)
Solution:   Allocate one more byte. (Dominique Pelle)
Files:      src/misc2.c

Patch 7.4a.003
Problem:    Copyright year is outdated.
Solution:   Only use the first year.
Files:      src/vim.rc, src/vim16.rc

Patch 7.4a.004
Problem:    MSVC 2012 Update 3 is not recognized.
Solution:   Add the version number. (Raymond Ko)
Files:      src/Make_mvc.mak

Patch 7.4a.005
Problem:    Scroll binding causes unexpected scroll.
Solution:   Store the topline after updating scroll binding.  Add a test.
            (Lech Lorens)
Files:      src/testdir/test98.in, src/testdir/test98a.in,
            src/testdir/test98.ok, src/option.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile

Patch 7.4a.006
Problem:    Failure in po file check goes unnoticed.
Solution:   Fail "make test" if the po file check fails.
Files:      src/Makefile

Patch 7.4a.007
Problem:    After "g$" with 'virtualedit' set, "k" moves to a different
            column.  (Dimitar Dimitrov)
Solution:   Set w_curswant. (Christian Brabandt)
Files:      src/normal.c

Patch 7.4a.008
Problem:    Python 3 doesn't handle multibyte characters properly when
            'encoding' is not utf-8.
Solution:   Use PyUnicode_Decode() instead of PyUnicode_FromString(). (Ken
            Takata)
Files:      src/if_python3.c

Patch 7.4a.009
Problem:    Compiler warnings for function prototypes.
Solution:   Add "void".  Move list_features() prototype. (Ken Takata)
Files:      src/gui_w48.c, src/if_py_both.h, src/version.c

Patch 7.4a.010
Problem:    Test 86 and 87 fail when building with Python or Python 3 and
            using a static library.
Solution:   Add configure check to add -fPIE compiler flag.
Files:      src/configure.in, src/auto/configure

Patch 7.4a.011
```

```
Problem:    Configure check for Python 3 config name isn't right.
Solution:   Always include vi_cv_var_python3_version. (Tim Harder)
Files:      src/configure.in, src/auto/configure

Patch 7.4a.012
Problem:    "make test" fails when using a shadow directory.
Solution:   Create links for files in src/po. (James McCoy)
Files:      src/Makefile

Patch 7.4a.013
Problem:    Setting/resetting 'lbr' in the main help file changes alignment
            after a Tab. (Dimitar Dimitrov)
Solution:   Also use the code for conceal mode where n_extra is computed for
            'lbr'.
Files:      src/screen.c, src/testdir/test88.in, src/testdir/test88.ok

Patch 7.4a.014
Problem:    Test 86 and 89 have a problem with using a shadow dir.
Solution:   Adjust for the different directory structure. (James McCoy)
Files:      src/testdir/test89.in, src/testdir/test86.in, src/Makefile

Patch 7.4a.015
Problem:    No Japanese man pages.
Solution:   Add Japanese translations of man pages. (Ken Takata, Yukihiro
            Nakadaira, et al.)
Files:      Filelist, src/Makefile, runtime/doc/evim-ja.UTF-8.1,
            runtime/doc/vim-ja.UTF-8.1, runtime/doc/vimdiff-ja.UTF-8.1,
            runtime/doc/vimtutor-ja.UTF-8.1, runtime/doc/xxd-ja.UTF-8.1

Patch 7.4a.016 (after 7.4a.014)
Problem:    Features enabled in Makefile.
Solution:   Undo accidental changes.
Files:      src/Makefile

Patch 7.4a.017
Problem:    When 'foldmethod' is "indent", using ">>" on a line just above a
            fold makes the cursor line folded. (Evan Laforge)
Solution:   Call foldOpenCursor(). (Christian Brabandt)
Files:      src/ops.c

Patch 7.4a.018
Problem:    Compiler warning for code unreachable. (Charles Campbell)
Solution:   Use "while" instead of endless loop.  Change break to continue.
Files:      src/regexp_nfa.c, src/ui.c

Patch 7.4a.019
Problem:    Invalid closing parenthesis in test 62. Command truncated at
            double quote.
Solution:   Remove the parenthesis. Change double quote to ''. (ZyX)
Files:      src/testdir/test62.in, src/testdir/test62.ok

Patch 7.4a.020
Problem:    Superfluous mb_ptr_adv().
Solution:   Remove the call. (Dominique Pelle)
```

```
Files:      src/regexp_nfa.c

Patch 7.4a.021
Problem:    Using feedkeys() doesn't always work.
Solution:   Omit feedkeys(). (Ken Takata)
Files:      src/testdir/test98a.in

Patch 7.4a.022
Problem:    Using "d2g$" does not delete the last character. (ZyX)
Solution:   Set the "inclusive" flag properly.
Files:      src/normal.c

Patch 7.4a.023 (after 7.4a.019)
Problem:    Still another superfluous parenthesis. (ZyX)
Solution:   Remove it.
Files:      src/testdir/test62.in

Patch 7.4a.024
Problem:    X11 GUI: Checking icon height twice.
Solution:   Check height and width. (Dominique Pelle)
Files:      src/gui_x11.c

Patch 7.4a.025
Problem:    Get the press-Enter prompt even after using :redraw.
Solution:   Clear need_wait_return when executing :redraw.
Files:      src/ex_docmd.c

Patch 7.4a.026
Problem:    ":diffoff" does not remove folds. (Ramel)
Solution:   Do not restore 'foldenable' when 'foldmethod' is "manual".
Files:      src/diff.c

Patch 7.4a.027
Problem:    When Python adds lines to another buffer the cursor position is
            wrong, it might be below the last line causing ml_get errors.
            (Vlad Irnov)
Solution:   Temporarily change the current window, so that marks are corrected
            properly.
Files:      src/if_py_both.h, src/window.c, src/proto/buffer.pro

Patch 7.4a.028
Problem:    Crash when spell checking in new buffer.
Solution:   Set the b_p_key field.  (Mike Williams)
Files:      src/spell.c, src/testdir/test58.in

Patch 7.4a.029
Problem:    Can't build with MzScheme on Ubuntu 13.04.
Solution:   Add configure check for the "ffi" library.
Files:      src/configure.in, src/auto/configure

Patch 7.4a.030 (after 7.4.027)
Problem:    Missing find_win_for_buf(). (toothpik)
Solution:   Add missing changes.
Files:      src/buffer.c
```

```
Patch 7.4a.031
Problem:    Compiler warnings. (Charles Campbell)
Solution:   Initialize variables even when not needed.
Files:      src/regexp_nfa.c, src/search.c

Patch 7.4a.032
Problem:    New regexp engine: Does not match shorter alternative. (Ingo
            Karkat)
Solution:   Do not drop a new state when the PIM info is different.
Files:      src/regexp_nfa.c

Patch 7.4a.033
Problem:    Test 98 always passes.
Solution:   Include test98a.in in test98.in, execute the crucial command in
            one line. (Yukihiro Nakadaira)
Files:      src/testdir/test98.in, src/testdir/test98a.in

Patch 7.4a.034
Problem:    The tabline may flicker when opening a new tab after 7.3.759 on
            Win32.
Solution:   Move call to TabCtrl_SetCurSel(). (Ken Takata)
Files:      src/gui_w48.c

Patch 7.4a.035
Problem:    Fix in patch 7.4a.032 is not tested.
Solution:   Add test.
Files:      src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4a.036
Problem:    "\p" in a regexp does not match double-width characters.
            (Yukihiro Nakadaira)
Solution:   Don't count display cells, use vim_isprintc().
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test64.in,
            src/testdir/test64.ok, src/testdir/test95.in,
            src/testdir/test95.ok

Patch 7.4a.037
Problem:    Win32: When mouse is hidden and in the toolbar, moving it won't
            make it appear. (Sami Salonen)
Solution:   Add tabline_wndproc() and toolbar_wndproc(). (Ken Takata)
Files:      src/gui_w32.c, src/gui_w48.c

Patch 7.4a.038
Problem:    When using MSVC 2012 there are various issues, including GUI size
            computations.
Solution:   Use SM_CXPADDEDBORDER. (Mike Williams)
Files:      src/gui_w32.c, src/gui_w48.c, src/os_win32.h

Patch 7.4a.039
Problem:    New regexp engine doesn't match pattern. (Ingo Karkat)
Solution:   When adding a state also check for different PIM if the list of
            states has any state with a PIM.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok
```

```
Patch 7.4a.040
Problem:    Win32: using uninitialized variable.
Solution:   (Yukihiro Nakadaira)
Files:      src/os_win32.c

Patch 7.4a.041
Problem:    When using ":new ++ff=unix" and "dos" is first in 'fileformats'
            then 'ff' is set to "dos" instead of "unix". (Ingo Karkat)
Solution:   Create set_file_options() and invoke it from do_ecmd().
Files:      src/fileio.c, src/proto/fileio.pro, src/ex_cmds.c,
            src/testdir/test91.in, src/testdir/test91.ok

Patch 7.4a.042
Problem:    Crash when BufUnload autocommands close all buffers. (Andrew
            Pimlott)
Solution:   Set curwin->w_buffer to curbuf to avoid NULL.
Files:      src/window.c, src/testdir/test8.in, src/testdir/test8.ok

Patch 7.4a.043
Problem:    More ml_get errors when adding or deleting lines from Python.
            (Vlad Irnov)
Solution:   Switch to a window with the buffer when possible.
Files:      src/if_py_both.h

Patch 7.4a.044
Problem:    Test 96 sometimes fails.
Solution:   Clear window from b_wininfo in win_free().  (Suggestion by
            Yukihiro Nakadaira)
Files:      src/window.c

Patch 7.4a.045
Problem:    Configure does not always find the right library for Lua.  Missing
            support for LuaJit.
Solution:   Improve the configure detection of Lua. (Hiroshi Shirosaki)
Files:      src/Makefile, src/configure.in, src/auto/configure

Patch 7.4a.046
Problem:    Can't build without mbyte feature.
Solution:   Add #ifdefs.
Files:      src/ex_cmds.c

Patch 7.4a.047
Problem:    Some comments are not so nice.
Solution:   Change the comments.
Files:      src/ex_docmd.c, src/message.c, src/ops.c, src/option.c

Patch 7.4b.001
Problem:    Win32: dialog may extend off-screen.
Solution:   Reduce the size, use correct borders. (Andrei Olsen)
Files:      src/gui_w32.c

Patch 7.4b.002
Problem:    Crash searching for \%(\%(\|\d\|-\|\.\)*\|\*\). (Marcin
```

```
            Szamotulski)  Also for \(\)*.
Solution:   Do add a state for opening parenthesis, so that we can check if it
            was added before at the same position.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4b.003
Problem:    Regexp code is not nicely aligned.
Solution:   Adjust white space. (Ken Takata)
Files:      src/regexp_nfa.c

Patch 7.4b.004
Problem:    Regexp crash on pattern "@\%[\w\-]*". (Axel Kielhorn)
Solution:   Add \%(\) around \%[] internally.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4b.005
Problem:    Finding %s in shellpipe and shellredir does not ignore %%s.
Solution:   Skip over %%. (lcd 47)
Files:      src/ex_cmds.c

Patch 7.4b.006 (after 7.3.1295)
Problem:    Using \{n,m} in an autocommand pattern no longer works.
            Specifically, mutt temp files are not recognized. (Gary Johnson)
Solution:   Make \\\{n,m\} work.
Files:      runtime/doc/autocmd.txt, src/fileio.c

Patch 7.4b.007
Problem:    On 32 bit MS-Windows :perldo does not work.
Solution:   Make sure time_t uses 32 bits. (Ken Takata)
Files:      src/if_perl.xs, src/vim.h

Patch 7.4b.008
Problem:    'autochdir' causes setbufvar() to change the current directory.
            (Ben Fritz)
Solution:   When disabling autocommands also reset 'acd' temporarily.
            (Christian Brabandt)
Files:      src/fileio.c

Patch 7.4b.009
Problem:    When setting the Visual area manually and 'selection' is
            exclusive, a yank includes one character too much. (Ingo Karkat)
Solution:   Default the Visual operation to "v". (Christian Brabandt)
Files:      src/mark.c

Patch 7.4b.010
Problem:    Win32: Tcl library load does not use standard mechanism.
Solution:   Call vimLoadLib() instead of LoadLibraryEx(). (Ken Takata)
Files:      src/if_perl.xs, src/if_tcl.c

Patch 7.4b.011
Problem:    ":he \%(\)" does not work. (ZyX)
Solution:   Add an exception to the list.
Files:      src/ex_cmds.c
```

```
Patch 7.4b.012
Problem:    Output from a shell command is truncated at a NUL. (lcd 47)
Solution:   Change every NUL into an SOH.
Files:      src/misc1.c

Patch 7.4b.013
Problem:    Install dir for JP man pages is wrong.
Solution:   Remove ".UTF-8" from the directory name. (Ken Takata)
Files:      src/Makefile

Patch 7.4b.014 (after 7.4b.012)
Problem:    Stupid mistake.
Solution:   Changle "len" to "i".
Files:      src/misc1.c

Patch 7.4b.015 (after 7.4b.008)
Problem:    Can't compile without the 'acd' feature.
Solution:   Add #ifdefs. (Kazunobu Kuriyama)
Files:      src/fileio.c

Patch 7.4b.016
Problem:    Ruby detection fails on Fedora 19.
Solution:   Use one way to get the Ruby version. (Michael Henry)
Files:      src/configure.in, src/auto/configure

Patch 7.4b.017
Problem:    ":he \^x" gives a strange error message. (glts)
Solution:   Do not translate \^x to \_CTRL-x.
Files:      src/ex_cmds.c

Patch 7.4b.018 (after 7.4b.001)
Problem:    Win32: Dialog can still be too big.
Solution:   Move the check for height further down. (Andrei Olsen)
Files:      src/gui_w32.c

Patch 7.4b.019 (after 7.4a.034)
Problem:    Tabline is not updated properly when closing a tab on Win32.
Solution:   Only reduce flickering when adding a tab. (Ken Takata)
Files:      src/gui_w48.c

Patch 7.4b.020
Problem:    "g~ap" changes first character of next paragraph. (Manuel Ortega)
Solution:   Avoid subtracting (0 - 1) from todo.  (Mike Williams)
Files:      src/ops.c, src/testdir/test82.in, src/testdir/test82.ok

Patch 7.4b.021
Problem:    Pressing "u" after an external command results in multiple
            press-enter messages. (glts)
Solution:   Don't call hit_return_msg() when we have K_IGNORE. (Christian
            Brabandt)
Files:      src/message.c

Patch 7.4b.022
Problem:    Not waiting for a character when the tick count overflows.
```

```
Solution:   Subtract the unsigned numbers and cast to int. (Ken Takata)
Files:      src/os_win32.c


 vim:tw=78:ts=8:ft=help:norl:
```

version8.txt For Vim version 8.1. Last change: 2018 May 17

VIM REFERENCE MANUAL by Bram Moolenaar

vim8 vim-8 version-8.0 version8.0

Welcome to Vim 8! A large number of bugs have been fixed and several nice features have been added. This file mentions all the new items and changes to existing features since Vim 7.4. The patches up to Vim 7.4 can be found here: vim-7.4 .

Use this command to see the full version and features information of the Vim program you are using:
	:version

See vi_diff.txt for an overview of differences between Vi and Vim 8.0.
See version4.txt , version5.txt , version6.txt and version7.txt for differences between other versions.

==
NEW FEATURES new-8

First an overview of the more interesting new features. A comprehensive list is below.

Asynchronous I/O support, channels

Vim can now exchange messages with other processes in the background. This makes it possible to have servers do work and send back the results to Vim.
See channel-demo for an example, this shows communicating with a Python server.

Closely related to channels is JSON support. JSON is widely supported and can easily be used for inter-process communication, allowing for writing a server

in any language. The functions to use are json_encode() and json_decode() .

This makes it possible to build very complex plugins, written in any language and running in a separate process.

Jobs

Vim can now start a job, communicate with it and stop it. This is very useful to run a process for completion, syntax checking, etc. Channels are used to communicate with the job. Jobs can also read from or write to a buffer or a file. See job_start() .

Timers

Also asynchronous are timers. They can fire once or repeatedly and invoke a function to do any work. For example:

```
let tempTimer = timer_start(4000, 'CheckTemp')
```

This will call the CheckTemp() function four seconds (4000 milli seconds) later. See timer_start() .

Partials

Vim already had a Funcref, a reference to a function. A partial also refers to a function, and additionally binds arguments and/or a dictionary. This is especially useful for callbacks on channels and timers. E.g., for the timer example above, to pass an argument to the function:

```
let tempTimer = timer_start(4000, function('CheckTemp', ['out']))
```

This will call CheckTemp('out') four seconds later.

Lambda and Closure

A short way to create a function has been added: {args -> expr}. See lambda .
This is useful for functions such as `filter()` and `map()`, which now also accept a function argument. Example:

```
:call filter(mylist, {idx, val -> val > 20})
```

A lambda can use variables defined in the scope where the lambda is defined. This is usually called a closure .

User defined functions can also be a closure by adding the "closure" argument :func-closure .

Packages

Plugins keep growing and more of them are available than ever before. To keep the collection of plugins manageable package support has been added. This is a convenient way to get one or more plugins, drop them in a directory and possibly keep them updated. Vim will load them automatically, or only when desired. See packages .

New style tests

This is for Vim developers. So far writing tests for Vim has not been easy. Vim 8 adds assert functions and a framework to run tests. This makes it a lot simpler to write tests and keep them updated. Also new are several functions that are added specifically for testing. See test-functions .

Window IDs

Previously windows could only be accessed by their number. And every time a window would open, close or move that number changes. Each window now has a unique ID, so that they are easy to find. See win_getid() and win_id2win() .

Viminfo uses timestamps

Previously the information stored in viminfo was whatever the last Vim wrote there. Now timestamps are used to always keep the most recent items.
See viminfo-timestamp .

Wrapping lines with indent

The 'breakindent' option has been added to be able to wrap lines without changing the amount of indent.

Windows: DirectX support

This adds the 'renderoptions' option to allow for switching on DirectX (DirectWrite) support on MS-Windows.

GTK+ 3 support

The GTK+ 3 GUI works just like GTK+ 2 except for hardly noticeable technical differences between them. Configure still chooses GTK+ 2 if both 2 and 3 are available. See src/Makefile for how to use GTK+ 3 instead. See gui-x11-compiling for other details.

Vim script enhancements new-vim-script-8

In Vim script the following types have been added:

Special	v:false , v:true , v:none and v:null
Channel	connection to another process for asynchronous I/O
Job	process control

Many functions and commands have been added to support the new types.

On some systems the numbers used in Vim script are now 64 bit. This can be checked with the +num64 feature.

Many items were added to support new-style-testing .

printf() now accepts any type of argument for %s. It is converted to a string like with string().

Various new items new-items-8

Visual mode commands:

v_CTRL-A	CTRL-A	add N to number in highlighted text
v_CTRL-X	CTRL-X	subtract N from number in highlighted text
v_g_CTRL-A	g CTRL-A	add N to number in highlighted text
v_g_CTRL-X	g CTRL-X	subtract N from number in highlighted text

Insert mode commands:

i_CTRL-G_U	CTRL-G U	don't break undo with next cursor movement

Cmdline mode commands:

/_CTRL-G	CTRL-G	move to the next match in 'incsearch' mode
/_CTRL-T	CTRL-T	move to the previous match in 'incsearch' mode

Options:

'belloff'	do not ring the bell for these reasons
'breakindent'	wrapped line repeats indent
'breakindentopt'	settings for 'breakindent'.
'emoji'	emoji characters are considered full width
'fixendofline'	make sure last line in file has <EOL>
'langremap'	do apply 'langmap' to mapped characters
'luadll'	name of the Lua dynamic library
'packpath'	list of directories used for packages
'perldll'	name of the Perl dynamic library
'pythondll'	name of the Python 2 dynamic library
'pythonthreedll'	name of the Python 3 dynamic library
'renderoptions'	options for text rendering on Windows
'rubydll'	name of the Ruby dynamic library
'signcolumn'	when to display the sign column
'tagcase'	how to handle case when searching in tags files
'tcldll'	name of the Tcl dynamic library
'termguicolors'	use GUI colors for the terminal

Ex commands:

:cbottom	scroll to the bottom of the quickfix window
:cdo	execute command in each valid error list entry
:cfdo	execute command in each file in error list
:chistory	display quickfix list stack
:clearjumps	clear the jump list
:filter	only output lines that (do not) match a pattern
:helpclose	close one help window
:lbottom	scroll to the bottom of the location window
:ldo	execute command in valid location list entries
:lfdo	execute command in each file in location list
:lhistory	display location list stack
:noswapfile	following commands don't create a swap file
:packadd	add a plugin from 'packpath'
:packloadall	load all packages under 'packpath'
:smile	make the user happy

Ex command modifiers:

:keeppatterns	following command keeps search pattern history
<mods>	supply command modifiers to user defined commands

New and extended functions:

arglistid()	get id of the argument list
assert_equal()	assert that two expressions values are equal
assert_exception()	assert that a command throws an exception
assert_fails()	assert that a function call fails
assert_false()	assert that an expression is false
assert_inrange()	assert that an expression is inside a range
assert_match()	assert that a pattern matches the value
assert_notequal()	assert that two expressions values are not equal
assert_notmatch()	assert that a pattern does not match the value
assert_true()	assert that an expression is true
bufwinid()	get the window ID of a specific buffer
byteidxcomp()	like byteidx() but count composing characters
ch_close()	close a channel
ch_close_in()	close the in part of a channel
ch_evalexpr()	evaluates an expression over channel
ch_evalraw()	evaluates a raw string over channel
ch_getbufnr()	get the buffer number of a channel
ch_getjob()	get the job associated with a channel
ch_info()	get channel information
ch_log()	write a message in the channel log file
ch_logfile()	set the channel log file
ch_open()	open a channel
ch_read()	read a message from a channel
ch_readraw()	read a raw message from a channel
ch_sendexpr()	send a JSON message over a channel
ch_sendraw()	send a raw message over a channel
ch_setoptions()	set the options for a channel
ch_status()	get status of a channel

execute()   execute an Ex command and get the output
exepath()   full path of an executable program
funcref()   return a reference to function {name}
getbufinfo()   get a list with buffer information
getcharsearch()   return character search information
getcmdwintype()   return the current command-line window type
getcompletion()   return a list of command-line completion matches
getcurpos()   get position of the cursor
gettabinfo()   get a list with tab page information
getwininfo()   get a list with window information
glob2regpat()   convert a glob pattern into a search pattern
isnan()   check for not a number
job_getchannel()   get the channel used by a job
job_info()   get information about a job
job_setoptions()   set options for a job
job_start()   start a job
job_status()   get the status of a job
job_stop()   stop a job
js_decode()   decode a JSON string to Vim types
js_encode()   encode an expression to a JSON string
json_decode()   decode a JSON string to Vim types
json_encode()   encode an expression to a JSON string
matchaddpos()   define a list of positions to highlight
matchstrpos()   match and positions of a pattern in a string
perleval()   evaluate Perl expression
reltimefloat()   convert reltime() result to a Float
setcharsearch()   set character search information
setfperm()   set the permissions of a file
strcharpart()   get part of a string using char index
strgetchar()   get character from a string using char index
systemlist()   get the result of a shell command as a list
test_alloc_fail()   make memory allocation fail
test_autochdir()   test 'autochdir' functionality
test_disable_char_avail() test without typeahead (removed later)
test_garbagecollect_now() free memory right now
test_null_channel()   return a null Channel
test_null_dict()   return a null Dict
test_null_job()   return a null Job
test_null_list()   return a null List
test_null_partial()   return a null Partial function
test_null_string()   return a null String
test_settime()   set the time Vim uses internally
timer_info()   get information about timers
timer_pause()   pause or unpause a timer
timer_start()   create a timer
timer_stop()   stop a timer
timer_stopall()   stop all timers
uniq()   remove copies of repeated adjacent items
win_findbuf()   find windows containing a buffer
win_getid()   get window ID of a window
win_gotoid()   go to window with ID
win_id2tabwin()   get tab and window nr from window ID
win_id2win()   get window nr from window ID
wordcount()   get byte/word/char count of buffer

New Vim variables:

v:beval_winid	Window ID of the window where the mouse pointer is
v:completed_item	complete items for the most recently completed word
v:errors	errors found by assert functions
v:false	a Number with value zero
v:hlsearch	indicates whether search highlighting is on
v:mouse_winid	Window ID for a mouse click obtained with getchar()
v:none	an empty String, used for JSON
v:null	an empty String, used for JSON
v:option_new	new value of the option, used by OptionSet
v:option_old	old value of the option, used by OptionSet
v:option_type	scope of the set command, used by OptionSet
v:progpath	the command with which Vim was invoked
v:t_bool	value of Boolean type
v:t_channel	value of Channel type
v:t_dict	value of Dictionary type
v:t_float	value of Float type
v:t_func	value of Funcref type
v:t_job	value of Job type
v:t_list	value of List type
v:t_none	value of None type
v:t_number	value of Number type
v:t_string	value of String type
v:testing	must be set before using `test_garbagecollect_now()`
v:true	a Number with value one
v:vim_did_enter	set just before VimEnter autocommands are triggered

New autocommand events:

CmdUndefined	a user command is used but it isn't defined
OptionSet	after setting any option
TabClosed	after closing a tab page
TabNew	after creating a new tab page
TextChangedI	after a change was made to the text in Insert mode
TextChanged	after a change was made to the text in Normal mode
WinNew	after creating a new window

New highlight groups:

EndOfBuffer	filler lines (~) after the last line in the buffer. hl-EndOfBuffer

New items in search patterns:

/\%C	\%C	match any composing characters

New Syntax/Indent/FTplugin files:

AVR Assembler (Avra) syntax
Arduino syntax
Bazel syntax and indent and ftplugin
Dockerfile syntax and ftplugin
Eiffel ftplugin
Euphoria 3 and 4 syntax
Go syntax and indent and ftplugin
Godoc syntax
Groovy ftplugin
HGcommit ftplugin
Hog indent and ftplugin
Innovation Data Processing upstream.pt syntax
J syntax and indent and ftplugin
Jproperties ftplugin
Json syntax and indent and ftplugin
Kivy syntax
Less syntax and indent
Mix syntax
Motorola S-Record syntax
R ftplugin
ReStructuredText syntax and indent and ftplugin
Registry ftplugin
Rhelp indent and ftplugin
Rmd (markdown with R code chunks) syntax and indent
Rmd ftplugin
Rnoweb ftplugin
Rnoweb indent
Scala syntax and indent and ftplugin
SystemVerilog syntax and indent and ftplugin
Systemd syntax and indent and ftplugin
Teraterm (TTL) syntax and indent
Text ftplugin
Vroom syntax and indent and ftplugin

New Keymaps:

Armenian eastern and western
Russian jcukenwintype
Vietnamese telex and vni

==
INCOMPATIBLE CHANGES incompatible-8

These changes are incompatible with previous releases. Check this list if you run into a problem when upgrading from Vim 7.4 to 8.0.

Better defaults without a vimrc

When no vimrc file is found, the `defaults.vim` script is loaded to set more useful default values for new users. That includes setting `'nocompatible'`. Thus Vim no longer starts up in Vi compatible mode. If you do want that,

either create a .vimrc file that does "set compatible" or start Vim with
"vim -C".

Support removed

The support for MS-DOS has been removed. It hasn't been working for a while
(Vim doesn't fit in memory) and removing it cleans up the code quite a bit.

The support for Windows 16 bit (Windows 95 and older) has been removed.

The support for OS/2 has been removed. It probably hasn't been working for a
while since nobody uses it.

The SNiFF+ support has been removed.

Minor incompatibilities:

Probably...

==
IMPROVEMENTS improvements-8

The existing blowfish encryption turned out to be much weaker than it was
supposed to be. The blowfish2 method has been added to fix that. Note that
this still isn't a state-of-the-art encryption, but good enough for most
usage. See 'cryptmethod'.

==
COMPILE TIME CHANGES compile-changes-8

The Vim repository was moved from Google code to github, since Google code
was shut down. It can now be found at https://github.com/vim/vim.

Functions now use ANSI-C declarations. At least a C-89 compatible compiler is
required.

The +visual feature is now always included.

==
PATCHES patches-8 bug-fixes-8

The list of patches that got included since 7.4.0. This includes all the new
features, but does not include runtime file changes (syntax, indent, help,
etc.)

Patch 7.4.001
Problem: Character classes such as [a-z] do not react to 'ignorecase'.
            Breaks man page highlighting. (Mario Grgic)
Solution: Add separate items for classes that react to 'ignorecase'. Clean
            up logic handling character classes. Add more tests.
Files: src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

```
Patch 7.4.002
Problem:    Pattern with two alternative look-behind matches does not match.
            (Amadeus Demarzi)
Solution:   When comparing PIMs also compare their state ID to see if they are
            different.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.003
Problem:    Memory access error in Ruby syntax highlighting. (Christopher Chow)
Solution:   Refresh stale pointer. (James McCoy)
Files:      src/regexp_nfa.c

Patch 7.4.004
Problem:    When closing a window fails ":bwipe" may hang.
Solution:   Let win_close() return FAIL and break out of the loop.
Files:      src/window.c, src/proto/window.pro, src/buffer.c

Patch 7.4.005
Problem:    Using "vaB" while 'virtualedit' is set selects the wrong area.
            (Dimitar Dimitrov)
Solution:   Reset coladd when finding a match.
Files:      src/search.c

Patch 7.4.006
Problem:    mkdir("foo/bar/", "p") gives an error message. (David Barnett)
Solution:   Remove the trailing slash. (lcd)
Files:      src/eval.c

Patch 7.4.007
Problem:    Creating a preview window on startup leaves the screen layout in a
            messed up state. (Marius Gedminas)
Solution:   Don't change firstwin. (Christian Brabandt)
Files:      src/main.c

Patch 7.4.008
Problem:    New regexp engine can't be interrupted.
Solution:   Check for CTRL-C pressed. (Yasuhiro Matsumoto)
Files:      src/regexp_nfa.c, src/regexp.c

Patch 7.4.009
Problem:    When a file was not decrypted (yet), writing it may destroy the
            contents.
Solution:   Mark the file as readonly until decryption was done. (Christian
            Brabandt)
Files:      src/fileio.c

Patch 7.4.010 (after 7.4.006)
Problem:    Crash with invalid argument to mkdir().
Solution:   Check for empty string. (lcd47)
Files:      src/eval.c

Patch 7.4.011
Problem:    Cannot find out if "acl" and "xpm" features are supported.
```

```
Solution:   Add "acl" and "xpm" to the list of features. (Ken Takata)
Files:      src/eval.c, src/version.c

Patch 7.4.012
Problem:    MS-Windows: resolving shortcut does not work properly with
            multi-byte characters.
Solution:   Use wide system functions. (Ken Takata)
Files:      src/os_mswin.c

Patch 7.4.013
Problem:    MS-Windows: File name buffer too small for utf-8.
Solution:   Use character count instead of byte count. (Ken Takata)
Files:      src/os_mswin.c

Patch 7.4.014
Problem:    MS-Windows: check for writing to device does not work.
Solution:   Fix #ifdefs. (Ken Takata)
Files:      src/fileio.c

Patch 7.4.015
Problem:    MS-Windows: Detecting node type does not work for multi-byte
            characters.
Solution:   Use wide character function when needed. (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.016
Problem:    MS-Windows: File name case can be wrong.
Solution:   Add fname_casew(). (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.017
Problem:    ":help !!" does not find the "!!" tag in the help file. (Ben
            Fritz)
Solution:   When reading the start of the tags file do parse lines that are
            not header lines.
Files:      src/tag.c

Patch 7.4.018
Problem:    When completing item becomes unselected. (Shougo Matsu)
Solution:   Revert patch 7.3.1269.
Files:      src/edit.c

Patch 7.4.019
Problem:    MS-Windows: File name completion doesn't work properly with
            Chinese characters. (Yue Wu)
Solution:   Take care of multi-byte characters when looking for the start of
            the file name. (Ken Takata)
Files:      src/edit.c

Patch 7.4.020
Problem:    NFA engine matches too much with \@>. (John McGowan)
Solution:   When a whole pattern match is found stop searching.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok
```

```
Patch 7.4.021
Problem:    NFA regexp: Using \ze in one branch which doesn't match may cause
            end of another branch to be wrong. (William Fugh)
Solution:   Set end position if it wasn't set yet.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.022
Problem:    Deadlock while exiting, because of allocating memory.
Solution:   Do not use gettext() in deathtrap(). (James McCoy)
Files:      src/os_unix.c, src/misc1.c

Patch 7.4.023
Problem:    Compiler warning on 64 bit windows.
Solution:   Add type cast. (Mike Williams)
Files:      src/edit.c

Patch 7.4.024
Problem:    When root edits a file the undo file is owned by root while the
            edited file may be owned by another user, which is not allowed.
            (cac2s)
Solution:   Accept an undo file owned by the current user.
Files:      src/undo.c

Patch 7.4.025 (after 7.4.019)
Problem:    Reading before start of a string.
Solution:   Do not call mb_ptr_back() at start of a string. (Dominique Pelle)
Files:      src/edit.c

Patch 7.4.026
Problem:    Clang warning for int shift overflow.
Solution:   Use unsigned and cast back to int. (Dominique Pelle)
Files:      src/misc2.c

Patch 7.4.027 (after 7.4.025)
Problem:    Another valgrind error when using CTRL-X CTRL-F at the start of
            the line. (Dominique Pelle)
Solution:   Don't call mb_ptr_back() at the start of the line.  Add a test.
Files:      src/edit.c, src/testdir/test32.in

Patch 7.4.028
Problem:    Equivalence classes are not working for multi-byte characters.
Solution:   Copy the rules from the old to the new regexp engine. Add a test
            to check both engines.
Files:      src/regexp_nfa.c, src/testdir/test44.in, src/testdir/test99.in,
            src/testdir/test99.ok, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile

Patch 7.4.029
Problem:    An error in a pattern is reported twice.
Solution:   Remove the retry with the backtracking engine, it won't work.
Files:      src/regexp.c
```

```
Patch 7.4.030
Problem:    The -mno-cygwin argument is no longer supported by Cygwin.
Solution:   Remove the arguments. (Steve Hall)
Files:      src/GvimExt/Make_cyg.mak, src/Make_cyg.mak, src/xxd/Make_cyg.mak

Patch 7.4.031
Problem:    ":diffoff!" resets options even when 'diff' is not set. (Charles
            Cooper)
Solution:   Only resets related options in a window where 'diff' is set.
Files:      src/diff.c

Patch 7.4.032
Problem:    NFA engine does not match the NUL character. (Jonathon Merz)
Solution:   Use 0x0a instead of NUL. (Christian Brabandt)
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.033
Problem:    When the terminal has only 20 lines test 92 and 93 overwrite the
            input file.
Solution:   Explicitly write test.out. Check that the terminal is large enough
            to run the tests.  (Hirohito Higashi)
Files:      src/testdir/test92.in, src/testdir/test93.in,
            src/testdir/test1.in, src/testdir/Makefile

Patch 7.4.034
Problem:    Using "p" in Visual block mode only changes the first line.
Solution:   Repeat the put in all text in the block. (Christian Brabandt)
Files:      runtime/doc/change.txt, src/ops.c, src/normal.c,
            src/testdir/test20.in, src/testdir/test20.ok

Patch 7.4.035
Problem:    MS-Windows: The mouse pointer flickers when going from command
            line mode to Normal mode.
Solution:   Check for WM_NCMOUSEMOVE. (Ken Takata)
Files:      src/gui_w48.c

Patch 7.4.036
Problem:    NFA engine does not capture group correctly when using \@>. (ZyX)
Solution:   Copy submatches before doing the recursive match.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.037
Problem:    Using "\ze" in a sub-pattern does not result in the end of the
            match to be set. (Axel Bender)
Solution:   Copy the end of match position when a recursive match was
            successful.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.038
Problem:    Using "zw" and "zg" when 'spell' is off give a confusing error
            message. (Gary Johnson)
Solution:   Ignore the error when locating the word.  Explicitly mention what
            word was added. (Christian Brabandt)
Files:      src/normal.c, src/spell.c
```

```
Patch 7.4.039
Problem:    MS-Windows: MSVC10 and earlier can't handle symlinks to a
            directory properly.
Solution:   Add stat_symlink_aware() and wstat_symlink_aware(). (Ken Takata)
Files:      src/os_mswin.c, src/os_win32.c, src/os_win32.h

Patch 7.4.040
Problem:    Valgrind error on exit when a script-local variable holds a
            reference to the scope of another script.
Solution:   First clear all variables, then free the scopes. (ZyX)
Files:      src/eval.c

Patch 7.4.041 (after 7.4.034)
Problem:    Visual selection does not remain after being copied over. (Axel
            Bender)
Solution:   Move when VIsual_active is reset. (Christian Brabandt)
Files:      src/ops.c

Patch 7.4.042
Problem:    When using ":setlocal" for 'spell' and 'spelllang' then :spelldump
            doesn't work. (Dimitar Dimitrov)
Solution:   Copy the option variables to the new window used to show the dump.
            (Christian Brabandt)
Files:      src/spell.c

Patch 7.4.043
Problem:    VMS can't handle long function names.
Solution:   Shorten may_req_ambiguous_character_width. (Samuel Ferencik)
Files:      src/main.c, src/term.c, src/proto/term.pro


Patch 7.4.044 (after 7.4.039)
Problem:    Can't build with old MSVC. (Wang Shoulin)
Solution:   Define OPEN_OH_ARGTYPE instead of using intptr_t directly.
Files:      src/os_mswin.c

Patch 7.4.045
Problem:    substitute() does not work properly when the pattern starts with
            "\ze".
Solution:   Detect an empty match. (Christian Brabandt)
Files:      src/eval.c, src/testdir/test80.in, src/testdir/test80.ok

Patch 7.4.046
Problem:    Can't use Tcl 8.6.
Solution:   Change how Tcl_FindExecutable is called. (Jan Nijtmans)
Files:      src/if_tcl.c

Patch 7.4.047
Problem:    When using input() in a function invoked by a mapping it doesn't
            work.
Solution:   Temporarily reset ex_normal_busy. (Yasuhiro Matsumoto)
Files:      src/eval.c
```

```
Patch 7.4.048
Problem:    Recent clang version complains about -fno-strength-reduce.
Solution:   Add a configure check for the clang version. (Kazunobu Kuriyama)
Files:      src/configure.in, src/auto/configure

Patch 7.4.049
Problem:    In Ex mode, when line numbers are enabled the substitute prompt is
            wrong.
Solution:   Adjust for the line number size. (Benoit Pierre)
Files:      src/ex_cmds.c

Patch 7.4.050
Problem:    "gn" selects too much for the pattern "\d" when there are two
            lines with a single digit. (Ryan Carney)
Solution:   Adjust the logic of is_one_char(). (Christian Brabandt)
Files:      src/search.c, src/testdir/test53.in, src/testdir/test53.ok

Patch 7.4.051
Problem:    Syntax highlighting a Yaml file causes a crash. (Blake Preston)
Solution:   Copy the pim structure before calling addstate() to avoid it
            becoming invalid when the state list is reallocated.
Files:      src/regexp_nfa.c

Patch 7.4.052
Problem:    With 'fo' set to "a2" inserting a space in the first column may
            cause the cursor to jump to the previous line.
Solution:   Handle the case when there is no comment leader properly. (Tor
            Perkins)  Also fix that cursor is in the wrong place when spaces
            get replaced with a Tab.
Files:      src/misc1.c, src/ops.c, src/testdir/test68.in,
            src/testdir/test68.ok

Patch 7.4.053
Problem:    Test75 has a wrong header. (ZyX)
Solution:   Fix the text and remove leading ".
Files:      src/testdir/test75.in

Patch 7.4.054
Problem:    Reading past end of the 'stl' string.
Solution:   Don't increment pointer when already at the NUL. (Christian
            Brabandt)
Files:      src/buffer.c

Patch 7.4.055
Problem:    Mac: Where availability macros are defined depends on the system.
Solution:   Add a configure check. (Felix Bünemann)
Files:      src/config.h.in, src/configure.in, src/auto/configure,
            src/os_mac.h

Patch 7.4.056
Problem:    Mac: Compilation problem with OS X 10.9 Mavericks.
Solution:   Include AvailabilityMacros.h when available. (Kazunobu Kuriyama)
Files:      src/os_unix.c
```

```
Patch 7.4.057
Problem:    byteidx() does not work for composing characters.
Solution:   Add byteidxcomp().
Files:      src/eval.c, src/testdir/test69.in, src/testdir/test69.ok,
            runtime/doc/eval.txt

Patch 7.4.058
Problem:    Warnings on 64 bit Windows.
Solution:   Add type casts. (Mike Williams)
Files:      src/ops.c

Patch 7.4.059
Problem:    set_last_cursor() may encounter w_buffer being NULL.  (Matt
            Mkaniaris)
Solution:   Check for NULL.
Files:      src/mark.c

Patch 7.4.060
Problem:    Declaration has wrong return type for PyObject_SetAttrString().
Solution:   Use int instead of PyObject. (Andreas Schwab)
Files:      src/if_python.c, src/if_python3.c

Patch 7.4.061 (after 7.4.055 and 7.4.056)
Problem:    Availability macros configure check in wrong place.
Solution:   Also check when not using Darwin. Remove version check.
Files:      src/configure.in, src/auto/configure, src/os_unix.c

Patch 7.4.062 (after 7.4.061)
Problem:    Configure check for AvailabilityMacros.h is wrong.
Solution:   Use AC_CHECK_HEADERS().
Files:      src/configure.in, src/auto/configure

Patch 7.4.063
Problem:    Crash when using invalid key in Python dictionary.
Solution:   Check for object to be NULL.  Add tests. (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.4.064
Problem:    When replacing a character in Visual block mode, entering a CR
            does not cause a repeated line break.
Solution:   Recognize the situation and repeat the line break. (Christian
            Brabandt)
Files:      src/normal.c, src/ops.c, src/testdir/test39.in,
            src/testdir/test39.ok

Patch 7.4.065
Problem:    When recording, the character typed at the hit-enter prompt is
            recorded twice. (Urtica Dioica)
Solution:   Avoid recording the character twice. (Christian Brabandt)
Files:      src/message.c

Patch 7.4.066
Problem:    MS-Windows: When there is a colon in the file name (sub-stream
```

            feature) the swap file name is wrong.
Solution: Change the colon to "%". (Yasuhiro Matsumoto)
Files: src/fileio.c, src/memline.c, src/misc1.c, src/proto/misc1.pro

Patch 7.4.067
Problem: After inserting comment leader, CTRL-\ CTRL-O does move the
            cursor. (Wiktor Ruben)
Solution: Avoid moving the cursor. (Christian Brabandt)
Files: src/edit.c

Patch 7.4.068
Problem: Cannot build Vim on Mac with non-Apple compilers.
Solution: Remove the -no-cpp-precomp flag. (Misty De Meo)
Files: src/configure.in, src/auto/configure, src/osdef.sh

Patch 7.4.069
Problem: Cannot right shift lines starting with #.
Solution: Allow the right shift when 'cino' contains #N with N > 0.
            (Christian Brabandt)
            Refactor parsing 'cino', store the values in the buffer.
Files: runtime/doc/indent.txt, src/buffer.c, src/edit.c, src/eval.c,
            src/ex_getln.c, src/fold.c, src/misc1.c, src/ops.c,
            src/proto/misc1.pro, src/proto/option.pro, src/structs.h,
            src/option.c

Patch 7.4.070 (after 7.4.069)
Problem: Can't compile with tiny features. (Tony Mechelynck)
Solution: Add #ifdef.
Files: src/buffer.c

Patch 7.4.071 (after 7.4.069)
Problem: Passing limits around too often.
Solution: Use limits from buffer.
Files: src/edit.c, src/misc1.c, src/proto/misc1.pro

Patch 7.4.072
Problem: Crash when using Insert mode completion.
Solution: Avoid going past the end of pum_array. (idea by Francisco Lopes)
Files: src/popupmnu.c

Patch 7.4.073
Problem: Setting undolevels for one buffer changes undo in another.
Solution: Make 'undolevels' a global-local option. (Christian Brabandt)
Files: runtime/doc/options.txt, src/buffer.c, src/option.c, src/option.h
            src/structs.h, src/undo.c

Patch 7.4.074
Problem: When undo'ing all changes and creating a new change the undo
            structure is incorrect. (Christian Brabandt)
Solution: When deleting the branch starting at the old header, delete the
            whole branch, not just the first entry.
Files: src/undo.c

Patch 7.4.075

```
Problem:    Locally setting 'undolevels' is not tested.
Solution:   Add a test. (Christian Brabandt)
Files:      src/testdir/test100.in, src/testdir/test100.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile, src/Makefile

Patch 7.4.076
Problem:    "cgn" does not wrap around the end of the file. (Dimitar Dimitrov)
Solution:   Restore 'wrapscan' earlier. (Christian Brabandt)
Files:      src/search.c

Patch 7.4.077
Problem:    DOS installer creates shortcut without a path, resulting in the
            current directory to be C:\Windows\system32.
Solution:   Use environment variables.
Files:      src/dosinst.c

Patch 7.4.078
Problem:    MSVC 2013 is not supported.
Solution:   Recognize and support MSVC 2013. (Ed Brown)
Files:      src/Make_mvc.mak

Patch 7.4.079
Problem:    A script cannot detect whether 'hlsearch' highlighting is actually
            displayed.
Solution:   Add the "v:hlsearch" variable. (ZyX)
Files:      src/eval.c, src/ex_docmd.c,
            src/option.c, src/screen.c, src/search.c, src/tag.c, src/vim.h,
            src/testdir/test101.in, src/testdir/test101.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.080 (after 7.4.079)
Problem:    Missing documentation for v:hlsearch.
Solution:   Include the right file in the patch.
Files:      runtime/doc/eval.txt

Patch 7.4.081 (after 7.4.078)
Problem:    Wrong logic when ANALYZE is "yes".
Solution:   Use or instead of and. (KF Leong)
Files:      src/Make_mvc.mak

Patch 7.4.082
Problem:    Using "gf" in a changed buffer suggests adding "!", which is not
            possible. (Tim Chase)
Solution:   Pass a flag to check_changed() whether adding ! make sense.
Files:      src/vim.h, src/ex_cmds2.c, src/proto/ex_cmds2.pro, src/globals.h,
            src/ex_cmds.c, src/ex_docmd.c

Patch 7.4.083
Problem:    It's hard to avoid adding a used pattern to the search history.
Solution:   Add the ":keeppatterns" modifier. (Christian Brabandt)
```

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Files:      runtime/doc/cmdline.txt, src/ex_cmds.h, src/ex_docmd.c,
            src/ex_getln.c, src/structs.h

Patch 7.4.084
Problem:    Python: interrupt not being properly discarded. (Yggdroot Chen)
Solution:   Discard interrupt in VimTryEnd. (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.4.085
Problem:    When inserting text in Visual block mode and moving the cursor the
            wrong text gets repeated in other lines.
Solution:   Use the '[ mark to find the start of the actually inserted text.
            (Christian Brabandt)
Files:      src/ops.c, src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.086
Problem:    Skipping over an expression when not evaluating it does not work
            properly for dict members.
Solution:   Skip over unrecognized expression. (ZyX)
Files:      src/eval.c, src/testdir/test34.in, src/testdir/test34.ok

Patch 7.4.087
Problem:    Compiler warning on 64 bit Windows systems.
Solution:   Fix type cast. (Mike Williams)
Files:      src/ops.c

Patch 7.4.088
Problem:    When spell checking is enabled Asian characters are always marked
            as error.
Solution:   When 'spelllang' contains "cjk" do not mark Asian characters as
            error. (Ken Takata)
Files:      runtime/doc/options.txt, runtime/doc/spell.txt, src/mbyte.c,
            src/option.c, src/spell.c, src/structs.h

Patch 7.4.089
Problem:    When editing a file in a directory mounted through sshfs Vim
            doesn't set the security context on a renamed file.
Solution:   Add mch_copy_sec() to vim_rename(). (Peter Backes)
Files:      src/fileio.c

Patch 7.4.090
Problem:    Win32: When a directory name contains an exclamation mark,
            completion doesn't complete the contents of the directory.
Solution:   Escape the exclamation mark. (Jan Stocker)
Files:      src/ex_getln.c, src/testdir/test102.in, src/testdir/test102.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.091 (after 7.4.089)
Problem:    Missing semicolon.
Solution:   Add the semicolon.
Files:      src/fileio.c
```

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Patch 7.4.092 (after 7.4.088)
Problem:    Can't build small version.
Solution:   Add #ifdef where the b_cjk flag is used. (Ken Takata)
Files:      src/spell.c

Patch 7.4.093
Problem:    Configure can't use LuaJIT on ubuntu 12.04.
Solution:   Adjust the configure regexp that locates the version number.
            (Charles Strahan)
Files:      src/configure.in, src/auto/configure

Patch 7.4.094
Problem:    Configure may not find that -lint is needed for gettext().
Solution:   Check for gettext() with empty $LIBS.  (Thomas De Schampheleire)
Files:      src/configure.in, src/auto/configure

Patch 7.4.095 (after 7.4.093)
Problem:    Regexp for LuaJIT version doesn't work on BSD.
Solution:   Use "*" instead of "\+" and "\?". (Ozaki Kiichi)
Files:      src/configure.in, src/auto/configure

Patch 7.4.096
Problem:    Can't change directory to an UNC path.
Solution:   Use win32_getattrs() in mch_getperm(). (Christian Brabandt)
Files:      src/os_win32.c

Patch 7.4.097 (after 7.4.034)
Problem:    Unexpected behavior change related to 'virtualedit'. (Ingo Karkat)
Solution:   Update the valid cursor position. (Christian Brabandt)
Files:      src/ops.c

Patch 7.4.098
Problem:    When using ":'<,'>del" errors may be given for the visual line
            numbers being out of range.
Solution:   Reset Visual mode in ":del". (Lech Lorens)
Files:      src/ex_docmd.c, src/testdir/test103.in, src/testdir/test103.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.099
Problem:    Append in blockwise Visual mode with "$" is wrong.
Solution:   After "$" don't use the code that checks if the cursor was moved.
            (Hirohito Higashi, Ken Takata)
Files:      src/ops.c, src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.100
Problem:    NFA regexp doesn't handle backreference correctly. (Ryuichi
            Hayashida, Urtica Dioica)
Solution:   Always add NFA_SKIP, also when it already exists at the start
            position.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok
```

```
Patch 7.4.101
Problem:    Using \1 in pattern goes one line too far. (Bohr Shaw, John Little)
Solution:   Only advance the match end for the matched characters in the last
            line.
Files:      src/regexp.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.102
Problem:    Crash when interrupting "z=".
Solution:   Add safety check for word length. (Christian Brabandt, Dominique
            Pelle)
Files:      src/spell.c

Patch 7.4.103
Problem:    Dos installer uses an old way to escape spaces in the diff
            command.
Solution:   Adjust the quoting to the new default shellxquote. (Ben Fritz)
Files:      src/dosinst.c

Patch 7.4.104
Problem:    ":help s/\_" reports an internal error. (John Beckett)
Solution:   Check for NUL and invalid character classes.
Files:      src/regexp_nfa.c

Patch 7.4.105
Problem:    Completing a tag pattern may give an error for invalid pattern.
Solution:   Suppress the error, just return no matches.
Files:      src/tag.c

Patch 7.4.106
Problem:    Can't build with Ruby using Cygwin.
Solution:   Fix library name in makefile. (Steve Hall)
Files:      src/Make_cyg.mak

Patch 7.4.107
Problem:    Python: When vim.eval() encounters a Vim error, a try/catch in the
            Python code doesn't catch it. (Yggdroot Chen)
Solution:   Throw exceptions on errors in vim.eval(). (ZyX)
Files:      src/ex_eval.c, src/if_py_both.h, src/proto/ex_eval.pro,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.4.108
Problem:    "zG" and "zW" leave temp files around on MS-Windows.
Solution:   Delete the temp files when exiting. (Ken Takata)
Files:      src/memline.c, src/proto/spell.pro, src/spell.c

Patch 7.4.109
Problem:    ColorScheme autocommand matches with the current buffer name.
Solution:   Match with the colorscheme name. (Christian Brabandt)
Files:      runtime/doc/autocmd.txt, src/fileio.c, src/syntax.c

Patch 7.4.110
Problem:    "gUgn" cannot be repeated. (Dimitar Dimitrov)
Solution:   Don't put "gn" in a different order in the redo buffer.  Restore
```

```
            'wrapscan' when the pattern isn't found. (Christian Wellenbrock)
Files:      src/normal.c, src/search.c, src/test53.in, src/test53.ok

Patch 7.4.111
Problem:    Memory leak in Python OptionsAssItem. (Ken Takata)
Solution:   Call Py_XDECREF() where needed. (ZyX)
Files:      src/if_py_both.h

Patch 7.4.112
Problem:    The defaults for 'directory' and 'backupdir' on MS-Windows do not
            include a directory that exists.
Solution:   Use $TEMP.
Files:      src/os_dos.h

Patch 7.4.113
Problem:    MSVC static analysis gives warnings.
Solution:   Avoid the warnings and avoid possible bugs. (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.114
Problem:    New GNU make outputs messages about changing directory in another
            format.
Solution:   Recognize the new format.
Files:      src/option.h

Patch 7.4.115
Problem:    When using Zsh expanding ~abc doesn't work when the result
            contains a space.
Solution:   Off-by-one error in detecting the NUL. (Pavol Juhas)
Files:      src/os_unix.c

Patch 7.4.116
Problem:    When a mapping starts with a space, the typed space does not show
            up for 'showcmd'.
Solution:   Show "<20>". (Brook Hong)
Files:      src/normal.c

Patch 7.4.117
Problem:    Can't build with Cygwin/MingW and Perl 5.18.
Solution:   Add a linker argument for the Perl library. (Cesar Romani)
            Adjust CFLAGS and LIB. (Cesar Romani)
            Move including inline.h further down. (Ken Takata)
Files:      src/Make_cyg.mak, src/Make_ming.mak, src/if_perl.xs

Patch 7.4.118
Problem:    It's possible that redrawing the status lines causes
            win_redr_custom() to be called recursively.
Solution:   Protect against recursiveness. (Yasuhiro Matsumoto)
Files:      src/screen.c

Patch 7.4.119
Problem:    Vim doesn't work well on OpenVMS.
Solution:   Fix various problems. (Samuel Ferencik)
Files:      src/os_unix.c, src/os_unix.h, src/os_vms.c
```

```
Patch 7.4.120 (after 7.4.117)
Problem:    Can't build with Perl 5.18 on Linux. (Lcd 47)
Solution:   Add #ifdef. (Ken Takata)
Files:      src/if_perl.xs

Patch 7.4.121
Problem:    Completion doesn't work for ":py3d" and ":py3f". (Bohr Shaw)
Solution:   Skip over letters after ":py3".
Files:      src/ex_docmd.c

Patch 7.4.122
Problem:    Win32: When 'encoding' is set to "utf-8" and the active codepage
            is cp932 then ":grep" and other commands don't work for multi-byte
            characters.
Solution:   (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.4.123
Problem:    Win32: Getting user name does not use wide function.
Solution:   Use GetUserNameW() if possible. (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.124
Problem:    Win32: Getting host name does not use wide function.
Solution:   Use GetComputerNameW() if possible. (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.125
Problem:    Win32: Dealing with messages may not work for multi-byte chars.
Solution:   Use pDispatchMessage(). (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.126
Problem:    Compiler warnings for "const" and incompatible types.
Solution:   Remove "const", add type cast. (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.127
Problem:    Perl 5.18 on Unix doesn't work.
Solution:   Move workaround to after including vim.h. (Ken Takata)
Files:      src/if_perl.xs

Patch 7.4.128
Problem:    Perl 5.18 for MSVC doesn't work.
Solution:   Add check in makefile and define __inline. (Ken Takata)
Files:      src/Make_mvc.mak, src/if_perl.xs

Patch 7.4.129
Problem:    getline(-1) returns zero. (mvxxc)
Solution:   Return an empty string.
Files:      src/eval.c

Patch 7.4.130
```

Problem: Relative line numbers mix up windows when using folds.
Solution: Use hasFoldingWin() instead of hasFolding(). (Lech Lorens)
Files: src/misc2.c

Patch 7.4.131
Problem: Syncbind causes E315 errors in some situations. (Liang Li)
Solution: Set and restore curbuf in ex_syncbind(). (Christian Brabandt)
Files: src/ex_docmd.c, src/testdir/test37.ok

Patch 7.4.132 (after 7.4.122)
Problem: Win32: flags and inherit_handles arguments mixed up.
Solution: Swap the argument. (cs86661)
Files: src/os_win32.c

Patch 7.4.133
Problem: Clang warns for using NUL.
Solution: Change NUL to NULL. (Dominique Pelle)
Files: src/eval.c, src/misc2.c

Patch 7.4.134
Problem: Spurious space in MingW Makefile.
Solution: Remove the space. (Michael Soyka)
Files: src/Make_ming.mak

Patch 7.4.135
Problem: Missing dot in MingW test Makefile.
Solution: Add the dot. (Michael Soyka)
Files: src/testdir/Make_ming.mak

Patch 7.4.136 (after 7.4.096)
Problem: MS-Windows: When saving a file with a UNC path the file becomes
            read-only.
Solution: Don't mix up Win32 attributes and Unix attributes. (Ken Takata)
Files: src/os_mswin.c, src/os_win32.c

Patch 7.4.137
Problem: Cannot use IME with Windows 8 console.
Solution: Change the user of ReadConsoleInput() and PeekConsoleInput().
            (Nobuhiro Takasaki)
Files: src/os_win32.c

Patch 7.4.138 (after 7.4.114)
Problem: Directory change messages are not recognized.
Solution: Fix using a character range literally. (Lech Lorens)
Files: src/option.h

Patch 7.4.139
Problem: Crash when using :cd in autocommand. (François Ingelrest)
Solution: Set w_localdir to NULL after freeing it. (Dominique Pelle)
Files: src/ex_docmd.c, src/window.c

Patch 7.4.140
Problem: Crash when wiping out buffer triggers autocommand that wipes out
            only other buffer.

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Solution:   Do not delete the last buffer, make it empty. (Hirohito Higashi)
Files:      src/buffer.c

Patch 7.4.141
Problem:    Problems when building with Borland: st_mode is signed short;
            can't build with Python; temp files not ignored by Mercurial;
            building with DEBUG doesn't define _DEBUG.
Solution:   Fix the problems. (Ken Takata)
Files:      src/Make_bc5.mak, src/if_py_both.h, src/os_win32.c

Patch 7.4.142 (after 7.4.137)
Problem:    On MS-Windows 8 IME input doesn't work correctly.
Solution:   Work around the problem. (Nobuhiro Takasaki)
Files:      src/os_win32.c

Patch 7.4.143
Problem:    TextChangedI is not triggered.
Solution:   Reverse check for "ready". (lilydjwg)
Files:      src/edit.c

Patch 7.4.144
Problem:    MingW also supports intptr_t for OPEN_OH_ARGTYPE.
Solution:   Adjust #ifdef. (Ken Takata)
Files:      src/os_mswin.c

Patch 7.4.145
Problem:    getregtype() does not return zero for unknown register.
Solution:   Adjust documentation: return empty string for unknown register.
            Check the register name to be valid. (Yukihiro Nakadaira)
Files:      runtime/doc/eval.txt, src/ops.c

Patch 7.4.146
Problem:    When starting Vim with "-u NONE" v:oldfiles is NULL.
Solution:   Set v:oldfiles to an empty list. (Yasuhiro Matsumoto)
Files:      src/main.c

Patch 7.4.147
Problem:    Cursor moves to wrong position when using "gj" after "$" and
            virtual editing is active.
Solution:   Make "gj" behave differently when virtual editing is active.
            (Hirohito Higashi)
Files:      src/normal.c, src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.148
Problem:    Cannot build with Cygwin and X11.
Solution:   Include Xwindows.h instead of windows.h. (Lech Lorens)
Files:      src/mbyte.c

Patch 7.4.149
Problem:    Get E685 error when assigning a function to an autoload variable.
            (Yukihiro Nakadaira)
Solution:   Instead of having a global no_autoload variable, pass an autoload
            flag down to where it is used. (ZyX)
Files:      src/eval.c, src/testdir/test55.in, src/testdir/test55.ok,
```

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            src/testdir/test60.in, src/testdir/test60.ok,
            src/testdir/sautest/autoload/footest.vim

Patch 7.4.150
Problem:    :keeppatterns is not respected for :s.
Solution:   Check the keeppatterns flag. (Yasuhiro Matsumoto)
Files:      src/search.c, src/testdir/test14.in, src/testdir/test14.ok

Patch 7.4.151
Problem:    Python: slices with steps are not supported.
Solution:   Support slices in Python vim.List. (ZyX)
Files:      src/eval.c, src/if_py_both.h, src/if_python3.c, src/if_python.c,
            src/proto/eval.pro, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.4.152
Problem:    Python: Cannot iterate over options.
Solution:   Add options iterator. (ZyX)
Files:      src/if_py_both.h, src/option.c, src/proto/option.pro,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok, src/vim.h

Patch 7.4.153
Problem:    Compiler warning for pointer type.
Solution:   Add type cast.
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.4.154 (after 7.4.149)
Problem:    Still a problem with auto-loading.
Solution:   Pass no_autoload to deref_func_name(). (Yukihiro Nakadaira)
Files:      src/eval.c

Patch 7.4.155
Problem:    ":keeppatterns /pat" does not keep search pattern offset.
Solution:   Restore the offset after doing the search.
Files:      src/search.c, src/testdir/test14.in, src/testdir/test14.ok

Patch 7.4.156
Problem:    Test file missing from distribution.
Solution:   Add new directory to file list.
Files:      Filelist

Patch 7.4.157
Problem:    Error number used twice. (Yukihiro Nakadaira)
Solution:   Change the one not referred in the docs.
Files:      src/undo.c

Patch 7.4.158 (after 7.4.045)
Problem:    Pattern containing \zs is not handled correctly by substitute().
Solution:   Change how an empty match is skipped. (Yukihiro Nakadaira)
Files:      src/eval.c, src/testdir/test80.in, src/testdir/test80.ok

Patch 7.4.159
Problem:    Completion hangs when scanning the current buffer after doing
```

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            keywords. (Christian Brabandt)
Solution:   Set the first match position when starting to scan the current
            buffer.
Files:      src/edit.c

Patch 7.4.160
Problem:    Win32: Crash when executing external command.
Solution:   Only close the handle when it was created. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.4.161
Problem:    Crash in Python exception handling.
Solution:   Only use exception variables if did_throw is set. (ZyX)
Files:      src/if_py_both.h

Patch 7.4.162
Problem:    Running tests in shadow dir doesn't work.
Solution:   Add testdir/sautest to the shadow target. (James McCoy)
Files:      src/Makefile

Patch 7.4.163 (after 7.4.142)
Problem:    MS-Windows input doesn't work properly on Windows 7 and earlier.
Solution:   Add a check for Windows 8. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.4.164 (after 7.4.163)
Problem:    Problem with event handling on Windows 8.
Solution:   Ignore duplicate WINDOW_BUFFER_SIZE_EVENTs. (Nobuhiro Takasaki)
Files:      src/os_win32.c

Patch 7.4.165
Problem:    By default, after closing a buffer changes can't be undone.
Solution:   In the example vimrc file set 'undofile'.
Files:      runtime/vimrc_example.vim

Patch 7.4.166
Problem:    Auto-loading a function for code that won't be executed.
Solution:   Do not auto-load when evaluation is off. (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.4.167 (after 7.4.149)
Problem:    Fixes are not tested.
Solution:   Add a test for not autoloading on assignment. (Yukihiro Nakadaira)
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/sautest/autoload/Test104.vim, src/testdir/test104.in,
            src/testdir/test104.ok

Patch 7.4.168
Problem:    Can't compile with Ruby 2.1.0.
Solution:   Add support for new GC. (Kohei Suzuki)
Files:      src/if_ruby.c
```

```
Patch 7.4.169
Problem:    ":sleep" puts cursor in the wrong column. (Liang Li)
Solution:   Add the window offset. (Christian Brabandt)
Files:      src/ex_docmd.c

Patch 7.4.170
Problem:    Some help tags don't work with ":help". (Tim Chase)
Solution:   Add exceptions.
Files:      src/ex_cmds.c

Patch 7.4.171
Problem:    Redo does not set v:count and v:count1.
Solution:   Use a separate buffer for redo, so that we can set the counts when
            performing redo.
Files:      src/getchar.c, src/globals.h, src/normal.c, src/proto/getchar.pro,
            src/structs.h

Patch 7.4.172
Problem:    The blowfish code mentions output feedback, but the code is
            actually doing cipher feedback.
Solution:   Adjust names and comments.
Files:      src/blowfish.c, src/fileio.c, src/proto/blowfish.pro,
            src/memline.c

Patch 7.4.173
Problem:    When using scrollbind the cursor can end up below the last line.
            (mvxxc)
Solution:   Reset w_botfill when scrolling up. (Christian Brabandt)
Files:      src/move.c

Patch 7.4.174
Problem:    Compiler warnings for Python interface. (Tony Mechelynck)
Solution:   Add type casts, initialize variable.
Files:      src/if_py_both.h

Patch 7.4.175
Problem:    When a wide library function fails, falling back to the non-wide
            function may do the wrong thing.
Solution:   Check the platform, when the wide function is supported don't fall
            back to the non-wide function. (Ken Takata)
Files:      src/os_mswin.c, src/os_win32.c

Patch 7.4.176
Problem:    Dictionary.update() throws an error when used without arguments.
            Python programmers don't expect that.
Solution:   Make Dictionary.update() without arguments do nothing. (ZyX)
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test87.in

Patch 7.4.177
Problem:    Compiler warning for unused variable. (Tony Mechelynck)
Solution:   Add #ifdef.
Files:      src/move.c

Patch 7.4.178
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Problem:    The J command does not update '[ and '] marks. (William Gardner)
Solution:   Set the marks. (Christian Brabandt)
Files:      src/ops.c

Patch 7.4.179
Problem:    Warning for type-punned pointer. (Tony Mechelynck)
Solution:   Use intermediate variable.
Files:      src/if_py_both.h

Patch 7.4.180 (after 7.4.174)
Problem:    Older Python versions don't support %ld.
Solution:   Use %d instead. (ZyX)
Files:      src/if_py_both.h

Patch 7.4.181
Problem:    When using 'pastetoggle' the status lines are not updated. (Samuel
            Ferencik, Jan Christoph Ebersbach)
Solution:   Update the status lines. (Nobuhiro Takasaki)
Files:      src/getchar.c

Patch 7.4.182
Problem:    Building with mzscheme and racket does not work. (David Chimay)
Solution:   Adjust autoconf. (Sergey Khorev)
Files:      src/configure.in, src/auto/configure

Patch 7.4.183
Problem:    MSVC Visual Studio update not supported.
Solution:   Add version number. (Mike Williams)
Files:      src/Make_mvc.mak

Patch 7.4.184
Problem:    match() does not work properly with a {count} argument.
Solution:   Compute the length once and update it.  Quit the loop when at the
            end. (Hirohito Higashi)
Files:      src/eval.c, src/testdir/test53.in, src/testdir/test53.ok

Patch 7.4.185
Problem:    Clang gives warnings.
Solution:   Adjust how bigness is set. (Dominique Pelle)
Files:      src/ex_cmds.c

Patch 7.4.186 (after 7.4.085)
Problem:    Insert in Visual mode sometimes gives incorrect results.
            (Dominique Pelle)
Solution:   Remember the original insert start position. (Christian Brabandt,
            Dominique Pelle)
Files:      src/edit.c, src/globals.h, src/ops.c, src/structs.h

Patch 7.4.187
Problem:    Delete that crosses line break splits multi-byte character.
Solution:   Advance a character instead of a byte. (Cade Foster)
Files:      src/normal.c, src/testdir/test69.in, src/testdir/test69.ok

Patch 7.4.188
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Problem:    SIZEOF_LONG clashes with similar defines in header files.
Solution:   Rename to a name starting with VIM_.  Also for SIZEOF_INT.
Files:      src/if_ruby.c, src/vim.h, src/configure.in, src/auto/configure,
            src/config.h.in, src/fileio.c, src/if_python.c, src/message.c,
            src/spell.c, src/feature.h, src/os_os2_cfg.h, src/os_vms_conf.h,
            src/os_win16.h, src/structs.h

Patch 7.4.189
Problem:    Compiler warning for unused argument.
Solution:   Add UNUSED.
Files:      src/eval.c

Patch 7.4.190
Problem:    Compiler warning for using %lld for off_t.
Solution:   Add type cast.
Files:      src/fileio.c

Patch 7.4.191
Problem:    Escaping a file name for shell commands can't be done without a
            function.
Solution:   Add the :S file name modifier.
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test105.in, src/testdir/test105.ok,
            runtime/doc/cmdline.txt, runtime/doc/eval.txt,
            runtime/doc/map.txt, runtime/doc/options.txt,
            runtime/doc/quickfix.txt, runtime/doc/usr_30.txt,
            runtime/doc/usr_40.txt, runtime/doc/usr_42.txt,
            runtime/doc/vi_diff.txt, src/eval.c, src/misc2.c, src/normal.c,
            src/proto/misc2.pro

Patch 7.4.192
Problem:    Memory leak when giving E853.
Solution:   Free the argument. (Dominique Pelle)
Files:      src/eval.c

Patch 7.4.193
Problem:    Typos in messages.
Solution:   "then" -> "than". (Dominique Pelle)
Files:      src/if_py_both.h, src/spell.c

Patch 7.4.194
Problem:    Can't build for Android.
Solution:   Add #if condition. (Fredrik Fornwall)
Files:      src/mbyte.c

Patch 7.4.195 (after 7.4.193)
Problem:    Python tests fail.
Solution:   Change "then" to "than" in more places. (Dominique Pelle, Taro
            Muraoka)
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok
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Patch 7.4.196
Problem:    Tests fail on Solaris 9 and 10.
Solution:   Use "test -f" instead of "test -e".  (Laurent Blume)
Files:      src/testdir/Makefile

Patch 7.4.197
Problem:    Various problems on VMS.
Solution:   Fix several VMS problems. (Zoltan Arpadffy)
Files:      runtime/doc/os_vms.txt, src/Make_vms.mms, src/fileio.c,
            src/os_unix.c, src/os_unix.h, src/os_vms.c, src/os_vms_conf.h,
            src/proto/os_vms.pro, src/testdir/Make_vms.mms,
            src/testdir/test72.in, src/testdir/test77a.com,
            src/testdir/test77a.in, src/testdir/test77a.ok src/undo.c

Patch 7.4.198
Problem:    Can't build Vim with Perl when -Dusethreads is not specified for
            building Perl, and building Vim with --enable-perlinterp=dynamic.
Solution:   Adjust #ifdefs. (Yasuhiro Matsumoto)
Files:      src/if_perl.xs

Patch 7.4.199
Problem:    (issue 197) ]P doesn't paste over Visual selection.
Solution:   Handle Visual mode specifically. (Christian Brabandt)
Files:      src/normal.c

Patch 7.4.200
Problem:    Too many #ifdefs in the code.
Solution:   Enable FEAT_VISUAL always, await any complaints
Files:      src/feature.h

Patch 7.4.201
Problem:    'lispwords' is a global option.
Solution:   Make 'lispwords' global-local. (Sung Pae)
Files:      runtime/doc/options.txt, runtime/optwin.vim, src/buffer.c,
            src/misc1.c, src/option.c, src/option.h, src/structs.h,
            src/testdir/test100.in, src/testdir/test100.ok

Patch 7.4.202
Problem:    MS-Windows: non-ASCII font names don't work.
Solution:   Convert between the current code page and 'encoding'. (Ken Takata)
Files:      src/gui_w48.c, src/os_mswin.c, src/proto/winclip.pro,
            src/winclip.c

Patch 7.4.203
Problem:    Parsing 'errorformat' is not correct.
Solution:   Reset "multiignore" at the start of a multi-line message. (Lcd)
Files:      src/quickfix.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test106.in,
            src/testdir/test106.ok

Patch 7.4.204
Problem:    A mapping where the second byte is 0x80 doesn't work.
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Solution:   Unescape before checking for incomplete multi-byte char. (Nobuhiro
            Takasaki)
Files:      src/getchar.c, src/testdir/test75.in, src/testdir/test75.ok

Patch 7.4.205
Problem:    ":mksession" writes command to move to second argument while it
            does not exist.  When it does exist the order might be wrong.
Solution:   Use ":argadd" for each argument instead of using ":args" with a
            list of names. (Nobuhiro Takasaki)
Files:      src/ex_docmd.c

Patch 7.4.206
Problem:    Compiler warnings on 64 bit Windows.
Solution:   Add type casts. (Mike Williams)
Files:      src/gui_w48.c, src/os_mswin.c

Patch 7.4.207
Problem:    The cursor report sequence is sometimes not recognized and results
            in entering replace mode.
Solution:   Also check for the cursor report when not asked for.
Files:      src/term.c

Patch 7.4.208
Problem:    Mercurial picks up some files that are not distributed.
Solution:   Add patterns to the ignore list. (Cade Forester)
Files:      .hgignore

Patch 7.4.209
Problem:    When repeating a filter command "%" and "#" are expanded.
Solution:   Escape the command when storing for redo. (Christian Brabandt)
Files:      src/ex_cmds.c

Patch 7.4.210
Problem:    Visual block mode plus virtual edit doesn't work well with tabs.
            (Liang Li)
Solution:   Take coladd into account. (Christian Brabandt)
Files:      src/ops.c, src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.211
Problem:    ":lu" is an abbreviation for ":lua", but it should be ":lunmap".
            (ZyX)
Solution:   Move "lunmap" to above "lua".
Files:      src/ex_cmds.h

Patch 7.4.212 (after 7.4.200)
Problem:    Now that the +visual feature is always enabled the #ifdefs for it
            are not useful.
Solution:   Remove the checks for FEAT_VISUAL.
Files:      src/buffer.c, src/charset.c, src/edit.c, src/eval.c,
            src/ex_cmds.c, src/ex_docmd.c, src/fold.c, src/getchar.c,
            src/gui.c, src/gui_mac.c, src/gui_w48.c, src/main.c, src/mark.c,
            src/menu.c, src/misc2.c, src/move.c, src/netbeans.c, src/normal.c,
            src/ops.c, src/option.c, src/os_msdos.c, src/os_qnx.c,
            src/quickfix.c, src/regexp.c, src/regexp_nfa.c, src/screen.c,
```

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            src/search.c, src/spell.c, src/syntax.c, src/term.c, src/ui.c,
            src/undo.c, src/version.c, src/window.c, src/feature.h,
            src/globals.h, src/option.h, src/os_win32.h, src/structs.h

Patch 7.4.213
Problem:    It's not possible to open a new buffer without creating a swap
            file.
Solution:   Add the ":noswapfile" modifier. (Christian Brabandt)
Files:      runtime/doc/recover.txt, src/ex_cmds.h, src/ex_docmd.c,
            src/memline.c, src/structs.h

Patch 7.4.214
Problem:    Compilation problems on HP_nonStop (Tandem).
Solution:   Add #defines. (Joachim Schmitz)
Files:      src/vim.h

Patch 7.4.215
Problem:    Inconsistency: ":sp foo" does not reload "foo", unless "foo" is
            the current buffer. (Liang Li)
Solution:   Do not reload the current buffer on a split command.
Files:      runtime/doc/windows.txt, src/ex_docmd.c

Patch 7.4.216
Problem:    Compiler warnings. (Tony Mechelynck)
Solution:   Initialize variables, add #ifdef.
Files:      src/term.c, src/os_unix.h

Patch 7.4.217
Problem:    When src/auto/configure was updated, "make clean" would run
            configure pointlessly.
Solution:   Do not run configure for "make clean" and "make distclean" when
            the make program supports $MAKECMDGOALS. (Ken Takata)
Files:      src/Makefile

Patch 7.4.218
Problem:    It's not easy to remove duplicates from a list.
Solution:   Add the uniq() function. (Lcd)
Files:      runtime/doc/change.txt, runtime/doc/eval.txt,
            runtime/doc/usr_41.txt, runtime/doc/version7.txt, src/eval.c,
            src/testdir/test55.in, src/testdir/test55.ok

Patch 7.4.219
Problem:    When 'relativenumber' or 'cursorline' are set the window is
            redrawn much to often. (Patrick Hemmer, Dominique Pelle)
Solution:   Check the VALID_CROW flag instead of VALID_WROW.
Files:      src/move.c

Patch 7.4.220
Problem:    Test 105 does not work in a shadow dir. (James McCoy)
Solution:   Omit "src/" from the checked path.
Files:      src/testdir/test105.in, src/testdir/test105.ok

Patch 7.4.221
Problem:    Quickfix doesn't resize on ":copen 20". (issue 199)
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Solution:   Resize the window when requested. (Christian Brabandt)
Files:      src/quickfix.c

Patch 7.4.222
Problem:    The Ruby directory is constructed from parts.
Solution:   Use 'rubyarchhdrdir' if it exists. (James McCoy)
Files:      src/configure.in, src/auto/configure

Patch 7.4.223
Problem:    Still using an older autoconf version.
Solution:   Switch to autoconf 2.69.
Files:      src/Makefile, src/configure.in, src/auto/configure

Patch 7.4.224
Problem:    /usr/bin/grep on Solaris does not support -F.
Solution:   Add configure check to find a good grep. (Danek Duvall)
Files:      src/configure.in, src/auto/configure

Patch 7.4.225
Problem:    Dynamic Ruby doesn't work on Solaris.
Solution:   Always use the stubs. (Danek Duvall, Yukihiro Nakadaira)
Files:      src/if_ruby.c

Patch 7.4.226 (after 7.4.219)
Problem:    Cursorline highlighting not redrawn when scrolling. (John
            Marriott)
Solution:   Check for required redraw in two places.
Files:      src/move.c

Patch 7.4.227 (after 7.4.225)
Problem:    Can't build with Ruby 1.8.
Solution:   Do include a check for the Ruby version. (Ken Takata)
Files:      src/if_ruby.c

Patch 7.4.228
Problem:    Compiler warnings when building with Python 3.2.
Solution:   Make type cast depend on Python version. (Ken Takata)
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.4.229
Problem:    Using ":let" for listing variables and the second one is a curly
            braces expression may fail.
Solution:   Check for an "=" in a better way. (ZyX)
Files:      src/eval.c, src/testdir/test104.in, src/testdir/test104.ok

Patch 7.4.230
Problem:    Error when using ":options".
Solution:   Fix the entry for 'lispwords'. (Kenichi Ito)
Files:      runtime/optwin.vim

Patch 7.4.231
Problem:    An error in ":options" is not caught by the tests.
Solution:   Add a test for ":options".  Set $VIMRUNTIME for the tests so that
            it uses the current runtime files instead of the installed ones.
```

```
Files:      src/Makefile, src/testdir/Makefile, src/testdir/test_options.in,
            src/testdir/test_options.ok, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.4.232
Problem:    ":%s/\n//" uses a lot of memory. (Aidan Marlin)
Solution:   Turn this into a join command. (Christian Brabandt)
Files:      src/ex_cmds.c, src/ex_docmd.c, src/proto/ex_docmd.pro

Patch 7.4.233
Problem:    Escaping special characters for using "%" with a shell command is
            inconsistent, parentheses are escaped but spaces are not.
Solution:   Only escape "!". (Gary Johnson)
Files:      src/ex_docmd.c

Patch 7.4.234
Problem:    Can't get the command that was used to start Vim.
Solution:   Add v:progpath. (Viktor Kojouharov)
Files:      runtime/doc/eval.txt, src/eval.c, src/main.c, src/vim.h

Patch 7.4.235
Problem:    It is not easy to get the full path of a command.
Solution:   Add the exepath() function.
Files:      src/eval.c, src/misc1.c, src/os_amiga.c, src/os_msdos.c,
            src/os_unix.c, src/os_vms.c, src/os_win32.c,
            src/proto/os_amiga.pro, src/proto/os_msdos.pro,
            src/proto/os_unix.pro, src/proto/os_win32.pro,
            runtime/doc/eval.txt

Patch 7.4.236
Problem:    It's not that easy to check the Vim patch version.
Solution:   Make has("patch-7.4.123") work. (partly by Marc Weber)
Files:      runtime/doc/eval.txt, src/eval.c, src/testdir/test60.in,
            src/testdir/test60.ok

Patch 7.4.237 (after 7.4.236)
Problem:    When some patches were not included has("patch-7.4.123") may return
            true falsely.
Solution:   Check for the specific patch number.
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.4.238
Problem:    Vim does not support the smack library.
Solution:   Add smack support (Jose Bollo)
Files:      src/config.h.in, src/configure.in, src/fileio.c, src/memfile.c,
            src/os_unix.c, src/undo.c, src/auto/configure

Patch 7.4.239
Problem:    ":e +" does not position cursor at end of the file.
Solution:   Check for "+" being the last character (ZyX)
Files:      src/ex_docmd.c

Patch 7.4.240
```

```
Problem:    ":tjump" shows "\n" as "\\n".
Solution:   Skip over "\" that escapes a backslash. (Gary Johnson)
Files:      src/tag.c

Patch 7.4.241
Problem:    The string returned by submatch() does not distinguish between a
            NL from a line break and a NL that stands for a NUL character.
Solution:   Add a second argument to return a list. (ZyX)
Files:      runtime/doc/eval.txt, src/eval.c, src/proto/regexp.pro,
            src/regexp.c, src/testdir/test79.in, src/testdir/test79.ok,
            src/testdir/test80.in, src/testdir/test80.ok

Patch 7.4.242
Problem:    getreg() does not distinguish between a NL used for a line break
            and a NL used for a NUL character.
Solution:   Add another argument to return a list. (ZyX)
Files:      runtime/doc/eval.txt, src/eval.c src/ops.c, src/proto/ops.pro,
            src/vim.h, src/Makefile, src/testdir/test_eval.in,
            src/testdir/test_eval.ok, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms

Patch 7.4.243
Problem:    Cannot use setreg() to add text that includes a NUL.
Solution:   Make setreg() accept a list.
Files:      runtime/doc/eval.txt, src/eval.c, src/ops.c, src/proto/ops.pro,
            src/testdir/test_eval.in, src/testdir/test_eval.ok

Patch 7.4.244 (after 7.4.238)
Problem:    The smack feature causes stray error messages.
Solution:   Remove the error messages.
Files:      src/os_unix.c

Patch 7.4.245
Problem:    Crash for "vim -u NONE -N  -c '&&'".
Solution:   Check for the pattern to be NULL. (Dominique Pelle)
Files:      src/ex_cmds.c

Patch 7.4.246
Problem:    Configure message for detecting smack are out of sequence.
Solution:   Put the messages in the right place. (Kazunobu Kuriyama)
Files:      src/configure.in, src/auto/configure

Patch 7.4.247
Problem:    When passing input to system() there is no way to keep NUL and
            NL characters separate.
Solution:   Optionally use a list for the system() input. (ZyX)
Files:      runtime/doc/eval.txt, src/eval.c

Patch 7.4.248
Problem:    Cannot distinguish between NL and NUL in output of system().
Solution:   Add systemlist(). (ZyX)
Files:      runtime/doc/eval.txt, src/eval.c, src/ex_cmds2.c, src/misc1.c,
            src/proto/misc1.pro
```

```
Patch 7.4.249
Problem:    Using setreg() with a list of numbers does not work.
Solution:   Use a separate buffer for numbers. (ZyX)
Files:      src/eval.c, src/testdir/test_eval.in, src/testdir/test_eval.ok

Patch 7.4.250
Problem:    Some test files missing from distribution.
Solution:   Add pattern for newly added tests.
Files:      Filelist

Patch 7.4.251
Problem:    Crash when BufAdd autocommand wipes out the buffer.
Solution:   Check for buffer to still be valid. Postpone freeing the buffer
            structure. (Hirohito Higashi)
Files:      src/buffer.c, src/ex_cmds.c, src/fileio.c, src/globals.h

Patch 7.4.252
Problem:    Critical error in GTK, removing timer twice.
Solution:   Clear the timer after removing it. (James McCoy)
Files:      src/gui_gtk_x11.c

Patch 7.4.253
Problem:    Crash when using cpp syntax file with pattern using external
            match. (Havard Garnes)
Solution:   Discard match when end column is before start column.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.4.254
Problem:    Smack support detection is incomplete.
Solution:   Check for attr/xattr.h and specific macro.
Files:      src/configure.in, src/auto/configure

Patch 7.4.255
Problem:    Configure check for smack doesn't work with all shells. (David
            Larson)
Solution:   Remove spaces in set command.
Files:      src/configure.in, src/auto/configure

Patch 7.4.256 (after 7.4.248)
Problem:    Using systemlist() may cause a crash and does not handle NUL
            characters properly.
Solution:   Increase the reference count, allocate memory by length. (Yasuhiro
            Matsumoto)
Files:      src/eval.c

Patch 7.4.257
Problem:    Compiler warning, possibly for mismatch in parameter name.
Solution:   Rename the parameter in the declaration.
Files:      src/ops.c

Patch 7.4.258
Problem:    Configure fails if $CC contains options.
Solution:   Remove quotes around $CC. (Paul Barker)
```

```
Files:      src/configure.in, src/auto/configure

Patch 7.4.259
Problem:    Warning for misplaced "const".
Solution:   Move the "const". (Yukihiro Nakadaira)
Files:      src/os_unix.c

Patch 7.4.260
Problem:    It is possible to define a function with a colon in the name.  It
            is possible to define a function with a lower case character if a
            "#" appears after the name.
Solution:   Disallow using a colon other than with "s:".  Ignore "#" after the
            name.
Files:      runtime/doc/eval.txt, src/eval.c, src/testdir/test_eval.in,
            src/testdir/test_eval.ok

Patch 7.4.261
Problem:    When updating the window involves a regexp pattern, an interactive
            substitute to replace a "\n" with a line break fails. (Ingo
            Karkat)
Solution:   Set reg_line_lbr in vim_regsub() and vim_regsub_multi().
Files:      src/regexp.c, src/testdir/test79.in, src/testdir/test79.ok

Patch 7.4.262
Problem:    Duplicate code in regexec().
Solution:   Add line_lbr flag to regexec_nl().
Files:      src/regexp.c, src/regexp_nfa.c, src/regexp.h

Patch 7.4.263
Problem:    GCC 4.8 compiler warning for hiding a declaration (François Gannaz)
Solution:   Remove the second declaration.
Files:      src/eval.c

Patch 7.4.264 (after 7.4.260)
Problem:    Can't define a function starting with "g:".  Can't assign a
            funcref to a buffer-local variable.
Solution:   Skip "g:" at the start of a function name.  Don't check for colons
            when assigning to a variable.
Files:      src/eval.c, src/testdir/test_eval.in, src/testdir/test_eval.ok

Patch 7.4.265 (after 7.4.260)
Problem:    Can't call a global function with "g:" in an expression.
Solution:   Skip the "g:" when looking up the function.
Files:      src/eval.c, src/testdir/test_eval.in, src/testdir/test_eval.ok

Patch 7.4.266
Problem:    Test 62 fails.
Solution:   Set the language to C. (Christian Brabandt)
Files:      src/testdir/test62.in

Patch 7.4.267 (after 7.4.178)
Problem:    The '[ mark is in the wrong position after "gq". (Ingo Karkat)
Solution:   Add the setmark argument to do_join(). (Christian Brabandt)
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
```

```
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_autoformat_join.in,
            src/testdir/test_autoformat_join.ok, src/Makefile, src/edit.c,
            src/ex_cmds.c, src/ex_docmd.c, src/normal.c, src/ops.c,
            src/proto/ops.pro

Patch 7.4.268
Problem:    Using exists() on a funcref for a script-local function does not
            work.
Solution:   Translate <SNR> to the special byte sequence.  Add a test.
Files:      src/eval.c, src/testdir/test_eval.in, src/testdir/test_eval.ok,
            src/testdir/test_eval_func.vim, Filelist

Patch 7.4.269
Problem:    CTRL-U in Insert mode does not work after using a cursor key.
            (Pine Wu)
Solution:   Use the original insert start position. (Christian Brabandt)
Files:      src/edit.c, src/testdir/test29.in, src/testdir/test29.ok

Patch 7.4.270
Problem:    Comparing pointers instead of the string they point to.
Solution:   Use strcmp(). (Ken Takata)
Files:      src/gui_gtk_x11.c

Patch 7.4.271
Problem:    Compiler warning on 64 bit windows.
Solution:   Add type cast. (Mike Williams)
Files:      src/ops.c

Patch 7.4.272
Problem:    Using just "$" does not cause an error message.
Solution:   Check for empty environment variable name. (Christian Brabandt)
Files:      src/eval.c, src/testdir/test_eval.in, src/testdir/test_eval.ok

Patch 7.4.273
Problem:    "make autoconf" and "make reconfig" may first run configure and
            then remove the output.
Solution:   Add these targets to the exceptions. (Ken Takata)
Files:      src/Makefile

Patch 7.4.274
Problem:    When doing ":update" just before running an external command that
            changes the file, the timestamp may be unchanged and the file
            is not reloaded.
Solution:   Also check the file size.
Files:      src/fileio.c

Patch 7.4.275
Problem:    When changing the type of a sign that hasn't been placed there is
            no error message.
Solution:   Add an error message. (Christian Brabandt)
Files:      src/ex_cmds.c
```

```
Patch 7.4.276
Problem:    The fish shell is not supported.
Solution:   Use begin/end instead of () for fish. (Andy Russell)
Files:      src/ex_cmds.c, src/misc1.c, src/option.c, src/proto/misc1.pro

Patch 7.4.277
Problem:    Using ":sign unplace *" may leave the cursor in the wrong position
            (Christian Brabandt)
Solution:   Update the cursor position when removing all signs.
Files:      src/buffer.c

Patch 7.4.278
Problem:    list_remove() conflicts with function defined in Sun header file.
Solution:   Rename the function. (Richard Palo)
Files:      src/eval.c, src/if_lua.c, src/if_py_both.h, src/proto/eval.pro

Patch 7.4.279
Problem:    globpath() returns a string, making it difficult to get a list of
            matches. (Greg Novack)
Solution:   Add an optional argument like with glob(). (Adnan Zafar)
Files:      runtime/doc/eval.txt, src/eval.c, src/ex_getln.c, src/misc1.c,
            src/misc2.c, src/proto/ex_getln.pro, src/proto/misc2.pro,
            src/testdir/test97.in, src/testdir/test97.ok

Patch 7.4.280
Problem:    When using a session file the relative position of the cursor is
            not restored if there is another tab. (Nobuhiro Takasaki)
Solution:   Update w_wrow before calculating the fraction.
Files:      src/window.c

Patch 7.4.281
Problem:    When a session file has more than one tabpage and 'showtabline' is
            one the positions may be slightly off.
Solution:   Set 'showtabline' to two while positioning windows.
Files:      src/ex_docmd.c

Patch 7.4.282 (after 7.4.279)
Problem:    Test 97 fails on Mac.
Solution:   Do not ignore case in file names. (Jun Takimoto)
Files:      src/testdir/test97.in

Patch 7.4.283 (after 7.4.276)
Problem:    Compiler warning about unused variable. (Charles Cooper)
Solution:   Move the variable inside the #if block.
Files:      src/ex_cmds.c

Patch 7.4.284
Problem:    Setting 'langmap' in the modeline can cause trouble.  E.g. mapping
            ":" breaks many commands. (Jens-Wolfhard Schicke-Uffmann)
Solution:   Disallow setting 'langmap' from the modeline.
Files:      src/option.c

Patch 7.4.285
Problem:    When 'relativenumber' is set and deleting lines or undoing that,
```

            line numbers are not always updated. (Robert Arkwright)
Solution: (Christian Brabandt)
Files: src/misc1.c

Patch 7.4.286
Problem: Error messages are inconsistent. (ZyX)
Solution: Change "Lists" to "list".
Files: src/eval.c

Patch 7.4.287
Problem: Patches for .hgignore don't work, since the file is not in the
            distribution.
Solution: Add .hgignore to the distribution. Will be effective with the
            next version.
Files: Filelist

Patch 7.4.288
Problem: When 'spellfile' is set the screen is not redrawn.
Solution: Redraw when updating the spelling info. (Christian Brabandt)
Files: src/spell.c

Patch 7.4.289
Problem: Pattern with repeated backreference does not match with new regexp
            engine. (Urtica Dioica)
Solution: Also check the end of a submatch when deciding to put a state in
            the state list.
Files: src/testdir/test64.in, src/testdir/test64.ok, src/regexp_nfa.c

Patch 7.4.290
Problem: A non-greedy match followed by a branch is too greedy. (Ingo
            Karkat)
Solution: Add NFA_MATCH when it is already in the state list if the position
            differs.
Files: src/testdir/test64.in, src/testdir/test64.ok, src/regexp_nfa.c

Patch 7.4.291
Problem: Compiler warning for int to pointer of different size when DEBUG
            is defined.
Solution: use smsg() instead of EMSG3().
Files: src/regexp.c

Patch 7.4.292
Problem: Searching for "a" does not match accented "a" with new regexp
            engine, does match with old engine. (David Bürgin)
            "ca" does not match "ca" with accented "a" with either engine.
Solution: Change the old engine, check for following composing character
            also for single-byte patterns.
Files: src/regexp.c, src/testdir/test95.in, src/testdir/test95.ok

Patch 7.4.293
Problem: It is not possible to ignore composing characters at a specific
            point in a pattern.
Solution: Add the %C item.
Files: src/regexp.c, src/regexp_nfa.c, src/testdir/test95.in,

```
            src/testdir/test95.ok, runtime/doc/pattern.txt

Patch 7.4.294 (7.4.293)
Problem:    Test files missing from patch.
Solution:   Patch the test files.
Files:      src/testdir/test95.in, src/testdir/test95.ok

Patch 7.4.295
Problem:    Various typos, bad white space and unclear comments.
Solution:   Fix typos.  Improve white space. Update comments.
Files:      src/testdir/test49.in, src/macros.h, src/screen.c, src/structs.h,
            src/gui_gtk_x11.c, src/os_unix.c

Patch 7.4.296
Problem:    Can't run tests on Solaris.
Solution:   Change the way VIMRUNTIME is set. (Laurent Blume)
Files:      src/testdir/Makefile

Patch 7.4.297
Problem:    Memory leak from result of get_isolated_shell_name().
Solution:   Free the memory. (Dominique Pelle)
Files:      src/ex_cmds.c, src/misc1.c

Patch 7.4.298
Problem:    Can't have a funcref start with "t:".
Solution:   Add "t" to the list of accepted names. (Yukihiro Nakadaira)
Files:      src/eval.c

Patch 7.4.299
Problem:    When running configure twice DYNAMIC_PYTHON_DLL may become empty.
Solution:   Use AC_CACHE_VAL. (Ken Takata)
Files:      src/configure.in, src/auto/configure

Patch 7.4.300
Problem:    The way config.cache is removed doesn't always work.
Solution:   Always remove config.cache. (Ken Takata)
Files:      src/Makefile

Patch 7.4.301 (after 7.4.280)
Problem:    Still a scrolling problem when loading a session file.
Solution:   Fix off-by-one mistake. (Nobuhiro Takasaki)
Files:      src/window.c

Patch 7.4.302
Problem:    Signs placed with 'foldcolumn' set don't show up after filler
            lines.
Solution:   Take filler lines into account. (Olaf Dabrunz)
Files:      src/screen.c

Patch 7.4.303
Problem:    When using double-width characters the text displayed on the
            command line is sometimes truncated.
Solution:   Reset the string length. (Nobuhiro Takasaki)
Files:      src/screen.c
```

```
Patch 7.4.304
Problem:    Cannot always use Python with Vim.
Solution:   Add the manifest to the executable. (Jacques Germishuys)
Files:      src/Make_mvc.mak

Patch 7.4.305
Problem:    Making 'ttymouse' empty after the xterm version was requested
            causes problems. (Elijah Griffin)
Solution:   Do not check for DEC mouse sequences when the xterm version was
            requested.  Also don't request the xterm version when DEC mouse
            was enabled.
Files:      src/term.c, src/os_unix.c, src/proto/term.pro, src/globals.h

Patch 7.4.306
Problem:    getchar(0) does not return Esc.
Solution:   Do not wait for an Esc sequence to be complete.  (Yasuhiro
            Matsumoto)
Files:      src/eval.c, src/getchar.c

Patch 7.4.307 (after 7.4.305)
Problem:    Can't build without the +termresponse feature.
Solution:   Add proper #ifdefs.
Files:      src/os_unix.c, src/term.c

Patch 7.4.308
Problem:    When using ":diffsplit" on an empty file the cursor is displayed
            on the command line.
Solution:   Limit the value of w_topfill.
Files:      src/diff.c

Patch 7.4.309
Problem:    When increasing the size of the lower window, the upper window
            jumps back to the top. (Ron Aaron)
Solution:   Change setting the topline. (Nobuhiro Takasaki)
Files:      src/window.c

Patch 7.4.310
Problem:    getpos()/setpos() don't include curswant.
Solution:   Add a fifth number when getting/setting the cursor.
Files:      src/eval.c, src/testdir/test_eval.in, src/testdir/test_eval.ok,
            runtime/doc/eval.txt

Patch 7.4.311
Problem:    Can't use winrestview to only restore part of the view.
Solution:   Handle missing items in the dict. (Christian Brabandt)
Files:      src/eval.c, runtime/doc/eval.txt

Patch 7.4.312
Problem:    Cannot figure out what argument list is being used for a window.
Solution:   Add the arglistid() function. (Marcin Szamotulski)
Files:      runtime/doc/eval.txt, runtime/doc/usr_41.txt, src/eval.c,
            src/ex_docmd.c, src/globals.h, src/structs.h, src/main.c
```

```
Patch 7.4.313 (after 7.4.310)
Problem:    Changing the return value of getpos() causes an error. (Jie Zhu)
Solution:   Revert getpos() and add getcurpos().
Files:      src/eval.c, src/testdir/test_eval.in, src/testdir/test_eval.ok,
            runtime/doc/eval.txt

Patch 7.4.314
Problem:    Completion messages can get in the way of a plugin.
Solution:   Add 'c' flag to 'shortmess' option. (Shougo Matsu)
Files:      runtime/doc/options.txt, src/edit.c, src/option.h, src/screen.c

Patch 7.4.315 (after 7.4.309)
Problem:    Fixes for computation of topline not tested.
Solution:   Add test. (Hirohito Higashi)
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test107.in, src/testdir/test107.ok

Patch 7.4.316
Problem:    Warning from 64-bit compiler.
Solution:   Add type cast. (Mike Williams)
Files:      src/ex_getln.c

Patch 7.4.317
Problem:    Crash when starting gvim.  Issue 230.
Solution:   Check for a pointer to be NULL. (Christian Brabandt)
Files:      src/window.c

Patch 7.4.318
Problem:    Check for whether a highlight group has settings ignores fg and bg
            color settings.
Solution:   Also check cterm and GUI color settings. (Christian Brabandt)
Files:      src/syntax.c

Patch 7.4.319
Problem:    Crash when putting zero bytes on the clipboard.
Solution:   Do not support the utf8_atom target when not using a Unicode
            encoding. (Naofumi Honda)
Files:      src/ui.c

Patch 7.4.320
Problem:    Possible crash when an BufLeave autocommand deletes the buffer.
Solution:   Check for the window pointer being valid.  Postpone freeing the
            window until autocommands are done. (Yasuhiro Matsumoto)
Files:      src/buffer.c, src/fileio.c, src/globals.h, src/window.c

Patch 7.4.321
Problem:    Can't build with strawberry perl 5.20 + mingw-w64-4.9.0.
Solution:   Define save_strlen. (Ken Takata)
Files:      src/if_perl.xs

Patch 7.4.322
Problem:    Using "msgfmt" is hard coded, cannot use "gmsgfmt".
```

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Solution:   Use the msgfmt command found by configure. (Danek Duvall)
Files:      src/config.mk.in, src/po/Makefile

Patch 7.4.323
Problem:    Substitute() with zero width pattern breaks multi-byte character.
Solution:   Take multi-byte character size into account. (Yukihiro Nakadaira)
Files:      src/eval.c src/testdir/test69.in, src/testdir/test69.ok

Patch 7.4.324
Problem:    In Ex mode, cyrillic characters are not handled. (Stas Malavin)
Solution:   Support multi-byte characters in Ex mode. (Yukihiro Nakadaira)
Files:      src/ex_getln.c

Patch 7.4.325
Problem:    When starting the gui and changing the window size the status line
            may not be drawn correctly.
Solution:   Catch new_win_height() being called recursively. (Christian
            Brabandt)
Files:      src/window.c

Patch 7.4.326
Problem:    Can't build Tiny version. (Elimar Riesebieter)
Solution:   Add #ifdef.
Files:      src/window.c

Patch 7.4.327
Problem:    When 'verbose' is set to display the return value of a function,
            may get E724 repeatedly.
Solution:   Do not give an error for verbose messages. Abort conversion to
            string after an error.
Files:      src/eval.c

Patch 7.4.328
Problem:    Selection of inner block is inconsistent.
Solution:   Skip indent not only for '}' but all parens. (Tom McDonald)
Files:      src/search.c

Patch 7.4.329
Problem:    When moving the cursor and then switching to another window the
            previous window isn't scrolled. (Yukihiro Nakadaira)
Solution:   Call update_topline() before leaving the window. (Christian
            Brabandt)
Files:      src/window.c

Patch 7.4.330
Problem:    Using a regexp pattern to highlight a specific position can be
            slow.
Solution:   Add matchaddpos() to highlight specific positions efficiently.
            (Alexey Radkov)
Files:      runtime/doc/eval.txt, runtime/doc/usr_41.txt,
            runtime/plugin/matchparen.vim, src/eval.c, src/ex_docmd.c,
            src/proto/window.pro, src/screen.c, src/structs.h,
            src/testdir/test63.in, src/testdir/test63.ok, src/window.c
```

```
Patch 7.4.331
Problem:    Relative numbering not updated after a linewise yank.  Issue 235.
Solution:   Redraw after the yank. (Christian Brabandt)
Files:      src/ops.c

Patch 7.4.332
Problem:    GTK: When a sign icon doesn't fit exactly there can be ugly gaps.
Solution:   Scale the sign to fit when the aspect ratio is not too far off.
            (Christian Brabandt)
Files:      src/gui_gtk_x11.c

Patch 7.4.333
Problem:    Compiler warning for unused function.
Solution:   Put the function inside the #ifdef.
Files:      src/screen.c

Patch 7.4.334 (after 7.4.330)
Problem:    Uninitialized variables, causing some problems.
Solution:   Initialize the variables. (Dominique Pelle)
Files:      src/screen.c, src/window.c

Patch 7.4.335
Problem:    No digraph for the new rouble sign.
Solution:   Add the digraphs =R and =P.
Files:      src/digraph.c, runtime/doc/digraph.txt

Patch 7.4.336
Problem:    Setting 'history' to a big value causes out-of-memory errors.
Solution:   Limit the value to 10000. (Hirohito Higashi)
Files:      runtime/doc/options.txt, src/option.c

Patch 7.4.337
Problem:    When there is an error preparing to edit the command line, the
            command won't be executed. (Hirohito Higashi)
Solution:   Reset did_emsg before editing.
Files:      src/ex_getln.c

Patch 7.4.338
Problem:    Cannot wrap lines taking indent into account.
Solution:   Add the 'breakindent' option. (many authors, final improvements by
            Christian Brabandt)
Files:      runtime/doc/eval.txt, runtime/doc/options.txt, runtime/optwin.vim,
            src/buffer.c, src/charset.c, src/edit.c, src/ex_getln.c,
            src/getchar.c, src/misc1.c, src/misc2.c, src/ops.c, src/option.c,
            src/option.h, src/proto/charset.pro, src/proto/misc1.pro,
            src/proto/option.pro, src/screen.c, src/structs.h,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_breakindent.in, src/testdir/test_breakindent.ok,
            src/ui.c, src/version.c

Patch 7.4.339
Problem:    Local function is available globally.
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Solution:   Add "static".
Files:      src/option.c, src/proto/option.pro

Patch 7.4.340
Problem:    Error from sed about illegal bytes when installing Vim.
Solution:   Prepend LC_ALL=C. (Itchyny)
Files:      src/installman.sh

Patch 7.4.341
Problem:    sort() doesn't handle numbers well.
Solution:   Add an argument to specify sorting on numbers. (Christian Brabandt)
Files:      runtime/doc/eval.txt, src/eval.c, src/testdir/test55.in,
            src/testdir/test55.ok

Patch 7.4.342
Problem:    Clang gives warnings.
Solution:   Add an else block. (Dominique Pelle)
Files:      src/gui_beval.c

Patch 7.4.343
Problem:    matchdelete() does not always update the right lines.
Solution:   Fix off-by-one error.  (Ozaki Kiichi)
Files:      src/window.c

Patch 7.4.344
Problem:    Unnecessary initializations and other things related to
            matchaddpos().
Solution:   Code cleanup. (Alexey Radkov)
Files:      runtime/doc/eval.txt, src/screen.c, src/window.c

Patch 7.4.345 (after 7.4.338)
Problem:    Indent is not updated when deleting indent.
Solution:   Remember changedtick.
Files:      src/misc1.c

Patch 7.4.346 (after 7.4.338)
Problem:    Indent is not updated when changing 'breakindentopt'. (itchyny)
Solution:   Do not cache "brishift". (Christian Brabandt)
Files:      src/misc1.c

Patch 7.4.347
Problem:    test55 fails on some systems.
Solution:   Remove the elements that all result in zero and can end up in an
            arbitrary position.
Files:      src/testdir/test55.in, src/testdir/test55.ok

Patch 7.4.348
Problem:    When using "J1" in 'cinoptions' a line below a continuation line
            gets too much indent.
Solution:   Fix parentheses in condition.
Files:      src/misc1.c

Patch 7.4.349
Problem:    When there are matches to highlight the whole window is redrawn,
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            which is slow.
Solution:   Only redraw everything when lines were inserted or deleted.
            Reset b_mod_xlines when needed.  (Alexey Radkov)
Files:      src/screen.c, src/window.c

Patch 7.4.350
Problem:    Using C indenting for Javascript does not work well for a {} block
            inside parentheses.
Solution:   When looking for a matching paren ignore one that is before the
            start of a {} block.
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.4.351
Problem:    sort() is not stable.
Solution:   When the items are identical, compare the pointers.
Files:      src/eval.c, src/testdir/test55.in, src/testdir/test55.ok

Patch 7.4.352
Problem:    With 'linebreak' a tab causes a missing line break.
Solution:   Count a tab for what it's worth also for shorter lines.
            (Christian Brabandt)
Files:      src/charset.c

Patch 7.4.353
Problem:    'linebreak' doesn't work with the 'list' option.
Solution:   Make it work. (Christian Brabandt)
Files:      runtime/doc/options.txt, src/charset.c, src/screen.c,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_listlbr.in, src/testdir/test_listlbr.ok

Patch 7.4.354
Problem:    Compiler warning.
Solution:   Change NUL to NULL. (Ken Takata)
Files:      src/screen.c

Patch 7.4.355
Problem:    Several problems with Javascript indenting.
Solution:   Improve Javascript indenting.
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.4.356
Problem:    Mercurial does not ignore memfile_test. (Daniel Hahler)
Solution:   Add memfile_test to ignored files, remove trailing spaces.
Files:      .hgignore

Patch 7.4.357
Problem:    After completion some characters are not redrawn.
Solution:   Clear the command line unconditionally. (Jacob Niehus)
Files:      src/edit.c

Patch 7.4.358 (after 7.4.351)
Problem:    Sort is not always stable.
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Solution:   Add an index instead of relying on the pointer to remain the same.
            Idea by Jun Takimoto.
Files:      src/eval.c

Patch 7.4.359
Problem:    When 'ttymouse' is set to 'uxterm' the xterm version is not
            requested. (Tomas Janousek)
Solution:   Do not mark uxterm as a conflict mouse and add
            resume_get_esc_sequence().
Files:      src/term.c, src/os_unix.c, src/proto/term.pro

Patch 7.4.360
Problem:    In a regexp pattern a "$" followed by \v or \V is not seen as the
            end-of-line.
Solution:   Handle the situation. (Ozaki Kiichi)
Files:      src/regexp.c

Patch 7.4.361
Problem:    Lots of flickering when filling the preview window for 'omnifunc'.
Solution:   Disable redrawing. (Hirohito Higashi)
Files:      src/popupmnu.c

Patch 7.4.362
Problem:    When matchaddpos() uses a length smaller than the number of bytes
            in the (last) character the highlight continues until the end of
            the line.
Solution:   Change condition from equal to larger-or-equal.
Files:      src/screen.c

Patch 7.4.363
Problem:    In Windows console typing 0xCE does not work.
Solution:   Convert 0xCE to K_NUL 3. (Nobuhiro Takasaki et al.)
Files:      src/os_win32.c, src/term.c

Patch 7.4.364
Problem:    When the viminfo file can't be renamed there is no error message.
            (Vladimir Berezhnoy)
Solution:   Check for the rename to fail.
Files:      src/ex_cmds.c

Patch 7.4.365
Problem:    Crash when using ":botright split" when there isn't much space.
Solution:   Add a check for the minimum width/height. (Yukihiro Nakadaira)
Files:      src/window.c

Patch 7.4.366
Problem:    Can't run the linebreak test on MS-Windows.
Solution:   Fix the output file name. (Taro Muraoka)
Files:      src/testdir/Make_dos.mak

Patch 7.4.367 (after 7.4.357)
Problem:    Other solution for redrawing after completion.
Solution:   Schedule a window redraw instead of just clearing the command
            line. (Jacob Niehus)
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Files:      src/edit.c

Patch 7.4.368
Problem:    Restoring the window sizes after closing the command line window
            doesn't work properly if there are nested splits.
Solution:   Restore the sizes twice. (Hirohito Higashi)
Files:      src/window.c

Patch 7.4.369
Problem:    Using freed memory when exiting while compiled with EXITFREE.
Solution:   Set curwin to NULL and check for that. (Dominique Pelle)
Files:      src/buffer.c, src/window.c

Patch 7.4.370
Problem:    Linebreak test fails when encoding is not utf-8. (Danek Duvall)
Solution:   Split the test in a single byte one and a utf-8 one. (Christian
            Brabandt)
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_listlbr.in, src/testdir/test_listlbr.ok,
            src/testdir/test_listlbr_utf8.in, src/testdir/test_listlbr_utf8.ok

Patch 7.4.371
Problem:    When 'linebreak' is set control characters are not correctly
            displayed. (Kimmy Lindvall)
Solution:   Set n_extra. (Christian Brabandt)
Files:      src/screen.c

Patch 7.4.372
Problem:    When 'winminheight' is zero there might not be one line for the
            current window.
Solution:   Change the size computations. (Yukihiro Nakadaira)
Files:      src/window.c

Patch 7.4.373
Problem:    Compiler warning for unused argument and unused variable.
Solution:   Add UNUSED.  Move variable inside #ifdef.
Files:      src/charset.c, src/window.c

Patch 7.4.374
Problem:    Character after "fb" command not mapped if it might be a composing
            character.
Solution:   Don't disable mapping when looking for a composing character.
            (Jacob Niehus)
Files:      src/normal.c

Patch 7.4.375
Problem:    Test 63 fails when run with GUI-only Vim.
Solution:   Add guibg attributes. (suggested by Mike Soyka)
Files:      src/testdir/test63.in

Patch 7.4.376 (after 7.4.367)
Problem:    Popup menu flickers too much.
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Solution:   Remove the forced redraw. (Hirohito Higashi)
Files:      src/edit.c

Patch 7.4.377
Problem:    When 'equalalways' is set a split may report "no room" even though
            there is plenty of room.
Solution:   Compute the available room properly. (Yukihiro Nakadaira)
Files:      src/window.c

Patch 7.4.378
Problem:    Title of quickfix list is not kept for setqflist(list, 'r').
Solution:   Keep the title.  Add a test. (Lcd)
Files:      src/quickfix.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_qf_title.in,
            src/testdir/test_qf_title.ok

Patch 7.4.379
Problem:    Accessing freed memory after using setqflist(list, 'r'). (Lcd)
Solution:   Reset qf_index.
Files:      src/quickfix.c

Patch 7.4.380
Problem:    Loading python may cause Vim to exit.
Solution:   Avoid loading the "site" module. (Taro Muraoka)
Files:      src/if_python.c

Patch 7.4.381
Problem:    Get u_undo error when backspacing in Insert mode deletes more than
            one line break. (Ayberk Ozgur)
Solution:   Also decrement Insstart.lnum.
Files:      src/edit.c

Patch 7.4.382
Problem:    Mapping characters may not work after typing Esc in Insert mode.
Solution:   Fix the noremap flags for inserted characters. (Jacob Niehus)
Files:      src/getchar.c

Patch 7.4.383
Problem:    Bad interaction between preview window and omnifunc.
Solution:   Avoid redrawing the status line. (Hirohito Higashi)
Files:      src/popupmnu.c

Patch 7.4.384
Problem:    Test 102 fails when compiled with small features.
Solution:   Source small.vim. (Jacob Niehus)
Files:      src/testdir/test102.in

Patch 7.4.385
Problem:    When building with tiny or small features building the .mo files
            fails.
Solution:   In autoconf do not setup for building the .mo files when it would
            fail.
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Files:      src/configure.in, src/auto/configure

Patch 7.4.386
Problem:    When splitting a window the changelist position is wrong.
Solution:   Copy the changelist position. (Jacob Niehus)
Files:      src/window.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_changelist.in,
            src/testdir/test_changelist.ok

Patch 7.4.387
Problem:    "4gro" replaces one character then executes "ooo". (Urtica Dioica)
Solution:   Write the ESC in the second stuff buffer.
Files:      src/getchar.c, src/proto/getchar.pro, src/edit.c,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_insertcount.in, src/testdir/test_insertcount.ok

Patch 7.4.388
Problem:    With 'linebreak' set and 'list' unset a Tab is not counted
            properly. (Kent Sibilev)
Solution:   Check the 'list' option. (Christian Brabandt)
Files:      src/screen.c, src/testdir/test_listlbr_utf8.in,
            src/testdir/test_listlbr_utf8.ok

Patch 7.4.389
Problem:    Still sometimes Vim enters Replace mode when starting up.
Solution:   Use a different solution in detecting the termresponse and
            location response. (Hayaki Saito)
Files:      src/globals.h, src/os_unix.c, src/term.c, src/proto/term.pro

Patch 7.4.390
Problem:    Advancing pointer over end of a string.
Solution:   Init quote character to -1 instead of zero. (Dominique Pelle)
Files:      src/misc1.c

Patch 7.4.391
Problem:    No 'cursorline' highlighting when the cursor is on a line with
            diff highlighting. (Benjamin Fritz)
Solution:   Combine the highlight attributes. (Christian Brabandt)
Files:      src/screen.c

Patch 7.4.392
Problem:    Not easy to detect type of command line window.
Solution:   Add the getcmdwintype() function. (Jacob Niehus)
Files:      src/eval.c

Patch 7.4.393
Problem:    Text drawing on newer MS-Windows systems is suboptimal.  Some
            multi-byte characters are not displayed, even though the same font
            in Notepad can display them. (Srinath Avadhanula)
Solution:   Add the 'renderoptions' option to enable DirectX drawing. (Taro
```

            Muraoka)
Files: runtime/doc/eval.txt, runtime/doc/options.txt,
            runtime/doc/various.txt, src/Make_cyg.mak, src/Make_ming.mak,
            src/Make_mvc.mak, src/eval.c, src/gui_dwrite.cpp,
            src/gui_dwrite.h, src/gui_w32.c, src/gui_w48.c, src/option.c,
            src/option.h, src/version.c, src/vim.h, src/proto/gui_w32.pro

Patch 7.4.394 (after 7.4.393)
Problem: When using DirectX last italic character is incomplete.
Solution: Add one to the number of cells. (Ken Takata)
Files: src/gui_w32.c

Patch 7.4.395 (after 7.4.355)
Problem: C indent is wrong below an if with wrapped condition followed by
            curly braces. (Trevor Powell)
Solution: Make a copy of tryposBrace.
Files: src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.4.396
Problem: When 'clipboard' is "unnamed", :g/pat/d is very slow. (Praful)
Solution: Only set the clipboard after the last delete. (Christian Brabandt)
Files: src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c, src/globals.h,
            src/ops.c, src/proto/ui.pro, src/ui.c

Patch 7.4.397
Problem: Matchparen only uses the topmost syntax item.
Solution: Go through the syntax stack to find items. (James McCoy)
            Also use getcurpos() when possible.
Files: runtime/plugin/matchparen.vim

Patch 7.4.398 (after 7.4.393)
Problem: Gcc error for the argument of InterlockedIncrement() and
            InterlockedDecrement(). (Axel Bender)
Solution: Remove "unsigned" from the cRefCount_ declaration.
Files: src/gui_dwrite.cpp

Patch 7.4.399
Problem: Encryption implementation is messy. Blowfish encryption has a
            weakness.
Solution: Refactor the encryption, store the state in an allocated struct
            instead of using a save/restore mechanism. Introduce the
            "blowfish2" method, which does not have the weakness and encrypts
            the whole undo file. (largely by David Leadbeater)
Files: runtime/doc/editing.txt, runtime/doc/options.txt, src/Makefile,
            src/blowfish.c, src/crypt.c, src/crypt_zip.c, src/ex_docmd.c,
            src/fileio.c, src/globals.h, src/main.c, src/memline.c,
            src/misc2.c, src/option.c, src/proto.h, src/proto/blowfish.pro,
            src/proto/crypt.pro, src/proto/crypt_zip.pro,
            src/proto/fileio.pro, src/proto/misc2.pro, src/structs.h,
            src/undo.c, src/testdir/test71.in, src/testdir/test71.ok,
            src/testdir/test71a.in, src/testdir/test72.in,
            src/testdir/test72.ok

Patch 7.4.400

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Problem:    List of distributed files is incomplete.
Solution:   Add recently added files.
Files:      Filelist

Patch 7.4.401 (after 7.4.399)
Problem:    Can't build on MS-Windows.
Solution:   Include the new files in all the Makefiles.
Files:      src/Make_bc3.mak, src/Make_bc5.mak, src/Make_cyg.mak,
            src/Make_dice.mak, src/Make_djg.mak, src/Make_ivc.mak,
            src/Make_manx.mak, src/Make_ming.mak, src/Make_morph.mak,
            src/Make_mvc.mak, src/Make_os2.mak, src/Make_sas.mak,
            Make_vms.mms

Patch 7.4.402
Problem:    Test 72 crashes under certain conditions. (Kazunobu Kuriyama)
Solution:   Clear the whole bufinfo_T early.
Files:      src/undo.c

Patch 7.4.403
Problem:    Valgrind reports errors when running test 72. (Dominique Pelle)
Solution:   Reset the local 'cryptmethod' option before storing the seed.
            Set the seed in the memfile even when there is no block0 yet.
Files:      src/fileio.c, src/option.c, src/memline.c

Patch 7.4.404
Problem:    Windows 64 bit compiler warnings.
Solution:   Add type casts. (Mike Williams)
Files:      src/crypt.c, src/undo.c

Patch 7.4.405
Problem:    Screen updating is slow when using matches.
Solution:   Do not use the ">=" as in patch 7.4.362, check the lnum.
Files:      src/screen.c, src/testdir/test63.in, src/testdir/test63.ok

Patch 7.4.406
Problem:    Test 72 and 100 fail on MS-Windows.
Solution:   Set fileformat to unix in the tests. (Taro Muraoka)
Files:      src/testdir/test72.in, src/testdir/test100.in

Patch 7.4.407
Problem:    Inserting text for Visual block mode, with cursor movement,
            repeats the wrong text. (Aleksandar Ivanov)
Solution:   Reset the update_Insstart_orig flag. (Christian Brabandt)
Files:      src/edit.c, src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.408
Problem:    Visual block insert breaks a multi-byte character.
Solution:   Calculate the position properly. (Yasuhiro Matsumoto)
Files:      src/ops.c, src/testdir/test_utf8.in, src/testdir/test_utf8.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.409
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Problem:    Can't build with Perl on Fedora 20.
Solution:   Find xsubpp in another directory. (Michael Henry)
Files:      src/Makefile, src/config.mk.in, src/configure.in,
            src/auto/configure

Patch 7.4.410
Problem:    Fold does not open after search when there is a CmdwinLeave
            autocommand.
Solution:   Restore KeyTyped. (Jacob Niehus)
Files:      src/ex_getln.c

Patch 7.4.411
Problem:    "foo bar" sorts before "foo" with sort(). (John Little)
Solution:   Avoid putting quotes around strings before comparing them.
Files:      src/eval.c

Patch 7.4.412
Problem:    Can't build on Windows XP with MSVC.
Solution:   Add SUBSYSTEM_VER to the Makefile. (Yongwei Wu)
Files:      src/Make_mvc.mak, src/INSTALLpc.txt

Patch 7.4.413
Problem:    MS-Windows: Using US international keyboard layout, inserting dead
            key by pressing space does not always work.  Issue 250.
Solution:   Let MS-Windows translate the message. (John Wellesz)
Files:      src/gui_w48.c

Patch 7.4.414
Problem:    Cannot define a command only when it's used.
Solution:   Add the CmdUndefined autocommand event. (partly by Yasuhiro
            Matsumoto)
Files:      runtime/doc/autocmd.txt, src/ex_docmd.c, src/fileio.c,
            src/proto/fileio.pro

Patch 7.4.415 (after 7.4.414)
Problem:    Cannot build.  Warning for shadowed variable. (John Little)
Solution:   Add missing change.  Remove declaration.
Files:      src/vim.h, src/ex_docmd.c

Patch 7.4.416
Problem:    Problem with breakindent/showbreak and tabs.
Solution:   Handle tabs differently. (Christian Brabandt)
Files:      src/testdir/test_breakindent.in, src/testdir/test_breakindent.ok,
            src/charset.c

Patch 7.4.417
Problem:    After splitting a window and setting 'breakindent' the default
            minimum with is not respected.
Solution:   Call briopt_check() when copying options to a new window.
Files:      src/option.c, src/proto/option.pro,
            src/testdir/test_breakindent.in

Patch 7.4.418
Problem:    When leaving ":append" the cursor shape is like in Insert mode.
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            (Jacob Niehus)
Solution:   Do not have State set to INSERT when calling getline().
Files:      src/ex_cmds.c

Patch 7.4.419
Problem:    When part of a list is locked it's possible to make changes.
Solution:   Check if any of the list items is locked before make a change.
            (ZyX)
Files:      src/eval.c, src/testdir/test55.in, src/testdir/test55.ok

Patch 7.4.420
Problem:    It's not obvious how to add a new test.
Solution:   Add a README file. (Christian Brabandt)
Files:      src/testdir/README.txt

Patch 7.4.421
Problem:    Crash when searching for "\ze*". (Urtica Dioica)
Solution:   Disallow a multi after \ze and \zs.
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.422
Problem:    When using conceal with linebreak some text is not displayed
            correctly. (Grüner Gimpel)
Solution:   Check for conceal mode when using linebreak. (Christian Brabandt)
Files:      src/screen.c, src/testdir/test_listlbr.in,
            src/testdir/test_listlbr.ok

Patch 7.4.423
Problem:    expand("$shell") does not work as documented.
Solution:   Do not escape the $ when expanding environment variables.
Files:      src/os_unix.c, src/misc1.c, src/vim.h

Patch 7.4.424
Problem:    Get ml_get error when using Python to delete lines in a buffer
            that is not in a window.  issue 248.
Solution:   Do not try adjusting the cursor for a different buffer.
Files:      src/if_py_both.h

Patch 7.4.425
Problem:    When 'showbreak' is used "gj" may move to the wrong position.
            (Nazri Ramliy)
Solution:   Adjust virtcol when 'showbreak' is set. (Christian Brabandt)
Files:      src/normal.c

Patch 7.4.426
Problem:    README File missing from list of files.
Solution:   Update the list of files.
Files:      Filelist

Patch 7.4.427
Problem:    When an InsertCharPre autocommand executes system() typeahead may
            be echoed and messes up the display. (Jacob Niehus)
Solution:   Do not set cooked mode when invoked from ":silent".
Files:      src/eval.c, runtime/doc/eval.txt
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Patch 7.4.428
Problem:    executable() may return a wrong result on MS-Windows.
Solution:   Change the way SearchPath() is called. (Yasuhiro Matsumoto, Ken
            Takata)
Files:      src/os_win32.c

Patch 7.4.429
Problem:    Build fails with fewer features. (Elimar Riesebieter)
Solution:   Add #ifdef.
Files:      src/normal.c

Patch 7.4.430
Problem:    test_listlbr fails when compiled with normal features.
Solution:   Check for the +conceal feature.
Files:      src/testdir/test_listlbr.in

Patch 7.4.431
Problem:    Compiler warning.
Solution:   Add type cast. (Mike Williams)
Files:      src/ex_docmd.c

Patch 7.4.432
Problem:    When the startup code expands command line arguments, setting
            'encoding' will not properly convert the arguments.
Solution:   Call get_cmd_argsW() early in main(). (Yasuhiro Matsumoto)
Files:      src/os_win32.c, src/main.c, src/os_mswin.c

Patch 7.4.433
Problem:    Test 75 fails on MS-Windows.
Solution:   Use ":normal" instead of feedkeys(). (Michael Soyka)
Files:      src/testdir/test75.in

Patch 7.4.434
Problem:    gettabvar() is not consistent with getwinvar() and getbufvar().
Solution:   Return a dict with all variables when the varname is empty.
            (Yasuhiro Matsumoto)
Files:      src/eval.c, runtime/doc/eval.txt, src/testdir/test91.in,
            src/testdir/test91.ok

Patch 7.4.435
Problem:    Line formatting behaves differently when 'linebreak' is set.
            (mvxxc)
Solution:   Disable 'linebreak' temporarily. (Christian Brabandt)
Files:      src/edit.c

Patch 7.4.436
Problem:    ml_get error for autocommand that moves the cursor of the current
            window.
Solution:   Check the cursor position after switching back to the current
            buffer.  (Christian Brabandt)
Files:      src/fileio.c

Patch 7.4.437
```

```
Problem:    New and old regexp engine are not consistent.
Solution:   Also give an error for "\ze*" for the old regexp engine.
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.4.438
Problem:    Cached values for 'cino' not reset for ":set all&".
Solution:   Call parse_cino(). (Yukihiro Nakadaira)
Files:      src/option.c

Patch 7.4.439
Problem:    Duplicate message in message history.  Some quickfix messages
            appear twice. (Gary Johnson)
Solution:   Do not reset keep_msg too early. (Hirohito Higashi)
Files:      src/main.c

Patch 7.4.440
Problem:    Omni complete popup drawn incorrectly.
Solution:   Call validate_cursor() instead of check_cursor(). (Hirohito
            Higashi)
Files:      src/edit.c

Patch 7.4.441
Problem:    Endless loop and other problems when 'cedit' is set to CTRL-C.
Solution:   Do not call ex_window() when ex_normal_busy or got_int was set.
            (Yasuhiro Matsumoto)
Files:      src/ex_getln.c

Patch 7.4.442 (after 7.4.434)
Problem:    Using uninitialized variable.
Solution:   Pass the first window of the tabpage.
Files:      src/eval.c

Patch 7.4.443
Problem:    Error reported by ubsan when running test 72.
Solution:   Add type cast to unsigned. (Dominique Pelle)
Files:      src/undo.c

Patch 7.4.444
Problem:    Reversed question mark not recognized as punctuation. (Issue 258)
Solution:   Add the Supplemental Punctuation range.
Files:      src/mbyte.c

Patch 7.4.445
Problem:    Clipboard may be cleared on startup.
Solution:   Set clip_did_set_selection to -1 during startup. (Christian
            Brabandt)
Files:      src/main.c, src/ui.c

Patch 7.4.446
Problem:    In some situations, when setting up an environment to trigger an
            autocommand, the environment is not properly restored.
Solution:   Check the return value of switch_win() and call restore_win()
            always.  (Daniel Hahler)
Files:      src/eval.c, src/misc2.c, src/window.c
```

```
Patch 7.4.447
Problem:    Spell files from Hunspell may generate a lot of errors.
Solution:   Add the IGNOREEXTRA flag.
Files:      src/spell.c, runtime/doc/spell.txt

Patch 7.4.448
Problem:    Using ETO_IGNORELANGUAGE causes problems.
Solution:   Remove this flag. (Paul Moore)
Files:      src/gui_w32.c

Patch 7.4.449
Problem:    Can't easily close the help window. (Chris Gaal)
Solution:   Add ":helpclose". (Christian Brabandt)
Files:      runtime/doc/helphelp.txt, runtime/doc/index.txt, src/ex_cmds.c,
            src/ex_cmds.h, src/proto/ex_cmds.pro

Patch 7.4.450
Problem:    Not all commands that edit another buffer support the +cmd
            argument.
Solution:   Add the +cmd argument to relevant commands. (Marcin Szamotulski)
Files:      runtime/doc/windows.txt, src/ex_cmds.h, src/ex_docmd.c

Patch 7.4.451
Problem:    Calling system() with empty input gives an error for writing the
            temp file.
Solution:   Do not try writing if the string length is zero. (Olaf Dabrunz)
Files:      src/eval.c

Patch 7.4.452
Problem:    Can't build with tiny features. (Tony Mechelynck)
Solution:   Use "return" instead of "break".
Files:      src/ex_cmds.c

Patch 7.4.453
Problem:    Still can't build with tiny features.
Solution:   Add #ifdef.
Files:      src/ex_cmds.c

Patch 7.4.454
Problem:    When using a Visual selection of multiple words and doing CTRL-W_]
            it jumps to the tag matching the word under the cursor, not the
            selected text.  (Patrick hemmer)
Solution:   Do not reset Visual mode. (idea by Christian Brabandt)
Files:      src/window.c

Patch 7.4.455
Problem:    Completion for :buf does not use 'wildignorecase'. (Akshay H)
Solution:   Pass the 'wildignorecase' flag around.
Files:      src/buffer.c

Patch 7.4.456
Problem:    'backupcopy' is global, cannot write only some files in a
            different way.
```

```
Solution:   Make 'backupcopy' global-local. (Christian Brabandt)
Files:      runtime/doc/options.txt, src/buffer.c, src/fileio.c, src/option.c,
            src/option.h, src/proto/option.pro, src/structs.h

Patch 7.4.457
Problem:    Using getchar() in an expression mapping may result in
            K_CURSORHOLD, which can't be recognized.
Solution:   Add the <CursorHold> key.  (Hirohito Higashi)
Files:      src/misc2.c

Patch 7.4.458
Problem:    Issue 252: Cursor moves in a zero-height window.
Solution:   Check for zero height. (idea by Christian Brabandt)
Files:      src/move.c

Patch 7.4.459
Problem:    Can't change the icon after building Vim.
Solution:   Load the icon from a file on startup. (Yasuhiro Matsumoto)
Files:      src/gui_w32.c, src/os_mswin.c, src/os_win32.c,
            src/proto/os_mswin.pro

Patch 7.4.460 (after 7.4.454)
Problem:    Can't build without the quickfix feature. (Erik Falor)
Solution:   Add a #ifdef.
Files:      src/window.c

Patch 7.4.461
Problem:    MS-Windows: When collate is on the number of copies is too high.
Solution:   Only set the collated/uncollated count when collate is on.
            (Yasuhiro Matsumoto)
Files:      src/os_mswin.c

Patch 7.4.462
Problem:    Setting the local value of 'backupcopy' empty gives an error.
            (Peter Mattern)
Solution:   When using an empty value set the flags to zero. (Hirohito
            Higashi)
Files:      src/option.c

Patch 7.4.463
Problem:    Test 86 and 87 may hang on MS-Windows.
Solution:   Call inputrestore() after inputsave(). (Ken Takata)
Files:      src/testdir/test86.in, src/testdir/test87.in

Patch 7.4.464 (after 7.4.459)
Problem:    Compiler warning.
Solution:   Add type cast. (Ken Takata)
Files:      src/gui_w32.c

Patch 7.4.465 (after 7.4.016)
Problem:    Crash when expanding a very long string.
Solution:   Use wcsncpy() instead of wcscpy(). (Ken Takata)
Files:      src/os_win32.c
```

```
Patch 7.4.466 (after 7.4.460)
Problem:    CTRL-W } does not open preview window. (Erik Falor)
Solution:   Don't set g_do_tagpreview for CTRL-W }.
Files:      src/window.c

Patch 7.4.467
Problem:    'linebreak' does not work well together with Visual mode.
Solution:   Disable 'linebreak' while applying an operator.  Fix the test.
            (Christian Brabandt)
Files:      src/normal.c, src/screen.c, src/testdir/test_listlbr.in,
            src/testdir/test_listlbr.ok

Patch 7.4.468
Problem:    Issue 26: CTRL-C does not interrupt after it was mapped and then
            unmapped.
Solution:   Reset mapped_ctrl_c. (Christian Brabandt)
Files:      src/getchar.c

Patch 7.4.469 (after 7.4.467)
Problem:    Can't build with MSVC. (Ken Takata)
Solution:   Move the assignment after the declarations.
Files:      src/normal.c

Patch 7.4.470
Problem:    Test 11 and 100 do not work properly on Windows.
Solution:   Avoid using feedkeys(). (Ken Takata)
Files:      src/testdir/Make_dos.mak, src/testdir/test11.in,
            src/testdir/test100.in

Patch 7.4.471
Problem:    MS-Windows: When printer name contains multi-byte, the name is
            displayed as ???.
Solution:   Convert the printer name from the active codepage to 'encoding'.
            (Yasuhiro Matsumoto)
Files:      src/os_mswin.c

Patch 7.4.472
Problem:    The "precedes" entry in 'listchar' will be drawn when 'showbreak'
            is set and 'list' is not.
Solution:   Only draw this character when 'list' is on. (Christian Brabandt)
Files:      src/screen.c

Patch 7.4.473
Problem:    Cursor movement is incorrect when there is a number/sign/fold
            column and 'sbr' is displayed.
Solution:   Adjust the column for 'sbr'. (Christian Brabandt)
Files:      src/charset.c

Patch 7.4.474
Problem:    AIX compiler can't handle // comment.  Issue 265.
Solution:   Remove that line.
Files:      src/regexp_nfa.c

Patch 7.4.475
```

```
Problem:    Can't compile on a system where Xutf8SetWMProperties() is not in
            the X11 library.  Issue 265.
Solution:   Add a configure check.
Files:      src/configure.in, src/auto/configure, src/config.h.in,
            src/os_unix.c

Patch 7.4.476
Problem:    MingW: compiling with "XPM=no" doesn't work.
Solution:   Check for the "no" value. (KF Leong)  Also for Cygwin. (Ken
            Takata)
Files:      src/Make_ming.mak, src/Make_cyg.mak

Patch 7.4.477
Problem:    When using ":%diffput" and the other file is empty an extra empty
            line remains.
Solution:   Set the buf_empty flag.
Files:      src/diff.c

Patch 7.4.478
Problem:    Using byte length instead of character length for 'showbreak'.
Solution:   Compute the character length. (Marco Hinz)
Files:      src/charset.c

Patch 7.4.479
Problem:    MS-Windows: The console title can be wrong.
Solution:   Take the encoding into account. When restoring the title use the
            right function. (Yasuhiro Matsumoto)
Files:      src/os_mswin.c, src/os_win32.c

Patch 7.4.480 (after 7.4.479)
Problem:    MS-Windows: Can't build.
Solution:   Remove goto, use a flag instead.
Files:      src/os_win32.c

Patch 7.4.481 (after 7.4.471)
Problem:    Compiler warning on MS-Windows.
Solution:   Add type casts. (Ken Takata)
Files:      src/os_mswin.c

Patch 7.4.482
Problem:    When 'balloonexpr' results in a list, the text has a trailing
            newline. (Lcd)
Solution:   Remove one trailing newline.
Files:      src/gui_beval.c

Patch 7.4.483
Problem:    A 0x80 byte is not handled correctly in abbreviations.
Solution:   Unescape special characters. Add a test. (Christian Brabandt)
Files:      src/getchar.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_mapping.in,
            src/testdir/test_mapping.ok
```

```
Patch 7.4.484 (after 7.4.483)
Problem:    Compiler warning on MS-Windows. (Ken Takata)
Solution:   Add type cast.
Files:      src/getchar.c

Patch 7.4.485 (after 7.4.484)
Problem:    Abbreviations don't work. (Toothpik)
Solution:   Move the length computation inside the for loop.  Compare against
            the unescaped key.
Files:      src/getchar.c

Patch 7.4.486
Problem:    Check for writing to a yank register is wrong.
Solution:   Negate the check. (Zyx).  Also clean up the #ifdefs.
Files:      src/ex_docmd.c, src/ex_cmds.h

Patch 7.4.487
Problem:    ":sign jump" may use another window even though the file is
            already edited in the current window.
Solution:   First check if the file is in the current window. (James McCoy)
Files:      src/window.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_signs.in,
            src/testdir/test_signs.ok

Patch 7.4.488
Problem:    test_mapping fails for some people.
Solution:   Set the 'encoding' option. (Ken Takata)
Files:      src/testdir/test_mapping.in

Patch 7.4.489
Problem:    Cursor movement still wrong when 'lbr' is set and there is a
            number column. (Hirohito Higashi)
Solution:   Add correction for number column. (Hiroyuki Takagi)
Files:      src/charset.c

Patch 7.4.490
Problem:    Cannot specify the buffer to use for "do" and "dp", making them
            useless for three-way diff.
Solution:   Use the count as the buffer number. (James McCoy)
Files:      runtime/doc/diff.txt, src/diff.c, src/normal.c, src/proto/diff.pro

Patch 7.4.491
Problem:    When winrestview() has a negative "topline" value there are
            display errors.
Solution:   Correct a negative value to 1. (Hirohito Higashi)
Files:      src/eval.c

Patch 7.4.492
Problem:    In Insert mode, after inserting a newline that inserts a comment
            leader, CTRL-O moves to the right. (ZyX) Issue 57.
Solution:   Correct the condition for moving the cursor back to the NUL.
            (Christian Brabandt)
```

```
Files:      src/edit.c, src/testdir/test4.in, src/testdir/test4.ok

Patch 7.4.493
Problem:    A TextChanged autocommand is triggered when saving a file.
            (William Gardner)
Solution:   Update last_changedtick after calling unchanged(). (Christian
            Brabandt)
Files:      src/fileio.c

Patch 7.4.494
Problem:    Cursor shape is wrong after a CompleteDone autocommand.
Solution:   Update the cursor and mouse shape after ":normal" restores the
            state. (Jacob Niehus)
Files:      src/ex_docmd.c

Patch 7.4.495
Problem:    XPM isn't used correctly in the Cygwin Makefile.
Solution:   Include the rules like in Make_ming.mak. (Ken Takata)
Files:      src/Make_cyg.mak

Patch 7.4.496
Problem:    Many lines are both in Make_cyg.mak and Make_ming.mak
Solution:   Move the common parts to one file. (Ken Takata)
Files:      src/INSTALLpc.txt, src/Make_cyg.mak, src/Make_cyg_ming.mak,
            src/Make_ming.mak, src/Make_mvc.mak, Filelist

Patch 7.4.497
Problem:    With some regexp patterns the NFA engine uses many states and
            becomes very slow.  To the user it looks like Vim freezes.
Solution:   When the number of states reaches a limit fall back to the old
            engine. (Christian Brabandt)
Files:      runtime/doc/options.txt, src/Makefile, src/regexp.c, src/regexp.h,
            src/regexp_nfa.c, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Makefile, src/testdir/samples/re.freeze.txt,
            src/testdir/bench_re_freeze.in, src/testdir/bench_re_freeze.vim,
            Filelist

Patch 7.4.498 (after 7.4.497)
Problem:    Typo in DOS makefile.
Solution:   Change exists to exist. (Ken Takata)
Files:      src/testdir/Make_dos.mak

Patch 7.4.499
Problem:    substitute() can be slow with long strings.
Solution:   Store a pointer to the end, instead of calling strlen() every
            time. (Ozaki Kiichi)
Files:      src/eval.c

Patch 7.4.500
Problem:    Test 72 still fails once in a while.
Solution:   Don't set 'fileformat' to unix, reset it. (Ken Takata)
Files:      src/testdir/test72.in
```

```
Patch 7.4.501 (after 7.4.497)
Problem:    Typo in file pattern.
Solution:   Insert a slash and remove a dot.
Files:      Filelist

Patch 7.4.502
Problem:    Language mapping also applies to mapped characters.
Solution:   Add the 'langnoremap' option, when on 'langmap' does not apply to
            mapped characters. (Christian Brabandt)
Files:      runtime/doc/options.txt, runtime/vimrc_example.vim, src/macros.h,
            src/option.c, src/option.h

Patch 7.4.503
Problem:    Cannot append a list of lines to a file.
Solution:   Add the append option to writefile(). (Yasuhiro Matsumoto)
Files:      runtime/doc/eval.txt, src/Makefile, src/eval.c,
            src/testdir/test_writefile.in, src/testdir/test_writefile.ok

Patch 7.4.504
Problem:    Restriction of the MS-Windows installer that the path must end in
            "Vim" prevents installing more than one version.
Solution:   Remove the restriction. (Tim Lebedkov)
Files:      nsis/gvim.nsi

Patch 7.4.505
Problem:    On MS-Windows when 'encoding' is a double-byte encoding a file
            name longer than MAX_PATH bytes but shorter than that in
            characters causes problems.
Solution:   Fail on file names longer than MAX_PATH bytes. (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.506
Problem:    MS-Windows: Cannot open a file with 259 characters.
Solution:   Fix off-by-one error. (Ken Takata)
Files:      src/os_mswin.c

Patch 7.4.507 (after 7.4.496)
Problem:    Building with MingW and Perl.
Solution:   Remove quotes. (Ken Takata)
Files:      src/Make_cyg_ming.mak

Patch 7.4.508
Problem:    When generating ja.sjis.po the header is not correctly adjusted.
Solution:   Check for the right header string. (Ken Takata)
Files:      src/po/sjiscorr.c

Patch 7.4.509
Problem:    Users are not aware their encryption is weak.
Solution:   Give a warning when prompting for the key.
Files:      src/crypt.c, src/ex_docmd.c, src/fileio.c, src/main.c,
            src/proto/crypt.pro

Patch 7.4.510
Problem:    "-fwrapv" argument breaks use of cproto.
```

```
Solution:   Remove the alphabetic arguments in a drastic way.
Files:      src/Makefile

Patch 7.4.511
Problem:    Generating proto for if_ruby.c uses type not defined elsewhere.
Solution:   Do not generate a prototype for
            rb_gc_writebarrier_unprotect_promoted()
Files:      src/if_ruby.c

Patch 7.4.512
Problem:    Cannot generate prototypes for Win32 files and VMS.
Solution:   Add typedefs and #ifdef
Files:      src/os_win32.c, src/gui_w32.c, src/os_vms.c

Patch 7.4.513
Problem:    Crash because reference count is wrong for list returned by
            getreg().
Solution:   Increment the reference count. (Kimmy Lindvall)
Files:      src/eval.c

Patch 7.4.514 (after 7.4.492)
Problem:    Memory access error. (Dominique Pelle)
Solution:   Update tpos. (Christian Brabandt)
Files:      src/edit.c

Patch 7.4.515
Problem:    In a help buffer the global 'foldmethod' is used.  (Paul Marshall)
Solution:   Reset 'foldmethod' when starting to edit a help file.  Move the
            code to a separate function.
Files:      src/ex_cmds.c

Patch 7.4.516
Problem:    Completing a function name containing a # does not work.  Issue
            253.
Solution:   Recognize the # character. (Christian Brabandt)
Files:      src/eval.c

Patch 7.4.517
Problem:    With a wrapping line the cursor may not end up in the right place.
            (Nazri Ramliy)
Solution:   Adjust n_extra for a Tab that wraps. (Christian Brabandt)
Files:      src/screen.c

Patch 7.4.518
Problem:    Using status line height in width computations.
Solution:   Use one instead. (Hirohito Higashi)
Files:      src/window.c

Patch 7.4.519 (after 7.4.497)
Problem:    Crash when using syntax highlighting.
Solution:   When regprog is freed and replaced, store the result.
Files:      src/buffer.c, src/regexp.c, src/syntax.c, src/spell.c,
            src/ex_cmds2.c, src/fileio.c, src/proto/fileio.pro,
            src/proto/regexp.pro, src/os_unix.c
```

Patch 7.4.520
Problem: Sun PCK locale is not recognized.
Solution: Add PCK in the table. (Keiichi Oono)
Files: src/mbyte.c

Patch 7.4.521
Problem: When using "vep" a mark is moved to the next line. (Maxi Padulo,
            Issue 283)
Solution: Decrement the line number. (Christian Brabandt)
Files: src/ops.c

Patch 7.4.522
Problem: Specifying wrong buffer size for GetLongPathName().
Solution: Use the actual size. (Ken Takata)
Files: src/eval.c

Patch 7.4.523
Problem: When the X11 server is stopped and restarted, while Vim is kept in
            the background, copy/paste no longer works. (Issue 203)
Solution: Setup the clipboard again. (Christian Brabandt)
Files: src/os_unix.c

Patch 7.4.524
Problem: When using ":ownsyntax" spell checking is messed up. (Issue 78)
Solution: Use the window-local option values. (Christian Brabandt)
Files: src/option.c, src/syntax.c

Patch 7.4.525
Problem: map() leaks memory when there is an error in the expression.
Solution: Call clear_tv(). (Christian Brabandt)
Files: src/eval.c

Patch 7.4.526
Problem: matchstr() fails on long text. (Daniel Hahler)
Solution: Return NFA_TOO_EXPENSIVE from regexec_nl(). (Christian Brabandt)
Files: src/regexp.c

Patch 7.4.527
Problem: Still confusing regexp failure and NFA_TOO_EXPENSIVE.
Solution: NFA changes equivalent of 7.4.526.
Files: src/regexp_nfa.c

Patch 7.4.528
Problem: Crash when using matchadd() (Yasuhiro Matsumoto)
Solution: Copy the match regprog.
Files: src/screen.c

Patch 7.4.529
Problem: No test for what 7.4.517 fixes.
Solution: Adjust the tests for breakindent. (Christian Brabandt)
Files: src/testdir/test_breakindent.in, src/testdir/test_breakindent.ok

Patch 7.4.530

```
Problem:    Many commands take a count or range that is not using line
            numbers.
Solution:   For each command specify what kind of count it uses.  For windows,
            buffers and arguments have "$" and "." have a relevant meaning.
            (Marcin Szamotulski)
Files:      runtime/doc/editing.txt, runtime/doc/tabpage.txt,
            runtime/doc/windows.txt, src/Makefile, src/ex_cmds.h,
            src/ex_docmd.c, src/testdir/Make_amiga.mak
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_argument_count.in,
            src/testdir/test_argument_count.ok,
            src/testdir/test_close_count.in, src/testdir/test_close_count.ok,
            src/window.c

Patch 7.4.531
Problem:    Comments about parsing an Ex command are wrong.
Solution:   Correct the step numbers.
Files:      src/ex_docmd.c

Patch 7.4.532
Problem:    When using 'incsearch' "2/pattern/e" highlights the first match.
Solution:   Move the code to set extra_col inside the loop for count.  (Ozaki
            Kiichi)
Files:      src/search.c

Patch 7.4.533
Problem:    ":hardcopy" leaks memory in case of errors.
Solution:   Free memory in all code paths. (Christian Brabandt)
Files:      src/hardcopy.c

Patch 7.4.534
Problem:    Warnings when compiling if_ruby.c.
Solution:   Avoid the warnings. (Ken Takata)
Files:      src/if_ruby.c

Patch 7.4.535 (after 7.4.530)
Problem:    Can't build with tiny features.
Solution:   Add #ifdefs and skip a test.
Files:      src/ex_docmd.c, src/testdir/test_argument_count.in

Patch 7.4.536
Problem:    Test 63 fails when using a black&white terminal.
Solution:   Add attributes for a non-color terminal. (Christian Brabandt)
Files:      src/testdir/test63.in

Patch 7.4.537
Problem:    Value of v:hlsearch reflects an internal variable.
Solution:   Make the value reflect whether search highlighting is actually
            displayed. (Christian Brabandt)
Files:      runtime/doc/eval.txt, src/testdir/test101.in,
            src/testdir/test101.ok, src/vim.h

Patch 7.4.538
```

Problem: Tests fail with small features plus Python.
Solution: Disallow weird combination of options. Do not set "fdm" when
            folding is disabled.
Files: src/option.c, src/ex_cmds.c, src/configure.in, src/auto/configure,
            src/feature.h

Patch 7.4.539 (after 7.4.530)
Problem: Crash when computing buffer count. Problem with range for user
            commands. Line range wrong in Visual area.
Solution: Avoid segfault in compute_buffer_local_count(). Check for
            CMD_USER when checking type of range. (Marcin Szamotulski)
Files: runtime/doc/windows.txt, src/ex_docmd.c

Patch 7.4.540 (after 7.4.539)
Problem: Cannot build with tiny and small features. (Taro Muraoka)
Solution: Add #ifdef around CMD_USER.
Files: src/ex_docmd.c

Patch 7.4.541
Problem: Crash when doing a range assign.
Solution: Check for NULL pointer. (Yukihiro Nakadaira)
Files: src/eval.c, src/testdir/test55.in, src/testdir/test55.ok

Patch 7.4.542
Problem: Using a range for window and buffer commands has a few problems.
            Cannot specify the type of range for a user command.
Solution: Add the -addr argument for user commands. Fix problems. (Marcin
            Szamotulski)
Files: src/testdir/test_command_count.in,
            src/testdir/test_command_count.ok src/testdir/Make_amiga.mak
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, runtime/doc/map.txt, src/Makefile,
            src/ex_cmds.h, src/ex_docmd.c, src/ex_getln.c,
            src/proto/ex_docmd.pro, src/vim.h,

Patch 7.4.543
Problem: Since patch 7.4.232 "1,3s/\n//" joins two lines instead of three.
            (Eliseo Martínez) Issue 287
Solution: Correct the line count. (Christian Brabandt)
            Also set the last used search pattern.
Files: src/ex_cmds.c, src/search.c, src/proto/search.pro

Patch 7.4.544
Problem: Warnings for unused arguments when compiling with a combination of
            features.
Solution: Add "UNUSED".
Files: src/if_cscope.c

Patch 7.4.545
Problem: Highlighting for multi-line matches is not correct.
Solution: Stop highlight at the end of the match. (Hirohito Higashi)
Files: src/screen.c

```
Patch 7.4.546
Problem:    Repeated use of vim_snprintf() with a number.
Solution:   Move these vim_snprintf() calls into a function.
Files:      src/window.c

Patch 7.4.547
Problem:    Using "vit" does not select a multi-byte character at the end
            correctly.
Solution:   Advance the cursor over the multi-byte character. (Christian
            Brabandt)
Files:      src/search.c

Patch 7.4.548
Problem:    Compilation fails with native version of MinGW-w64, because
            it doesn't have x86_64-w64-mingw32-windres.exe.
Solution:   Use windres instead. (Ken Takata)
Files:      src/Make_cyg_ming.mak

Patch 7.4.549
Problem:    Function name not recognized correctly when inside a function.
Solution:   Don't check for an alpha character. (Ozaki Kiichi)
Files:      src/eval.c, src/testdir/test_nested_function.in,
            src/testdir/test_nested_function.ok, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile

Patch 7.4.550
Problem:    curs_rows() function is always called with the second argument
            false.
Solution:   Remove the argument. (Christian Brabandt)
            validate_botline_win() can then also be removed.
Files:      src/move.c

Patch 7.4.551
Problem:    "ygn" may yank too much. (Fritzophrenic)  Issue 295.
Solution:   Check the width of the next match. (Christian Brabandt)
Files:      src/search.c, src/testdir/test53.in, src/testdir/test53.ok

Patch 7.4.552
Problem:    Langmap applies to Insert mode expression mappings.
Solution:   Check for Insert mode. (Daniel Hahler)
Files:      src/getchar.c, src/testdir/test_mapping.in,
            src/testdir/test_mapping.ok

Patch 7.4.553
Problem:    Various small issues.
Solution:   Fix those issues.
Files:      src/ex_cmds.h, src/gui.h, src/message.c, src/testdir/test39.in,
            src/proto/eval.pro, src/proto/misc1.pro, src/proto/ops.pro,
            src/proto/screen.pro, src/proto/window.pro. src/os_unix.c,
            src/Make_vms.mms, src/proto/os_vms.pro, src/INSTALL

Patch 7.4.554
```

```
Problem:    Missing part of patch 7.4.519.
Solution:   Copy back regprog after calling vim_regexec.
Files:      src/quickfix.c

Patch 7.4.555
Problem:    test_close_count may fail for some combination of features.
Solution:   Require normal features.
Files:      src/testdir/test_close_count.in

Patch 7.4.556
Problem:    Failed commands in Python interface not handled correctly.
Solution:   Restore window and buffer on failure.
Files:      src/if_py_both.h

Patch 7.4.557
Problem:    One more small issue.
Solution:   Update function proto.
Files:      src/proto/window.pro

Patch 7.4.558
Problem:    When the X server restarts Vim may get stuck.
Solution:   Destroy the application context and create it again.  (Issue 203)
Files:      src/os_unix.c

Patch 7.4.559
Problem:    Appending a block in the middle of a tab does not work correctly
            when virtualedit is set.
Solution:   Decrement spaces and count, don't reset them. (James McCoy)
Files:      src/ops.c, src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.560
Problem:    Memory leak using :wviminfo. Issue 296.
Solution:   Free memory when needed. (idea by Christian Brabandt)
Files:      src/ops.c

Patch 7.4.561
Problem:    Ex range handling is wrong for buffer-local user commands.
Solution:   Check for CMD_USER_BUF. (Marcin Szamotulski)
Files:      src/ex_docmd.c, src/testdir/test_command_count.in,
            src/testdir/test_command_count.ok

Patch 7.4.562
Problem:    Segfault with wide screen and error in 'rulerformat'. (Ingo Karkat)
Solution:   Check there is enough space. (Christian Brabandt)
Files:      src/buffer.c, src/screen.c

Patch 7.4.563
Problem:    No test for replacing on a tab in Virtual replace mode.
Solution:   Add a test. (Elias Diem)
Files:      src/testdir/test48.in, src/testdir/test48.ok

Patch 7.4.564
Problem:    FEAT_OSFILETYPE is used even though it's never defined.
Solution:   Remove the code. (Christian Brabandt)
```

```
Files:      src/fileio.c

Patch 7.4.565
Problem:    Ranges for arguments, buffers, tabs, etc. are not checked to be
            valid but limited to the maximum.  This can cause the wrong thing
            to happen.
Solution:   Give an error for an invalid value. (Marcin Szamotulski)
            Use windows range for ":wincmd".
Files:      src/ex_docmd.c, src/ex_cmds.h, src/testdir/test62.in,
            src/testdir/test_argument_count.in,
            src/testdir/test_argument_count.ok,
            src/testdir/test_close_count.in,
            src/testdir/test_command_count.in,
            src/testdir/test_command_count.ok

Patch 7.4.566
Problem:    :argdo, :bufdo, :windo and :tabdo don't take a range.
Solution:   Support the range. (Marcin Szamotulski)
Files:      runtime/doc/editing.txt, runtime/doc/tabpage.txt,
            runtime/doc/windows.txt, src/ex_cmds.h, src/ex_cmds2.c,
            src/testdir/test_command_count.in,
            src/testdir/test_command_count.ok

Patch 7.4.567
Problem:    Non-ascii vertical separator characters are always redrawn.
Solution:   Compare only the one byte that's stored. (Thiago Padilha)
Files:      src/screen.c

Patch 7.4.568
Problem:    Giving an error for ":0wincmd w" is a problem for some plugins.
Solution:   Allow the zero in the range. (Marcin Szamotulski)
Files:      src/ex_docmd.c, src/testdir/test_command_count.ok

Patch 7.4.569 (after 7.4.468)
Problem:    Having CTRL-C interrupt or not does not check the mode of the
            mapping. (Ingo Karkat)
Solution:   Use a bitmask with the map mode. (Christian Brabandt)
Files:      src/getchar.c, src/structs.h, src/testdir/test_mapping.in,
            src/testdir/test_mapping.ok, src/ui.c, src/globals.h

Patch 7.4.570
Problem:    Building with dynamic library does not work for Ruby 2.2.0
Solution:   Change #ifdefs and #defines. (Ken Takata)
Files:      src/if_ruby.c

Patch 7.4.571 (after 7.4.569)
Problem:    Can't build with tiny features. (Ike Devolder)
Solution:   Add #ifdef.
Files:      src/getchar.c

Patch 7.4.572
Problem:    Address type of :wincmd depends on the argument.
Solution:   Check the argument.
Files:      src/ex_docmd.c, src/window.c, src/proto/window.pro
```

Patch 7.4.573 (after 7.4.569)
Problem: Mapping CTRL-C in Visual mode doesn't work. (Ingo Karkat)
Solution: Call get_real_state() instead of using State directly.
Files: src/ui.c, src/testdir/test_mapping.in, src/testdir/test_mapping.ok

Patch 7.4.574
Problem: No error for eval('$').
Solution: Check for empty name. (Yasuhiro Matsumoto)
Files: src/eval.c

Patch 7.4.575
Problem: Unicode character properties are outdated.
Solution: Update the tables with the latest version.
Files: src/mbyte.c

Patch 7.4.576
Problem: Redrawing problem with 'relativenumber' and 'linebreak'.
Solution: Temporarily reset 'linebreak' and restore it in more places.
            (Christian Brabandt)
Files: src/normal.c

Patch 7.4.577
Problem: Matching with a virtual column has a lot of overhead on very long
            lines. (Issue 310)
Solution: Bail out early if there can't be a match. (Christian Brabandt)
            Also check for CTRL-C at every position.
Files: src/regexp_nfa.c

Patch 7.4.578
Problem: Using getcurpos() after "$" in an empty line returns a negative
            number.
Solution: Don't add one when this would overflow. (Hirohito Higashi)
Files: src/eval.c

Patch 7.4.579
Problem: Wrong cursor positioning when 'linebreak' is set and lines wrap.
Solution: Fix it. (Christian Brabandt)
Files: src/charset.c, src/screen.c

Patch 7.4.580
Problem: ":52wincmd v" still gives an invalid range error. (Charles
            Campbell)
Solution: Skip over white space.
Files: src/ex_docmd.c

Patch 7.4.581
Problem: Compiler warnings for uninitialized variables. (John Little)
Solution: Initialize the variables.
Files: src/ops.c

Patch 7.4.582 (after 7.4.577)
Problem: Can't match "%>80v" properly. (Axel Bender)
Solution: Correctly handle ">". (Christian Brabandt)

```
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.583
Problem:    With tiny features test 16 may fail.
Solution:   Source small.vim. (Christian Brabandt)
Files:      src/testdir/test16.in

Patch 7.4.584
Problem:    With tiny features test_command_count may fail.
Solution:   Source small.vim. (Christian Brabandt)
Files:      src/testdir/test_command_count.in

Patch 7.4.585
Problem:    Range for :bdelete does not work. (Ronald Schild)
Solution:   Also allow unloaded buffers.
Files:      src/ex_cmds.h, src/testdir/test_command_count.in,
            src/testdir/test_command_count.ok

Patch 7.4.586
Problem:    Parallel building of the documentation html files is not reliable.
Solution:   Remove a cyclic dependency. (Reiner Herrmann)
Files:      runtime/doc/Makefile

Patch 7.4.587
Problem:    Conceal does not work properly with 'linebreak'. (cs86661)
Solution:   Save and restore boguscols. (Christian Brabandt)
Files:      src/screen.c, src/testdir/test_listlbr_utf8.in,
            src/testdir/test_listlbr_utf8.ok

Patch 7.4.588
Problem:    ":0argedit foo" puts the new argument in the second place instead
            of the first.
Solution:   Adjust the range type. (Ingo Karkat)
Files:      src/ex_cmds.h, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_argument_0count.in,
            src/testdir/test_argument_0count.ok

Patch 7.4.589
Problem:    In the MS-Windows console Vim can't handle greek characters when
            encoding is utf-8.
Solution:   Escape K_NUL. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.4.590
Problem:    Using ctrl_x_mode as if it contains flags.
Solution:   Don't use AND with CTRL_X_OMNI. (Hirohito Higashi)
Files:      src/edit.c

Patch 7.4.591 (after 7.4.587)
Problem:    test_listlbr_utf8 fails when the conceal feature is not available.
Solution:   Check for the conceal feature. (Kazunobu Kuriyama)
Files:      src/testdir/test_listlbr_utf8.in
```

```
Patch 7.4.592
Problem:    When doing ":e foobar" when already editing "foobar" and 'buftype'
            is "nofile" the buffer is cleared. (Xavier de Gaye)
Solution:   Do no clear the buffer.
Files:      src/ex_cmds.c

Patch 7.4.593
Problem:    Crash when searching for "x\{0,90000}". (Dominique Pelle)
Solution:   Bail out from the NFA engine when the max limit is much higher
            than the min limit.
Files:      src/regexp_nfa.c, src/regexp.c, src/vim.h

Patch 7.4.594
Problem:    Using a block delete while 'breakindent' is set does not work
            properly.
Solution:   Use "line" instead of "prev_pend" as the first argument to
            lbr_chartabsize_adv().  (Hirohito Higashi)
Files:      src/ops.c, src/testdir/test_breakindent.in,
            src/testdir/test_breakindent.ok

Patch 7.4.595
Problem:    The test_command_count test fails when using Japanese.
Solution:   Force the language to C. (Hirohito Higashi)
Files:      src/testdir/test_command_count.in

Patch 7.4.596 (after 7.4.592)
Problem:    Tiny build doesn't compile.  (Ike Devolder)
Solution:   Add #ifdef.
Files:      src/ex_cmds.c

Patch 7.4.597
Problem:    Cannot change the result of systemlist().
Solution:   Initialize v_lock. (Yukihiro Nakadaira)
Files:      src/eval.c

Patch 7.4.598
Problem:    ":tabdo windo echo 'hi'" causes "* register not to be changed.
            (Salman Halim)
Solution:   Change how clip_did_set_selection is used and add
            clipboard_needs_update and global_change_count.  (Christian
            Brabandt)
Files:      src/main.c, src/ui.c, src/testdir/test_eval.in,
            src/testdir/test_eval.ok

Patch 7.4.599
Problem:    Out-of-memory error.
Solution:   Avoid trying to allocate a negative amount of memory, use size_t
            instead of int. (Dominique Pelle)
Files:      src/regexp_nfa.c

Patch 7.4.600
Problem:    Memory wasted in struct because of aligning.
Solution:   Split pos in lnum and col. (Dominique Pelle)
```

```
Files:      src/regexp_nfa.c

Patch 7.4.601
Problem:    It is not possible to have feedkeys() insert characters.
Solution:   Add the 'i' flag.
Files:      src/eval.c, runtime/doc/eval.txt

Patch 7.4.602
Problem:    ":set" does not accept hex numbers as documented.
Solution:   Use vim_str2nr(). (ZyX)
Files:      src/option.c, runtime/doc/options.txt

Patch 7.4.603
Problem:    'foldcolumn' may be set such that it fills the whole window, not
            leaving space for text.
Solution:   Reduce the foldcolumn width when there is not sufficient room.
            (idea by Christian Brabandt)
Files:      src/screen.c

Patch 7.4.604
Problem:    Running tests changes viminfo.
Solution:   Disable viminfo.
Files:      src/testdir/test_breakindent.in

Patch 7.4.605
Problem:    The # register is not writable, it cannot be restored after
            jumping around.
Solution:   Make the # register writable. (Marcin Szamotulski)
Files:      runtime/doc/change.txt, src/ops.c, src/buffer.c, src/globals.h

Patch 7.4.606
Problem:    May crash when using a small window.
Solution:   Avoid dividing by zero. (Christian Brabandt)
Files:      src/normal.c

Patch 7.4.607 (after 7.4.598)
Problem:    Compiler warnings for unused variables.
Solution:   Move them inside #ifdef. (Kazunobu Kuriyama)
Files:      src/ui.c

Patch 7.4.608 (after 7.4.598)
Problem:    test_eval fails when the clipboard feature is missing.
Solution:   Skip part of the test. Reduce the text used.
Files:      src/testdir/test_eval.in, src/testdir/test_eval.ok

Patch 7.4.609
Problem:    For complicated list and dict use the garbage collector can run
            out of stack space.
Solution:   Use a stack of dicts and lists to be marked, thus making it
            iterative instead of recursive. (Ben Fritz)
Files:      src/eval.c, src/if_lua.c, src/if_py_both.h, src/if_python.c,
            src/if_python3.c, src/proto/eval.pro, src/proto/if_lua.pro,
            src/proto/if_python.pro, src/proto/if_python3.pro, src/structs.h
```

```
Patch 7.4.610
Problem:    Some function headers may be missing from generated .pro files.
Solution:   Add PROTO to the #ifdef.
Files:      src/option.c, src/syntax.c

Patch 7.4.611 (after 7.4.609)
Problem:    Syntax error.
Solution:   Change statement to return.
Files:      src/if_python3.c

Patch 7.4.612
Problem:    test_eval fails on Mac.
Solution:   Use the * register instead of the + register. (Jun Takimoto)
Files:      src/testdir/test_eval.in, src/testdir/test_eval.ok

Patch 7.4.613
Problem:    The NFA engine does not implement the 'redrawtime' time limit.
Solution:   Implement the time limit.
Files:      src/regexp_nfa.c

Patch 7.4.614
Problem:    There is no test for what patch 7.4.601 fixes.
Solution:   Add a test. (Christian Brabandt)
Files:      src/testdir/test_mapping.in, src/testdir/test_mapping.ok

Patch 7.4.615
Problem:    Vim hangs when freeing a lot of objects.
Solution:   Do not go back to the start of the list every time.  (Yasuhiro
            Matsumoto and Ariya Mizutani)
Files:      src/eval.c

Patch 7.4.616
Problem:    Cannot insert a tab in front of a block.
Solution:   Correctly compute aop->start. (Christian Brabandt)
Files:      src/ops.c, src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.617
Problem:    Wrong ":argdo" range does not cause an error.
Solution:   Reset "cmd" to NULL. (Marcin Szamotulski, Ingo Karkat)
Files:      src/ex_docmd.c

Patch 7.4.618 (after 7.4.609)
Problem:    luaV_setref() is missing a return statement. (Ozaki Kiichi)
Solution:   Put the return statement back.
Files:      src/if_lua.c

Patch 7.4.619 (after 7.4.618)
Problem:    luaV_setref() not returning the correct value.
Solution:   Return one.
Files:      src/if_lua.c

Patch 7.4.620
Problem:    Compiler warning for uninitialized variable. (Tony Mechelynck)
Solution:   Initialize "did_free". (Ben Fritz)
```

```
Files:      src/eval.c

Patch 7.4.621 (after 7.4.619)
Problem:    Returning 1 in the wrong function. (Raymond Ko)
Solution:   Return 1 in the right function (hopefully).
Files:      src/if_lua.c

Patch 7.4.622
Problem:    Compiler warning for unused argument.
Solution:   Add UNUSED.
Files:      src/regexp_nfa.c

Patch 7.4.623
Problem:    Crash with pattern: \(\)\{80000}  (Dominique Pelle)
Solution:   When the max limit is large fall back to the old engine.
Files:      src/regexp_nfa.c

Patch 7.4.624
Problem:    May leak memory or crash when vim_realloc() returns NULL.
Solution:   Handle a NULL value properly. (Mike Williams)
Files:      src/if_cscope.c, src/memline.c, src/misc1.c, src/netbeans.c

Patch 7.4.625
Problem:    Possible NULL pointer dereference.
Solution:   Check for NULL before using it. (Mike Williams)
Files:      src/if_py_both.h

Patch 7.4.626
Problem:    MSVC with W4 gives useless warnings.
Solution:   Disable more warnings. (Mike Williams)
Files:      src/vim.h

Patch 7.4.627
Problem:    The last screen cell is not updated.
Solution:   Respect the "tn" termcap feature. (Hayaki Saito)
Files:      runtime/doc/term.txt, src/option.c, src/screen.c, src/term.c,
            src/term.h

Patch 7.4.628
Problem:    Compiler warning for variable might be clobbered by longjmp.
Solution:   Add volatile. (Michael Jarvis)
Files:      src/main.c

Patch 7.4.629
Problem:    Coverity warning for Out-of-bounds read.
Solution:   Increase MAXWLEN to 254. (Eliseo Martínez)
Files:      src/spell.c

Patch 7.4.630
Problem:    When using Insert mode completion combined with autocommands the
            redo command may not work.
Solution:   Do not save the redo buffer when executing autocommands. (Yasuhiro
            Matsumoto)
Files:      src/fileio.c
```

```
Patch 7.4.631
Problem:    The default conceal character is documented to be a space but it's
            initially a dash. (Christian Brabandt)
Solution:   Make the initial value a space.
Files:      src/globals.h

Patch 7.4.632 (after 7.4.592)
Problem:    7.4.592 breaks the netrw plugin, because the autocommands are
            skipped.
Solution:   Roll back the change.
Files:      src/ex_cmds.c

Patch 7.4.633
Problem:    After 7.4.630 the problem persists.
Solution:   Also skip redo when calling a user function.
Files:      src/eval.c

Patch 7.4.634
Problem:    Marks are not restored after redo + undo.
Solution:   Fix the way marks are restored. (Olaf Dabrunz)
Files:      src/undo.c, src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_marks.in, src/testdir/test_marks.ok

Patch 7.4.635
Problem:    If no NL or CR is found in the first block of a file then the
            'fileformat' may be set to "mac". (Issue 77)
Solution:   Check if a CR was found. (eswald)
Files:      src/fileio.c

Patch 7.4.636
Problem:    A search with end offset gets stuck at end of file. (Gary Johnson)
Solution:   When a search doesn't move the cursor repeat it with a higher
            count. (Christian Brabandt)
Files:      src/normal.c, src/testdir/test44.in, src/testdir/test44.ok

Patch 7.4.637
Problem:    Incorrectly read the number of buffer for which an autocommand
            should be registered.
Solution:   Reverse check for "<buffer=abuf>". (Lech Lorens)
Files:      src/fileio.c

Patch 7.4.638
Problem:    Can't build with Lua 5.3 on Windows.
Solution:   use luaL_optinteger() instead of LuaL_optlong(). (Ken Takata)
Files:      src/if_lua.c

Patch 7.4.639
Problem:    Combination of linebreak and conceal doesn't work well.
Solution:   Fix the display problems. (Christian Brabandt)
Files:      src/screen.c, src/testdir/test88.in, src/testdir/test88.ok,
            src/testdir/test_listlbr_utf8.in, src/testdir/test_listlbr_utf8.ok
```

```
Patch 7.4.640
Problem:    After deleting characters in Insert mode such that lines are
            joined undo does not work properly. (issue 324)
Solution:   Use Insstart instead of Insstart_orig. (Christian Brabandt)
Files:      src/edit.c

Patch 7.4.641
Problem:    The tabline menu was using ":999tabnew" which is now invalid.
Solution:   Use ":$tabnew" instead. (Florian Degner)
Files:      src/normal.c

Patch 7.4.642
Problem:    When using "gf" escaped spaces are not handled.
Solution:   Recognize escaped spaces.
Files:      src/vim.h, src/window.c, src/misc2.c

Patch 7.4.643
Problem:    Using the default file format for Mac files. (Issue 77)
Solution:   Reset the try_mac counter in the right place. (Oswald)
Files:      src/fileio.c, src/testdir/test30.in, src/testdir/test30.ok

Patch 7.4.644
Problem:    Stratus VOS doesn't have sync().
Solution:   Use fflush(). (Karli Aurelia)
Files:      src/memfile.c

Patch 7.4.645
Problem:    When splitting the window in a BufAdd autocommand while still in
            the first, empty buffer the window count is wrong.
Solution:   Do not reset b_nwindows to zero and don't increment it.
Files:      src/buffer.c, src/ex_cmds.c

Patch 7.4.646
Problem:    ":bufdo" may start at a deleted buffer.
Solution:   Find the first not deleted buffer. (Shane Harper)
Files:      src/ex_cmds2.c, src/testdir/test_command_count.in,
            src/testdir/test_command_count.ok

Patch 7.4.647
Problem:    After running the tests on MS-Windows many files differ from their
            originals as they were checked out.
Solution:   Use a temp directory for executing the tests. (Ken Takata, Taro
            Muraoka)
Files:      src/testdir/Make_dos.mak

Patch 7.4.648 (after 7.4.647)
Problem:    Tests broken on MS-Windows.
Solution:   Delete wrong copy line. (Ken Takata)
Files:      src/testdir/Make_dos.mak

Patch 7.4.649
Problem:    Compiler complains about ignoring return value of fwrite().
            (Michael Jarvis)
```

```
Solution:   Add (void).
Files:      src/misc2.c

Patch 7.4.650
Problem:    Configure check may fail because the dl library is not used.
Solution:   Put "-ldl" in LIBS rather than LDFLAGS. (Ozaki Kiichi)
Files:      src/configure.in, src/auto/configure

Patch 7.4.651 (after 7.4.582)
Problem:    Can't match "%>80v" properly for multi-byte characters.
Solution:   Multiply the character number by the maximum number of bytes in a
            character. (Yasuhiro Matsumoto)
Files:      src/regexp_nfa.c

Patch 7.4.652
Problem:    Xxd lacks a few features.
Solution:   Use 8 characters for the file position.  Add the -e and -o
            arguments. (Vadim Vygonets)
Files:      src/xxd/xxd.c, runtime/doc/xxd.1

Patch 7.4.653
Problem:    Insert mode completion with complete() may have CTRL-L work like
            CTRL-P.
Solution:   Handle completion with complete() differently. (Yasuhiro
            Matsumoto, Christian Brabandt, Hirohito Higashi)
Files:      src/edit.c

Patch 7.4.654
Problem:    glob() and globpath() cannot include links to non-existing files.
            (Charles Campbell)
Solution:   Add an argument to include all links with glob(). (James McCoy)
            Also for globpath().
Files:      src/vim.h, src/eval.c, src/ex_getln.c

Patch 7.4.655
Problem:    Text deleted by "dit" depends on indent of closing tag.
            (Jan Parthey)
Solution:   Do not adjust oap->end in do_pending_operator(). (Christian
            Brabandt)
Files:      src/normal.c, src/search.c, src/testdir/test53.in,
            src/testdir/test53.ok

Patch 7.4.656 (after 7.4.654)
Problem:    Missing changes for glob() in one file.
Solution:   Add the missing changes.
Files:      src/misc1.c

Patch 7.4.657 (after 7.4.656)
Problem:    Compiler warnings for pointer mismatch.
Solution:   Add a typecast. (John Marriott)
Files:      src/misc1.c

Patch 7.4.658
Problem:    'formatexpr' is evaluated too often.
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Solution:   Only invoke it when beyond the 'textwidth' column, as it is
            documented. (James McCoy)
Files:      src/edit.c

Patch 7.4.659
Problem:    When 'ruler' is set the preferred column is reset. (Issue 339)
Solution:   Don't set curswant when redrawing the status lines.
Files:      src/option.c

Patch 7.4.660
Problem:    Using freed memory when g:colors_name is changed in the colors
            script. (oni-link)
Solution:   Make a copy of the variable value.
Files:      src/syntax.c

Patch 7.4.661
Problem:    Using "0 CTRL-D" in Insert mode may have CursorHoldI interfere.
            (Gary Johnson)
Solution:   Don't store K_CURSORHOLD as the last character. (Christian
            Brabandt)
Files:      src/edit.c

Patch 7.4.662
Problem:    When 'M' is in the 'cpo' option then selecting a text object in
            parentheses does not work correctly.
Solution:   Keep 'M' in 'cpo' when finding a match. (Hirohito Higashi)
Files:      src/search.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_textobjects.in,
            src/testdir/test_textobjects.ok

Patch 7.4.663
Problem:    When using netbeans a buffer is not found in another tab.
Solution:   When 'switchbuf' is set to "usetab" then switch to another tab
            when possible. (Xavier de Gaye)
Files:      src/netbeans.c

Patch 7.4.664
Problem:    When 'compatible' is reset 'numberwidth' is set to 4, but the
            effect doesn't show until a change is made.
Solution:   Check if 'numberwidth' changed. (Christian Brabandt)
Files:      src/screen.c, src/structs.h

Patch 7.4.665
Problem:    'linebreak' does not work properly with multi-byte characters.
Solution:   Compute the pointer offset with mb_head_off().  (Yasuhiro
            Matsumoto)
Files:      src/screen.c

Patch 7.4.666
Problem:    There is a chance that Vim may lock up.
Solution:   Handle timer events differently. (Aaron Burrow)
Files:      src/os_unix.c
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Patch 7.4.667
Problem:    'colorcolumn' isn't drawn in a closed fold while 'cursorcolumn'
            is. (Carlos Pita)
Solution:   Make it consistent. (Christian Brabandt)
Files:      src/screen.c

Patch 7.4.668
Problem:    Can't use a glob pattern as a regexp pattern.
Solution:   Add glob2regpat(). (Christian Brabandt)
Files:      src/eval.c, runtime/doc/eval.txt

Patch 7.4.669
Problem:    When netbeans is active the sign column always shows up.
Solution:   Only show the sign column once a sign has been added. (Xavier de
            Gaye)
Files:      src/buffer.c, src/edit.c, src/move.c, src/netbeans.c,
            src/screen.c, src/structs.h

Patch 7.4.670
Problem:    Using 'cindent' for Javascript is less than perfect.
Solution:   Improve indenting of continuation lines. (Hirohito Higashi)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.4.671 (after 7.4.665)
Problem:    Warning for shadowing a variable.
Solution:   Rename off to mb_off. (Kazunobu Kuriyama)
Files:      src/screen.c

Patch 7.4.672
Problem:    When completing a shell command, directories in the current
            directory are not listed.
Solution:   When "." is not in $PATH also look in the current directory for
            directories.
Files:      src/ex_getln.c, src/vim.h, src/misc1.c, src/eval.c,
            src/os_amiga.c, src/os_msdos.c, src/os_unix.c, src/os_vms.c,
            src/proto/os_amiga.pro, src/proto/os_msdos.pro,
            src/proto/os_unix.pro, src/proto/os_win32.pro

Patch 7.4.673
Problem:    The first syntax entry gets sequence number zero, which doesn't
            work. (Clinton McKay)
Solution:   Start at number one. (Bjorn Linse)
Files:      src/syntax.c

Patch 7.4.674 (after 7.4.672)
Problem:    Missing changes in one file.
Solution:   Also change the win32 file.
Files:      src/os_win32.c

Patch 7.4.675
Problem:    When a FileReadPost autocommand moves the cursor inside a line it
            gets moved back.
Solution:   When checking whether an autocommand moved the cursor store the
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            column as well. (Christian Brabandt)
Files:      src/ex_cmds.c

Patch 7.4.676
Problem:    On Mac, when not using the default Python framework configure
            doesn't do the right thing.
Solution:   Use a linker search path. (Kazunobu Kuriyama)
Files:      src/configure.in, src/auto/configure

Patch 7.4.677 (after 7.4.676)
Problem:    Configure fails when specifying a python-config-dir. (Lcd)
Solution:   Check if PYTHONFRAMEWORKPREFIX is set.
Files:      src/configure.in, src/auto/configure

Patch 7.4.678
Problem:    When using --remote the directory may end up being wrong.
Solution:   Use localdir() to find out what to do. (Xaizek)
Files:      src/main.c

Patch 7.4.679
Problem:    Color values greater than 255 cause problems on MS-Windows.
Solution:   Truncate to 255 colors. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.4.680
Problem:    CTRL-W in Insert mode does not work well for multi-byte
            characters.
Solution:   Use mb_get_class(). (Yasuhiro Matsumoto)
Files:      src/edit.c, src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_erasebackword.in,
            src/testdir/test_erasebackword.ok,

Patch 7.4.681
Problem:    MS-Windows: When Vim is minimized the window height is computed
            incorrectly.
Solution:   When minimized use the previously computed size. (Ingo Karkat)
Files:      src/gui_w32.c

Patch 7.4.682
Problem:    The search highlighting and match highlighting replaces the
            cursorline highlighting, this doesn't look good.
Solution:   Combine the highlighting. (Yasuhiro Matsumoto)
Files:      src/screen.c

Patch 7.4.683
Problem:    Typo in the vimtutor command.
Solution:   Fix the typo. (Corey Farwell, github pull 349)
Files:      vimtutor.com

Patch 7.4.684
Problem:    When starting several Vim instances in diff mode, the temp files
            used may not be unique. (Issue 353)
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Solution:   Add an argument to vim_tempname() to keep the file.
Files:      src/diff.c, src/eval.c, src/ex_cmds.c, src/fileio.c,
            src/hardcopy.c, src/proto/fileio.pro, src/if_cscope.c,
            src/memline.c, src/misc1.c, src/os_unix.c, src/quickfix.c,
            src/spell.c

Patch 7.4.685
Problem:    When there are illegal utf-8 characters the old regexp engine may
            go past the end of a string.
Solution:   Only advance to the end of the string. (Dominique Pelle)
Files:      src/regexp.c

Patch 7.4.686
Problem:    "zr" and "zm" do not take a count.
Solution:   Implement the count, restrict the fold level to the maximum
            nesting depth.  (Marcin Szamotulski)
Files:      runtime/doc/fold.txt, src/normal.c

Patch 7.4.687
Problem:    There is no way to use a different in Replace mode for a terminal.
Solution:   Add t_SR. (Omar Sandoval)
Files:      runtime/doc/options.txt, runtime/doc/term.txt,
            runtime/syntax/vim.vim, src/option.c, src/term.c, src/term.h

Patch 7.4.688
Problem:    When "$" is in 'cpo' the popup menu isn't undrawn correctly.
            (Issue 166)
Solution:   When using the popup menu remove the "$".
Files:      src/edit.c

Patch 7.4.689
Problem:    On MS-Windows, when 'autochdir' is set, diff mode with files in
            different directories does not work. (Axel Bender)
Solution:   Remember the current directory and use it where needed. (Christian
            Brabandt)
Files:      src/main.c

Patch 7.4.690
Problem:    Memory access errors when changing indent in Ex mode. Also missing
            redraw when using CTRL-U. (Knil Ino)
Solution:   Update pointers after calling ga_grow().
Files:      src/ex_getln.c

Patch 7.4.691 (after 7.4.689)
Problem:    Can't build with MzScheme.
Solution:   Change "cwd" into the global variable "start_dir".
Files:      src/main.c

Patch 7.4.692
Problem:    Defining SOLARIS for no good reason. (Danek Duvall)
Solution:   Remove it.
Files:      src/os_unix.h

Patch 7.4.693
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Problem:    Session file is not correct when there are multiple tab pages.
Solution:   Reset the current window number for each tab page. (Jacob Niehus)
Files:      src/ex_docmd.c

Patch 7.4.694
Problem:    Running tests changes the .viminfo file.
Solution:   Disable viminfo in the text objects test.
Files:      src/testdir/test_textobjects.in

Patch 7.4.695
Problem:    Out-of-bounds read, detected by Coverity.
Solution:   Remember the value of cmap for the first matching encoding.  Reset
            cmap to that value if first matching encoding is going to be used.
            (Eliseo Martínez)
Files:      src/hardcopy.c

Patch 7.4.696
Problem:    Not freeing memory when encountering an error.
Solution:   Free the stack before returning. (Eliseo Martínez)
Files:      src/regexp_nfa.c

Patch 7.4.697
Problem:    The filename used for ":profile" must be given literally.
Solution:   Expand "~" and environment variables. (Marco Hinz)
Files:      src/ex_cmds2.c

Patch 7.4.698
Problem:    Various problems with locked and fixed lists and dictionaries.
Solution:   Disallow changing locked items, fix a crash, add tests. (Olaf
            Dabrunz)
Files:      src/structs.h, src/eval.c, src/testdir/test55.in,
            src/testdir/test55.ok

Patch 7.4.699
Problem:    E315 when trying to delete a fold. (Yutao Yuan)
Solution:   Make sure the fold doesn't go beyond the last buffer line.
            (Christian Brabandt)
Files:      src/fold.c

Patch 7.4.700
Problem:    Fold can't be opened after ":move". (Ein Brown)
Solution:   Delete the folding information and update it afterwards.
            (Christian Brabandt)
Files:      src/ex_cmds.c, src/fold.c, src/testdir/test45.in,
            src/testdir/test45.ok

Patch 7.4.701
Problem:    Compiler warning for using uninitialized variable. (Yasuhiro
            Matsumoto)
Solution:   Initialize it.
Files:      src/hardcopy.c

Patch 7.4.702
Problem:    Joining an empty list does unnecessary work.
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Solution:   Let join() return early. (Marco Hinz)
Files:      src/eval.c

Patch 7.4.703
Problem:    Compiler warning for start_dir unused when building unittests.
Solution:   Move start_dir inside the #ifdef.
Files:      src/main.c

Patch 7.4.704
Problem:    Searching for a character matches an illegal byte and causes
            invalid memory access. (Dominique Pelle)
Solution:   Do not match an invalid byte when search for a character in a
            string.  Fix equivalence classes using negative numbers, which
            result in illegal bytes.
Files:      src/misc2.c, src/regexp.c, src/testdir/test44.in

Patch 7.4.705
Problem:    Can't build with Ruby 2.2.
Solution:   Add #ifdefs to handle the incompatible change. (Andrei Olsen)
Files:      src/if_ruby.c

Patch 7.4.706
Problem:    Window drawn wrong when 'laststatus' is zero and there is a
            command-line window. (Yclept Nemo)
Solution:   Set the status height a bit later. (Christian Brabandt)
Files:      src/window.c

Patch 7.4.707
Problem:    Undo files can have their executable bit set.
Solution:   Strip of the executable bit. (Mikael Berthe)
Files:      src/undo.c

Patch 7.4.708
Problem:    gettext() is called too often.
Solution:   Do not call gettext() for messages until they are actually used.
            (idea by Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.4.709
Problem:    ":tabmove" does not work as documented.
Solution:   Make it work consistently.  Update documentation and add tests.
            (Hirohito Higashi)
Files:      src/window.c, runtime/doc/tabpage.txt, src/ex_docmd.c,
            src/testdir/test62.in, src/testdir/test62.ok

Patch 7.4.710
Problem:    It is not possible to make spaces visible in list mode.
Solution:   Add the "space" item to 'listchars'. (David Bürgin, issue 350)
Files:      runtime/doc/options.txt, src/globals.h, src/message.h,
            src/screen.c, src/testdir/test_listchars.in,
            src/testdir/test_listchars.ok, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile
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Patch 7.4.711 (after 7.4.710)
Problem:    Missing change in one file.
Solution:   Also change option.c
Files:      src/option.c

Patch 7.4.712 (after 7.4.710)
Problem:    Missing change in another file.
Solution:   Also change message.c
Files:      src/message.c

Patch 7.4.713
Problem:    Wrong condition for #ifdef.
Solution:   Change USR_EXRC_FILE2 to USR_VIMRC_FILE2. (Mikael Fourrier)
Files:      src/os_unix.h

Patch 7.4.714
Problem:    Illegal memory access when there are illegal bytes.
Solution:   Check the byte length of the character. (Dominique Pelle)
Files:      src/regexp.c

Patch 7.4.715
Problem:    Invalid memory access when there are illegal bytes.
Solution:   Get the length from the text, not from the character. (Dominique
            Pelle)
Files:      src/regexp_nfa.c

Patch 7.4.716
Problem:    When using the 'c' flag of ":substitute" and selecting "a" or "l"
            at the prompt the flags are not remembered for ":&&". (Ingo
            Karkat)
Solution:   Save the flag values and restore them. (Hirohito Higashi)
Files:      src/ex_cmds.c

Patch 7.4.717
Problem:    ":let list += list" can change a locked list.
Solution:   Check for the lock earlier. (Olaf Dabrunz)
Files:      src/eval.c, src/testdir/test55.in, src/testdir/test55.ok

Patch 7.4.718
Problem:    Autocommands triggered by quickfix cannot get the current title
            value.
Solution:   Set w:quickfix_title earlier. (Yannick)
            Also move the check for a title into the function.
Files:      src/quickfix.c

Patch 7.4.719
Problem:    Overflow when adding MAXCOL to a pointer.
Solution:   Subtract pointers instead. (James McCoy)
Files:      src/screen.c

Patch 7.4.720
Problem:    Can't build with Visual Studio 2015.
Solution:   Recognize the "version 14" numbers and omit /nodefaultlib when
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            appropriate. (Paul Moore)
Files:      src/Make_mvc.mak

Patch 7.4.721
Problem:    When 'list' is set Visual mode does not highlight anything in
            empty lines. (mgaleski)
Solution:   Check the value of lcs_eol in another place. (Christian Brabandt)
Files:      src/screen.c

Patch 7.4.722
Problem:    0x202f is not recognized as a non-breaking space character.
Solution:   Add 0x202f to the list. (Christian Brabandt)
Files:      runtime/doc/options.txt, src/message.c, src/screen.c

Patch 7.4.723
Problem:    For indenting, finding the C++ baseclass can be slow.
Solution:   Cache the result. (Hirohito Higashi)
Files:      src/misc1.c

Patch 7.4.724
Problem:    Vim icon does not show in Windows context menu. (issue 249)
Solution:   Load the icon in GvimExt.
Files:      src/GvimExt/gvimext.cpp, src/GvimExt/gvimext.h

Patch 7.4.725
Problem:    ":call setreg('"', [])" reports an internal error.
Solution:   Make the register empty. (Yasuhiro Matsumoto)
Files:      src/ops.c

Patch 7.4.726 (after 7.4.724)
Problem:    Cannot build GvimExt.
Solution:   Set APPVER to 5.0.  (KF Leong)
Files:      src/GvimExt/Makefile

Patch 7.4.727 (after 7.4.724)
Problem:    Cannot build GvimExt with MingW.
Solution:   Add -lgdi32.  (KF Leong)
Files:      src/GvimExt/Make_ming.mak

Patch 7.4.728
Problem:    Can't build with some version of Visual Studio 2015.
Solution:   Recognize another version 14 number. (Sinan)
Files:      src/Make_mvc.mak

Patch 7.4.729 (after 7.4.721)
Problem:    Occasional crash with 'list' set.
Solution:   Fix off-by-one error. (Christian Brabandt)
Files:      src/screen.c

Patch 7.4.730
Problem:    When setting the crypt key and using a swap file, text may be
            encrypted twice or unencrypted text remains in the swap file.
            (Issue 369)
Solution:   Call ml_preserve() before re-encrypting.  Set correct index for
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            next pointer block.
Files: src/memfile.c, src/memline.c, src/proto/memline.pro, src/option.c

Patch 7.4.731
Problem: The tab menu shows "Close tab" even when it doesn't work.
Solution: Don't show "Close tab" for the last tab. (John Marriott)
Files: src/gui_w48.c, src/gui_gtk_x11.c, src/gui_mac.c, src/gui_motif.c

Patch 7.4.732
Problem: The cursor line is not always updated for the "O" command.
Solution: Reset the VALID_CROW flag. (Christian Brabandt)
Files: src/normal.c

Patch 7.4.733
Problem: test_listchars breaks on MS-Windows. (Kenichi Ito)
Solution: Set fileformat to "unix". (Christian Brabandt)
Files: src/testdir/test_listchars.in

Patch 7.4.734
Problem: ml_get error when using "p" in a Visual selection in the last
            line.
Solution: Change the behavior at the last line. (Yukihiro Nakadaira)
Files: src/normal.c, src/ops.c, src/testdir/test94.in,
            src/testdir/test94.ok

Patch 7.4.735
Problem: Wrong argument for sizeof().
Solution: Use a pointer argument. (Chris Hall)
Files: src/eval.c

Patch 7.4.736
Problem: Invalid memory access.
Solution: Avoid going over the end of a NUL terminated string. (Dominique
            Pelle)
Files: src/regexp.c

Patch 7.4.737
Problem: On MS-Windows vimgrep over arglist doesn't work (Issue 361)
Solution: Only escape backslashes in ## expansion when it is not used as the
            path separator. (James McCoy)
Files: src/ex_docmd.c

Patch 7.4.738 (after 7.4.732)
Problem: Can't compile without the syntax highlighting feature.
Solution: Add #ifdef around use of w_p_cul. (Hirohito Higashi)
Files: src/normal.c, src/screen.c

Patch 7.4.739
Problem: In a string "\U" only takes 4 digits, while after CTRL-V U eight
            digits can be used.
Solution: Make "\U" also take eight digits. (Christian Brabandt)
Files: src/eval.c

Patch 7.4.740

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Problem:    ":1quit" works like ":.quit". (Bohr Shaw)
Solution:   Don't exit Vim when a range is specified. (Christian Brabandt)
Files:      src/ex_docmd.c, src/testdir/test13.in, src/testdir/test13.ok

Patch 7.4.741
Problem:    When using += with ":set" a trailing comma is not recognized.
            (Issue 365)
Solution:   Don't add a second comma. Add a test. (partly by Christian
            Brabandt)
Files:      src/option.c, src/testdir/test_set.in, src/testdir/test_set.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.742
Problem:    Cannot specify a vertical split when loading a buffer for a
            quickfix command.
Solution:   Add the "vsplit" value to 'switchbuf'. (Brook Hong)
Files:      runtime/doc/options.txt, src/buffer.c, src/option.h

Patch 7.4.743
Problem:    "p" in Visual mode causes an unexpected line split.
Solution:   Advance the cursor first. (Yukihiro Nakadaira)
Files:      src/ops.c, src/testdir/test94.in, src/testdir/test94.ok

Patch 7.4.744
Problem:    No tests for Ruby and Perl.
Solution:   Add minimal tests. (Ken Takata)
Files:      src/testdir/test_perl.in, src/testdir/test_perl.ok,
            src/testdir/test_ruby.in, src/testdir/test_ruby.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.745
Problem:    The entries added by matchaddpos() are returned by getmatches()
            but can't be set with setmatches(). (Lcd)
Solution:   Fix setmatches(). (Christian Brabandt)
Files:      src/eval.c, src/testdir/test63.in, src/testdir/test63.ok

Patch 7.4.746
Problem:    ":[count]tag" is not always working. (cs86661)
Solution:   Set cur_match a bit later. (Hirohito Higashi)
Files:      src/tag.c,

Patch 7.4.747
Problem:    ":cnext" may jump to the wrong column when setting
            'virtualedit=all' (cs86661)
Solution:   Reset the coladd field. (Hirohito Higashi)
Files:      src/quickfix.c

Patch 7.4.748 (after 7.4.745)
Problem:    Buffer overflow.
Solution:   Make the buffer larger. (Kazunobu Kuriyama)
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Files:      src/eval.c

Patch 7.4.749 (after 7.4.741)
Problem:    For some options two consecutive commas are OK. (Nikolai Pavlov)
Solution:   Add the P_ONECOMMA flag.
Files:      src/option.c

Patch 7.4.750
Problem:    Cannot build with clang 3.5 on Cygwin with perl enabled.
Solution:   Strip "-fdebug-prefix-map" in configure. (Ken Takata)
Files:      src/configure.in, src/auto/configure

Patch 7.4.751
Problem:    It is not obvious how to enable the address sanitizer.
Solution:   Add commented-out flags in the Makefile. (Dominique Pelle)
            Also add missing test targets.
Files:      src/Makefile

Patch 7.4.752
Problem:    Unicode 8.0 not supported.
Solution:   Update tables for Unicode 8.0.  Avoid E36 when running the script.
            (James McCoy)
Files:      runtime/tools/unicode.vim, src/mbyte.c

Patch 7.4.753
Problem:    Appending in Visual mode with 'linebreak' set does not work
            properly.  Also when 'selection' is "exclusive". (Ingo Karkat)
Solution:   Recalculate virtual columns. (Christian Brabandt)
Files:      src/normal.c, src/testdir/test_listlbr.in,
            src/testdir/test_listlbr.ok, src/testdir/test_listlbr_utf8.in,
            src/testdir/test_listlbr_utf8.ok

Patch 7.4.754
Problem:    Using CTRL-A in Visual mode does not work well. (Gary Johnson)
Solution:   Make it increment all numbers in the Visual area. (Christian
            Brabandt)
Files:      runtime/doc/change.txt, src/normal.c, src/ops.c,
            src/proto/ops.pro, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_increment.in,
            src/testdir/test_increment.ok

Patch 7.4.755
Problem:    It is not easy to count the number of characters.
Solution:   Add the skipcc argument to strchars(). (Hirohito Higashi, Ken
            Takata)
Files:      runtime/doc/eval.txt, src/eval.c, src/testdir/test_utf8.in,
            src/testdir/test_utf8.ok

Patch 7.4.756
Problem:    Can't use strawberry Perl 5.22 x64 on MS-Windows.
Solution:   Add new defines and #if. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak, src/if_perl.xs
```

Patch 7.4.757
Problem: Cannot detect the background color of a terminal.
Solution: Add T_RBG to request the background color if possible. (Lubomir
            Rintel)
Files: src/main.c, src/term.c, src/term.h, src/proto/term.pro

Patch 7.4.758
Problem: When 'conceallevel' is 1 and quitting the command-line window with
            CTRL-C the first character ':' is erased.
Solution: Reset 'conceallevel' in the command-line window. (Hirohito
            Higashi)
Files: src/ex_getln.c

Patch 7.4.759
Problem: Building with Lua 5.3 doesn't work, symbols have changed.
Solution: Use the new names for the new version. (Felix Schnizlein)
Files: src/if_lua.c

Patch 7.4.760
Problem: Spelling mistakes are not displayed after ":syn spell".
Solution: Force a redraw after ":syn spell" command. (Christian Brabandt)
Files: src/syntax.c

Patch 7.4.761 (after 7.4.757)
Problem: The request-background termcode implementation is incomplete.
Solution: Add the missing pieces.
Files: src/option.c, src/term.c

Patch 7.4.762 (after 7.4.757)
Problem: Comment for may_req_bg_color() is wrong. (Christ van Willegen)
Solution: Rewrite the comment.
Files: src/term.c

Patch 7.4.763 (after 7.4.759)
Problem: Building with Lua 5.1 doesn't work.
Solution: Define lua_replace and lua_remove. (KF Leong)
Files: src/if_lua.c

Patch 7.4.764 (after 7.4.754)
Problem: test_increment fails on MS-Windows. (Ken Takata)
Solution: Clear Visual mappings. (Taro Muraoka)
Files: src/testdir/test_increment.in

Patch 7.4.765 (after 7.4.754)
Problem: CTRL-A and CTRL-X in Visual mode do not always work well.
Solution: Improvements for increment and decrement. (Christian Brabandt)
Files: src/normal.c, src/ops.c, src/testdir/test_increment.in,
            src/testdir/test_increment.ok

Patch 7.4.766 (after 7.4.757)
Problem: Background color check does not work on Tera Term.
Solution: Also recognize ST as a termination character. (Hirohito Higashi)
Files: src/term.c

```
Patch 7.4.767
Problem:    --remote-tab-silent can fail on MS-Windows.
Solution:   Use single quotes to avoid problems with backslashes. (Idea by
            Weiyong Mao)
Files:      src/main.c

Patch 7.4.768
Problem:    :diffoff only works properly once.
Solution:   Also make :diffoff work when used a second time. (Olaf Dabrunz)
Files:      src/diff.c

Patch 7.4.769 (after 7.4 768)
Problem:    Behavior of :diffoff is not tested.
Solution:   Add a bit of testing. (Olaf Dabrunz)
Files:      src/testdir/test47.in, src/testdir/test47.ok

Patch 7.4.770 (after 7.4.766)
Problem:    Background color response with transparency is not ignored.
Solution:   Change the way escape sequences are recognized. (partly by
            Hirohito Higashi)
Files:      src/ascii.h, src/term.c

Patch 7.4.771
Problem:    Search does not handle multi-byte character at the start position
            correctly.
Solution:   Take byte size of character into account. (Yukihiro Nakadaira)
Files:      src/search.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_search_mbyte.in,
            src/testdir/test_search_mbyte.ok

Patch 7.4.772
Problem:    Racket 6.2 is not supported on MS-Windows.
Solution:   Check for the "racket" subdirectory. (Weiyong Mao)
Files:      src/Make_mvc.mak, src/if_mzsch.c

Patch 7.4.773
Problem:    'langmap' is used in command-line mode when checking for mappings.
            Issue 376.
Solution:   Do not use 'langmap' in command-line mode. (Larry Velazquez)
Files:      src/getchar.c, src/testdir/test_mapping.in,
            src/testdir/test_mapping.ok

Patch 7.4.774
Problem:    When using the CompleteDone autocommand event it's difficult to
            get to the completed items.
Solution:   Add the v:completed_items variable. (Shougo Matsu)
Files:      runtime/doc/autocmd.txt, runtime/doc/eval.txt, src/edit.c,
            src/eval.c, src/macros.h, src/proto/eval.pro, src/vim.h

Patch 7.4.775
Problem:    It is not possible to avoid using the first item of completion.
```

```
Solution:   Add the "noinsert" and "noselect" values to 'completeopt'. (Shougo
            Matsu)
Files:      runtime/doc/options.txt, src/edit.c, src/option.c

Patch 7.4.776
Problem:    Equivalence class for 'd' does not work correctly.
Solution:   Fix 0x1e0f and 0x1d0b. (Dominique Pelle)
Files:      src/regexp.c, src/regexp_nfa.c

Patch 7.4.777
Problem:    The README file doesn't look nice on github.
Solution:   Add a markdown version of the README file.
Files:      Filelist, README.md

Patch 7.4.778
Problem:    Coverity warns for uninitialized variable.
Solution:   Change condition of assignment.
Files:      src/ops.c

Patch 7.4.779
Problem:    Using CTRL-A in a line without a number moves the cursor. May
            cause a crash when at the start of the line. (Urtica Dioica)
Solution:   Do not move the cursor if no number was changed.
Files:      src/ops.c

Patch 7.4.780
Problem:    Compiler complains about uninitialized variable and clobbered
            variables.
Solution:   Add Initialization.  Make variables static.
Files:      src/ops.c, src/main.c

Patch 7.4.781
Problem:    line2byte() returns one less when 'bin' and 'noeol' are set.
Solution:   Only adjust the size for the last line. (Rob Wu)
Files:      src/memline.c

Patch 7.4.782
Problem:    Still a few problems with CTRL-A and CTRL-X in Visual mode.
Solution:   Fix the reported problems. (Christian Brabandt)
Files:      src/charset.c, src/eval.c, src/ex_cmds.c, src/ex_getln.c,
            src/misc2.c, src/normal.c, src/ops.c, src/option.c,
            src/proto/charset.pro, src/testdir/test_increment.in,
            src/testdir/test_increment.ok

Patch 7.4.783
Problem:    copy_chars() and copy_spaces() are inefficient.
Solution:   Use memset() instead. (Dominique Pelle)
Files:      src/ex_getln.c, src/misc2.c, src/ops.c, src/proto/misc2.pro,
            src/screen.c

Patch 7.4.784
Problem:    Using both "noinsert" and "noselect" in 'completeopt' does not
            work properly.
Solution:   Change the ins_complete() calls. (Ozaki Kiichi)
```

```
Files:      src/edit.c

Patch 7.4.785
Problem:    On some systems automatically adding the missing EOL causes
            problems. Setting 'binary' has too many side effects.
Solution:   Add the 'fixeol' option, default on. (Pavel Samarkin)
Files:      src/buffer.c, src/fileio.c, src/memline.c, src/netbeans.c,
            src/ops.c, src/option.c, src/option.h, src/os_unix.c,
            src/os_win32.c, src/structs.h, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_fixeol.in,
            src/testdir/test_fixeol.ok, runtime/doc/options.txt,
            runtime/optwin.vim

Patch 7.4.786
Problem:    It is not possible for a plugin to adjust to a changed setting.
Solution:   Add the OptionSet autocommand event. (Christian Brabandt)
Files:      runtime/doc/autocmd.txt, runtime/doc/eval.txt, src/eval.c,
            src/fileio.c, src/option.c, src/proto/eval.pro,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_autocmd_option.in,
            src/testdir/test_autocmd_option.ok, src/vim.h

Patch 7.4.787 (after 7.4.786)
Problem:    snprintf() isn't available everywhere.
Solution:   Use vim_snprintf(). (Ken Takata)
Files:      src/option.c

Patch 7.4.788 (after 7.4.787)
Problem:    Can't build without the crypt feature. (John Marriott)
Solution:   Add #ifdef's.
Files:      src/option.c

Patch 7.4.789 (after 7.4.788)
Problem:    Using freed memory and crash. (Dominique Pelle)
Solution:   Correct use of pointers. (Hirohito Higashi)
Files:      src/option.c

Patch 7.4.790 (after 7.4.786)
Problem:    Test fails when the autochdir feature is not available.  Test
            output contains the test script.
Solution:   Check for the autochdir feature. (Kazunobu Kuriyama)  Only write
            the relevant test output.
Files:      src/testdir/test_autocmd_option.in,
            src/testdir/test_autocmd_option.ok

Patch 7.4.791
Problem:    The buffer list can be very long.
Solution:   Add an argument to ":ls" to specify the type of buffer to list.
            (Marcin Szamotulski)
Files:      runtime/doc/windows.txt, src/buffer.c, src/ex_cmds.h
```

```
Patch 7.4.792
Problem:    Can only conceal text by defining syntax items.
Solution:   Use matchadd() to define concealing. (Christian Brabandt)
Files:      runtime/doc/eval.txt, src/eval.c, src/ex_docmd.c,
            src/proto/window.pro, src/screen.c, src/structs.h,
            src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_match_conceal.in,
            src/testdir/test_match_conceal.ok, src/window.c

Patch 7.4.793
Problem:    Can't specify when not to ring the bell.
Solution:   Add the 'belloff' option. (Christian Brabandt)
Files:      runtime/doc/options.txt, src/edit.c, src/ex_getln.c,
            src/hangulin.c, src/if_lua.c, src/if_mzsch.c, src/if_tcl.c,
            src/message.c, src/misc1.c, src/normal.c, src/option.c,
            src/option.h, src/proto/misc1.pro, src/search.c, src/spell.c

Patch 7.4.794
Problem:    Visual Studio 2015 is not recognized.
Solution:   Add the version numbers to the makefile. (Taro Muraoka)
Files:      src/Make_mvc.mak

Patch 7.4.795
Problem:    The 'fixeol' option is not copied to a new window.
Solution:   Copy the option value. (Yasuhiro Matsumoto)
Files:      src/option.c

Patch 7.4.796
Problem:    Warning from 64 bit compiler.
Solution:   Add type cast. (Mike Williams)
Files:      src/ops.c

Patch 7.4.797
Problem:    Crash when using more lines for the command line than
            'maxcombine'.
Solution:   Use the correct array index.  Also, do not try redrawing when
            exiting.  And use screen_Columns instead of Columns.
Files:      src/screen.c

Patch 7.4.798 (after 7.4.753)
Problem:    Repeating a change in Visual mode does not work as expected.
            (Urtica Dioica)
Solution:   Make redo in Visual mode work better. (Christian Brabandt)
Files:      src/normal.c, src/testdir/test_listlbr.in,
            src/testdir/test_listlbr.ok

Patch 7.4.799
Problem:    Accessing memory before an allocated block.
Solution:   Check for not going before the start of a pattern. (Dominique
            Pelle)
Files:      src/fileio.c
```

```
Patch 7.4.800
Problem:    Using freed memory when triggering CmdUndefined autocommands.
Solution:   Set pointer to NULL. (Dominique Pelle)
Files:      src/ex_docmd.c

Patch 7.4.801 (after 7.4.769)
Problem:    Test for ":diffoff" doesn't catch all potential problems.
Solution:   Add a :diffthis and a :diffoff command. (Olaf Dabrunz)
Files:      src/testdir/test47.in

Patch 7.4.802
Problem:    Using "A" in Visual mode while 'linebreak' is set is not tested.
Solution:   Add a test for this, verifies the problem is fixed. (Ingo Karkat)
Files:      src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.803
Problem:    C indent does not support C11 raw strings. (Mark Lodato)
Solution:   Do not change indent inside the raw string.
Files:      src/search.c, src/misc1.c, src/edit.c, src/ops.c,
            src/testdir/test3.in, src/testdir/test3.ok

Patch 7.4.804
Problem:    Xxd doesn't have a license notice.
Solution:   Add license as indicated by Juergen.
Files:      src/xxd/xxd.c

Patch 7.4.805
Problem:    The ruler shows "Bot" even when there are only filler lines
            missing. (Gary Johnson)
Solution:   Use "All" when the first line and one filler line are visible.
Files:      src/buffer.c

Patch 7.4.806
Problem:    CTRL-A in Visual mode doesn't work properly with "alpha" in
            'nrformats'.
Solution:   Make it work. (Christian Brabandt)
Files:      src/ops.c, src/testdir/test_increment.in,
            src/testdir/test_increment.ok

Patch 7.4.807 (after 7.4.798)
Problem:    After CTRL-V CTRL-A mode isn't updated. (Hirohito Higashi)
Solution:   Clear the command line or update the displayed command.
Files:      src/normal.c

Patch 7.4.808
Problem:    On MS-Windows 8 IME input doesn't work correctly.
Solution:   Read console input before calling MsgWaitForMultipleObjects().
            (vim-jp, Nobuhiro Takasaki)
Files:      src/os_win32.c

Patch 7.4.809 (after 7.4.802)
Problem:    Test is duplicated.
Solution:   Roll back 7.4.802.
```

```
Files:      src/testdir/test39.in, src/testdir/test39.ok

Patch 7.4.810
Problem:    With a sequence of commands using buffers in diff mode E749 is
            given. (itchyny)
Solution:   Skip unloaded buffer. (Hirohito Higashi)
Files:      src/diff.c

Patch 7.4.811
Problem:    Invalid memory access when using "exe 'sc'".
Solution:   Avoid going over the end of the string. (Dominique Pelle)
Files:      src/ex_docmd.c

Patch 7.4.812
Problem:    Gcc sanitizer complains about using a NULL pointer to memmove().
Solution:   Only call memmove when there is something to move. (Vittorio
            Zecca)
Files:      src/memline.c

Patch 7.4.813
Problem:    It is not possible to save and restore character search state.
Solution:   Add getcharsearch() and setcharsearch().  (James McCoy)
Files:      runtime/doc/eval.txt, src/eval.c, src/proto/search.pro,
            src/search.c, src/testdir/test_charsearch.in,
            src/testdir/test_charsearch.ok, src/testdir/Makefile,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms

Patch 7.4.814
Problem:    Illegal memory access with "sy match a fold".
Solution:   Check for empty string. (Dominique Pelle)
Files:      src/syntax.c

Patch 7.4.815
Problem:    Invalid memory access when doing ":call g:".
Solution:   Check for an empty name. (Dominique Pelle)
Files:      src/eval.c

Patch 7.4.816
Problem:    Invalid memory access when doing ":fun X(".
Solution:   Check for missing ')'. (Dominique Pelle)
Files:      src/eval.c

Patch 7.4.817
Problem:    Invalid memory access in file_pat_to_reg_pat().
Solution:   Use vim_isspace() instead of checking for a space only. (Dominique
            Pelle)
Files:      src/fileio.c

Patch 7.4.818
Problem:    'linebreak' breaks c% if the last Visual selection was block.
            (Chris Morganiser, Issue 389)
Solution:   Handle Visual block mode differently. (Christian Brabandt)
```

```
Files:      src/normal.c, src/testdir/test_listlbr.in,
            src/testdir/test_listlbr.ok

Patch 7.4.819
Problem:    Beeping when running the tests.
Solution:   Fix 41 beeps. (Roland Eggner)
Files:      src/testdir/test17.in, src/testdir/test29.in,
            src/testdir/test4.in, src/testdir/test61.in,
            src/testdir/test82.in, src/testdir/test83.in,
            src/testdir/test90.in, src/testdir/test95.in,
            src/testdir/test_autoformat_join.in

Patch 7.4.820
Problem:    Invalid memory access in file_pat_to_reg_pat.
Solution:   Avoid looking before the start of a string. (Dominique Pelle)
Files:      src/fileio.c

Patch 7.4.821
Problem:    Coverity reports a few problems.
Solution:   Avoid the warnings. (Christian Brabandt)
Files:      src/ex_docmd.c, src/option.c, src/screen.c

Patch 7.4.822
Problem:    More problems reported by coverity.
Solution:   Avoid the warnings. (Christian Brabandt)
Files:      src/os_unix.c, src/eval.c, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_getln.c, src/fold.c, src/gui.c, src/gui_w16.c,
            src/gui_w32.c, src/if_cscope.c, src/if_xcmdsrv.c, src/move.c,
            src/normal.c, src/regexp.c, src/syntax.c, src/ui.c, src/window.c

Patch 7.4.823
Problem:    Cursor moves after CTRL-A on alphabetic character.
Solution:   (Hirohito Higashi, test by Christian Brabandt)
Files:      src/testdir/test_increment.in, src/testdir/test_increment.ok,
            src/ops.c

Patch 7.4.824 (after 7.4.813)
Problem:    Can't compile without the multi-byte feature. (John Marriott)
Solution:   Add #ifdef.
Files:      src/eval.c

Patch 7.4.825
Problem:    Invalid memory access for ":syn keyword x a[".
Solution:   Do not skip over the NUL. (Dominique Pelle)
Files:      src/syntax.c

Patch 7.4.826
Problem:    Compiler warnings and errors.
Solution:   Make it build properly without the multi-byte feature.
Files:      src/eval.c, src/search.c

Patch 7.4.827
Problem:    Not all test targets are in the Makefile.
Solution:   Add the missing targets.
```

```
Files:      src/Makefile

Patch 7.4.828
Problem:    Crash when using "syn keyword x c". (Dominique Pelle)
Solution:   Initialize the keyword table. (Raymond Ko, PR 397)
Files:      src/syntax.c

Patch 7.4.829
Problem:    Crash when clicking in beval balloon. (Travis Lebsock)
Solution:   Use PostMessage() instead of DestroyWindow(). (Raymond Ko, PR 298)
Files:      src/gui_w32.c

Patch 7.4.830
Problem:    Resetting 'encoding' when doing ":set all&" causes problems.
            (Bjorn Linse) Display is not updated.
Solution:   Do not reset 'encoding'. Do a full redraw.
Files:      src/option.c

Patch 7.4.831
Problem:    When expanding `=expr` on the command line and encountering an
            error, the command is executed anyway.
Solution:   Bail out when an error is detected.
Files:      src/misc1.c

Patch 7.4.832
Problem:    $HOME in `=$HOME . '/.vimrc'` is expanded too early.
Solution:   Skip over `=expr` when expanding environment names.
Files:      src/misc1.c

Patch 7.4.833
Problem:    More side effects of ":set all&" are missing. (Björn Linse)
Solution:   Call didset_options() and add didset_options2() to collect more
            side effects to take care of.  Still not everything...
Files:      src/option.c

Patch 7.4.834
Problem:    gettabvar() doesn't work after Vim start. (Szymon Wrozynski)
Solution:   Handle first window in tab still being NULL. (Christian Brabandt)
Files:      src/eval.c, src/testdir/test91.in, src/testdir/test91.ok

Patch 7.4.835
Problem:    Comparing utf-8 sequences does not handle different byte sizes
            correctly.
Solution:   Get the byte size of each character. (Dominique Pelle)
Files:      src/misc2.c

Patch 7.4.836
Problem:    Accessing uninitialized memory.
Solution:   Add missing calls to init_tv(). (Dominique Pelle)
Files:      src/eval.c

Patch 7.4.837
Problem:    Compiler warning with MSVC compiler when using +sniff.
Solution:   Use Sleep() instead of _sleep(). (Tux)
```

```
Files:      src/if_sniff.c

Patch 7.4.838 (after 7.4.833)
Problem:    Can't compile without the crypt feature. (John Marriott)
Solution:   Add #ifdef.
Files:      src/option.c

Patch 7.4.839
Problem:    Compiler warning on 64-bit system.
Solution:   Add cast to int. (Mike Williams)
Files:      src/search.c

Patch 7.4.840 (after 7.4.829)
Problem:    Tooltip window stays open.
Solution:   Send a WM_CLOSE message. (Jurgen Kramer)
Files:      src/gui_w32.c

Patch 7.4.841
Problem:    Can't compile without the multi-byte feature. (John Marriott)
Solution:   Add more #ifdef's.
Files:      src/option.c

Patch 7.4.842 (after 7.4.840)
Problem:    Sending too many messages to close the balloon.
Solution:   Only send a WM_CLOSE message. (Jurgen Kramer)
Files:      src/gui_w32.c

Patch 7.4.843 (after 7.4.835)
Problem:    Still possible to go beyond the end of a string.
Solution:   Check for NUL also in second string. (Dominique Pelle)
Files:      src/misc2.c

Patch 7.4.844
Problem:    When '#' is in 'isident' the is# comparator doesn't work.
Solution:   Don't use vim_isIDc(). (Yasuhiro Matsumoto)
Files:      src/eval.c, src/testdir/test_comparators.in,
            src/testdir/test_comparators.ok, src/testdir/Makefile,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms

Patch 7.4.845
Problem:    Compiler warning for possible loss of data.
Solution:   Add a type cast. (Erich Ritz)
Files:      src/misc1.c

Patch 7.4.846
Problem:    Some GitHub users don't know how to use issues.
Solution:   Add a file that explains the basics of contributing.
Files:      Filelist, CONTRIBUTING.md

Patch 7.4.847
Problem:    "vi)d" may leave a character behind.
Solution:   Skip over multi-byte character. (Christian Brabandt)
```

```
Files:      src/search.c

Patch 7.4.848
Problem:    CTRL-A on hex number in Visual block mode is incorrect.
Solution:   Account for the "0x". (Hirohito Higashi)
Files:      src/charset.c, src/testdir/test_increment.in,
            src/testdir/test_increment.ok

Patch 7.4.849
Problem:    Moving the cursor in Insert mode starts new undo sequence.
Solution:   Add CTRL-G U to keep the undo sequence for the following cursor
            movement command. (Christian Brabandt)
Files:      runtime/doc/insert.txt, src/edit.c, src/testdir/test_mapping.in,
            src/testdir/test_mapping.ok

Patch 7.4.850 (after 7.4.846)
Problem:    <Esc> does not show up.
Solution:   Use &gt; and &lt;. (Kazunobu Kuriyama)
Files:      CONTRIBUTING.md

Patch 7.4.851
Problem:    Saving and restoring the console buffer does not work properly.
Solution:   Instead of ReadConsoleOutputA/WriteConsoleOutputA use
            CreateConsoleScreenBuffer and SetConsoleActiveScreenBuffer.
            (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.852
Problem:    On MS-Windows console Vim uses ANSI APIs for keyboard input and
            console output, it cannot input/output Unicode characters.
Solution:   Use Unicode APIs for console I/O. (Ken Takata, Yasuhiro Matsumoto)
Files:      src/os_win32.c, src/ui.c, runtime/doc/options.txt

Patch 7.4.853
Problem:    "zt" in diff mode does not always work properly. (Gary Johnson)
Solution:   Don't count filler lines twice. (Christian Brabandt)
Files:      src/move.c

Patch 7.4.854 (after 7.4.850)
Problem:    Missing information about runtime files.
Solution:   Add section about runtime files. (Christian Brabandt)
Files:      CONTRIBUTING.md

Patch 7.4.855
Problem:    GTK: font glitches for combining characters
Solution:   Use pango_shape_full() instead of pango_shape(). (luchr, PR #393)
Files:      src/gui_gtk_x11.c

Patch 7.4.856
Problem:    "zt" still doesn't work well with filler lines. (Gary Johnson)
Solution:   Check for filler lines above the cursor. (Christian Brabandt)
Files:      src/move.c

Patch 7.4.857
```

```
Problem:    Dragging the current tab with the mouse doesn't work properly.
Solution:   Take the current tabpage index into account. (Hirohito Higashi)
Files:      src/normal.c

Patch 7.4.858
Problem:    It's a bit clumsy to execute a command on a list of matches.
Solution:   Add the ":ldo", ":lfdo", ":cdo" and ":cfdo" commands. (Yegappan
            Lakshmanan)
Files:      runtime/doc/cmdline.txt, runtime/doc/editing.txt,
            runtime/doc/index.txt, runtime/doc/quickfix.txt,
            runtime/doc/tabpage.txt, runtime/doc/windows.txt, src/ex_cmds.h,
            src/ex_cmds2.c, src/ex_docmd.c, src/proto/quickfix.pro,
            src/quickfix.c, src/testdir/Make_amiga.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_os2.mak, src/testdir/Make_vms.mms,
            src/testdir/Makefile, src/testdir/test_cdo.in,
            src/testdir/test_cdo.ok

Patch 7.4.859
Problem:    Vim doesn't recognize all htmldjango files.
Solution:   Recognize a comment. (Daniel Hahler, PR #410)
Files:      runtime/filetype.vim

Patch 7.4.860
Problem:    Filetype detection is outdated.
Solution:   Include all recent and not-so-recent changes.
Files:      runtime/filetype.vim

Patch 7.4.861 (after 7.4.855)
Problem:    pango_shape_full() is not always available.
Solution:   Add a configure check.
Files:      src/configure.in, src/auto/configure, src/config.h.in,
            src/gui_gtk_x11.c

Patch 7.4.862 (after 7.4.861)
Problem:    Still problems with pango_shape_full() not available.
Solution:   Change AC_TRY_COMPILE to AC_TRY_LINK.
Files:      src/configure.in, src/auto/configure

Patch 7.4.863 (after 7.4.856)
Problem:    plines_nofill() used without the diff feature.
Solution:   Define PLINES_NOFILL().
Files:      src/macros.h, src/move.c

Patch 7.4.864 (after 7.4.858)
Problem:    Tiny build fails.
Solution:   Put qf_ items inside #ifdef.
Files:      src/ex_docmd.c

Patch 7.4.865
Problem:    Compiler warning for uninitialized variable.
Solution:   Initialize.
Files:      src/ex_cmds2.c
```

```
Patch 7.4.866
Problem:    Crash when changing the 'tags' option from a remote command.
            (Benjamin Fritz)
Solution:   Instead of executing messages immediately, use a queue, like for
            netbeans. (James Kolb)
Files:      src/ex_docmd.c, src/getchar.c, src/gui_gtk_x11.c, src/gui_w48.c,
            src/gui_x11.c, src/if_xcmdsrv.c, src/misc2.c, src/os_unix.c,
            src/proto/if_xcmdsrv.pro, src/proto/misc2.pro, src/macros.h

Patch 7.4.867 (after 7.4.866)
Problem:    Can't build on MS-Windows. (Taro Muraoka)
Solution:   Adjust #ifdef.
Files:      src/misc2.c

Patch 7.4.868
Problem:    'smarttab' is also effective when 'paste' is enabled. (Alexander
            Monakov)
Solution:   Disable 'smarttab' when 'paste' is set. (Christian Brabandt)
            Do the same for 'expandtab'.
Files:      src/option.c, src/structs.h

Patch 7.4.869
Problem:    MS-Windows: scrolling may cause text to disappear when using an
            Intel GPU.
Solution:   Call GetPixel(). (Yohei Endo)
Files:      src/gui_w48.c

Patch 7.4.870
Problem:    May get into an invalid state when using getchar() in an
            expression mapping.
Solution:   Anticipate mod_mask to change. (idea by Yukihiro Nakadaira)
Files:      src/getchar.c

Patch 7.4.871
Problem:    Vim leaks memory, when 'wildignore' filters out all matches.
Solution:   Free the files array when it becomes empty.
Files:      src/misc1.c

Patch 7.4.872
Problem:    Not using CI services available.
Solution:   Add configuration files for travis and appveyor. (Ken Takata,
            vim-jp, PR #401)
Files:      .travis.yml, appveyor.yml, Filelist

Patch 7.4.873 (after 7.4.866)
Problem:    Compiler warning for unused variable. (Tony Mechelynck)
Solution:   Remove the variable.  Also fix int vs long_u mixup.
Files:      src/if_xcmdsrv.c

Patch 7.4.874
Problem:    MS-Windows: When Vim runs inside another application, the size
            isn't right.
Solution:   When in child mode compute the size differently. (Agorgianitis
            Loukas)
```

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Files:      src/gui_w48.c

Patch 7.4.875
Problem:    Not obvious how to contribute.
Solution:   Add a remark about CONTRIBUTING.md to README.md
Files:      README.md

Patch 7.4.876
Problem:    Windows7: when using vim.exe with msys or msys2, conhost.exe
            (console window provider on Windows7) will freeze or crash.
Solution:   Make original screen buffer active, before executing external
            program.  And when the program is finished, revert to vim's one.
            (Taro Muraoka)
Files:      src/os_win32.c

Patch 7.4.877 (after 7.4.843)
Problem:    ":find" sometimes fails. (Excanoe)
Solution:   Compare current characters instead of previous ones.
Files:      src/misc2.c

Patch 7.4.878
Problem:    Coverity error for clearing only one byte of struct.
Solution:   Clear the whole struct. (Dominique Pelle)
Files:      src/ex_docmd.c

Patch 7.4.879
Problem:    Can't see line numbers in nested function calls.
Solution:   Add line number to the file name. (Alberto Fanjul)
Files:      src/eval.c

Patch 7.4.880
Problem:    No build and coverage status.
Solution:   Add links to the README file. (Christian Brabandt)
Files:      README.md

Patch 7.4.881 (after 7.4.879)
Problem:    Test 49 fails.
Solution:   Add line number to check of call stack.
Files:      src/testdir/test49.vim

Patch 7.4.882
Problem:    When leaving the command line window with CTRL-C while a
            completion menu is displayed the menu isn't removed.
Solution:   Force a screen update. (Hirohito Higashi)
Files:      src/edit.c

Patch 7.4.883 (after 7.4.818)
Problem:    Block-mode replace works characterwise instead of blockwise after
            column 147. (Issue #422)
Solution:   Set Visual mode. (Christian Brabandt)
Files:      src/normal.c, src/testdir/test_listlbr.in,
            src/testdir/test_listlbr.ok

Patch 7.4.884
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Problem:    Travis also builds on a tag push.
Solution:   Filter out tag pushes. (Kenichi Ito)
Files:      .travis.yml

Patch 7.4.885
Problem:    When doing an upwards search without wildcards the search fails if
            the initial directory doesn't exist.
Solution:   Fix the non-wildcard case. (Stefan Kempf)
Files:      src/misc2.c

Patch 7.4.886 (after 7.4.876)
Problem:    Windows7: Switching screen buffer causes flicker when using
            system().
Solution:   Instead of actually switching screen buffer, duplicate the handle.
            (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.4.887
Problem:    Using uninitialized memory for regexp with back reference.
            (Dominique Pelle)
Solution:   Initialize end_lnum.
Files:      src/regexp_nfa.c

Patch 7.4.888
Problem:    The OptionSet autocommands are not triggered from setwinvar().
Solution:   Do not use switch_win() when not needed. (Hirohito Higashi)
Files:      src/eval.c

Patch 7.4.889
Problem:    Triggering OptionSet from setwinvar() isn't tested.
Solution:   Add a test. (Christian Brabandt)
Files:      src/testdir/test_autocmd_option.in,
            src/testdir/test_autocmd_option.ok

Patch 7.4.890
Problem:    Build failure when using dynamic python but not python3.
Solution:   Adjust the #if to also include DYNAMIC_PYTHON3 and UNIX.
Files:      src/if_python3.c

Patch 7.4.891
Problem:    Indentation of array initializer is wrong.
Solution:   Avoid that calling find_start_rawstring() changes the position
            returned by find_start_comment(), add a test. (Hirohito Higashi)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.4.892
Problem:    On MS-Windows the iconv DLL may have a different name.
Solution:   Also try libiconv2.dll and libiconv-2.dll. (Yasuhiro Matsumoto)
Files:      src/mbyte.c

Patch 7.4.893
Problem:    C indenting is wrong below a "case (foo):" because it is
            recognized as a C++ base class construct.  Issue #38.
Solution:   Check for the case keyword.
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Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.4.894
Problem:    vimrun.exe is picky about the number of spaces before -s.
Solution:   Skip all spaces. (Cam Sinclair)
Files:      src/vimrun.c

Patch 7.4.895
Problem:    Custom command line completion does not work for a command
            containing digits.
Solution:   Skip over the digits. (suggested by Yasuhiro Matsumoto)
Files:      src/ex_docmd.c

Patch 7.4.896
Problem:    Editing a URL, which netrw should handle, doesn't work.
Solution:   Avoid changing slashes to backslashes. (Yasuhiro Matsumoto)
Files:      src/fileio.c, src/os_mswin.c

Patch 7.4.897
Problem:    Freeze and crash when there is a sleep in a remote command.
            (Karl Yngve Lervåg)
Solution:   Remove a message from the queue before dealing with it. (James
            Kolb)
Files:      src/if_xcmdsrv.c

Patch 7.4.898
Problem:    The 'fixendofline' option is set on with ":edit".
Solution:   Don't set the option when clearing a buffer. (Yasuhiro Matsumoto)
Files:      src/buffer.c

Patch 7.4.899
Problem:    README file is not optimal.
Solution:   Move buttons, update some text. (closes #460)
Files:      README.txt, README.md

Patch 7.4.900 (after 7.4.899)
Problem:    README file can still be improved
Solution:   Add a couple of links. (Christian Brabandt)
Files:      README.md

Patch 7.4.901
Problem:    When a BufLeave autocommand changes folding in a way it syncs
            undo, undo can be corrupted.
Solution:   Prevent undo sync. (Jacob Niehus)
Files:      src/popupmnu.c

Patch 7.4.902
Problem:    Problems with using the MS-Windows console.
Solution:   Revert patches 7.4.851, 7.4.876 and 7.4.886 until we find a better
            solution. (suggested by Ken Takata)
Files:      src/os_win32.c

Patch 7.4.903
Problem:    MS-Windows: When 'encoding' differs from the current code page,
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            expanding wildcards may cause illegal memory access.
Solution:   Allocate a longer buffer. (Ken Takata)
Files:      src/misc1.c

Patch 7.4.904
Problem:    Vim does not provide .desktop files.
Solution:   Include and install .desktop files. (James McCoy, closes #455)
Files:      Filelist, runtime/vim.desktop, runtime/gvim.desktop, src/Makefile

Patch 7.4.905
Problem:    Python interface can produce error "vim.message' object has no
            attribute 'isatty'".
Solution:   Add dummy isatty(), readable(), etc. (closes #464)
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.4.906
Problem:    On MS-Windows the viminfo file is (always) given the hidden
            attribute. (raulnac)
Solution:   Check the hidden attribute in a different way. (Ken Takata)
Files:      src/ex_cmds.c, src/os_win32.c, src/os_win32.pro

Patch 7.4.907
Problem:    Libraries for dynamically loading interfaces can only be defined
            at compile time.
Solution:   Add options to specify the dll names. (Kazuki Sakamoto,
            closes #452)
Files:      runtime/doc/if_lua.txt, runtime/doc/if_perl.txt,
            runtime/doc/if_pyth.txt, runtime/doc/if_ruby.txt,
            runtime/doc/options.txt, src/if_lua.c, src/if_perl.xs,
            src/if_python.c, src/if_python3.c, src/if_ruby.c, src/option.c,
            src/option.h

Patch 7.4.908 (after 7.4.907)
Problem:    Build error with MingW compiler. (Cesar Romani)
Solution:   Change #if into #ifdef.
Files:      src/if_perl.xs

Patch 7.4.909 (after 7.4.905)
Problem:    "make install" fails.
Solution:   Only try installing desktop files if the destination directory
            exists.
Files:      src/Makefile

Patch 7.4.910 (after 7.4.905)
Problem:    Compiler complains about type punned pointer.
Solution:   Use another way to increment the ref count.
Files:      src/if_py_both.h

Patch 7.4.911
Problem:    t_Ce and t_Cs are documented but not supported. (Hirohito Higashi)
Solution:   Define the options.
Files:      src/option.c
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Patch 7.4.912
Problem:    Wrong indenting for C++ constructor.
Solution:   Recognize ::.  (Anhong)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 7.4.913
Problem:    No utf-8 support for the hangul input feature.
Solution:   Add utf-8 support. (Namsh)
Files:      src/gui.c, src/hangulin.c, src/proto/hangulin.pro, src/screen.c,
            src/ui.c, runtime/doc/hangulin.txt, src/feature.h

Patch 7.4.914
Problem:    New compiler warning: logical-not-parentheses
Solution:   Silence the warning.
Files:      src/term.c

Patch 7.4.915
Problem:    When removing from 'path' and then adding, a comma may go missing.
            (Malcolm Rowe)
Solution:   Fix the check for P_ONECOMMA. (closes #471)
Files:      src/option.c, src/testdir/test_options.in,
            src/testdir/test_options.ok

Patch 7.4.916
Problem:    When running out of memory while copying a dict memory may be
            freed twice. (ZyX)
Solution:   Do not call the garbage collector when running out of memory.
Files:      src/misc2.c

Patch 7.4.917
Problem:    Compiler warning for comparing signed and unsigned.
Solution:   Add a type cast.
Files:      src/hangulin.c

Patch 7.4.918
Problem:    A digit in an option name has problems.
Solution:   Rename 'python3dll' to 'pythonthreedll'.
Files:      src/option.c, src/option.h, runtime/doc/options.txt

Patch 7.4.919
Problem:    The dll options are not in the options window.
Solution:   Add the dll options.  And other fixes.
Files:      runtime/optwin.vim

Patch 7.4.920
Problem:    The rubydll option is not in the options window.
Solution:   Add the rubydll option.
Files:      runtime/optwin.vim

Patch 7.4.921 (after 7.4.906)
Problem:    Missing proto file update. (Randall W. Morris)
Solution:   Add the missing line for mch_ishidden.
Files:      src/proto/os_win32.pro
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Patch 7.4.922
Problem:    Leaking memory with ":helpt {dir-not-exists}".
Solution:   Free dirname. (Dominique Pelle)
Files:      src/ex_cmds.c

Patch 7.4.923
Problem:    Prototypes not always generated.
Solution:   Change #if to OR with PROTO.
Files:      src/window.c

Patch 7.4.924
Problem:    DEVELOPER_DIR gets reset by configure.
Solution:   Do not reset DEVELOPER_DIR when there is no --with-developer-dir
            argument. (Kazuki Sakamoto, closes #482)
Files:      src/configure.in, src/auto/configure

Patch 7.4.925
Problem:    User may yank or put using the register being recorded in.
Solution:   Add the recording register in the message. (Christian Brabandt,
            closes #470)
Files:      runtime/doc/options.txt, runtime/doc/repeat.txt, src/ops.c,
            src/option.h, src/screen.c

Patch 7.4.926
Problem:    Completing the longest match doesn't work properly with multi-byte
            characters.
Solution:   When using multi-byte characters use another way to find the
            longest match. (Hirohito Higashi)
Files:      src/ex_getln.c, src/testdir/test_utf8.in, src/testdir/test_utf8.ok

Patch 7.4.927
Problem:    Ruby crashes when there is a runtime error.
Solution:   Use ruby_options() instead of ruby_process_options(). (Damien)
Files:      src/if_ruby.c

Patch 7.4.928
Problem:    A clientserver message interrupts handling keys of a mapping.
Solution:   Have mch_inchar() send control back to WaitForChar when it is
            interrupted by server message. (James Kolb)
Files:      src/os_unix.c

Patch 7.4.929
Problem:    "gv" after paste selects one character less if 'selection' is
            "exclusive".
Solution:   Increment the end position. (Christian Brabandt)
Files:      src/normal.c, src/testdir/test94.in, src/testdir/test94.ok

Patch 7.4.930
Problem:    MS-Windows: Most users appear not to like the window border.
Solution:   Remove WS_EX_CLIENTEDGE. (Ian Halliday)
Files:      src/gui_w32.c

Patch 7.4.931 (after 7.4.929)
Problem:    Test 94 fails on some systems.
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Solution:   Set 'encoding' to utf-8.
Files:      src/testdir/test94.in

Patch 7.4.932 (after 7.4.926)
Problem:    test_utf8 has confusing dummy command.
Solution:   Use a real command instead of a colon.
Files:      src/testdir/test_utf8.in

Patch 7.4.933 (after 7.4.926)
Problem:    Crash when using longest completion match.
Solution:   Fix array index.
Files:      src/ex_getln.c

Patch 7.4.934
Problem:    Appveyor also builds on a tag push.
Solution:   Add a skip_tags line. (Kenichi Ito, closes #489)
Files:      appveyor.yml

Patch 7.4.935 (after 7.4.932)
Problem:    test_utf8 fails on MS-Windows when executed with gvim.
Solution:   Use the insert flag on feedkeys() to put the string before the
            ":" that was already read when checking for available chars.
Files:      src/testdir/test_utf8.in

Patch 7.4.936
Problem:    Crash when dragging with the mouse.
Solution:   Add safety check for NULL pointer. Check mouse position for valid
            value. (Hirohito Higashi)
Files:      src/window.c, src/term.c

Patch 7.4.937
Problem:    Segfault reading uninitialized memory.
Solution:   Do not read match \z0, it does not exist. (Marius Gedminas, closes
            #497)
Files:      src/regexp_nfa.c

Patch 7.4.938
Problem:    X11 and GTK have more mouse buttons than Vim supports.
Solution:   Recognize more mouse buttons. (Benoit Pierre, closes #498)
Files:      src/gui_gtk_x11.c, src/gui_x11.c

Patch 7.4.939
Problem:    Memory leak when encountering a syntax error.
Solution:   Free the memory. (Dominique Pelle)
Files:      src/ex_docmd.c

Patch 7.4.940
Problem:    vt52 terminal codes are not correct.
Solution:   Move entries outside of #if. (Random)  Adjustments based on
            documented codes.
Files:      src/term.c

Patch 7.4.941
Problem:    There is no way to ignore case only for tag searches.
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Solution:   Add the 'tagcase' option. (Gary Johnson)
Files:      runtime/doc/options.txt, runtime/doc/quickref.txt,
            runtime/doc/tagsrch.txt, runtime/doc/usr_29.txt,
            runtime/optwin.vim, src/Makefile, src/buffer.c, src/option.c,
            src/option.h, src/structs.h, src/tag.c,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_tagcase.in, src/testdir/test_tagcase.ok

Patch 7.4.942 (after 7.4.941)
Problem:    test_tagcase breaks for small builds.
Solution:   Bail out of the test early. (Hirohito Higashi)
Files:      src/testdir/test_tagcase.in

Patch 7.4.943
Problem:    Tests are not run.
Solution:   Add test_writefile to makefiles. (Ken Takata)
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.944
Problem:    Writing tests for Vim script is hard.
Solution:   Add assertEqual(), assertFalse() and assertTrue() functions.  Add
            the v:errors variable.  Add the runtest script. Add a first new
            style test script.
Files:      src/eval.c, src/vim.h, src/misc2.c, src/testdir/Makefile,
            src/testdir/runtest.vim, src/testdir/test_assert.vim,
            runtime/doc/eval.txt

Patch 7.4.945 (after 7.4.944)
Problem:    New style testing is incomplete.
Solution:   Add the runtest script to the list of distributed files.
            Add the new functions to the function overview.
            Rename the functions to match Vim function style.
            Move undolevels testing into a new style test script.
Files:      Filelist, runtime/doc/usr_41.txt, runtime/doc/eval.txt,
            src/testdir/test_assert.vim, src/testdir/Makefile,
            src/testdir/test_undolevels.vim, src/testdir/test100.in,
            src/testdir/test100.ok

Patch 7.4.946 (after 7.4.945)
Problem:    Missing changes in source file.
Solution:   Include changes to the eval.c file.
Files:      src/eval.c

Patch 7.4.947
Problem:    Test_listchars fails with MingW. (Michael Soyka)
Solution:   Add the test to the ones that need the fileformat fixed.
            (Christian Brabandt)
Files:      src/testdir/Make_ming.mak

Patch 7.4.948
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Problem:    Can't build when the insert_expand feature is disabled.
Solution:   Add #ifdefs. (Dan Pasanen, closes #499)
Files:      src/eval.c, src/fileio.c

Patch 7.4.949
Problem:    When using 'colorcolumn' and there is a sign with a fullwidth
            character the highlighting is wrong. (Andrew Stewart)
Solution:   Only increment vcol when in the right state. (Christian Brabandt)
Files:      src/screen.c, src/testdir/test_listlbr_utf8.in,
            src/testdir/test_listlbr_utf8.ok

Patch 7.4.950
Problem:    v:errors is not initialized.
Solution:   Initialize it to an empty list. (Thinca)
Files:      src/eval.c

Patch 7.4.951
Problem:    Sorting number strings does not work as expected. (Luc Hermitte)
Solution:   Add the "N" argument to sort()
Files:      src/eval.c, runtime/doc/eval.txt, src/testdir/test_alot.vim,
            src/testdir/test_sort.vim, src/testdir/Makefile

Patch 7.4.952
Problem:    'lispwords' is tested in the old way.
Solution:   Make a new style test for 'lispwords'.
Files:      src/testdir/test_alot.vim, src/testdir/test_lispwords.vim,
            src/testdir/test100.in, src/testdir/test100.ok,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.953
Problem:    When a test script navigates to another buffer the .res file is
            created with the wrong name.
Solution:   Use the "testname" for the .res file. (Damien)
Files:      src/testdir/runtest.vim

Patch 7.4.954
Problem:    When using Lua there may be a crash. (issue #468)
Solution:   Avoid using an uninitialized tv. (Yukihiro Nakadaira)
Files:      src/if_lua.c

Patch 7.4.955
Problem:    Vim doesn't recognize .pl6 and .pod6 files.
Solution:   Recognize them as perl6 and pod6. (Mike Eve, closes #511)
Files:      runtime/filetype.vim

Patch 7.4.956
Problem:    A few more file name extensions not recognized.
Solution:   Add .asciidoc, .bzl, .gradle, etc.
Files:      runtime/filetype.vim

Patch 7.4.957
Problem:    Test_tagcase fails when using another language than English.
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Solution:   Set the messages language to C. (Kenichi Ito)
Files:      src/testdir/test_tagcase.in

Patch 7.4.958
Problem:    Vim checks if the directory "$TMPDIR" exists.
Solution:   Do not check if the name starts with "$".
Files:      src/fileio.c

Patch 7.4.959
Problem:    When setting 'term' the clipboard ownership is lost.
Solution:   Do not call clip_init(). (James McCoy)
Files:      src/term.c

Patch 7.4.960
Problem:    Detecting every version of nmake is clumsy.
Solution:   Use a tiny C program to get the version of _MSC_VER. (Ken Takata)
Files:      src/Make_mvc.mak

Patch 7.4.961
Problem:    Test107 fails in some circumstances.
Solution:   When using "zt", "zb" and "z=" recompute the fraction.
Files:      src/normal.c, src/window.c, src/proto/window.pro

Patch 7.4.962
Problem:    Cannot run the tests with gvim.  Cannot run individual new tests.
Solution:   Add the -f flag. Add new test targets in Makefile.
Files:      src/Makefile, src/testdir/Makefile

Patch 7.4.963
Problem:    test_listlbr_utf8 sometimes fails.
Solution:   Don't use a literal multibyte character but <C-V>uXXXX. Do not
            dump the screen highlighting. (Christian Brabandt, closes #518)
Files:      src/testdir/test_listlbr_utf8.in, src/testdir/test_listlbr_utf8.ok

Patch 7.4.964
Problem:    Test 87 doesn't work in a shadow directory.
Solution:   Handle the extra subdirectory. (James McCoy, closes #515)
Files:      src/testdir/test87.in

Patch 7.4.965
Problem:    On FreeBSD /dev/fd/ files are special.
Solution:   Use is_dev_fd_file() also for FreeBSD. (Derek Schrock, closes #521)
Files:      src/fileio.c

Patch 7.4.966
Problem:    Configure doesn't work with a space in a path.
Solution:   Put paths in quotes. (James McCoy, closes #525)
Files:      src/configure.in, src/auto/configure

Patch 7.4.967
Problem:    Cross compilation on MS-windows doesn't work well.
Solution:   Tidy up cross compilation across architectures with Visual Studio.
            (Mike Williams)
Files:      src/Make_mvc.mak
```

```
Patch 7.4.968
Problem:    test86 and test87 are flaky in Appveyor.
Solution:   Reduce the count from 8 to 7. (suggested by ZyX)
Files:      src/testdir/test86.in, src/testdir/test87.in

Patch 7.4.969
Problem:    Compiler warnings on Windows x64 build.
Solution:   Add type casts. (Mike Williams)
Files:      src/option.c

Patch 7.4.970
Problem:    Rare crash in getvcol(). (Timo Mihaljov)
Solution:   Check for the buffer being NULL in init_preedit_start_col.
            (Hirohito Higashi, Christian Brabandt)
Files:      src/mbyte.c

Patch 7.4.971
Problem:    The asin() function can't be used.
Solution:   Sort the function table properly. (Watiko)
Files:      src/eval.c

Patch 7.4.972
Problem:    Memory leak when there is an error in setting an option.
Solution:   Free the saved value (Christian Brabandt)
Files:      src/option.c

Patch 7.4.973
Problem:    When pasting on the command line line breaks result in literal
            <CR> characters. This makes pasting a long file name difficult.
Solution:   Skip the characters.
Files:      src/ex_getln.c, src/ops.c

Patch 7.4.974
Problem:    When using :diffsplit the cursor jumps to the first line.
Solution:   Put the cursor on the line related to where the cursor was before
            the split.
Files:      src/diff.c

Patch 7.4.975
Problem:    Using ":sort" on a very big file sometimes causes text to be
            corrupted. (John Beckett)
Solution:   Copy the line into a buffer before calling ml_append().
Files:      src/ex_cmds.c

Patch 7.4.976
Problem:    When compiling Vim for MSYS2 (linked with msys-2.0.dll), the Win32
            clipboard is not enabled.
Solution:   Recognize MSYS like CYGWIN. (Ken Takata)
Files:      src/configure.in, src/auto/configure

Patch 7.4.977
Problem:    'linebreak' does not work properly when using "space" in
            'listchars'.
```

```
Solution:   (Hirohito Higashi, Christian Brabandt)
Files:      src/screen.c, src/testdir/test_listlbr.in,
            src/testdir/test_listlbr.ok

Patch 7.4.978
Problem:    test_cdo fails when using another language than English.
Solution:   Set the language to C. (Dominique Pelle, Kenichi Ito)
Files:      src/testdir/test_cdo.in

Patch 7.4.979
Problem:    When changing the crypt key the blocks read from disk are not
            decrypted.
Solution:   Also call ml_decrypt_data() when mf_old_key is set. (Ken Takata)
Files:      src/memfile.c

Patch 7.4.980
Problem:    Tests for :cdo, :ldo, etc. are outdated.
Solution:   Add new style tests for these commands. (Yegappan Lakshmanan)
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/test_cdo.in, src/testdir/test_cdo.ok,
            src/testdir/test_cdo.vim

Patch 7.4.981
Problem:    An error in a test script goes unnoticed.
Solution:   Source the test script inside try/catch. (Hirohito Higashi)
Files:      src/testdir/runtest.vim

Patch 7.4.982
Problem:    Keeping the list of tests updated is a hassle.
Solution:   Move the list to a separate file, so that it only needs to be
            updated in one place.
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/Make_all.mak

Patch 7.4.983
Problem:    Executing one test after "make testclean" doesn't work.
Solution:   Add a dependency on test1.out.
Files:      src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile,
            src/testdir/Make_all.mak

Patch 7.4.984
Problem:    searchpos() always starts searching in the first column, which is
            not what some people expect. (Brett Stahlman)
Solution:   Add the 'z' flag: start at the specified column.
Files:      src/vim.h, src/eval.c, src/search.c,
            src/testdir/test_searchpos.vim, src/testdir/test_alot.vim,
            runtime/doc/eval.txt
```

```
Patch 7.4.985
Problem:    Can't build with Ruby 2.3.0.
Solution:   Use the new TypedData_XXX macro family instead of Data_XXX. Use
            TypedData. (Ken Takata)
Files:      src/if_ruby.c

Patch 7.4.986
Problem:    Test49 doesn't work on MS-Windows.  test70 is listed twice.
Solution:   Move test49 to the group not used on Amiga and MS-Windows.
            Remove test70 from SCRIPTS_WIN32.
Files:      src/testdir/Make_all.mak, src/testdir/Make_dos.mak

Patch 7.4.987 (after 7.4.985)
Problem:    Can't build with Ruby 1.9.2.
Solution:   Require Rub 2.0 for defining USE_TYPEDDATA.
Files:      src/if_ruby.c

Patch 7.4.988 (after 7.4.982)
Problem:    Default test target is test49.out.
Solution:   Add a build rule before including Make_all.mak.
Files:      src/testdir/Make_dos.mak, src/testdir/Make_amiga.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_os2.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.989
Problem:    Leaking memory when hash_add() fails. Coverity error 99126.
Solution:   When hash_add() fails free the memory.
Files:      src/eval.c

Patch 7.4.990
Problem:    Test 86 fails on AppVeyor.
Solution:   Do some registry magic. (Ken Takata)
Files:      appveyor.yml

Patch 7.4.991
Problem:    When running new style tests the output is not visible.
Solution:   Add the testdir/messages file and show it.  Update the list of
            test names.
Files:      src/Makefile, src/testdir/Makefile, src/testdir/runtest.vim

Patch 7.4.992
Problem:    Makefiles for MS-Windows in src/po are outdated.
Solution:   Make them work. (Ken Takata, Taro Muraoka)
Files:      src/po/Make_cyg.mak, src/po/Make_ming.mak, src/po/Make_mvc.mak,
            src/po/README_mingw.txt, src/po/README_mvc.txt

Patch 7.4.993
Problem:    Test 87 is flaky on AppVeyor.
Solution:   Reduce the minimum background thread count.
Files:      src/testdir/test86.in, src/testdir/test87.in

Patch 7.4.994
Problem:    New style tests are not run on MS-Windows.
Solution:   Add the new style tests.
```

```
Files:      src/testdir/Make_dos.mak

Patch 7.4.995
Problem:    gdk_pixbuf_new_from_inline() is deprecated.
Solution:   Generate auto/gui_gtk_gresources.c. (Kazunobu Kuriyama,
            closes #507)
Files:      src/Makefile, src/auto/configure, src/config.h.in,
            src/config.mk.in, src/configure.in, src/gui_gtk.c,
            src/gui_gtk_gresources.xml, src/gui_gtk_x11.c,
            src/proto/gui_gtk_gresources.pro,
            pixmaps/stock_vim_build_tags.png, pixmaps/stock_vim_find_help.png,
            pixmaps/stock_vim_save_all.png,
            pixmaps/stock_vim_session_load.png,
            pixmaps/stock_vim_session_new.png,
            pixmaps/stock_vim_session_save.png, pixmaps/stock_vim_shell.png,
            pixmaps/stock_vim_window_maximize.png,
            pixmaps/stock_vim_window_maximize_width.png,
            pixmaps/stock_vim_window_minimize.png,
            pixmaps/stock_vim_window_minimize_width.png,
            pixmaps/stock_vim_window_split.png,
            pixmaps/stock_vim_window_split_vertical.png

Patch 7.4.996
Problem:    New GDK files and testdir/Make_all.mak missing from distribution.
            PC build instructions are outdated.
Solution:   Add the file to the list.  Update PC build instructions.
Files:      Filelist, Makefile

Patch 7.4.997
Problem:    "make shadow" was sometimes broken.
Solution:   Add a test for it. (James McCoy, closes #520)
Files:      .travis.yml

Patch 7.4.998
Problem:    Running tests in shadow directory fails.  Test 49 fails.
Solution:   Link more files for the shadow directory. Make test 49 ends up in
            the right buffer.
Files:      src/Makefile, src/testdir/test49.in

Patch 7.4.999
Problem:    "make shadow" creates a broken link. (Tony Mechelynck)
Solution:   Remove vimrc.unix from the list.
Files:      src/Makefile

Patch 7.4.1000
Problem:    Test 49 is slow and doesn't work on MS-Windows.
Solution:   Start moving parts of test 49 to test_viml.
Files:      src/Makefile, src/testdir/runtest.vim, src/testdir/test_viml.vim,
            src/testdir/test49.vim, src/testdir/test49.ok

Patch 7.4.1001 (after 7.4.1000)
Problem:    test_viml isn't run.
Solution:   Include change in makefile.
Files:      src/testdir/Make_all.mak
```

```
Patch 7.4.1002
Problem:    Cannot run an individual test on MS-Windows.
Solution:   Move the rule to run test1 downwards. (Ken Takata)
Files:      src/testdir/Make_dos.mak

Patch 7.4.1003
Problem:    Travis could check a few more things.
Solution:   Run autoconf on one of the builds. (James McCoy, closes #510)
            Also build with normal features.
Files:      .travis.yml

Patch 7.4.1004
Problem:    Using Makefile when auto/config.mk does not exist results in
            warnings.
Solution:   Use default values for essential variables.
Files:      src/Makefile

Patch 7.4.1005
Problem:    Vim users are not always happy.
Solution:   Make them happy.
Files:      src/ex_cmds.h, src/ex_cmds.c, src/proto/ex_cmds.pro

Patch 7.4.1006
Problem:    The fix in patch 7.3.192 is not tested.
Solution:   Add a test, one for each regexp engine. (Elias Diem)
Files:      src/testdir/test44.in, src/testdir/test44.ok,
            src/testdir/test99.in, src/testdir/test99.ok

Patch 7.4.1007
Problem:    When a symbolic link points to a file in the root directory, the
            swapfile is not correct.
Solution:   Do not try getting the full name of a file in the root directory.
            (Milly, closes #501)
Files:      src/os_unix.c

Patch 7.4.1008
Problem:    The OS/2 code pollutes the source while nobody uses it these days.
Solution:   Drop the support for OS/2.
Files:      src/feature.h, src/globals.h, src/macros.h, src/option.h,
            src/os_unix.c, src/os_unix.h, src/proto/os_unix.pro, src/vim.h,
            src/digraph.c, src/eval.c, src/ex_cmds.c, src/ex_docmd.c,
            src/ex_getln.c, src/fileio.c, src/getchar.c, src/memline.c,
            src/misc1.c, src/misc2.c, src/netbeans.c, src/option.c,
            src/term.c, src/ui.c, src/window.c, src/os_os2_cfg.h,
            src/Make_os2.mak, src/testdir/Make_os2.mak, src/testdir/os2.vim,
            src/INSTALL, runtime/doc/os_os2.txt

Patch 7.4.1009
Problem:    There are still #ifdefs for ARCHIE.
Solution:   Remove references to ARCHIE, the code was removed in Vim 5.
Files:      src/ex_cmds.c, src/ex_docmd.c, src/fileio.c, src/main.c,
            src/memline.c, src/option.c, src/term.c
```

```
Patch 7.4.1010
Problem:    Some developers are unhappy while running tests.
Solution:   Add a test and some color.
Files:      src/ex_cmds.c, src/testdir/test_assert.vim

Patch 7.4.1011
Problem:    Can't build with Strawberry Perl.
Solution:   Include stdbool.h. (Ken Takata, closes #328)
Files:      Filelist, src/Make_mvc.mak, src/if_perl_msvc/stdbool.h

Patch 7.4.1012
Problem:    Vim overwrites the value of $PYTHONHOME.
Solution:   Do not set $PYTHONHOME if it is already set. (Kazuki Sakamoto,
            closes #500)
Files:      src/if_python.c, src/if_python3.c

Patch 7.4.1013
Problem:    The local value of 'errorformat' is not used for ":lexpr" and
            ":cexpr".
Solution:   Use the local value if it exists. (Christian Brabandt) Adjust the
            help for this.
Files:      runtime/doc/quickfix.txt, src/quickfix.c

Patch 7.4.1014
Problem:    `fnamemodify('.', ':.')` returns an empty string in Cygwin.
Solution:   Use CCP_RELATIVE in the call to cygwin_conv_path. (Jacob Niehus,
            closes #505)
Files:      src/os_unix.c

Patch 7.4.1015
Problem:    The column is not restored properly when the matchparen plugin is
            used in Insert mode and the cursor is after the end of the line.
Solution:   Set the curswant flag. (Christian Brabandt).  Also fix
            highlighting the match of the character before the cursor.
Files:      src/eval.c, runtime/plugin/matchparen.vim

Patch 7.4.1016
Problem:    Still a few OS/2 pieces remain.
Solution:   Delete more.
Files:      Filelist, README_os2.txt, testdir/todos.vim, src/xxd/Make_os2.mak

Patch 7.4.1017
Problem:    When there is a backslash in an option ":set -=" doesn't work.
Solution:   Handle a backslash better. (Jacob Niehus)  Add a new test, merge
            in old test.
Files:      src/testdir/test_cdo.vim, src/testdir/test_set.vim,
            src/testdir/test_alot.vim, src/option.c, src/testdir/test_set.in,
            src/testdir/test_set.ok, src/Makefile

Patch 7.4.1018 (after 7.4.1017)
Problem:    Failure running tests.
Solution:   Add missing change to list of old style tests.
Files:      src/testdir/Make_all.mak
```

```
Patch 7.4.1019
Problem:    Directory listing of "src" is too long.
Solution:   Rename the resources file to make it shorter.
Files:      src/gui_gtk_gresources.xml, src/gui_gtk_res.xml, src/Makefile,
            Filelist

Patch 7.4.1020
Problem:    On MS-Windows there is no target to run tests with gvim.
Solution:   Add the testgvim target.
Files:      src/Make_mvc.mak

Patch 7.4.1021
Problem:    Some makefiles are outdated.
Solution:   Add a note to warn developers.
Files:      src/Make_manx.mak, src/Make_bc3.mak, src/Make_bc5.mak,
            src/Make_djg.mak, src/Make_w16.mak

Patch 7.4.1022
Problem:    The README file contains some outdated information.
Solution:   Update the information about supported systems.
Files:      README.txt, README.md

Patch 7.4.1023
Problem:    The distribution files for MS-Windows use CR-LF, which is
            inconsistent with what one gets from github.
Solution:   Use LF in the distribution files.
Files:      Makefile

Patch 7.4.1024
Problem:    Interfaces for MS-Windows are outdated.
Solution:   Use Python 2.7.10, Python 3.4.4, Perl 5.22, TCL 8.6.
Files:      src/bigvim.bat

Patch 7.4.1025
Problem:    Version in installer needs to be updated manually.
Solution:   Generate a file with the version number. (Guopeng Wen)
Files:      Makefile, nsis/gvim.nsi, nsis/gvim_version.nsh

Patch 7.4.1026
Problem:    When using MingW the tests do not clean up all files.  E.g. test
            17 leaves Xdir1 behind. (Michael Soyka)
Solution:   Also delete directories, like Make_dos.mak.  Delete files after
            directories to reduce warnings.
Files:      src/testdir/Make_ming.mak, src/testdir/Make_dos.mak

Patch 7.4.1027
Problem:    No support for binary numbers.
Solution:   Add "bin" to 'nrformats'. (Jason Schulz)
Files:      runtime/doc/change.txt, runtime/doc/eval.txt,
            runtime/doc/version7.txt, src/charset.c, src/eval.c,
            src/ex_cmds.c, src/ex_getln.c, src/misc2.c, src/ops.c,
            src/option.c, src/proto/charset.pro, src/spell.c,
            src/testdir/test57.in, src/testdir/test57.ok,
            src/testdir/test58.in, src/testdir/test58.ok,
```

```
            src/testdir/test_increment.in, src/testdir/test_increment.ok,
            src/vim.h

Patch 7.4.1028
Problem:    Nsis version file missing from the distribution.
Solution:   Add the file to the list.
Files:      Filelist

Patch 7.4.1029 (after 7.4.1027)
Problem:    test_increment fails on systems with 32 bit long.
Solution:   Only test with 32 bits.
Files:      src/testdir/test_increment.in, src/testdir/test_increment.ok

Patch 7.4.1030
Problem:    test49 is still slow.
Solution:   Move more tests from old to new style.
Files:      src/testdir/test_viml.vim, src/testdir/test49.vim,
            src/testdir/test49.ok, src/testdir/runtest.vim

Patch 7.4.1031
Problem:    Can't build with Python interface using MingW.
Solution:   Update the Makefile. (Yasuhiro Matsumoto)
Files:      src/INSTALLpc.txt, src/Make_cyg_ming.mak

Patch 7.4.1032
Problem:    message from assert_false() does not look nice.
Solution:   Handle missing sourcing_name. Use right number of spaces. (Watiko)
            Don't use line number if it's zero.
Files:      src/eval.c

Patch 7.4.1033
Problem:    Memory use on MS-Windows is very conservative.
Solution:   Use the global memory status to estimate amount of memory.
            (Mike Williams)
Files:      src/os_win32.c, src/os_win32.h, src/proto/os_win32.pro

Patch 7.4.1034
Problem:    There is no test for the 'backspace' option behavior.
Solution:   Add a test. (Hirohito Higashi)
Files:      src/testdir/test_alot.vim, src/testdir/test_backspace_opt.vim

Patch 7.4.1035
Problem:    An Ex range gets adjusted for folded lines even when the range is
            not using line numbers.
Solution:   Only adjust line numbers for folding. (Christian Brabandt)
Files:      runtime/doc/fold.txt, src/ex_docmd.c

Patch 7.4.1036
Problem:    Only terminals with up to 256 colors work properly.
Solution:   Use the 256 color behavior for all terminals with 256 or more
            colors. (Robert de Bath, closes #504)
Files:      src/syntax.c

Patch 7.4.1037
```

```
Problem:    Using "q!" when there is a modified hidden buffer does not unload
            the current buffer, resulting in the need to abandon it again.
Solution:   When using "q!" unload the current buffer when needed. (Yasuhiro
            Matsumoto, Hirohito Higashi)
Files:      src/testdir/test31.in, src/testdir/test31.ok,
            runtime/doc/editing.txt, src/ex_cmds2.c, src/ex_docmd.c,
            src/gui.c, src/gui_gtk_x11.c, src/os_unix.c,
            src/proto/ex_cmds2.pro

Patch 7.4.1038
Problem:    Still get a warning for a deprecated function with gdk-pixbuf
            2.31.
Solution:   Change minimum minor version from 32 to 31.
Files:      src/configure.in, src/auto/configure

Patch 7.4.1039 (after 7.4.1037)
Problem:    Test 31 fails with small build.
Solution:   Bail out for small build. (Hirohito Higashi)
Files:      src/testdir/test31.in

Patch 7.4.1040
Problem:    The tee command is not available on MS-Windows.
Solution:   Adjust tee.c for MSVC and add a makefile. (Yasuhiro Matsumoto)
Files:      src/tee/tee.c, src/tee/Make_mvc.mak, src/Make_mvc.mak

Patch 7.4.1041
Problem:    Various small things.
Solution:   Add file to list of distributed files.  Adjust README.  Fix typo.
Files:      Filelist, src/testdir/README.txt, src/testdir/test_charsearch.in,
            src/INSTALLmac.txt

Patch 7.4.1042
Problem:    g-CTRL-G shows the word count, but there is no way to get the word
            count in a script.
Solution:   Add the wordcount() function. (Christian Brabandt)
Files:      runtime/doc/editing.txt, runtime/doc/eval.txt,
            runtime/doc/usr_41.txt, src/eval.c, src/normal.c, src/ops.c,
            src/proto/ops.pro, src/testdir/test_wordcount.in,
            src/testdir/test_wordcount.ok, src/testdir/Make_all.mak

Patch 7.4.1043
Problem:    Another small thing.
Solution:   Now really update the Mac install text.
Files:      src/INSTALLmac.txt

Patch 7.4.1044 (after 7.4.1042)
Problem:    Can't build without the +eval feature.
Solution:   Add #ifdef.
Files:      src/ops.c

Patch 7.4.1045
Problem:    Having shadow and coverage on the same build results in the source
            files not being available in the coverage view.
Solution:   Move using shadow to the normal build.
```

```
Files:      .travis.yml

Patch 7.4.1046
Problem:    No test coverage for menus.
Solution:   Load the standard menus and check there is no error.
Files:      src/testdir/test_menu.vim, src/testdir/test_alot.vim

Patch 7.4.1047 (after patch 7.4.1042)
Problem:    Tests fail on MS-Windows.
Solution:   Set 'selection' to inclusive.
Files:      src/testdir/test_wordcount.in

Patch 7.4.1048 (after patch 7.4.1047)
Problem:    Wordcount test still fail on MS-Windows.
Solution:   Set 'fileformat' to "unix".
Files:      src/testdir/test_wordcount.in

Patch 7.4.1049 (after patch 7.4.1048)
Problem:    Wordcount test still fails on MS-Windows.
Solution:   Set 'fileformats' to "unix".
Files:      src/testdir/test_wordcount.in

Patch 7.4.1050
Problem:    Warning for unused var with tiny features. (Tony Mechelynck)
Solution:   Add #ifdef.  Use vim_snprintf().  Reduce number of statements.
Files:      src/ops.c

Patch 7.4.1051
Problem:    Segfault when unletting "count".
Solution:   Check for readonly and locked first. (Dominique Pelle)
            Add a test.
Files:      src/eval.c, src/testdir/test_alot.vim, src/testdir/test_unlet.vim

Patch 7.4.1052
Problem:    Illegal memory access with weird syntax command. (Dominique Pelle)
Solution:   Check for column past end of line.
Files:      src/syntax.c

Patch 7.4.1053
Problem:    Insufficient testing for quickfix commands.
Solution:   Add a new style quickfix test. (Yegappan Lakshmanan)
Files:      src/testdir/Make_all.mak, src/testdir/test_quickfix.vim

Patch 7.4.1054
Problem:    Illegal memory access.
Solution:   Check for missing pattern. (Dominique Pelle)
Files:      src/syntax.c

Patch 7.4.1055
Problem:    Running "make newtests" in src/testdir has no output.
Solution:   List the messages file when a test fails. (Christian Brabandt)
            Update the list of tests.
Files:      src/Makefile, src/testdir/Makefile
```

```
Patch 7.4.1056
Problem:    Don't know why finding spell suggestions is slow.
Solution:   Add some code to gather profiling information.
Files:      src/spell.c

Patch 7.4.1057
Problem:    Typos in the :options window.
Solution:   Fix the typos. (Dominique Pelle)
Files:      runtime/optwin.vim

Patch 7.4.1058
Problem:    It is not possible to test code that is only reached when memory
            allocation fails.
Solution:   Add the alloc_fail() function.  Try it out with :vimgrep.
Files:      runtime/doc/eval.txt, src/globals.h, src/eval.c, src/quickfix.c,
            src/misc2.c, src/proto/misc2.pro, src/testdir/test_quickfix.vim

Patch 7.4.1059
Problem:    Code will never be executed.
Solution:   Remove the code.
Files:      src/quickfix.c

Patch 7.4.1060
Problem:    Instructions for writing tests are outdated.
Solution:   Mention Make_all.mak.  Add steps for new style tests.
Files:      src/testdir/README.txt

Patch 7.4.1061
Problem:    Compiler warning for ignoring return value of fwrite().
Solution:   Do use the return value. (idea: Charles Campbell)
Files:      src/misc2.c, src/proto/misc2.pro

Patch 7.4.1062
Problem:    Building with Ruby on MS-Windows requires a lot of arguments.
Solution:   Make it simpler. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 7.4.1063
Problem:    TCL_VER_LONG and DYNAMIC_TCL_VER are not set when building with
            Cygwin and MingW.
Solution:   Add TCL_VER_LONG and DYNAMIC_TCL_VER to the makefile. (Ken Takata)
Files:      src/Make_cyg_ming.mak

Patch 7.4.1064
Problem:    When a spell file has single letter compounding creating
            suggestions takes an awful long time.
Solution:   Add the NOCOMPOUNDSUGS flag.
Files:      runtime/doc/spell.txt, src/spell.c

Patch 7.4.1065
Problem:    Cannot use the "dll" options on MS-Windows.
Solution:   Support the options on all platforms.  Use the built-in name as
            the default, so that it's clear what Vim is looking for.
Files:      src/if_python.c, src/if_python3.c, src/if_lua.c, src/if_perl.xs,
```

```
            src/if_ruby.c, src/option.c, runtime/doc/options.txt, src/Makefile

Patch 7.4.1066 (after 7.4.1065)
Problem:    Build fails on MS-Windows.
Solution:   Adjust the #ifdefs for "dll" options.
Files:      src/option.h

Patch 7.4.1067 (after 7.4.1065)
Problem:    Can't build with MingW and Python on MS-Windows.
Solution:   Move the build flags to CFLAGS.
Files:      src/Make_cyg_ming.mak

Patch 7.4.1068
Problem:    Wrong way to check for unletting internal variables.
Solution:   Use a better way. (Olaf Dabrunz)
Files:      src/testdir/test_unlet.c, src/eval.c

Patch 7.4.1069
Problem:    Compiler warning for unused argument.
Solution:   Add UNUSED.
Files:      src/misc2.c

Patch 7.4.1070
Problem:    The Tcl interface can't be loaded dynamically on Unix.
Solution:   Make it possible to load it dynamically. (Ken Takata)
Files:      runtime/doc/if_tcl.txt, runtime/doc/options.txt,
            runtime/doc/quickref.txt, runtime/optwin.vim, src/Makefile,
            src/config.h.in, src/configure.in, src/auto/configure,
            src/if_tcl.c, src/option.c, src/option.h

Patch 7.4.1071
Problem:    New style tests are executed in arbitrary order.
Solution:   Sort the test function names. (Hirohito Higashi)
            Fix the quickfix test that depended on the order.
Files:      src/testdir/runtest.vim, src/testdir/test_quickfix.vim

Patch 7.4.1072
Problem:    Increment test is old style.
Solution:   Make the increment test a new style test. (Hirohito Higashi)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_increment.in, src/testdir/test_increment.ok,
            src/testdir/test_increment.vim

Patch 7.4.1073
Problem:    Alloc_id depends on numbers, may use the same one twice.  It's not
            clear from the number what it's for.
Solution:   Use an enum.  Add a function to lookup the enum value from the
            name.
Files:      src/misc2.c, src/vim.h, src/alloc.h, src/globals.h,
            src/testdir/runtest.vim, src/proto/misc2.pro,
            src/testdir/test_quickfix.vim

Patch 7.4.1074
Problem:    Warning from VC2015 compiler.
```

Solution: Add a type cast. (Mike Williams)
Files: src/gui_dwrite.cpp

Patch 7.4.1075
Problem: Crash when using an invalid command.
Solution: Fix generating the error message. (Dominique Pelle)
Files: src/ex_docmd.c

Patch 7.4.1076
Problem: CTRL-A does not work well in right-left mode.
Solution: Remove reversing the line, add a test. (Hirohito Higashi)
Files: src/ops.c, src/testdir/test_increment.vim

Patch 7.4.1077
Problem: The build instructions for MS-Windows are incomplete.
Solution: Add explanations for how to build with various interfaces. (Ken
            Takata)
Files: src/INSTALLpc.txt

Patch 7.4.1078
Problem: MSVC: "make clean" doesn't cleanup in the tee directory.
Solution: Add the commands to cleanup tee. (Erich Ritz)
Files: src/Make_mvc.mak

Patch 7.4.1079 (after 7.4.1073)
Problem: New include file missing from distribution. Missing changes to
            quickfix code.
Solution: Add alloc.h to the list of distributed files. Use the enum in
            quickfix code.
Files: Filelist, src/quickfix.c

Patch 7.4.1080
Problem: VS2015 has a function HandleToLong() that is shadowed by the macro
            that Vim defines.
Solution: Do not define HandleToLong() for MSVC version 1400 and later.
            (Mike Williams)
Files: src/gui_w32.c

Patch 7.4.1081
Problem: No test for what previously caused a crash.
Solution: Add test for unletting errmsg.
Files: src/testdir/test_unlet.vim

Patch 7.4.1082
Problem: The Tcl interface is always skipping memory free on exit.
Solution: Only skip for dynamically loaded Tcl.
Files: src/if_tcl.c

Patch 7.4.1083
Problem: Building GvimExt with VS2015 may fail.
Solution: Adjust the makefile. (Mike Williams)
Files: src/GvimExt/Makefile

Patch 7.4.1084

```
Problem:    Using "." to repeat CTRL-A in Visual mode increments the wrong
            numbers.
Solution:   Append right size to the redo buffer. (Ozaki Kiichi)
Files:      src/normal.c, src/testdir/test_increment.vim

Patch 7.4.1085
Problem:    The CTRL-A and CTRL-X commands do not update the '[ and '] marks.
Solution:   (Yukihiro Nakadaira)
Files:      src/ops.c, src/testdir/test_marks.in, src/testdir/test_marks.ok

Patch 7.4.1086
Problem:    Crash with an extremely long buffer name.
Solution:   Limit the return value of vim_snprintf(). (Dominique Pelle)
Files:      src/buffer.c

Patch 7.4.1087
Problem:    CTRL-A and CTRL-X do not work properly with blockwise visual
            selection if there is a mix of Tab and spaces.
Solution:   Add OP_NR_ADD and OP_NR_SUB. (Hirohito Higashi)
Files:      src/testdir/test_increment.vim, src/normal.c, src/ops.c,
            src/proto/ops.pro, src/vim.h

Patch 7.4.1088
Problem:    Coverity warns for uninitialized variables.  Only one is an actual
            problem.
Solution:   Move the conditions.  Don't use endpos if handling an error.
Files:      src/ops.c

Patch 7.4.1089
Problem:    Repeating CTRL-A doesn't work.
Solution:   Call prep_redo_cmd(). (Hirohito Higashi)
Files:      src/normal.c, src/testdir/test_increment.vim

Patch 7.4.1090
Problem:    No tests for :hardcopy and related options.
Solution:   Add test_hardcopy.
Files:      src/testdir/test_hardcopy.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 7.4.1091
Problem:    When making a change while need_wait_return is set there is a two
            second delay.
Solution:   Do not assume the ATTENTION prompt was given when need_wait_return
            was set already.
Files:      src/misc1.c

Patch 7.4.1092
Problem:    It is not simple to test for an exception and give a proper error
            message.
Solution:   Add assert_exception().
Files:      src/eval.c, runtime/doc/eval.txt

Patch 7.4.1093
Problem:    Typo in test goes unnoticed.
```

```
Solution:   Fix the typo. Give error for wrong arguments to cursor().
            (partly by Hirohito Higashi) Add a test for cursor().
Files:      src/testdir/test_searchpos.vim, src/testdir/test_cursor_func.vim,
            src/eval.c, src/testdir/test_alot.vim

Patch 7.4.1094
Problem:    Test for :hardcopy fails on MS-Windows.
Solution:   Check for the +postscript feature.
Files:      src/testdir/test_hardcopy.vim

Patch 7.4.1095
Problem:    Can't build GvimExt with SDK 7.1.
Solution:   Support using setenv.bat instead of vcvars32.bat. (Ken Takata)
Files:      src/Make_mvc.mak, src/GvimExt/Makefile

Patch 7.4.1096
Problem:    Need several lines to verify a command produces an error.
Solution:   Add assert_fails(). (suggested by Nikolai Pavlov)
            Make the quickfix alloc test actually work.
Files:      src/testdir/test_quickfix.vim, src/eval.c, runtime/doc/eval.txt,
            src/misc2.c, src/alloc.h

Patch 7.4.1097
Problem:    Looking up the alloc ID for tests fails.
Solution:   Fix the line computation.  Use assert_fails() for unlet test.
Files:      src/testdir/runtest.vim, src/testdir/test_unlet.vim

Patch 7.4.1098
Problem:    Still using old style C function declarations.
Solution:   Always define __ARGS() to include types.  Turn a few functions
            into ANSI style to find out if this causes problems for anyone.
Files:      src/vim.h, src/os_unix.h, src/eval.c, src/main.c

Patch 7.4.1099
Problem:    It's not easy to know if Vim supports blowfish. (Smu Johnson)
Solution:   Add has('crypt-blowfish') and has('crypt-blowfish2').
Files:      src/eval.c

Patch 7.4.1100
Problem:    Cygwin makefiles are unused.
Solution:   Remove them.
Files:      src/GvimExt/Make_ming.mak, src/GvimExt/Make_cyg.mak,
            src/xxd/Make_ming.mak, src/xxd/Make_cyg.mak

Patch 7.4.1101
Problem:    With 'rightleft' and concealing the cursor may move to the wrong
            position.
Solution:   Compute the column differently when 'rightleft' is set. (Hirohito
            Higashi)
Files:      src/screen.c

Patch 7.4.1102
Problem:    Debugger has no stack backtrace support.
Solution:   Add "backtrace", "frame", "up" and "down" commands. (Alberto
```

            Fanjul, closes #433)
Files: runtime/doc/repeat.txt, src/eval.c, src/ex_cmds2.c, src/globals.h,
            src/testdir/Make_all.mak, src/testdir/test108.in,
            src/testdir/test108.ok

Patch 7.4.1103 (after 7.4.1100)
Problem: Removed file still in distribution.
Solution: Remove Make_cyg.mak from the list of files.
Files: Filelist

Patch 7.4.1104
Problem: Various problems building with MzScheme/Racket.
Solution: Make it work with new versions of Racket. (Yukihiro Nakadaira, Ken
            Takata)
Files: runtime/doc/if_mzsch.txt, src/INSTALLpc.txt,
            src/Make_cyg_ming.mak, src/Make_mvc.mak, src/auto/configure,
            src/configure.in, src/if_mzsch.c

Patch 7.4.1105
Problem: When using slices there is a mixup of variable name and namespace.
Solution: Recognize variables that can't be a namespace. (Hirohito Higashi)
Files: src/eval.c, src/testdir/test_eval.in, src/testdir/test_eval.ok

Patch 7.4.1106
Problem: The nsis script can't be used from the appveyor build.
Solution: Add "ifndef" to allow for variables to be set from the command
            line. Remove duplicate SetCompressor command. Support using other
            gettext binaries. (Ken Takata) Update build instructions to use
            libintl-8.dll.
Files: Makefile, nsis/gvim.nsi, src/os_win32.c, src/proto/os_win32.pro,
            src/main.c, os_w32exe.c

Patch 7.4.1107
Problem: Vim can create a directory but not delete it.
Solution: Add an argument to delete() to make it possible to delete a
            directory, also recursively.
Files: src/fileio.c, src/eval.c, src/proto/fileio.pro,
            src/testdir/test_delete.vim, src/testdir/test_alot.vim,
            runtime/doc/eval.txt

Patch 7.4.1108
Problem: Expanding "~" halfway a file name.
Solution: Handle the file name as one name. (Marco Hinz) Add a test.
            Closes #564.
Files: src/testdir/test27.in, src/testdir/test27.ok,
            src/testdir/test_expand.vim, src/testdir/test_alot.vim,
            src/Makefile, src/misc2.c

Patch 7.4.1109 (after 7.4.1107)
Problem: MS-Windows doesn't have rmdir().
Solution: Add mch_rmdir().
Files: src/os_win32.c, src/proto/os_win32.pro

Patch 7.4.1110

```
Problem:    Test 108 fails when language is French.
Solution:   Force English messages. (Dominique Pelle)
Files:      src/testdir/test108.in

Patch 7.4.1111
Problem:    test_expand fails on MS-Windows.
Solution:   Always use forward slashes.  Remove references to test27.
Files:      src/testdir/runtest.vim, src/testdir/test_expand.vim,
            src/testdir/Make_dos.mak, src/testdir/Make_all.mak,
            src/testdir/Make_amiga.mak, src/testdir/Make_ming.mak

Patch 7.4.1112
Problem:    When using ":next" with an illegal file name no error is reported.
Solution:   Give an error message.
Files:      src/ex_cmds2.c

Patch 7.4.1113 (after 7.4.1105)
Problem:    Using {ns} in variable name does not work. (lilydjwg)
Solution:   Fix recognizing colon.  Add a test.
Files:      src/eval.c, src/testdir/test_viml.vim

Patch 7.4.1114 (after 7.4.1107)
Problem:    delete() does not work well with symbolic links.
Solution:   Recognize symbolic links.
Files:      src/eval.c, src/fileio.c, src/os_unix.c, src/proto/os_unix.pro,
            src/testdir/test_delete.vim, runtime/doc/eval.txt

Patch 7.4.1115
Problem:    MS-Windows: make clean in testdir doesn't clean everything.
Solution:   Add command to delete X* directories. (Ken Takata)
Files:      src/testdir/Make_dos.mak

Patch 7.4.1116
Problem:    delete(x, 'rf') does not delete files starting with a dot.
Solution:   Also delete files starting with a dot.
Files:      src/misc1.c, src/fileio.c, src/vim.h

Patch 7.4.1117 (after 7.4.1116)
Problem:    No longer get "." and ".." in directory list.
Solution:   Do not skip "." and ".." unless EW_DODOT is set.
Files:      src/misc1.c

Patch 7.4.1118
Problem:    Tests hang in 24 line terminal.
Solution:   Set the 'more' option off.
Files:      src/testdir/runtest.vim

Patch 7.4.1119
Problem:    argidx() has a wrong value after ":%argdelete". (Yegappan
            Lakshmanan)
Solution:   Correct the value of w_arg_idx.  Add a test.
Files:      src/ex_cmds2.c, src/testdir/test_arglist.vim,
            src/testdir/Make_all.mak
```

```
Patch 7.4.1120
Problem:    delete(x, 'rf') fails if a directory is empty. (Lcd)
Solution:   Ignore not finding matches in an empty directory.
Files:      src/fileio.c, src/misc1.c, src/vim.h, src/testdir/test_delete.vim

Patch 7.4.1121
Problem:    test_expand leaves files behind.
Solution:   Edit another file before deleting, otherwise the swap file
            remains.
Files:      src/testdir/test_expand.vim

Patch 7.4.1122
Problem:    Test 92 and 93 fail when using gvim on a system with a non utf-8
            locale.
Solution:   Avoid using .gvimrc by adding -U NONE. (Yukihiro Nakadaira)
Files:      src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_vms.mms, src/testdir/Makefile

Patch 7.4.1123
Problem:    Using ":argadd" when there are no arguments results in the second
            argument to be the current one. (Yegappan Lakshmanan)
Solution:   Correct the w_arg_idx value.
Files:      src/ex_cmds2.c, src/testdir/test_arglist.vim

Patch 7.4.1124
Problem:    MS-Windows: dead key behavior is not ideal.
Solution:   Handle dead keys differently when not in Insert or Select mode.
            (John Wellesz, closes #399)
Files:      src/gui_w48.c

Patch 7.4.1125
Problem:    There is no perleval().
Solution:   Add perleval(). (Damien)
Files:      runtime/doc/eval.txt, runtime/doc/usr_41.txt, src/eval.c,
            src/if_perl.xs, src/proto/if_perl.pro, src/testdir/Make_all.mak,
            src/testdir/test_perl.vim

Patch 7.4.1126
Problem:    Can only get the directory of the current window.
Solution:   Add window and tab arguments to getcwd() and haslocaldir().
            (Thinca, Hirohito Higashi)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_getcwd.in, src/testdir/test_getcwd.ok,
            runtime/doc/eval.txt, patching file src/eval.c

Patch 7.4.1127
Problem:    Both old and new style tests for Perl.
Solution:   Merge the old tests with the new style tests.
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/test_perl.in,
            src/testdir/test_perl.ok, src/testdir/test_perl.vim

Patch 7.4.1128
Problem:    MS-Windows: delete() does not recognize junctions.
Solution:   Add mch_isrealdir() for MS-Windows. Update mch_is_symbolic_link().
```

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            (Ken Takata)
Files:      src/fileio.c, src/os_win32.c, src/proto/os_win32.pro

Patch 7.4.1129
Problem:    Python None value can't be converted to a Vim value.
Solution:   Just use zero. (Damien)
Files:      src/if_py_both.h, src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok,

Patch 7.4.1130
Problem:    Memory leak in :vimgrep.
Solution:   Call FreeWild(). (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 7.4.1131
Problem:    New lines in the viminfo file are dropped.
Solution:   Copy lines starting with "|".  Fix that when using :rviminfo in a
            function global variables were restored as function-local
            variables.
Files:      src/eval.c, src/structs.h, src/ex_cmds.c, src/misc2.c,
            src/proto/misc2.pro, src/testdir/test_viminfo.vim,
            src/testdir/Make_all.mak, src/testdir/test74.in,
            src/testdir/test74.ok

Patch 7.4.1132
Problem:    Old style tests for the argument list.
Solution:   Add more new style tests. (Yegappan Lakshmanan)
Files:      src/testdir/test_arglist.vim, src/testdir/test_argument_0count.in,
            src/testdir/test_argument_0count.ok,
            src/testdir/test_argument_count.in, src/Makefile,
            src/testdir/test_argument_count.ok, src/testdir/Make_all.mak

Patch 7.4.1133
Problem:    Generated function prototypes still have __ARGS().
Solution:   Generate function prototypes without __ARGS().
Files:      src/Makefile, src/if_ruby.c, src/os_win32.c,
            src/proto/blowfish.pro, src/proto/buffer.pro,
            src/proto/charset.pro, src/proto/crypt.pro,
            src/proto/crypt_zip.pro, src/proto/diff.pro,
            src/proto/digraph.pro, src/proto/edit.pro, src/proto/eval.pro,
            src/proto/ex_cmds2.pro, src/proto/ex_cmds.pro,
            src/proto/ex_docmd.pro, src/proto/ex_eval.pro,
            src/proto/ex_getln.pro, src/proto/fileio.pro, src/proto/fold.pro,
            src/proto/getchar.pro, src/proto/gui_athena.pro,
            src/proto/gui_beval.pro, src/proto/gui_gtk_gresources.pro,
            src/proto/gui_gtk.pro, src/proto/gui_gtk_x11.pro,
            src/proto/gui_mac.pro, src/proto/gui_motif.pro,
            src/proto/gui_photon.pro, src/proto/gui.pro,
            src/proto/gui_w16.pro, src/proto/gui_w32.pro,
            src/proto/gui_x11.pro, src/proto/gui_xmdlg.pro,
            src/proto/hangulin.pro, src/proto/hardcopy.pro,
            src/proto/hashtab.pro, src/proto/if_cscope.pro,
            src/proto/if_lua.pro, src/proto/if_mzsch.pro,
            src/proto/if_ole.pro, src/proto/if_perl.pro,
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            src/proto/if_perlsfio.pro, src/proto/if_python3.pro,
            src/proto/if_python.pro, src/proto/if_ruby.pro,
            src/proto/if_tcl.pro, src/proto/if_xcmdsrv.pro,
            src/proto/main.pro, src/proto/mark.pro, src/proto/mbyte.pro,
            src/proto/memfile.pro, src/proto/memline.pro, src/proto/menu.pro,
            src/proto/message.pro, src/proto/misc1.pro, src/proto/misc2.pro,
            src/proto/move.pro, src/proto/netbeans.pro, src/proto/normal.pro,
            src/proto/ops.pro, src/proto/option.pro, src/proto/os_amiga.pro,
            src/proto/os_beos.pro, src/proto/os_mac_conv.pro,
            src/proto/os_msdos.pro, src/proto/os_mswin.pro,
            src/proto/os_qnx.pro, src/proto/os_unix.pro, src/proto/os_vms.pro,
            src/proto/os_win16.pro, src/proto/os_win32.pro,
            src/proto/popupmnu.pro, src/proto/pty.pro, src/proto/quickfix.pro,
            src/proto/regexp.pro, src/proto/screen.pro, src/proto/search.pro,
            src/proto/sha256.pro, src/proto/spell.pro, src/proto/syntax.pro,
            src/proto/tag.pro, src/proto/termlib.pro, src/proto/term.pro,
            src/proto/ui.pro, src/proto/undo.pro, src/proto/version.pro,
            src/proto/winclip.pro, src/proto/window.pro,
            src/proto/workshop.pro

Patch 7.4.1134
Problem:    The arglist test fails on MS-Windows.
Solution:   Only check for failure of argedit on Unix.
Files:      src/testdir/test_arglist.vim

Patch 7.4.1135
Problem:    One more arglist test fails on MS-Windows.
Solution:   Don't edit "Y" after editing "y".
Files:      src/testdir/test_arglist.vim

Patch 7.4.1136
Problem:    Wrong argument to assert_exception() causes a crash. (reported by
            Coverity)
Solution:   Check for NULL pointer.  Add a test.
Files:      src/eval.c, src/testdir/test_assert.vim

Patch 7.4.1137
Problem:    Illegal memory access when using :copen and :cclose.
Solution:   Avoid that curbuf is invalid. (suggestion by Justin M. Keyes)
            Add a test.
Files:      src/window.c, src/testdir/test_quickfix.vim

Patch 7.4.1138
Problem:    When running gvim in the foreground some icons are missing.
            (Taylor Venable)
Solution:   Move the call to gui_gtk_register_resource(). (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 7.4.1139
Problem:    MS-Windows: getftype() returns "file" for symlink to directory.
Solution:   Make it return "dir". (Ken Takata)
Files:      src/os_mswin.c

Patch 7.4.1140
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```
Problem:    Recognizing <sid> does not work when the language is Turkish.
            (Christian Brabandt)
Solution:   Use MB_STNICMP() instead of STNICMP().
Files:      src/eval.c

Patch 7.4.1141
Problem:    Using searchpair() with a skip expression that uses syntax
            highlighting sometimes doesn't work. (David Fishburn)
Solution:   Reset next_match_idx. (Christian Brabandt)
Files:      src/syntax.c

Patch 7.4.1142
Problem:    Cannot define keyword characters for a syntax file.
Solution:   Add the ":syn iskeyword" command. (Christian Brabandt)
Files:      runtime/doc/options.txt, runtime/doc/syntax.txt, src/buffer.c,
            src/option.c, src/structs.h, src/syntax.c,
            src/testdir/Make_all.mak, src/testdir/test_syntax.vim

Patch 7.4.1143
Problem:    Can't sort on floating point numbers.
Solution:   Add the "f" flag to ":sort".  (Alex Jakushev)  Also add the "f"
            flag to sort().
Files:      runtime/doc/change.txt, src/ex_cmds.c, src/testdir/test_sort.vim,
            src/testdir/test57.in, src/testdir/test57.ok, src/eval.c

Patch 7.4.1144 (after 7.4.1143)
Problem:    Can't build on several systems.
Solution:   Include float.h. (Christian Robinson, closes #570 #571)
Files:      src/ex_cmds.c

Patch 7.4.1145
Problem:    Default features are conservative.
Solution:   Make the default feature set for most of today's systems "huge".
Files:      src/feature.h, src/configure.in, src/auto/configure

Patch 7.4.1146
Problem:    Can't build with Python 3 interface using MingW.
Solution:   Update the Makefile. (Yasuhiro Matsumoto, Ken Takata)
Files:      src/Make_cyg_ming.mak

Patch 7.4.1147
Problem:    Conflict for "chartab". (Kazunobu Kuriyama)
Solution:   Rename the global one to something less obvious.  Move it into
            src/chartab.c.
Files:      src/macros.h, src/globals.h, src/charset.c, src/main.c,
            src/option.c, src/screen.c, src/vim.h

Patch 7.4.1148
Problem:    Default for MingW and Cygwin is still "normal".
Solution:   Use "huge" as default. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 7.4.1149 (after 7.4.1013)
Problem:    Using the local value of 'errorformat' causes more problems than
```

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            it solves.
Solution:   Revert 7.4.1013.
Files:      runtime/doc/quickfix.txt, src/quickfix.c

Patch 7.4.1150
Problem:    'langmap' applies to the first character typed in Select mode.
            (David Watson)
Solution:   Check for SELECTMODE. (Christian Brabandt, closes #572)
            Add the 'x' flag to feedkeys().
Files:      src/getchar.c, src/normal.c, src/testdir/test_langmap.vim,
            src/ex_docmd.c, src/proto/ex_docmd.pro, src/testdir/Make_all.mak,
            runtime/doc/eval.txt

Patch 7.4.1151 (after 7.4.1150)
Problem:    Missing change to eval.c
Solution:   Also change feedkeys().
Files:      src/eval.c

Patch 7.4.1152
Problem:    Langmap test fails with normal build.
Solution:   Check for +langmap feature.
Files:      src/testdir/test_langmap.vim

Patch 7.4.1153
Problem:    Autocommands triggered by quickfix cannot always get the current
            title value.
Solution:   Call qf_fill_buffer() later. (Christian Brabandt)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1154
Problem:    No support for JSON.
Solution:   Add jsonencode() and jsondecode().  Also add v:false, v:true,
            v:null and v:none.
Files:      src/json.c, src/eval.c, src/proto.h, src/structs.h, src/vim.h,
            src/if_lua.c, src/if_mzsch.c, src/if_ruby.c, src/if_py_both.h,
            src/globals.h, src/Makefile, src/Make_bc3.mak, src/Make_bc5.mak,
            src/Make_cyg_ming.mak, src/Make_dice.mak, src/Make_ivc.mak,
            src/Make_manx.mak, src/Make_morph.mak, src/Make_mvc.mak,
            src/Make_sas.mak, src/Make_vms.mms, src/proto/json.pro,
            src/proto/eval.pro, src/testdir/test_json.vim,
            src/testdir/test_alot.vim, Filelist, runtime/doc/eval.txt

Patch 7.4.1155
Problem:    Build with normal features fails.
Solution:   Always define dict_lookup().
Files:      src/eval.c

Patch 7.4.1156
Problem:    Coverity warns for NULL pointer and ignoring return value.
Solution:   Check for NULL pointer. When dict_add() returns FAIL free the item.
Files:      src/json.c

Patch 7.4.1157
Problem:    type() does not work for v:true, v:none, etc.
```

```
Solution:   Add new type numbers.
Files:      src/eval.c, src/testdir/test_json.vim, src/testdir/test_viml.vim

Patch 7.4.1158
Problem:    Still using __ARGS().
Solution:   Remove __ARGS() from eval.c
Files:      src/eval.c

Patch 7.4.1159
Problem:    Automatically generated function prototypes use __ARGS.
Solution:   Remove __ARGS from osdef.sh.
Files:      src/osdef.sh, src/osdef1.h.in, src/osdef2.h.in

Patch 7.4.1160
Problem:    No error for jsondecode('"').
Solution:   Give an error message for missing double quote.
Files:      src/json.c

Patch 7.4.1161
Problem:    ":argadd" without argument is supposed to add the current buffer
            name to the arglist.
Solution:   Make it work as documented. (Coot, closes #577)
Files:      src/ex_cmds.h, src/ex_cmds2.c, src/testdir/test_arglist.vim

Patch 7.4.1162
Problem:    Missing error number in MzScheme. (Dominique Pelle)
Solution:   Add a proper error number.
Files:      src/if_mzsch.c

Patch 7.4.1163
Problem:    Expressions "0 + v:true" and "'' . v:true" cause an error.
Solution:   Return something sensible when using a special variable as a
            number or as a string. (suggested by Damien)
Files:      src/eval.c, src/testdir/test_viml.vim

Patch 7.4.1164
Problem:    No tests for comparing special variables.  Error in jsondecode()
            not reported.  test_json does not work with Japanese system.
Solution:   Set scriptencoding. (Ken Takata) Add a few more tests. Add error.
Files:      src/json.c, src/testdir/test_viml.vim, src/testdir/test_json.vim

Patch 7.4.1165
Problem:    When defining DYNAMIC_ICONV_DLL in the makefile, the build fails.
Solution:   Add #ifdef's. (Taro Muraoka)  Try the newer version first.
Files:      src/mbyte.c, src/os_win32.c

Patch 7.4.1166
Problem:    Can't encode a Funcref into JSON.  jsonencode() doesn't handle the
            same list or dict twice properly.  (Nikolai Pavlov)
Solution:   Give an error.  Reset copyID when the list or dict is finished.
Files:      src/json.c, src/proto/json.pro, src/testdir/test_json.vim

Patch 7.4.1167
Problem:    No tests for "is" and "isnot" with the new variables.
```

```
Solution:   Add tests.
Files:      src/testdir/test_viml.vim

Patch 7.4.1168
Problem:    This doesn't give the right result: eval(string(v:true)). (Nikolai
            Pavlov)
Solution:   Make the string "v:true" instead of "true".
Files:      src/eval.c, src/testdir/test_viml.vim

Patch 7.4.1169
Problem:    The socket I/O is intertwined with the netbeans code.
Solution:   Start refactoring the netbeans communication to split off the
            socket I/O.  Add the +channel feature.
Files:      src/channel.c, src/netbeans.c, src/proto/channel.pro,
            src/proto/netbeans.pro, src/proto/gui_w32.pro, src/gui_w32.c,
            src/eval.c, src/os_mswin.c, src/ui.c, src/macros.h, Makefile,
            src/proto.h, src/feature.h, src/os_unix.c, src/vim.h,
            src/configure.in, src/auto/configure, src/config.mk.in,
            src/config.aap.in, src/config.h.in, src/Make_bc5.mak,
            src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 7.4.1170 (after 7.4.1169)
Problem:    Missing changes in src/Makefile, Filelist.
Solution:   Add the missing changes.
Files:      Filelist, src/Makefile

Patch 7.4.1171
Problem:    Makefile dependencies are outdated.
Solution:   Run "make depend". Add GTK resource dependencies.
Files:      src/Makefile

Patch 7.4.1172 (after 7.4.1169)
Problem:    Configure is overly positive.
Solution:   Insert "test".
Files:      src/configure.in, src/auto/configure

Patch 7.4.1173 (after 7.4.1168)
Problem:    No test for new behavior of v:true et al.
Solution:   Add a test.
Files:      src/testdir/test_viml.vim

Patch 7.4.1174
Problem:    Netbeans contains dead code inside #ifndef INIT_SOCKETS.
Solution:   Remove the dead code.
Files:      src/netbeans.c

Patch 7.4.1175 (after 7.4.1169)
Problem:    Can't build with Mingw and Cygwin.
Solution:   Remove extra "endif". (Christian J. Robinson)
Files:      src/Make_cyg_ming.mak

Patch 7.4.1176
Problem:    Missing change to proto file.
Solution:   Update the proto file. (Charles Cooper)
```

```
Files:      src/proto/gui_w32.pro

Patch 7.4.1177
Problem:    The +channel feature is not in :version output. (Tony Mechelynck)
Solution:   Add the feature string.
Files:      src/version.c

Patch 7.4.1178
Problem:    empty() doesn't work for the new special variables.
Solution:   Make empty() work. (Damien)
Files:      src/eval.c, src/testdir/test_viml.vim

Patch 7.4.1179
Problem:    test_writefile and test_viml do not delete the tempfile.
Solution:   Delete the tempfile. (Charles Cooper)  Add DeleteTheScript().
Files:      src/testdir/test_writefile.in, src/testdir/test_viml.vim

Patch 7.4.1180
Problem:    Crash with invalid argument to glob2regpat().
Solution:   Check for NULL. (Justin M. Keyes, closes #596)  Add a test.
Files:      src/eval.c, src/testdir/test_glob2regpat.vim,
            src/testdir/test_alot.vim

Patch 7.4.1181
Problem:    free_tv() can't handle special variables. (Damien)
Solution:   Add the variable type.
Files:      src/eval.c, src/testdir/test_viml.vim

Patch 7.4.1182
Problem:    Still socket code intertwined with netbeans.
Solution:   Move code from netbeans.c to channel.c
Files:      src/channel.c, src/netbeans.c, src/proto/channel.pro,
            src/proto/netbeans.pro, src/gui.c, src/gui_w48.c

Patch 7.4.1183 (after 7.4.1182)
Problem:    MS-Windows build is broken.
Solution:   Remove init in wrong place.
Files:      src/channel.c

Patch 7.4.1184 (after 7.4.1182)
Problem:    MS-Windows build is still broken.
Solution:   Change nbsock to ch_fd.
Files:      src/channel.c

Patch 7.4.1185
Problem:    Can't build with TCL on some systems.
Solution:   Rename the channel_ functions.
Files:      src/if_tcl.c

Patch 7.4.1186
Problem:    Error messages for security context are hard to translate.
Solution:   Use one string with %s. (Ken Takata)
Files:      src/os_unix.c
```

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Patch 7.4.1187
Problem:    MS-Windows channel code only supports one channel.  Doesn't build
            without netbeans support.
Solution:   Get the channel index from the socket in the message. Closes #600.
Files:      src/channel.c, src/netbeans.c, src/gui_w48.c,
            src/proto/channel.pro, src/proto/netbeans.pro

Patch 7.4.1188
Problem:    Using older JSON standard.
Solution:   Update the link.  Adjust the text a bit.
Files:      src/json.c, runtime/doc/eval.txt

Patch 7.4.1189 (after 7.4.1165)
Problem:    Using another language on MS-Windows does not work. (Yongwei Wu)
Solution:   Undo the change to try loading libintl-8.dll first.
Files:      src/os_win32.c

Patch 7.4.1190
Problem:    On OSX the default flag for dlopen() is different.
Solution:   Add RTLD_LOCAL in the configure check. (sv99, closes #604)
Files:      src/configure.in, src/auto/configure

Patch 7.4.1191
Problem:    The channel feature isn't working yet.
Solution:   Add the connect(), disconnect(), sendexpr() and sendraw()
            functions.  Add initial documentation.  Add a demo server.
Files:      src/channel.c, src/eval.c, src/proto/channel.pro,
            src/proto/eval.pro, runtime/doc/channel.txt, runtime/doc/eval.txt,
            runtime/doc/Makefile, runtime/tools/demoserver.py

Patch 7.4.1192
Problem:    Can't build with FEAT_EVAL but without FEAT_MBYTE. (John
            Marriott)
Solution:   Add #ifdef for FEAT_MBYTE.
Files:      src/json.c

Patch 7.4.1193
Problem:    Can't build the channel feature on MS-Windows.
Solution:   Add #ifdef HAVE_POLL.
Files:      src/channel.c

Patch 7.4.1194
Problem:    Compiler warning for not using return value of fwrite().
Solution:   Return OK/FAIL. (Charles Campbell)
Files:      src/channel.c, src/proto/channel.pro

Patch 7.4.1195
Problem:    The channel feature does not work in the MS-Windows console.
Solution:   Add win32 console support. (Yasuhiro Matsumoto)
Files:      src/channel.c, src/gui_w32.c, src/os_mswin.c, src/os_win32.c,
            src/proto/gui_w32.pro, src/proto/os_mswin.pro, src/vim.h

Patch 7.4.1196
Problem:    Still using __ARGS.
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Solution:   Remove __ARGS in several files. (script by Hirohito Higashi)
Files:      src/arabic.c, src/buffer.c, src/charset.c, src/crypt_zip.c,
            src/diff.c, src/digraph.c, src/edit.c, src/ex_cmds.c,
            src/ex_cmds2.c, src/ex_docmd.c

Patch 7.4.1197
Problem:    Still using __ARGS.
Solution:   Remove __ARGS in several files. (script by Hirohito Higashi)
Files:      src/ex_eval.c, src/ex_getln.c, src/farsi.c, src/fileio.c,
            src/fold.c, src/getchar.c, src/gui.c, src/gui_at_fs.c,
            gui_at_sb.c, src/gui_athena.c, src/gui_beval.c, src/gui_motif.c,
            src/gui_w32.c, src/gui_w48.c

Patch 7.4.1198
Problem:    Still using __ARGS.
Solution:   Remove __ARGS in several files. (script by Hirohito Higashi)
            Also remove use of HAVE_STDARG_H.
Files:      src/gui_x11.c, src/hangulin.c, src/hardcopy.c, src/hashtab.c,
            src/if_cscope.c, src/if_python3.c, src/if_sniff.c,
            src/if_xcmdsrv.c, src/main.c, src/mark.c, src/mbyte.c,
            src/memfile.c, src/memfile_test.c, src/memline.c, src/menu.c,
            src/message.c, src/misc1.c, src/misc2.c, src/move.c,
            src/netbeans.c, src/normal.c

Patch 7.4.1199
Problem:    Still using __ARGS.
Solution:   Remove __ARGS in several files. (script by Hirohito Higashi)
Files:      src/ops.c, src/option.c, src/os_amiga.c, src/os_mac_conv.c,
            src/os_unix.c, src/os_vms.c, src/os_w32exe.c, src/popupmnu.c,
            src/pty.c, src/quickfix.c, src/regexp.c, src/regexp_nfa.c,
            src/screen.c, src/search.c, src/sha256.c, src/spell.c,
            src/syntax.c, src/tag.c, src/term.c, src/termlib.c, src/ui.c,
            src/undo.c, src/version.c, src/window.c

Patch 7.4.1200
Problem:    Still using __ARGS.
Solution:   Remove __ARGS in several files. (script by Hirohito Higashi)
Files:      src/blowfish.c, src/ex_cmds2.c, src/ex_getln.c, src/fold.c,
            src/gui_beval.c, src/gui_w32.c, src/os_unix.c, src/os_win16.c,
            src/pty.c, src/regexp.c, src/syntax.c, src/xpm_w32.c,
            src/ex_cmds.h, src/globals.h, src/gui_at_sb.h, src/gui_beval.h,
            src/if_cscope.h, src/if_sniff.h, src/nbdebug.h, src/os_unix.h,
            src/proto.h, src/structs.h, src/vim.h, src/xpm_w32.h,
            src/if_perl.xs, src/proto/if_lua.pro, src/proto/pty.pro,
            runtime/tools/xcmdsrv_client.c,
            src/Makefile

Patch 7.4.1201
Problem:    One more file still using __ARGS.
Solution:   Remove __ARGS in the last file. (script by Hirohito Higashi)
Files:      src/gui_at_sb.c

Patch 7.4.1202
Problem:    Still one more file still using __ARGS.
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Solution:   Remove __ARGS in the last file. (script by Hirohito Higashi)
            (closes #612)
Files:      src/proto/os_mac_conv.pro, src/os_mac_conv.c, src/Makefile

Patch 7.4.1203
Problem:    Still more files still using __ARGS.
Solution:   Remove __ARGS in really the last files.
Files:      src/proto/if_mzsch.pro, src/if_mzsch.c, src/vim.h,
            src/proto/gui_gtk_gresources.pro, src/proto/gui_mac.pro,
            src/proto/if_ole.pro, src/proto/os_qnx.pro, src/Makefile

Patch 7.4.1204
Problem:    Latin1 characters cause encoding conversion.
Solution:   Remove the characters.
Files:      src/gui_motif.c

Patch 7.4.1205
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/arabic.c, src/blowfish.c, src/buffer.c, src/channel.c,
            src/charset.c, src/crypt.c, src/crypt_zip.c, src/diff.c,
            src/digraph.c, src/edit.c, src/eval.c

Patch 7.4.1206
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c, src/ex_eval.c,
            src/ex_getln.c, src/farsi.c, src/fileio.c

Patch 7.4.1207
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/fold.c, src/getchar.c, src/gui_at_fs.c, src/gui_athena.c,
            src/gui_at_sb.c, src/gui_beval.c, src/gui.c, src/gui_gtk.c,
            src/gui_gtk_x11.c, src/gui_mac.c, src/gui_motif.c

Patch 7.4.1208
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/gui_photon.c, src/gui_w32.c, src/gui_w48.c, src/gui_x11.c,
            src/hangulin.c, src/hardcopy.c, src/hashtab.c, src/if_cscope.c,
            src/if_mzsch.c, src/if_perlsfio.c, src/if_python.c,
            src/if_python3.c, src/if_ruby.c, src/if_sniff.c, src/if_tcl.c,
            src/if_xcmdsrv.c, src/integration.c

Patch 7.4.1209 (after 7.4.1207)
Problem:    Can't build with Athena. (Elimar Riesebieter)
Solution:   Fix function declarations.
Files:      src/gui_athena.c, src/gui_x11.c, src/gui_at_sb.c, src/gui_at_fs.c
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Patch 7.4.1210
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/main.c, src/mark.c, src/mbyte.c, src/memfile.c,
            src/memfile_test.c, src/memline.c, src/menu.c, src/message.c

Patch 7.4.1211
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/misc1.c, src/misc2.c, src/move.c, src/netbeans.c,
            src/normal.c, src/ops.c, src/option.c

Patch 7.4.1212 (after 7.4.1207)
Problem:    Can't build with Motif.
Solution:   Fix function declaration.(Dominique Pelle)
Files:      src/gui_motif.c

Patch 7.4.1213
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/os_amiga.c, src/os_mac_conv.c, src/os_msdos.d, src/os_mswin.c,
            src/os_qnx.c, src/os_unix.c, src/os_vms.c, src/os_win16.c,
            src/os_win32.c, src/popupmnu.c, src/pty.c, src/quickfix.c,
            src/regexp.c, src/regexp_nfa.c, src/screen.c

Patch 7.4.1214
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/search.c, src/sha256.c, src/spell.c, src/syntax.c, src/tag.c,
            src/term.c, src/termlib.c, src/ui.c, src/undo.c

Patch 7.4.1215
Problem:    Using old style function declarations.
Solution:   Change to new style function declarations. (script by Hirohito
            Higashi)
Files:      src/version.c, src/winclip.c, src/window.c, src/workshop.c,
            src/xpm_w32.c, runtime/doc/doctags.c,
            runtime/tools/xcmdsrv_client.c, src/po/sjiscorr.c, src/xxd/xxd.c

Patch 7.4.1216
Problem:    Still using HAVE_STDARG_H.
Solution:   Assume it's always defined.
Files:      src/eval.c, src/misc2.c, src/vim.h, src/proto.h, src/configure.in,
            src/auto/configure, config.h.in, src/os_amiga.h, src/os_msdos.h,
            src/os_vms_conf.h, src/os_win32.h

Patch 7.4.1217
Problem:    Execution of command on channel doesn't work yet.
Solution:   Implement the "ex" and "normal" commands.
Files:      src/channel.c, src/proto/channel.pro, src/misc2.c, src/eval.c,
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            src/ex_docmd.c, src/proto/ex_docmd.pro, src/feature.h

Patch 7.4.1218
Problem:    Missing change in configure.  More changes for function style.
Solution:   Avoid the typos.
Files:      src/configure.in, src/config.h.in, runtime/tools/ccfilter.c,
            src/os_msdos.c

Patch 7.4.1219
Problem:    Build fails with +channel but without +float.
Solution:   Add #ifdef.
Files:      src/ex_cmds.c

Patch 7.4.1220
Problem:    Warnings for unused variables in tiny build. (Tony Mechelynck)
Solution:   Move declarations inside #ifdef. (Hirohito Higashi)
Files:      src/ex_cmds.c

Patch 7.4.1221
Problem:    Including netbeans and channel support in small and tiny builds.
            Build fails with some interfaces.
Solution:   Only include these features in small build and above.  Let
            configure fail if trying to enable an interface that won't build.
Files:      src/configure.in, src/auto/configure

Patch 7.4.1222
Problem:    ":normal" command and others missing in tiny build.
Solution:   Graduate FEAT_EX_EXTRA.
Files:      src/feature.h, src/charset.c, src/eval.c, src/ex_cmds.c,
            src/ex_cmds2.c, src/ex_docmd.c, src/ex_getln.c, src/getchar.c,
            src/normal.c, src/ui.c, src/version.c, src/globals.h

Patch 7.4.1223
Problem:    Crash when setting v:errors to a number.
Solution:   Free the typval without assuming its type. (Yasuhiro Matsumoto)
Files:      src/eval.c, src/testdir/test_assert.vim

Patch 7.4.1224
Problem:    Build problems with GTK on BSD. (Mike Williams)
Solution:   Don't use "$<". Skip building gui_gtk_gresources.h when it doesn't
            work. (Kazunobu Kuriyama)
Files:      src/Makefile

Patch 7.4.1225
Problem:    Still a few old style function declarations.
Solution:   Make them new style. (Hirohito Higashi)
Files:      runtime/tools/blink.c, src/eval.c, src/ex_cmds2.c, src/ex_getln.c,
            src/fileio.c, src/gui_w32.c, src/gui_x11.c, src/if_perl.xs,
            src/os_unix.c, src/po/sjiscorr.c, src/pty.c

Patch 7.4.1226
Problem:    GRESOURCE_HDR is unused.
Solution:   Remove it. (Kazunobu Kuriyama)
Files:      src/configure.in, src/auto/configure, src/config.mk.in
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Patch 7.4.1227
Problem:    Compiler warnings.
Solution:   Add UNUSED.  Add type cast. (Yegappan Lakshmanan)
Files:      src/getchar.c, src/os_macosx.m

Patch 7.4.1228
Problem:    copy() and deepcopy() fail with special variables. (Nikolai
            Pavlov)
Solution:   Make it work.  Add a test.  Closes #614.
Files:      src/eval.c, src/testdir/test_viml.vim

Patch 7.4.1229
Problem:    "eval" and "expr" channel commands don't work yet.
Solution:   Implement them.  Update the error numbers.  Also add "redraw".
Files:      src/channel.c, src/eval.c, src/json.c, src/ex_docmd.c,
            src/proto/channel.pro, src/proto/json.pro, src/proto/ex_docmd.pro,
            runtime/doc/channel.txt

Patch 7.4.1230
Problem:    Win32: opening a channel may hang.  Not checking for messages
            while waiting for characters.
Solution:   Add a zero timeout.  Call parse_queued_messages(). (Yasuhiro
            Matsumoto)
Files:      src/os_win32.c

Patch 7.4.1231
Problem:    JSON messages are not parsed properly.
Solution:   Queue received messages.
Files:      src/eval.c src/channel.c, src/json.c, src/proto/eval.pro,
            src/proto/channel.pro, src/proto/json.pro, src/structs.h

Patch 7.4.1232
Problem:    Compiler warnings when the Sniff feature is enabled.
Solution:   Add UNUSED.
Files:      src/gui_gtk_x11.c

Patch 7.4.1233
Problem:    Channel command may cause a crash.
Solution:   Check for NULL argument. (Damien)
Files:      src/channel.c

Patch 7.4.1234
Problem:    Demo server only runs with Python 2.
Solution:   Make it run with Python 3 as well. (Ken Takata)
Files:      runtime/tools/demoserver.py

Patch 7.4.1235 (after 7.4.1231)
Problem:    Missing change to eval.c.
Solution:   Include that change.
Files:      src/eval.c

Patch 7.4.1236
Problem:    When "syntax manual" was used switching between buffers removes
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            the highlighting.
Solution:   Set the syntax option without changing the value. (Anton
            Lindqvist)
Files:      runtime/syntax/manual.vim

Patch 7.4.1237
Problem:    Can't translate message without adding a line break.
Solution:   Join the two parts of the message.
Files:      src/memline.c

Patch 7.4.1238
Problem:    Can't handle two messages right after each other.
Solution:   Find the end of the JSON.  Read more when incomplete.  Add a C
            test for the JSON decoding.
Files:      src/channel.c, src/json.c, src/proto/json.pro, src/eval.c,
            src/Makefile, src/json_test.c, src/memfile_test.c, src/structs.h

Patch 7.4.1239
Problem:    JSON message after the first one is dropped.
Solution:   Put remainder of message back in the queue.
Files:      src/channel.c

Patch 7.4.1240
Problem:    Visual studio tools are noisy.
Solution:   Suppress startup info. (Mike Williams)
Files:      src/GvimExt/Makefile, src/Make_mvc.mak, src/tee/Make_mvc.mak

Patch 7.4.1241 (after 7.4.1238)
Problem:    Missing change in Makefile due to diff mismatch
Solution:   Update the list of object files.
Files:      src/Makefile

Patch 7.4.1242 (after 7.4.1238)
Problem:    json_test fails without the eval feature.
Solution:   Add #ifdef.
Files:      src/json_test.c

Patch 7.4.1243
Problem:    Compiler warning for uninitialized variable.
Solution:   Initialize it. (Elias Diem)
Files:      src/json.c

Patch 7.4.1244
Problem:    The channel functions don't sort together.
Solution:   Use a common "ch_" prefix.
Files:      src/eval.c, runtime/doc/eval.txt, runtime/tools/demoserver.py

Patch 7.4.1245
Problem:    File missing from distribution.
Solution:   Add json_test.c.
Files:      Filelist

Patch 7.4.1246
Problem:    The channel functionality isn't tested.
```

```
Solution:   Add a test using a Python test server.
Files:      src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, src/testdir/test_channel.py,
            src/testdir/Make_all.mak

Patch 7.4.1247
Problem:    The channel test doesn't run on MS-Windows.
Solution:   Make it work on the MS-Windows console. (Ken Takata)
Files:      src/testdir/test_channel.py, src/testdir/test_channel.vim

Patch 7.4.1248
Problem:    Can't reliably stop the channel test server.  Can't start the
            server if the python file is not executable.
Solution:   Use "pkill" instead of "killall".  Run the python file as an
            argument instead of as an executable.
Files:      src/testdir/test_channel.vim

Patch 7.4.1249
Problem:    Crash when the process a channel is connected to exits.
Solution:   Use the file descriptor properly.  Add a test. (Damien)
            Also add a test for eval().
Files:      src/channel.c, src/testdir/test_channel.py,
            src/testdir/test_channel.vim

Patch 7.4.1250
Problem:    Running tests in shadow directory fails.
Solution:   Also link testdir/*.py
Files:      src/Makefile

Patch 7.4.1251
Problem:    New test file missing from distribution.
Solution:   Add src/testdir/*.py.
Files:      Filelist

Patch 7.4.1252
Problem:    The channel test server may receive two messages concatenated.
Solution:   Split the messages.
Files:      src/testdir/test_channel.py

Patch 7.4.1253
Problem:    Python test server not displaying second of two commands.
            Solaris doesn't have "pkill --full".
Solution:   Also echo the second command. Use "pkill -f".
Files:      src/testdir/test_channel.py, src/testdir/test_channel.vim

Patch 7.4.1254
Problem:    Opening a second channel causes a crash. (Ken Takata)
Solution:   Don't re-allocate the array with channels.
Files:      src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel.py

Patch 7.4.1255
Problem:    Crash for channel "eval" command without third argument.
Solution:   Check for missing argument.
```

```
Files:      src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel.py

Patch 7.4.1256
Problem:    On Mac sys.exit(0) doesn't kill the test server.
Solution:   Use self.server.shutdown(). (Jun Takimoto)
Files:      src/testdir/test_channel.py

Patch 7.4.1257
Problem:    Channel test fails in some configurations.
Solution:   Add check for the +channel feature.
Files:      src/testdir/test_channel.vim

Patch 7.4.1258
Problem:    The channel test can fail if messages arrive later.
Solution:   Add a short sleep. (Jun Takimoto)
Files:      src/testdir/test_channel.vim

Patch 7.4.1259
Problem:    No test for what patch 7.3.414 fixed.
Solution:   Add a test. (Elias Diem)
Files:      src/testdir/test_increment.vim

Patch 7.4.1260
Problem:    The channel feature doesn't work on Win32 GUI.
Solution:   Use WSAGetLastError(). (Ken Takata)
Files:      src/channel.c, src/testdir/test_channel.vim, src/vim.h

Patch 7.4.1261
Problem:    Pending channel messages are garbage collected. Leaking memory in
            ch_sendexpr().  Leaking memory for a decoded JSON string.
Solution:   Mark the message list as used. Free the encoded JSON.  Don't save
            the JSON string.
Files:      src/eval.c, src/channel.c, src/json.c, src/proto/channel.pro

Patch 7.4.1262
Problem:    The channel callback is not invoked.
Solution:   Make a list of pending callbacks.
Files:      src/eval.c, src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim

Patch 7.4.1263
Problem:    ch_open() hangs when the server isn't running.
Solution:   Add a timeout. Use a dict to pass arguments. (Yasuhiro Matsumoto)
Files:      runtime/doc/eval.txt, runtime/doc/channel.txt, src/channel.c,
            src/eval.c, src/netbeans.c, src/os_win32.c, src/proto/channel.pro,
            src/testdir/test_channel.vim

Patch 7.4.1264
Problem:    Crash when receiving an empty array.
Solution:   Check for array with wrong number of arguments. (Damien)
Files:      src/channel.c, src/eval.c, src/testdir/test_channel.py,
            src/testdir.test_channel.vim
```

```
Patch 7.4.1265
Problem:    Not all channel commands are tested.
Solution:   Add a test for "normal", "expr" and "redraw".
Files:      src/testdir/test_channel.py, src/testdir/test_channel.vim

Patch 7.4.1266
Problem:    A BufAdd autocommand may cause an ml_get error (Christian
            Brabandt)
Solution:   Increment RedrawingDisabled earlier.
Files:      src/ex_cmds.c

Patch 7.4.1267
Problem:    Easy to miss handling all types of variables.
Solution:   Change the variable type into an enum.
Files:      src/structs.h, src/eval.c

Patch 7.4.1268
Problem:    Waittime is used as seconds instead of milliseconds. (Hirohito
            Higashi)
Solution:   Divide by 1000.
Files:      src/channel.c

Patch 7.4.1269
Problem:    Encoding {'key':v:none} to JSON doesn't give an error (Tyru)
Solution:   Give an error.
Files:      src/json.c, src/testdir/test_json.vim

Patch 7.4.1270
Problem:    Warnings for missing values in switch.
Solution:   Change switch to if-else or add values.
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 7.4.1271
Problem:    assert_false(v:false) reports an error. (Nikolai Pavlov)
Solution:   Recognize v:true and v:false. (Closes #625)
Files:      src/eval.c, src/testdir/test_assert.vim

Patch 7.4.1272 (after 7.4.1270)
Problem:    Using future enum value.
Solution:   Remove it.
Files:      src/if_python.c, src/if_python3.c

Patch 7.4.1273 (after 7.4.1271)
Problem:    assert_false(v:false) still fails.
Solution:   Fix the typo.
Files:      src/eval.c

Patch 7.4.1274
Problem:    Cannot run a job.
Solution:   Add job_start(), job_status() and job_stop(). Currently only works
            for Unix.
Files:      src/eval.c, src/structs.h, runtime/doc/eval.txt, src/os_unix.c,
            src/proto/os_unix.pro, src/feature.h, src/version.c,
            src/testdir/test_channel.vim
```

```
Patch 7.4.1275 (after 7.4.1274)
Problem:    Build fails on MS-Windows.
Solution:   Fix wrong #ifdef.
Files:      src/eval.c

Patch 7.4.1276
Problem:    Warning for not using return value of fcntl().
Solution:   Explicitly ignore the return value.
Files:      src/fileio.c, src/channel.c, src/memfile.c, src/memline.c

Patch 7.4.1277
Problem:    Compiler can complain about missing enum value in switch with some
            combination of features.
Solution:   Remove #ifdefs around case statements.
Files:      src/eval.c

Patch 7.4.1278
Problem:    When jsonencode() fails it still returns something.
Solution:   Return an empty string on failure.
Files:      src/json.c, src/channel.c, src/testdir/test_json.vim,
            src/testdir/test_channel.vim, src/testdir/test_channel.py

Patch 7.4.1279
Problem:    jsonencode() is not producing strict JSON.
Solution:   Add jsencode() and jsdecode().  Make jsonencode() and jsondecode()
            strict.
Files:      src/json.c, src/json_test.c, src/proto/json.pro, src/channel.c,
            src/proto/channel.pro, src/eval.c, src/vim.h, src/structs.h,
            runtime/doc/eval.txt, runtime/doc/channel.txt,
            src/testdir/test_json.vim

Patch 7.4.1280
Problem:    Missing case value.
Solution:   Add VAR_JOB.
Files:      src/if_python.c, src/if_python3.c

Patch 7.4.1281
Problem:    No test for skipping over code that isn't evaluated.
Solution:   Add a test with code that would fail when not skipped.
Files:      src/testdir/test_viml.vim

Patch 7.4.1282
Problem:    Crash when evaluating the pattern of ":catch" causes an error.
            (Dominique Pelle)
Solution:   Block error messages at this point.
Files:      src/ex_eval.c

Patch 7.4.1283
Problem:    The job feature isn't available on MS-Windows.
Solution:   Add the job feature.  Fix argument of job_stop(). (Yasuhiro
            Matsumoto)
Files:      src/eval.c, src/feature.h, src/os_win32.c, src/proto/os_win32.pro
```

```
Patch 7.4.1284 (after 7.4.1282)
Problem:    Test 49 fails.
Solution:   Check for a different error message.
Files:      src/testdir/test49.vim

Patch 7.4.1285
Problem:    Cannot measure elapsed time.
Solution:   Add reltimefloat().
Files:      src/ex_cmds2.c, src/eval.c, src/proto/ex_cmds2.pro,
            src/testdir/test_reltime.vim, src/testdir/test_alot.vim

Patch 7.4.1286
Problem:    ch_open() with a timeout doesn't work correctly.
Solution:   Change how select() is used.  Don't give an error on timeout.
            Add a test for ch_open() failing.
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1287 (after 7.4.1286)
Problem:    Channel test fails.
Solution:   Use reltimefloat().
Files:      src/testdir/test_channel.vim

Patch 7.4.1288
Problem:    ch_sendexpr() does not use JS encoding.
Solution:   Use the encoding that fits the channel mode.  Refuse using
            ch_sendexpr() on a raw channel.
Files:      src/channel.c, src/proto/channel.pro, src/eval.c

Patch 7.4.1289
Problem:    Channel test fails on MS-Windows, connect() takes too long.
Solution:   Adjust the test for MS-Windows using "waittime".
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1290
Problem:    Coverity complains about unnecessary check for NULL.
Solution:   Remove the check.
Files:      src/eval.c

Patch 7.4.1291
Problem:    On MS-Windows the channel test server doesn't quit.
Solution:   Use return instead of break. (Ken Takata)
Files:      src/testdir/test_channel.py

Patch 7.4.1292
Problem:    Some compilers complain about uninitialized variable, even though
            all possible cases are handled. (Dominique Pelle)
Solution:   Add a default initialization.
Files:      src/eval.c

Patch 7.4.1293
Problem:    Sometimes a channel may hang waiting for a message that was
            already discarded. (Ken Takata)
Solution:   Store the ID of the message blocking on in the channel.
Files:      src/channel.c
```

Patch 7.4.1294
Problem: job_stop() only kills the started process.
Solution: Send the signal to the process group. (Olaf Dabrunz)
Files: src/os_unix.c

Patch 7.4.1295
Problem: string(job) doesn't work well on MS-Windows.
Solution: Use the process ID. (Yasuhiro Matsumoto)
Files: src/eval.c

Patch 7.4.1296
Problem: Cursor changes column with up motion when the matchparen plugin
            saves and restores the cursor position. (Martin Kunev)
Solution: Make sure curswant is updated before invoking the autocommand.
Files: src/edit.c

Patch 7.4.1297
Problem: On Mac test_channel leaves python instances running.
Solution: Use a small waittime to make ch_open() work. (Ozaki Kiichi)
Files: src/testdir/test_channel.vim

Patch 7.4.1298
Problem: When the channel test fails in an unexpected way the server keeps
            running.
Solution: Use try/catch. (Ozaki Kiichi)
Files: src/testdir/test_channel.vim

Patch 7.4.1299
Problem: When the server sends a message with ID zero the channel handler
            is not invoked. (Christian J. Robinson)
Solution: Recognize zero value for the request ID. Add a test for invoking
            the channel handler.
Files: src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel.py

Patch 7.4.1300
Problem: Cannot test CursorMovedI because there is typeahead.
Solution: Add disable_char_avail_for_testing().
Files: src/eval.c, src/getchar.c, src/globals.h,
            src/testdir/test_cursor_func.vim, src/testdir/README.txt

Patch 7.4.1301
Problem: Missing options in ch_open().
Solution: Add s:chopt like in the other calls. (Ozaki Kiichi)
Files: src/testdir/test_channel.vim

Patch 7.4.1302
Problem: Typo in struct field name. (Ken Takata)
Solution: Rename jf_pi to jv_pi.
Files: src/eval.c, src/os_win32.c, src/structs.h

Patch 7.4.1303
Problem: A Funcref is not accepted as a callback.

```
Solution:   Make a Funcref work. (Damien)
Files:      src/eval.c, src/testdir/test_channel.vim

Patch 7.4.1304
Problem:    Function names are difficult to read.
Solution:   Rename jsonencode to json_encode, jsondecode to json_decode,
            jsencode to js_encode and jsdecode to js_decode.
Files:      src/eval.c, runtime/doc/eval.txt, src/testdir/test_json.vim

Patch 7.4.1305
Problem:    "\%1l^#.*" does not match on a line starting with "#".
Solution:   Do not clear the start-of-line flag. (Christian Brabandt)
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test36.in,
            src/testdir/test36.ok

Patch 7.4.1306
Problem:    Job control doesn't work well on MS-Windows.
Solution:   Various fixes. (Ken Takata, Ozaki Kiichi, Yukihiro Nakadaira,
            Yasuhiro Matsumoto)
Files:      src/Make_mvc.mak, src/eval.c, src/os_unix.c, src/os_win32.c,
            src/proto/os_unix.pro, src/proto/os_win32.pro, src/structs.h

Patch 7.4.1307
Problem:    Some channel tests fail on MS-Windows.
Solution:   Disable the failing tests temporarily.
Files:      src/testdir/test_channel.vim

Patch 7.4.1308 (after 7.4.1307)
Problem:    Typo in test.
Solution:   Change endf to endif.
Files:      src/testdir/test_channel.vim

Patch 7.4.1309
Problem:    When a test fails not all relevant info is listed.
Solution:   Add the errors to the messages.
Files:      src/testdir/runtest.vim

Patch 7.4.1310
Problem:    Jobs don't open a channel.
Solution:   Create pipes and add them to the channel.  Add ch_logfile().
            Only Unix for now.
Files:      src/channel.c, src/eval.c, src/os_unix.c, src/structs.h,
            src/gui_w48.c, src/proto/channel.pro, src/testdir/test_channel.vim,
            src/testdir/test_channel_pipe.py, runtime/doc/eval.txt

Patch 7.4.1311 (after 7.4.1310)
Problem:    sock_T is defined too late.
Solution:   Move it up.
Files:      src/vim.h

Patch 7.4.1312 (after 7.4.1311)
Problem:    sock_T is not defined without the +channel feature.
Solution:   Always define it.
Files:      src/vim.h
```

Patch 7.4.1313
Problem: MS-Windows: Using socket after it was closed causes an exception.
Solution: Don't give an error when handling WM_NETBEANS. Re-enable tests
            for MS-Windows.
Files: src/gui_w48.c, src/testdir/test_channel.vim

Patch 7.4.1314
Problem: Warning for uninitialized variable.
Solution: Initialize it. (Dominique Pelle)
Files: src/channel.c

Patch 7.4.1315
Problem: Using a channel handle does not allow for freeing it when unused.
Solution: Add the Channel variable type.
Files: src/structs.h, src/channel.c, src/misc2.c, src/eval.c,
            src/if_python.c, src/if_python3.c, src/json.c, src/gui_w48.c,
            src/netbeans.c, src/proto/channel.pro, src/os_unix.c,
            src/testdir/test_channel.py, src/testdir/test_channel.vim

Patch 7.4.1316
Problem: Can't build MS-Windows console version. (Tux)
Solution: Add #ifdefs.
Files: src/eval.c

Patch 7.4.1317
Problem: MS-Windows: channel test fails.
Solution: Temporarily disable Test_connect_waittime().
Files: src/testdir/test_channel.vim

Patch 7.4.1318
Problem: Channel with pipes doesn't work in GUI.
Solution: Register input handlers for pipes.
Files: src/structs.h, src/feature.h, src/channel.c, src/eval.c,
            src/os_unix.c, src/os_win32.c, src/gui_w48.c, src/proto/channel.pro

Patch 7.4.1319 (after 7.4.1318)
Problem: Tests fail on MS-Windows and on Unix with GUI.
Solution: Fix unregistering.
Files: src/structs.h, src/channel.c, src/os_unix.c, src/os_win32.c,
            src/proto/channel.pro

Patch 7.4.1320
Problem: Building with Cygwin or MingW with channel but without Netbeans
            doesn't work.
Solution: Set NETBEANS to "no" when not used.
Files: src/Make_cyg_ming.mak

Patch 7.4.1321
Problem: Compiler complains about missing statement.
Solution: Add an empty statement. (Andrei Olsen)
Files: src/os_win32.c

Patch 7.4.1322

```
Problem:    Crash when unletting the variable that holds the channel in a
            callback function.  (Christian Robinson)
Solution:   Increase the reference count while invoking the callback.
Files:      src/eval.c, src/channel.c, src/proto/eval.pro,
            src/testdir/test_channel.vim

Patch 7.4.1323
Problem:    Do not get warnings when building with MingW.
Solution:   Remove the -w flag. (Ken Takata)
Files:      src/Make_cyg_ming.mak

Patch 7.4.1324
Problem:    Channels with pipes don't work on MS-Windows.
Solution:   Add pipe I/O support. (Yasuhiro Matsumoto)
Files:      src/channel.c, src/os_win32.c, src/proto/channel.pro,
            src/structs.h, src/vim.h, src/testdir/test_channel.vim

Patch 7.4.1325
Problem:    Channel test fails on difference between Unix and DOS line endings.
Solution:   Strip off CR.  Make assert show difference better.
Files:      src/eval.c, src/channel.c

Patch 7.4.1326
Problem:    Build rules are bit too complicated.
Solution:   Remove -lwsock32 from Netbeans, it's already added for the channel
            feature that it depends on. (Tony Mechelynck)
Files:      src/Make_cyg_ming.mak

Patch 7.4.1327
Problem:    Channel test doesn't work if Python executable is python.exe.
Solution:   Find py.exe or python.exe. (Ken Takata)
Files:      src/testdir/test_channel.vim

Patch 7.4.1328
Problem:    Can't compile with +job but without +channel. (John Marriott)
Solution:   Add more #ifdefs.
Files:      src/os_unix.c

Patch 7.4.1329
Problem:    Crash when using channel that failed to open.
Solution:   Check for NULL.  Update messages. (Yukihiro Nakadaira)
Files:      src/channel.c, src/eval.c, src/testdir/test_channel.vim

Patch 7.4.1330
Problem:    fd_read() has an unused argument.
Solution:   Remove the timeout. (Yasuhiro Matsumoto)
Files:      src/channel.c

Patch 7.4.1331
Problem:    Crash when closing the channel in a callback. (Christian J.
            Robinson)
Solution:   Take the callback out of the list before invoking it.
Files:      src/channel.c, src/testdir/test_channel.vim
```

```
Patch 7.4.1332
Problem:    Problem using Python3 when compiled with MingW.
Solution:   Define PYTHON3_HOME as a wide character string. (Yasuhiro
            Matsumoto)
Files:      src/Make_cyg_ming.mak

Patch 7.4.1333
Problem:    Channel test fails on non-darwin builds.
Solution:   Add the "osx" feature and test for that. (Kazunobu Kuriyama)
Files:      runtime/doc/eval.txt, src/eval.c, src/testdir/test_channel.vim

Patch 7.4.1334
Problem:    Many compiler warnings with MingW.
Solution:   Add type casts. (Yasuhiro Matsumoto)
Files:      src/channel.c, src/dosinst.h, src/eval.c, src/ex_cmds2.c,
            src/ex_getln.c, src/fileio.c, src/if_cscope.c, src/if_perl.xs,
            src/if_python.c, src/if_python3.c, src/if_ruby.c, src/main.c,
            src/mbyte.c, src/misc1.c, src/option.c, src/os_mswin.c,
            src/os_win32.c

Patch 7.4.1335
Problem:    Can't build on MS-Windows with +job but without +channel. (Cesar
            Romani)
Solution:   Add #ifdefs. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.4.1336
Problem:    Channel NL mode is not supported yet.
Solution:   Add NL mode support to channels.
Files:      src/channel.c, src/netbeans.c, src/structs.h, src/os_unix.d,
            src/os_win32.c, src/proto/channel.pro, src/proto/os_unix.pro,
            src/proto/os_win32.pro, src/testdir/test_channel.vim,
            src/testdir/test_channel_pipe.py

Patch 7.4.1337 (after 7.4.1336)
Problem:    Part of the change is missing.
Solution:   Add changes to eval.c
Files:      src/eval.c


Patch 7.4.1338 (after 7.4.1336)
Problem:    Another part of the change is missing.
Solution:   Type os_unix.c right this time.
Files:      src/os_unix.c

Patch 7.4.1339
Problem:    Warnings when building the GUI with MingW. (Cesar Romani)
Solution:   Add type casts. (Yasuhiro Matsumoto)
Files:      src/edit.c, src/gui_w32.c, src/gui_w48.c, src/os_mswin.c,
            src/os_win32.c

Patch 7.4.1340 (after 7.4.1339)
Problem:    Merge left extra #endif behind.
Solution:   Remove the #endif
```

```
Files:      src/os_win32.c

Patch 7.4.1341
Problem:    It's difficult to add more arguments to ch_sendraw() and
            ch_sendexpr().
Solution:   Make the third option a dictionary.
Files:      src/eval.c, src/structs.h, src/channel.c, src/os_unix.c,
            src/os_win32.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, runtime/doc/eval.txt

Patch 7.4.1342
Problem:    On Mac OS/X the waittime must be > 0 for connect to work.
Solution:   Use select() in a different way. (partly by Kazunobu Kuriyama)
            Always use a waittime of 1 or more.
Files:      src/eval.c, src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1343
Problem:    Can't compile with +job but without +channel. (Andrei Olsen)
Solution:   Move get_job_options up and adjust #ifdef.
Files:      src/eval.c

Patch 7.4.1344
Problem:    Can't compile Win32 GUI with tiny features.
Solution:   Add #ifdef. (Christian Brabandt)
Files:      src/gui_w32.c

Patch 7.4.1345
Problem:    A few more compiler warnings. (Axel Bender)
Solution:   Add type casts.
Files:      src/gui_w32.c, src/gui_w48.c

Patch 7.4.1346
Problem:    Compiler warnings in build with -O2.
Solution:   Add initializations.
Files:      src/eval.c

Patch 7.4.1347
Problem:    When there is any error Vim will use a non-zero exit code.
Solution:   When using ":silent!" do not set the exit code. (Yasuhiro
            Matsumoto)
Files:      src/message.c

Patch 7.4.1348
Problem:    More compiler warnings. (John Marriott)
Solution:   Add type casts, remove unused variable.
Files:      src/gui_w32.c

Patch 7.4.1349
Problem:    And some more MingW compiler warnings. (Cesar Romani)
Solution:   Add type casts.
Files:      src/if_mzsch.c

Patch 7.4.1350
Problem:    When the test server fails to start Vim hangs.
```

```
Solution:   Check that there is actually something to read from the tty fd.
Files:      src/os_unix.c

Patch 7.4.1351
Problem:    When the port isn't opened yet when ch_open() is called it may
            fail instead of waiting for the specified time.
Solution:   Loop when select() succeeds but when connect() failed. Also use
            channel logging for jobs.  Add ch_log().
Files:      src/channel.c, src/eval.c, src/netbeans.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, src/testdir/test_channel.py

Patch 7.4.1352
Problem:    The test script lists all functions before executing them.
Solution:   Only list the function currently being executed.
Files:      src/testdir/runtest.vim

Patch 7.4.1353
Problem:    Test_connect_waittime is skipped for MS-Windows.
Solution:   Add the test back, it works now.
Files:      src/testdir/test_channel.vim

Patch 7.4.1354
Problem:    MS-Windows: Mismatch between default compile options and what the
            code expects.
Solution:   Change the default WINVER from 0x0500 to 0x0501. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 7.4.1355
Problem:    Win32 console and GUI handle channels differently.
Solution:   Consolidate code between Win32 console and GUI.
Files:      src/channel.c, src/eval.c, src/gui_w48.c, src/os_win32.c,
            src/proto/channel.pro

Patch 7.4.1356
Problem:    Job and channel options parsing is scattered.
Solution:   Move all option value parsing to get_job_options();
Files:      src/channel.c, src/eval.c, src/structs.h, src/proto/channel.pro,
            src/testdir/test_channel.vim

Patch 7.4.1357 (after 7.4.1356)
Problem:    Error for returning value from void function.
Solution:   Don't do that.
Files:      src/eval.c

Patch 7.4.1358
Problem:    Compiler warning when not building with +crypt.
Solution:   Add #ifdef. (John Marriott)
Files:      src/undo.c

Patch 7.4.1359 (after 7.4.1356)
Problem:    Channel test ch_sendexpr() times out.
Solution:   Increase the timeout
Files:      src/testdir/test_channel.vim
```

Patch 7.4.1360
Problem: Can't remove a callback with ch_setoptions().
Solution: When passing zero or an empty string remove the callback.
Files: src/channel.c, src/proto/channel.pro, src/testdir/test_channel.vim

Patch 7.4.1361
Problem: Channel test fails on Solaris.
Solution: Use the 1 msec waittime for all systems.
Files: src/channel.c

Patch 7.4.1362 (after 7.4.1356)
Problem: Using uninitialized value.
Solution: Initialize jo_set.
Files: src/eval.c

Patch 7.4.1363
Problem: Compiler warnings with tiny build.
Solution: Add #ifdefs.
Files: src/gui_w48.c, src/gui_w32.c

Patch 7.4.1364
Problem: The Win 16 code is not maintained and unused.
Solution: Remove the Win 16 support.
Files: src/gui_w16.c, src/gui_w32.c, src/gui_w48.c, src/Make_w16.mak,
            src/Makefile, src/Make_cyg_ming.mak, src/Make_mvc.mak,
            src/proto/gui_w16.pro, src/proto/os_win16.pro, src/guiw16rc.h,
            src/vim16.rc, src/vim16.def, src/tools16.bmp, src/eval.c,
            src/gui.c, src/misc2.c, src/option.c, src/os_msdos.c,
            src/os_mswin.c, src/os_win16.c, src/os_win16.h, src/version.c,
            src/winclip.c, src/feature.h, src/proto.h, src/vim.h, Filelist

Patch 7.4.1365
Problem: Cannot execute a single test function.
Solution: Add an argument to filter the functions with. (Yasuhiro Matsumoto)
Files: src/testdir/runtest.vim

Patch 7.4.1366
Problem: Typo in test and resulting error in test result.
Solution: Fix the typo and correct the result. (James McCoy, closes #650)
Files: src/testdir/test_charsearch.in, src/testdir/test_charsearch.ok

Patch 7.4.1367
Problem: Compiler warning for unreachable code.
Solution: Remove a "break". (Danek Duvall)
Files: src/json.c

Patch 7.4.1368
Problem: One more Win16 file remains.
Solution: Delete it.
Files: src/proto/os_win16.pro

Patch 7.4.1369
Problem: Channels don't have a queue for stderr.
Solution: Have a queue for each part of the channel.

```
Files:      src/channel.c, src/eval.c, src/structs.h, src/netbeans.c,
            src/gui_w32.c, src/proto/channel.pro

Patch 7.4.1370
Problem:    The Python test script may keep on running.
Solution:   Join the threads. (Yasuhiro Matsumoto)
Files:      src/testdir/test_channel.py

Patch 7.4.1371
Problem:    X11 GUI callbacks don't specify the part of the channel.
Solution:   Pass the fd instead of the channel ID.
Files:      src/channel.c

Patch 7.4.1372
Problem:    channel read implementation is incomplete.
Solution:   Add ch_read() and options for ch_readraw().
Files:      src/channel.c, src/eval.c, src/structs.h, src/proto/channel.pro,
            src/testdir/test_channel.vim

Patch 7.4.1373
Problem:    Calling a Vim function over a channel requires turning the
            arguments into a string.
Solution:   Add the "call" command. (Damien)  Also merge "expr" and "eval"
            into one.
Files:      src/channel.c, src/testdir/test_channel.py,
            src/testdir/test_channel.vim

Patch 7.4.1374
Problem:    Channel test hangs on MS-Windows.
Solution:   Disable the ch_read() that is supposed to time out.
Files:      src/testdir/test_channel.vim

Patch 7.4.1375
Problem:    Still some Win16 code.
Solution:   Remove FEAT_GUI_W16.(Hirohito Higashi)
Files:      src/eval.c, src/ex_cmds.h, src/feature.h, src/gui.h, src/menu.c,
            src/misc1.c, src/option.c, src/proto.h, src/structs.h, src/term.c,
            src/vim.h, runtime/doc/gui_w16.txt

Patch 7.4.1376
Problem:    ch_setoptions() cannot set all options.
Solution:   Support more options.
Files:      src/channel.c, src/eval.c, src/structs.h, runtime/doc/channel.txt,
            src/testdir/test_channel.vim

Patch 7.4.1377
Problem:    Test_connect_waittime() is flaky.
Solution:   Ignore the "Connection reset by peer" error.
Files:      src/testdir/test_channel.vim

Patch 7.4.1378
Problem:    Can't change job settings after it started.
Solution:   Add job_setoptions() with the "stoponexit" flag.
Files:      src/eval.c, src/main.c, src/structs.h, src/proto/eval.pro,
```

```
            src/testdir/test_channel.vim

Patch 7.4.1379
Problem:    Channel test fails on Win32 console.
Solution:   Don't sleep when timeout is zero. Call channel_wait() before
            channel_read(). Channels are not polled during ":sleep". (Yukihiro
            Nakadaira)
Files:      src/channel.c, src/misc2.c, src/gui_w32.c, src/os_win32.c

Patch 7.4.1380
Problem:    The job exit callback is not implemented.
Solution:   Add the "exit-cb" option.
Files:      src/structs.h, src/eval.c, src/channel.c, src/proto/eval.pro,
            src/misc2.c, src/macros.h, src/testdir/test_channel.vim

Patch 7.4.1381 (after 7.4.1380)
Problem:    Exit value not available on MS-Windows.
Solution:   Set the exit value.
Files:      src/structs.h, src/os_win32.c

Patch 7.4.1382
Problem:    Can't get the job of a channel.
Solution:   Add ch_getjob().
Files:      src/eval.c, runtime/doc/channel.txt, runtime/doc/eval.txt

Patch 7.4.1383
Problem:    GvimExt only loads the old libintl.dll.
Solution:   Also try loading libint-8.dll. (Ken Takata, closes #608)
Files:      src/GvimExt/gvimext.cpp, src/GvimExt/gvimext.h

Patch 7.4.1384
Problem:    It is not easy to use a set of plugins and their dependencies.
Solution:   Add packages, ":loadplugin", 'packpath'.
Files:      src/main.c, src/ex_cmds2.c, src/option.c, src/option.h,
            src/ex_cmds.h, src/eval.c, src/version.c, src/proto/ex_cmds2.pro,
            runtime/doc/repeat.txt, runtime/doc/options.txt,
            runtime/optwin.vim

Patch 7.4.1385
Problem:    Compiler warning for using array.
Solution:   Use the right member name. (Yegappan Lakshmanan)
Files:      src/eval.c

Patch 7.4.1386
Problem:    When the Job exit callback is invoked, the job may be freed too
            soon. (Yasuhiro Matsumoto)
Solution:   Increase refcount.
Files:      src/eval.c

Patch 7.4.1387
Problem:    Win16 docs still referenced.
Solution:   Remove Win16 files from the docs Makefile. (Kenichi Ito)
Files:      runtime/doc/Makefile
```

```
Patch 7.4.1388
Problem:    Compiler warning. (Cesar Romani)
Solution:   Initialize variable.
Files:      src/ex_cmds2.c

Patch 7.4.1389
Problem:    Incomplete function declaration.
Solution:   Add "void". (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.4.1390
Problem:    When building with GTK and glib-compile-resources cannot be found
            building Vim fails. (Michael Gehring)
Solution:   Make GLIB_COMPILE_RESOURCES empty instead of leaving it at "no".
            (nuko8, closes #655)
Files:      src/configure.in, src/auto/configure

Patch 7.4.1391
Problem:    Warning for uninitialized variable.
Solution:   Set it to zero. (Christian Brabandt)
Files:      src/eval.c

Patch 7.4.1392
Problem:    Some tests fail for Win32 console version.
Solution:   Move the tests to SCRIPTS_MORE2.  Pass VIMRUNTIME. (Christian
            Brabandt)
Files:      src/testdir/Make_all.mak

Patch 7.4.1393
Problem:    Starting a job hangs in the GUI. (Takuya Fujiwara)
Solution:   Don't check if ch_job is NULL when checking for an error.
            (Yasuhiro Matsumoto)
Files:      src/channel.c

Patch 7.4.1394
Problem:    Can't sort inside a sort function.
Solution:   Use a struct to store the sort parameters. (Jacob Niehus)
Files:      src/eval.c, src/testdir/test_sort.vim

Patch 7.4.1395
Problem:    Using DETACH in quotes is not compatible with the Netbeans
            interface. (Xavier de Gaye)
Solution:   Remove the quotes, only use them for JSON and JS mode.
Files:      src/netbeans.c, src/channel.c

Patch 7.4.1396
Problem:    Compiler warnings for conversions.
Solution:   Add type cast.
Files:      src/ex_cmds2.c

Patch 7.4.1397
Problem:    Sort test fails on MS-Windows.
Solution:   Correct the compare function.
Files:      src/testdir/test_sort.vim
```

```
Patch 7.4.1398
Problem:    The close-cb option is not implemented yet.
Solution:   Implement close-cb. (Yasuhiro Matsumoto)
Files:      src/channel.c, src/eval.c, src/structs.h, src/proto/channel.pro,
            src/testdir/test_channel.py, src/testdir/test_channel.vim

Patch 7.4.1399
Problem:    The MS-DOS code does not build.
Solution:   Remove the old MS-DOS code.
Files:      Filelist, src/Make_bc3.mak, src/Make_bc5.mak, src/Make_djg.mak,
            src/Makefile, src/blowfish.c, src/buffer.c, src/diff.c,
            src/digraph.c, src/dosinst.h, src/eval.c, src/ex_cmds.c,
            src/ex_cmds2.c, src/ex_docmd.c, src/ex_getln.c, src/feature.h,
            src/fileio.c, src/getchar.c, src/globals.h, src/macros.h,
            src/main.c, src/mbyte.c, src/memfile.c, src/memline.c,
            src/misc1.c, src/misc2.c, src/netbeans.c, src/option.c,
            src/option.h, src/os_msdos.c, src/os_msdos.h, src/proto.h,
            src/proto/os_msdos.pro, src/regexp.c, src/screen.c, src/structs.h,
            src/syntax.c, src/term.c, src/undo.c, src/uninstal.c,
            src/version.c, src/vim.h, src/window.c, src/xxd/Make_bc3.mak,
            src/xxd/Make_djg.mak


Patch 7.4.1400
Problem:    Perl eval doesn't work properly on 64-bit big-endian machine.
Solution:   Use 32 bit type for the key. (Danek Duvall)
Files:      src/if_perl.xs

Patch 7.4.1401
Problem:    Having 'autochdir' set during startup and using diff mode doesn't
            work. (Axel Bender)
Solution:   Don't use 'autochdir' while still starting up. (Christian
            Brabandt)
Files:      src/buffer.c

Patch 7.4.1402
Problem:    GTK 3 is not supported.
Solution:   Add GTK 3 support. (Kazunobu Kuriyama)
Files:      runtime/doc/eval.txt, runtime/doc/gui.txt,
            runtime/doc/gui_x11.txt, src/auto/configure, src/channel.c,
            src/config.h.in, src/configure.in, src/eval.c, src/gui.h,
            src/gui_beval.c, src/gui_beval.h, src/gui_gtk.c, src/gui_gtk_f.c,
            src/gui_gtk_f.h, src/gui_gtk_x11.c, src/if_mzsch.c, src/mbyte.c,
            src/netbeans.c, src/structs.h, src/version.c

Patch 7.4.1403
Problem:    Can't build without the quickfix feature.
Solution:   Add #ifdefs. Call ex_ni() for unimplemented commands. (Yegappan
            Lakshmanan)
Files:      src/ex_cmds2.c, src/popupmnu.c

Patch 7.4.1404
Problem:    ch_read() doesn't time out on MS-Windows.
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Solution:   Instead of WM_NETBEANS use select(). (Yukihiro Nakadaira)
Files:      src/channel.c, src/gui_w32.c, src/os_win32.c, src/structs.h,
            src/testdir/test_channel.vim, src/vim.h

Patch 7.4.1405
Problem:    Completion menu flickers.
Solution:   Delay showing the popup menu. (Shougo Matsu, Justin M. Keyes,
            closes #656)
Files:      src/edit.c

Patch 7.4.1406
Problem:    Leaking memory in cs_print_tags_priv().
Solution:   Free tbuf. (idea by Forrest Fleming)
Files:      src/if_cscope.c

Patch 7.4.1407
Problem:    json_encode() does not handle NaN and inf properly. (David
            Barnett)
Solution:   For JSON turn them into "null".  For JS use "NaN" and "Infinity".
            Add isnan().
Files:      src/eval.c, src/json.c, src/testdir/test_json.vim

Patch 7.4.1408
Problem:    MS-Windows doesn't have isnan() and isinf().
Solution:   Use _isnan() and _isinf().
Files:      src/eval.c, src/json.c

Patch 7.4.1409 (after 7.4.1402)
Problem:    Configure includes GUI despite --disable-gui flag.
Solution:   Add SKIP_GTK3. (Kazunobu Kuriyama)
Files:      src/configure.in, src/auto/configure

Patch 7.4.1410
Problem:    Leaking memory in cscope interface.
Solution:   Free memory when no tab is found. (Christian Brabandt)
Files:      src/if_cscope.c

Patch 7.4.1411
Problem:    Compiler warning for indent. (Ajit Thakkar)
Solution:   Indent normally.
Files:      src/ui.c

Patch 7.4.1412
Problem:    Compiler warning for indent. (Dominique Pelle)
Solution:   Fix the indent.
Files:      src/farsi.c

Patch 7.4.1413
Problem:    When calling ch_close() the close callback is invoked, even though
            the docs say it isn't. (Christian J. Robinson)
Solution:   Don't call the close callback.
Files:      src/eval.c, src/channel.c, src/netbeans.c, src/proto/channel.pro

Patch 7.4.1414
```

```
Problem:    Appveyor only builds one feature set.
Solution:   Build a combination of features and GUI/console. (Christian
            Brabandt)
Files:      appveyor.yml, src/appveyor.bat

Patch 7.4.1415 (after 7.4.1414)
Problem:    Dropped the skip-tags setting.
Solution:   Put it back.
Files:      appveyor.yml

Patch 7.4.1416
Problem:    Using "u_char" instead of "char_u", which doesn't work everywhere.
            (Jörg Plate)
Solution:   Use "char_u" always.
Files:      src/integration.c, src/macros.h

Patch 7.4.1417 (after 7.4.1414)
Problem:    Missing appveyor.bat from the distribution.
Solution:   Add it to the list of files.
Files:      Filelist

Patch 7.4.1418
Problem:    job_stop() on MS-Windows does not really stop the job.
Solution:   Make the default to stop the job forcefully. (Ken Takata)
            Make MS-Windows and Unix more similar.
Files:      src/os_win32.c, src/os_unix.c, runtime/doc/eval.txt

Patch 7.4.1419
Problem:    Tests slowed down because of the "not a terminal" warning.
Solution:   Add the --not-a-term command line argument.
Files:      src/main.c, src/testdir/Makefile, src/Make_all.mak,
            src/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_vms.mms,
            runtime/doc/starting.txt

Patch 7.4.1420 (after 7.4.1419)
Problem:    Missing makefile.
Solution:   Type the path correctly.
Files:      src/testdir/Make_all.mak

Patch 7.4.1421
Problem:    May free a channel when a callback may need to be invoked.
Solution:   Keep the channel when refcount is zero.
Files:      src/eval.c, src/channel.c, src/proto/channel.pro

Patch 7.4.1422
Problem:    Error when reading fails uses wrong errno.  Keeping channel open
            after job stops results in test failing.
Solution:   Move the error up.  Add ch_job_killed.
Files:      src/channel.c, src/eval.c, src/structs.h

Patch 7.4.1423
Problem:    Channel test fails on MS-Windows.
Solution:   Do not give an error message when reading fails, assume the other
```

```
            end exited.
Files:      src/channel.c

Patch 7.4.1424
Problem:    Not using --not-a-term when running tests on MS-Windows.
Solution:   Use NO_PLUGIN. (Christian Brabandt)
Files:      src/testdir/Make_dos.mak

Patch 7.4.1425
Problem:    There are still references to MS-DOS support.
Solution:   Remove most of the help txt and install instructions. (Ken Takata)
Files:      src/INSTALLpc.txt, runtime/doc/os_msdos.txt, csdpmi4b.zip,
            Filelist

Patch 7.4.1426
Problem:    The "out-io" option for jobs is not implemented yet.
Solution:   Implement the "buffer" value: append job output to a buffer.
Files:      src/eval.c, src/channel.c, src/structs.h, src/netbeans.c,
            runtime/doc/channel.txt

Patch 7.4.1427
Problem:    Trailing comma in enums is not ANSI C.
Solution:   Remove the trailing commas.
Files:      src/alloc.h, src/gui_mac.c

Patch 7.4.1428
Problem:    Compiler warning for non-virtual destructor.
Solution:   Make it virtual. (Yasuhiro Matsumoto)
Files:      src/gui_dwrite.cpp

Patch 7.4.1429
Problem:    On MS-Windows, when not use renderoptions=type:directx, drawing
            emoji will be broken.
Solution:   Fix usage of unicodepdy. (Yasuhiro Matsumoto)
Files:      src/gui_w32.c

Patch 7.4.1430
Problem:    When encoding JSON, turning NaN and Infinity into null without
            giving an error is not useful.
Solution:   Pass NaN and Infinity on.  If the receiver can't handle them it
            will generate the error.
Files:      src/json.c, src/testdir/test_json.vim, runtime/doc/eval.txt

Patch 7.4.1431
Problem:    Including header files twice.
Solution:   Remove the extra includes.
Files:      src/if_cscope.h

Patch 7.4.1432
Problem:    Typo in button text.
Solution:   Fix the typo. (Dominique Pelle)
Files:      src/gui_gtk.c

Patch 7.4.1433
```

```
Problem:    The Sniff interface is no longer useful, the tool has not been
            available for may years.
Solution:   Delete the Sniff interface and related code.
Files:      src/if_sniff.c, src/if_sniff.h, src/charset.c, src/edit.c,
            src/eval.c, src/ex_cmds2.c, src/ex_docmd.c, src/ex_getln.c,
            src/gui_gtk_x11.c, src/gui_w32.c, src/gui_x11.c, src/normal.c,
            src/os_unix.c, src/os_win32.c, src/term.c, src/ui.c,
            src/version.c, src/ex_cmds.h, src/feature.h, src/keymap.h,
            src/structs.h, src/vim.h, src/Make_mvc.mak, src/Make_vms.mms,
            src/Makefile, src/configure.in, src/auto/configure,
            src/config.h.in, src/config.mk.in, runtime/doc/if_sniff.txt,
            src/config.aap.in, src/main.aap

Patch 7.4.1434
Problem:    JSON encoding doesn't handle surrogate pair.
Solution:   Improve multi-byte handling of JSON. (Yasuhiro Matsumoto)
Files:      src/json.c, src/testdir/test_json.vim

Patch 7.4.1435
Problem:    It is confusing that ch_sendexpr() and ch_sendraw() wait for a
            response.
Solution:   Add ch_evalexpr() and ch_evalraw().
Files:      src/eval.c, runtime/doc/channel.txt, runtime/doc/eval.txt,
            src/testdir/test_channel.vim

Patch 7.4.1436 (after 7.4.1433)
Problem:    Sniff files still referenced in distribution.
Solution:   Remove sniff files from distribution.
Files:      Filelist

Patch 7.4.1437
Problem:    Old system doesn't have isinf() and NAN. (Ben Fritz)
Solution:   Adjust #ifdefs.  Detect isnan() and isinf() functions with
            configure. Use a replacement when missing. (Kazunobu Kuriyama)
Files:      src/eval.c, src/json.c, src/macros.h, src/message.c,
            src/config.h.in, src/configure.in, src/auto/configure

Patch 7.4.1438
Problem:    Can't get buffer number of a channel.
Solution:   Add ch_getbufnr().
Files:      src/eval.c, src/channel.c, src/testdir/test_channel.vim,
            runtime/doc/channel.txt, runtime/doc/eval.txt

Patch 7.4.1439 (after 7.4.1434)
Problem:    Using uninitialized variable.
Solution:   Initialize vc_type.
Files:      src/json.c

Patch 7.4.1440 (after 7.4.1437)
Problem:    Can't build on Windows.
Solution:   Change #ifdefs.  Only define isnan when used.
Files:      src/macros.h, src/eval.c, src/json.c

Patch 7.4.1441
```

```
Problem:    Using empty name instead of no name for channel buffer.
Solution:   Remove the empty name.
Files:      src/channel.c

Patch 7.4.1442
Problem:    MS-Windows: more compilation warnings for destructor.
Solution:   Add "virtual". (Ken Takata)
Files:      src/if_ole.cpp

Patch 7.4.1443
Problem:    Can't build GTK3 with small features.
Solution:   Use gtk_widget_get_window().  Fix typos. (Dominique Pelle)
Files:      src/gui_gtk_x11.c

Patch 7.4.1444
Problem:    Can't build with JSON but without multi-byte.
Solution:   Fix pointer name.
Files:      src/json.c

Patch 7.4.1445
Problem:    Memory corruption when 'encoding' is not utf-8.
Solution:   Convert decoded string later.
Files:      src/json.c

Patch 7.4.1446
Problem:    Crash when using json_decode().
Solution:   Terminate string with a NUL byte.
Files:      src/json.c

Patch 7.4.1447
Problem:    Memory leak when using ch_read(). (Dominique Pelle)
            No log message when stopping a job and a few other situations.
            Too many "Nothing to read" messages.  Channels are not freed.
Solution:   Free the listtv.  Add more log messages. Remove "Nothing to read"
            message.  Remove the channel from the job when its refcount
            becomes zero.
Files:      src/eval.c, src/channel.c

Patch 7.4.1448
Problem:    JSON tests fail if 'encoding' is not utf-8.
Solution:   Force encoding to utf-8.
Files:      src/testdir/test_json.vim

Patch 7.4.1449
Problem:    Build fails with job feature but without channel feature.
Solution:   Add #ifdef.
Files:      src/eval.c

Patch 7.4.1450
Problem:    Json encoding still fails when encoding is not utf-8.
Solution:   Set 'encoding' before :scriptencoding.  Run the json test
            separately to avoid affecting other tests.
Files:      src/testdir/test_json.vim, src/testdir/Make_all.mak,
            src/testdir/test_alot.vim
```

```
Patch 7.4.1451
Problem:    Vim hangs when a channel has a callback but isn't referenced.
Solution:   Have channel_unref() only return TRUE when the channel was
            actually freed.
Files:      src/eval.c, src/channel.c, src/proto/channel.pro

Patch 7.4.1452
Problem:    When a callback adds a syntax item either the redraw doesn't
            happen right away or in the GUI the cursor is in the wrong
            position for a moment. (Jakson Alves de Aquino)
Solution:   Redraw after the callback was invoked.
Files:      src/channel.c

Patch 7.4.1453
Problem:    Missing --not-a-term.
Solution:   Add the argument.
Files:      src/testdir/Make_amiga.mak

Patch 7.4.1454
Problem:    The exit callback test is flaky.
Solution:   Loop to wait for a short time up to a second.
Files:      src/testdir/test_channel.vim

Patch 7.4.1455
Problem:    JSON decoding test for surrogate pairs is in the wrong place.
Solution:   Move the test lines. (Ken Takata)
Files:      src/testdir/test_json.vim

Patch 7.4.1456
Problem:    Test 87 fails with Python 3.5.
Solution:   Work around difference. (Taro Muraoka)
Files:      src/testdir/test87.in

Patch 7.4.1457
Problem:    Opening a channel with select() is not done properly.
Solution:   Also used read-fds. Use getsockopt() to check for errors. (Ozaki
            Kiichi)
Files:      src/channel.c

Patch 7.4.1458
Problem:    When a JSON channel has a callback it may never be cleared.
Solution:   Do not write "DETACH" into a JS or JSON channel.
Files:      src/channel.c

Patch 7.4.1459 (after 7.4.1457)
Problem:    MS-Windows doesn't know socklen_t.
Solution:   Use previous method for WIN32.
Files:      src/channel.c

Patch 7.4.1460
Problem:    Syntax error in rarely used code.
Solution:   Fix the mch_rename() declaration. (Ken Takata)
Files:      src/os_unix.c, src/proto/os_unix.pro
```

Patch 7.4.1461
Problem: When starting job on MS-Windows all parts of the command are put
            in quotes.
Solution: Only use quotes when needed. (Yasuhiro Matsumoto)
Files: src/eval.c

Patch 7.4.1462
Problem: Two more rarely used functions with errors.
Solution: Add proper argument types. (Dominique Pelle)
Files: src/misc2.c, src/termlib.c

Patch 7.4.1463
Problem: Configure doesn't find isinf() and isnan() on some systems.
Solution: Use a configure check that includes math.h.
Files: src/configure.in, src/auto/configure

Patch 7.4.1464
Problem: When the argument of sort() is zero or empty it fails.
Solution: Make zero work as documented. (suggested by Yasuhiro Matsumoto)
Files: src/eval.c, src/testdir/test_sort.vim

Patch 7.4.1465
Problem: Coverity reported possible use of NULL pointer when using buffer
            output with JSON mode.
Solution: Make it actually possible to use JSON mode with a buffer.
            Re-encode the JSON to append it to the buffer.
Files: src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1466
Problem: Coverity reports dead code.
Solution: Remove the two lines.
Files: src/channel.c

Patch 7.4.1467
Problem: Can't build without the float feature.
Solution: Add #ifdefs. (Nick Owens, closes #667)
Files: src/eval.c, src/json.c

Patch 7.4.1468
Problem: Sort test doesn't test with "1" argument.
Solution: Also test ignore-case sorting. (Yasuhiro Matsumoto)
Files: src/testdir/test_sort.vim

Patch 7.4.1469
Problem: Channel test sometimes fails, especially on OS/X. (Kazunobu
            Kuriyama)
Solution: Change the && into ||, call getsockopt() in more situations.
            (Ozaki Kiichi)
Files: src/channel.c

Patch 7.4.1470
Problem: Coverity reports missing restore.
Solution: Move json_encode() call up.

```
Files:      src/channel.c

Patch 7.4.1471
Problem:    Missing out-of-memory check.  And Coverity warning.
Solution:   Bail out when msg is NULL.
Files:      src/channel.c

Patch 7.4.1472
Problem:    Coverity warning for not using return value.
Solution:   Add "(void)".
Files:      src/os_unix.c

Patch 7.4.1473
Problem:    Can't build without the autocommand feature.
Solution:   Add #ifdefs. (Yegappan Lakshmanan)
Files:      src/edit.c, src/main.c, src/syntax.c

Patch 7.4.1474
Problem:    Compiler warnings without the float feature.
Solution:   Move #ifdefs. (John Marriott)
Files:      src/eval.c

Patch 7.4.1475
Problem:    When using hangulinput with utf-8 a CSI character is
            misinterpreted.
Solution:   Convert CSI to K_CSI. (SungHyun Nam)
Files:      src/ui.c

Patch 7.4.1476
Problem:    Function arguments marked as unused while they are not.
Solution:   Remove UNUSED. (Yegappan Lakshmanan)
Files:      src/diff.c, src/eval.c, src/ex_cmds2.c, src/ex_docmd.c,
            src/window.c

Patch 7.4.1477
Problem:    Test_reltime is flaky, it depends on timing.
Solution:   When it fails run it a second time.
Files:      src/testdir/runtest.vim

Patch 7.4.1478
Problem:    ":loadplugin" doesn't take care of ftdetect files.
Solution:   Also load ftdetect scripts when appropriate.
Files:      src/ex_cmds2.c

Patch 7.4.1479
Problem:    No testfor ":loadplugin".
Solution:   Add a test.  Fix how option is being set.
Files:      src/ex_cmds2.c, src/testdir/test_loadplugin.vim,
            src/testdir/Make_all.mak

Patch 7.4.1480
Problem:    Cannot add a pack directory without loading a plugin.
Solution:   Add the :packadd command.
Files:      src/ex_cmds.h, src/ex_cmds2.c, src/proto/ex_cmds2.pro,
```

```
            src/testdir/test_loadplugin.vim, runtime/doc/repeat.txt

Patch 7.4.1481
Problem:    Can't build with small features.
Solution:   Add #ifdef.
Files:      src/ex_cmds2.c

Patch 7.4.1482
Problem:    "timeout" option not supported on ch_eval*().
Solution:   Get and use the timeout option from the argument.
Files:      src/eval.c, src/testdir/test_channel.vim

Patch 7.4.1483
Problem:    A one-time callback is not used for a raw channel.
Solution:   Use a one-time callback when it exists.
Files:      src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel.py

Patch 7.4.1484
Problem:    Channel "err-io" value "out" is not supported.
Solution:   Connect stderr to stdout if wanted.
Files:      src/os_unix.c, src/os_win32.c, src/testdir/test_channel.vim,
            src/testdir/test_channel_pipe.py

Patch 7.4.1485
Problem:    Job input from buffer is not implemented.
Solution:   Implement it.  Add "in-top" and "in-bot" options.
Files:      src/structs.h, src/eval.c, src/channel.c, src/proto/channel.pro,
            src/os_unix.c, src/os_win32.c, src/testdir/test_channel.vim

Patch 7.4.1486
Problem:    ":loadplugin" is not optimal, some people find it confusing.
Solution:   Only use ":packadd" with an optional "!".
Files:      src/ex_cmds.h, src/ex_cmds2.c, src/testdir/test_loadplugin.vim,
            src/testdir/test_packadd.vim, src/testdir/Make_all.mak,
            runtime/doc/repeat.txt

Patch 7.4.1487
Problem:    For WIN32 isinf() is defined as a macro.
Solution:   Define it as an inline function. (ZyX)
Files:      src/macros.h

Patch 7.4.1488 (after 7.4.1475)
Problem:    Not using key when result from hangul_string_convert() is NULL.
Solution:   Fall back to not converted string.
Files:      src/ui.c

Patch 7.4.1489 (after 7.4.1487)
Problem:    "inline" is not supported by old MSVC.
Solution:   use "__inline". (Ken Takata)
Files:      src/macros.h

Patch 7.4.1490
Problem:    Compiler warning for unused function.
```

```
Solution:   Add #ifdef. (Dominique Pelle)
Files:      src/gui_gtk_x11.c

Patch 7.4.1491
Problem:    Visual-block shift breaks multi-byte characters.
Solution:   Compute column differently. (Yasuhiro Matsumoto) Add a test.
Files:      src/ops.c, src/testdir/test_visual.vim, src/testdir/Make_all.mak

Patch 7.4.1492
Problem:    No command line completion for ":packadd".
Solution:   Implement completion. (Hirohito Higashi)
Files:      src/ex_docmd.c, src/ex_getln.c, src/testdir/test_packadd.vim,
            src/vim.h

Patch 7.4.1493
Problem:    Wrong callback invoked for zero-id messages.
Solution:   Don't use the first one-time callback when the sequence number
            doesn't match.
Files:      src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel.py

Patch 7.4.1494
Problem:    clr_history() does not work properly.
Solution:   Increment hisptr. Add a test. (Yegappan Lakshmanan)
Files:      src/ex_getln.c, src/testdir/test_history.vim,
            src/testdir/Make_all.mak

Patch 7.4.1495
Problem:    Compiler warnings when building on Unix with the job feature but
            without the channel feature.
Solution:   Move #ifdefs. (Dominique Pelle)
Files:      src/os_unix.c

Patch 7.4.1496
Problem:    Crash when built with GUI but it's not active. (Dominique Pelle)
Solution:   Check gui.in_use.
Files:      src/channel.c

Patch 7.4.1497
Problem:    Cursor drawing problem with GTK 3.
Solution:   Handle blinking differently. (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 7.4.1498
Problem:    Error for locked item when using json_decode(). (Shougo Matsu)
Solution:   Initialize v_lock.
Files:      src/json.c

Patch 7.4.1499
Problem:    No error message when :packadd does not find anything.
Solution:   Add an error message. (Hirohito Higashi)
Files:      runtime/doc/repeat.txt, src/ex_cmds.h, src/ex_cmds2.c,
            src/globals.h, src/testdir/test_packadd.vim
```

```
Patch 7.4.1500
Problem:    Should_free flag set to FALSE.
Solution:   Set it to TRUE. (Neovim 4415)
Files:      src/ex_eval.c

Patch 7.4.1501
Problem:    Garbage collection with an open channel is not tested.
Solution:   Call garbagecollect() in the test.
Files:      src/testdir/test_channel.vim

Patch 7.4.1502
Problem:    Writing last-but-one line of buffer to a channel isn't implemented
            yet.
Solution:   Implement it.  Fix leaving a swap file behind.
Files:      src/channel.c, src/structs.h, src/memline.c, src/proto/channel.pro

Patch 7.4.1503
Problem:    Crash when using ch_getjob(). (Damien)
Solution:   Check for a NULL job.
Files:      src/eval.c, src/testdir/test_channel.vim

Patch 7.4.1504 (after 7.4.1502)
Problem:    No test for reading last-but-one line.
Solution:   Add a test.
Files:      src/testdir/test_channel.vim

Patch 7.4.1505
Problem:    When channel log is enabled get too many "looking for messages"
            log entries.
Solution:   Only give the message after another message.
Files:      src/channel.c

Patch 7.4.1506
Problem:    Job cannot read from a file.
Solution:   Implement reading from a file for Unix.
Files:      src/eval.c, src/os_unix.c, src/os_win32.c,
            src/testdir/test_channel.vim

Patch 7.4.1507
Problem:    Crash when starting a job fails.
Solution:   Check for the channel to be NULL.  (idea by Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.4.1508
Problem:    Can't build GvimExt with MingW.
Solution:   Adjust the makefile. (Ben Fritz)
Files:      src/GvimExt/Make_ming.mak

Patch 7.4.1509
Problem:    Keeping both a variable for a job and the channel it refers to is
            a hassle.
Solution:   Allow passing the job where a channel is expected. (Damien)
Files:      src/eval.c, src/testdir/test_channel.vim
```

```
Patch 7.4.1510
Problem:    Channel test fails on AppVeyor.
Solution:   Wait longer than 10 msec if needed.
Files:      src/testdir/test_channel.vim

Patch 7.4.1511
Problem:    Statusline highlighting is sometimes wrong.
Solution:   Check for Highlight type. (Christian Brabandt)
Files:      src/buffer.c

Patch 7.4.1512
Problem:    Channel input from file not supported on MS-Windows.
Solution:   Implement it. (Yasuhiro Matsumoto)
Files:      src/os_win32.c, src/testdir/test_channel.vim

Patch 7.4.1513
Problem:    "J" fails if there are not enough lines. (Christian Neukirchen)
Solution:   Reduce the count, only fail on the last line.
Files:      src/normal.c, src/testdir/test_join.vim, src/testdir/test_alot.vim

Patch 7.4.1514
Problem:    Channel output to file not implemented yet.
Solution:   Implement it for Unix.
Files:      src/os_unix.c, src/testdir/test_channel.vim,
            src/testdir/test_channel_pipe.py

Patch 7.4.1515
Problem:    Channel test is a bit flaky.
Solution:   Instead of a fixed sleep time wait until an expression evaluates
            to true.
Files:      src/testdir/test_channel.vim

Patch 7.4.1516
Problem:    Cannot change file permissions.
Solution:   Add setfperm().
Files:      src/eval.c, runtime/doc/eval.txt, src/testdir/test_alot.vim,
            src/testdir/test_file_perm.vim

Patch 7.4.1517
Problem:    Compiler warning with 64bit compiler.
Solution:   Add typecast. (Mike Williams)
Files:      src/channel.c

Patch 7.4.1518
Problem:    Channel with disconnected in/out/err is not supported.
Solution:   Implement it for Unix.
Files:      src/eval.c, src/os_unix.c, src/structs.h,
            src/testdir/test_channel.vim, src/testdir/test_channel_pipe.py

Patch 7.4.1519 (after 7.4.1514)
Problem:    Channel output to file not implemented for MS-Windows.
Solution:   Implement it. (Yasuhiro Matsumoto)
Files:      src/os_win32.c, src/testdir/test_channel.vim
```

Patch 7.4.1520
Problem: Channel test: Waiting for a file to appear doesn't work.
Solution: In waitFor() ignore errors.
Files: src/testdir/test_channel.vim

Patch 7.4.1521 (after 7.4.1516)
Problem: File permission test fails on MS-Windows.
Solution: Expect a different permission.
Files: src/testdir/test_file_perm.vim

Patch 7.4.1522
Problem: Cannot write channel err to a buffer.
Solution: Implement it.
Files: src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1523
Problem: Writing channel to a file fails on MS-Windows.
Solution: Disable it for now.
Files: src/testdir/test_channel.vim

Patch 7.4.1524
Problem: Channel test fails on BSD.
Solution: Break out of the loop when connect() succeeds. (Ozaki Kiichi)
Files: src/channel.c

Patch 7.4.1525
Problem: On a high resolution screen the toolbar icons are too small.
Solution: Add "huge" and "giant" to 'toolbariconsize'. (Brian Gix)
Files: src/gui_gtk_x11.c, src/option.h

Patch 7.4.1526
Problem: Writing to file and not connecting a channel doesn't work for
            MS-Windows.
Solution: Make it work. (Yasuhiro Matsumoto)
Files: src/os_win32.c, src/testdir/test_channel.vim

Patch 7.4.1527
Problem: Channel test is flaky on MS-Windows.
Solution: Limit the select() timeout to 50 msec and try with a new socket if
            it fails.
Files: src/channel.c

Patch 7.4.1528
Problem: Using "ever" for packages is confusing.
Solution: Use "start", as it's related to startup.
Files: src/ex_cmds2.c, runtime/doc/repeat.txt

Patch 7.4.1529
Problem: Specifying buffer number for channel not implemented yet.
Solution: Implement passing a buffer number.
Files: src/structs.h, src/channel.c, src/eval.c,
            src/testdir/test_channel.vim

Patch 7.4.1530

```
Problem:    MS-Windows job_start() closes wrong handle.
Solution:   Close hThread on the process info. (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.1531
Problem:    Compiler warning for uninitialized variable. (Dominique Pelle)
Solution:   Always give the variable a value.
Files:      src/channel.c

Patch 7.4.1532
Problem:    MS-Windows channel leaks file descriptor.
Solution:   Use CreateFile with the right options. (Yasuhiro Matsumoto)
Files:      src/os_win32.c

Patch 7.4.1533
Problem:    Using feedkeys() with an empty string disregards 'x' option.
Solution:   Make 'x' work with an empty string. (Thinca)
Files:      src/eval.c, src/testdir/test_alot.vim,
            src/testdir/test_feedkeys.vim

Patch 7.4.1534
Problem:    Compiler warning for shadowed variable. (Kazunobu Kuriyama)
Solution:   Rename it.
Files:      src/eval.c

Patch 7.4.1535
Problem:    The feedkeys test has a one second delay.
Solution:   Avoid need_wait_return() to delay. (Hirohito Higashi)
Files:      src/eval.c

Patch 7.4.1536
Problem:    Cannot re-use a channel for another job.
Solution:   Add the "channel" option to job_start().
Files:      src/channel.c, src/eval.c, src/structs.h, src/os_unix.c,
            src/os_win32.c, src/proto/channel.pro,
            src/testdir/test_channel.vim

Patch 7.4.1537
Problem:    Too many feature flags for pipes, jobs and channels.
Solution:   Only use FEAT_JOB_CHANNEL.
Files:      src/structs.h, src/feature.h, src/configure.in,
            src/auto/configure, src/config.h.in, src/channel.c, src/eval.c,
            src/gui.c, src/main.c, src/memline.c, src/misc2.c, src/os_mswin.c,
            src/os_unix.c, src/os_win32.c, src/ui.c, src/version.c,
            src/macros.h, src/proto.h, src/vim.h, src/Make_cyg_ming.mak,
            src/Make_bc5.mak, src/Make_mvc.mak

Patch 7.4.1538
Problem:    Selection with the mouse does not work in command line mode.
Solution:   Use cairo functions. (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 7.4.1539
Problem:    Too much code in eval.c.
```

```
Solution:   Move job and channel code to channel.c.
Files:      src/eval.c, src/channel.c, src/proto/channel.pro,
            src/proto/eval.pro

Patch 7.4.1540
Problem:    Channel test is a bit flaky.
Solution:   Increase expected wait time.
Files:      src/testdir/test_channel.vim

Patch 7.4.1541
Problem:    Missing job_info().
Solution:   Implement it.
Files:      src/eval.c, src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, runtime/doc/eval.txt

Patch 7.4.1542
Problem:    job_start() with a list is not tested.
Solution:   Call job_start() with a list.
Files:      src/testdir/test_channel.vim

Patch 7.4.1543
Problem:    Channel log methods are not tested.
Solution:   Log job activity and check it.
Files:      src/testdir/test_channel.vim

Patch 7.4.1544
Problem:    On Win32 escaping the command does not work properly.
Solution:   Reset 'ssl' when escaping the command. (Yasuhiro Matsumoto)
Files:      src/channel.c

Patch 7.4.1545
Problem:    GTK3: horizontal cursor movement in Visual selection not good.
Solution:   Make it work better. (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 7.4.1546
Problem:    Sticky type checking is more annoying than useful.
Solution:   Remove the error for changing a variable type.
Files:      src/eval.c, src/testdir/test_assign.vim,
            src/testdir/test_alot.vim, runtime/doc/eval.txt

Patch 7.4.1547
Problem:    Getting a cterm highlight attribute that is not set results in the
            string "-1".
Solution:   Return an empty string. (Taro Muraoka)
Files:      src/syntax.c, src/testdir/test_alot.vim,
            src/testdir/test_syn_attr.vim

Patch 7.4.1548 (after 7.4.1546)
Problem:    Two tests fail.
Solution:   Adjust the expected error number. Remove check for type.
Files:      src/testdir/test101.ok, src/testdir/test55.in,
            src/testdir/test55.ok
```

```
Patch 7.4.1549 (after 7.4.1547)
Problem:    Test for syntax attributes fails in Win32 GUI.
Solution:   Use an existing font name.
Files:      src/testdir/test_syn_attr.vim

Patch 7.4.1550
Problem:    Cannot load packages early.
Solution:   Add the ":packloadall" command.
Files:      src/ex_cmds.h, src/ex_cmds2.c, src/main.c,
            src/proto/ex_cmds2.pro, src/testdir/test_packadd.vim

Patch 7.4.1551
Problem:    Cannot generate help tags in all doc directories.
Solution:   Make ":helptags ALL" work.
Files:      src/ex_cmds2.c, src/proto/ex_cmds2.pro, src/ex_cmds.c, src/vim.h
            src/testdir/test_packadd.vim

Patch 7.4.1552
Problem:    ":colorscheme" does not use 'packpath'.
Solution:   Also use in "start" and "opt" directories in 'packpath'.
Files:      src/ex_cmds2.c, src/gui.c, src/hardcopy.c, src/os_mswin.c,
            src/spell.c, src/tag.c, src/if_py_both.h, src/vim.h,
            src/digraph.c, src/eval.c, src/ex_docmd.c, src/main.c,
            src/option.c, src/syntax.c, src/testdir/test_packadd.vim

Patch 7.4.1553
Problem:    ":runtime" does not use 'packpath'.
Solution:   Add "what" argument.
Files:      src/ex_cmds2.c, src/vim.h, runtime/doc/repeat.txt,
            src/testdir/test_packadd.vim

Patch 7.4.1554
Problem:    Completion for :colorscheme does not use 'packpath'.
Solution:   Make it work, add a test. (Hirohito Higashi)
Files:      src/ex_getln.c, src/testdir/test_packadd.vim

Patch 7.4.1555
Problem:    List of test targets incomplete.
Solution:   Add newly added tests.
Files:      src/Makefile

Patch 7.4.1556
Problem:    "make install" changes the help tags file, causing it to differ
            from the repository.
Solution:   Move it aside and restore it.
Files:      src/Makefile

Patch 7.4.1557
Problem:    Windows cannot be identified.
Solution:   Add a unique window number to each window and functions to use it.
Files:      src/structs.h, src/window.c, src/eval.c, src/proto/eval.pro,
            src/proto/window.pro, src/testdir/test_window_id.vim,
            src/testdir/Make_all.mak, runtime/doc/eval.txt
```

```
Patch 7.4.1558
Problem:    It is not easy to find out what windows display a buffer.
Solution:   Add win_findbuf().
Files:      src/eval.c, src/window.c, src/proto/window.pro,
            src/testdir/test_window_id.vim, runtime/doc/eval.txt

Patch 7.4.1559
Problem:    Passing cookie to a callback is clumsy.
Solution:   Change function() to take arguments and return a partial.
Files:      src/structs.h, src/channel.c, src/eval.c, src/if_python.c,
            src/if_python3.c, src/if_py_both.h, src/json.c,
            src/proto/eval.pro, src/testdir/test_partial.vim,
            src/testdir/test_alot.vim, runtime/doc/eval.txt

Patch 7.4.1560
Problem:    Dict options with a dash are more difficult to use.
Solution:   Use an underscore, so that dict.err_io can be used.
Files:      src/channel.c, src/structs.h, src/testdir/test_channel.vim,
            runtime/doc/channel.txt

Patch 7.4.1561 (after 7.4.1559)
Problem:    Missing update to proto file.
Solution:   Change the proto file.
Files:      src/proto/channel.pro

Patch 7.4.1562
Problem:    ":helptags ALL" crashes. (Lcd)
Solution:   Don't free twice.
Files:      src/ex_cmds.c

Patch 7.4.1563
Problem:    Partial test fails on windows.
Solution:   Return 1 or -1 from compare function.
Files:      src/testdir/test_partial.vim

Patch 7.4.1564
Problem:    An empty list in function() causes an error.
Solution:   Handle an empty list like there is no list of arguments.
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1565
Problem:    Crash when assert_equal() runs into a NULL string.
Solution:   Check for NULL. (Dominique) Add a test.
Files:      src/eval.c, src/testdir/test_assert.vim

Patch 7.4.1566
Problem:    Compiler warning for shadowed variable. (Kazunobu Kuriyama)
Solution:   Remove the inner one.
Files:      src/eval.c

Patch 7.4.1567
Problem:    Crash in assert_fails().
Solution:   Check for NULL. (Dominique Pelle)  Add a test.
Files:      src/eval.c, src/testdir/test_assert.vim
```

```
Patch 7.4.1568
Problem:    Using CTRL-] in help on option in parentheses doesn't work.
Solution:   Skip the "(" in "('". (Hirohito Higashi)
Files:      src/ex_cmds.c

Patch 7.4.1569
Problem:    Using old style tests for quickfix.
Solution:   Change them to new style tests. (Yegappan Lakshmanan)
Files:      src/testdir/Make_all.mak, src/testdir/test106.in,
            src/testdir/test106.ok, src/testdir/test_qf_title.in,
            src/testdir/test_qf_title.ok, src/testdir/test_quickfix.vim

Patch 7.4.1570
Problem:    There is no way to avoid the message when editing a file.
Solution:   Add the "F" flag to 'shortmess'. (Shougo Matsu, closes #686)
Files:      runtime/doc/options.txt, src/buffer.c, src/ex_cmds.c,
            src/option.h

Patch 7.4.1571
Problem:    No test for ":help".
Solution:   Add a test for what 7.4.1568 fixed. (Hirohito Higashi)
Files:      src/testdir/test_alot.vim, src/testdir/test_help_tagjump.vim

Patch 7.4.1572
Problem:    Setting 'compatible' in test influences following tests.
Solution:   Turn 'compatible' off again.
Files:      src/testdir/test_backspace_opt.vim

Patch 7.4.1573
Problem:    Tests get stuck at the more prompt.
Solution:   Move the backspace test out of test_alot.
Files:      src/testdir/test_alot.vim, src/testdir/Make_all.mak

Patch 7.4.1574
Problem:    ":undo 0" does not work. (Florent Fayolle)
Solution:   Make it undo all the way. (closes #688)
Files:      src/undo.c, src/testdir/test_undolevels.vim,
            src/testdir/test_ex_undo.vim, src/testdir/test_alot.vim

Patch 7.4.1575
Problem:    Using wrong size for struct.
Solution:   Use the size for wide API. (Ken Takata)
Files:      src/gui_w32.c

Patch 7.4.1576
Problem:    Write error of viminfo file is not handled properly. (Christian
            Neukirchen)
Solution:   Check the return value of fclose(). (closes #682)
Files:      src/ex_cmds.c

Patch 7.4.1577
Problem:    Cannot pass "dict.Myfunc" around as a partial.
Solution:   Create a partial when expected.
```

```
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1578
Problem:    There is no way to invoke a function later or periodically.
Solution:   Add timer support.
Files:      src/eval.c, src/ex_cmds2.c, src/screen.c, src/ex_docmd.c,
            src/feature.h, src/gui.c, src/proto/eval.pro,
            src/proto/ex_cmds2.pro, src/proto/screen.pro, src/structs.h,
            src/version.c, src/testdir/test_alot.vim,
            src/testdir/test_timers.vim, runtime/doc/eval.txt

Patch 7.4.1579 (after 7.4.1578)
Problem:    Missing changes in channel.c
Solution:   Include the changes.
Files:      src/channel.c

Patch 7.4.1580
Problem:    Crash when using function reference. (Luchr)
Solution:   Set initial refcount. (Ken Takata, closes #690)
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1581
Problem:    Using ":call dict.func()" where the function is a partial does
            not work.  Using "dict.func()" where the function does not take a
            Dictionary does not work.
Solution:   Handle partial properly in ":call". (Yasuhiro Matsumoto)
Files:      src/eval.c, src/testdir/test_partial.vim, src/testdir/test55.ok

Patch 7.4.1582
Problem:    Get E923 when using function(dict.func, [], dict). (Kent Sibilev)
            Storing a function with a dict in a variable drops the dict if the
            function is script-local.
Solution:   Translate the function name.  Use dict arg if present.
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1583
Problem:    Warning for uninitialized variable.
Solution:   Initialize it. (Dominique)
Files:      src/ex_cmds2.c

Patch 7.4.1584
Problem:    Timers don't work for Win32 console.
Solution:   Add check_due_timer() in WaitForChar().
Files:      src/os_win32.c

Patch 7.4.1585
Problem:    Partial is not recognized everywhere.
Solution:   Check for partial in trans_function_name(). (Yasuhiro Matsumoto)
            Add a test.
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1586
Problem:    Nesting partials doesn't work.
Solution:   Append arguments. (Ken Takata)
```

```
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1587
Problem:    Compiler warnings with 64 bit compiler.
Solution:   Add type casts. (Mike Williams)
Files:      src/ex_cmds2.c

Patch 7.4.1588
Problem:    Old style test for quickfix.
Solution:   Turn test 96 into a new style test.
Files:      src/testdir/Make_all.mak, src/testdir/test96.in,
            src/testdir/test96.ok, src/testdir/test_quickfix.vim

Patch 7.4.1589
Problem:    Combining dict and args with partial doesn't always work.
Solution:   Use the arguments from the partial.
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1590
Problem:    Warning for shadowed variable. (Christian Brabandt)
Solution:   Move the variable into a local block.
Files:      src/eval.c

Patch 7.4.1591
Problem:    The quickfix title is truncated.
Solution:   Save the command before it is truncated. (Anton Lindqvist)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1592
Problem:    Quickfix code using memory after being freed. (Dominique Pelle)
Solution:   Detect that the window was closed. (Hirohito Higashi)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1593
Problem:    Using channel timeout instead of request timeout. (Coverity)
Solution:   Remove the extra assignment.
Files:      src/channel.c

Patch 7.4.1594
Problem:    Timers don't work on Unix.
Solution:   Add missing code.
Files:      src/os_unix.c

Patch 7.4.1595
Problem:    Not checking for failed open(). (Coverity)
Solution:   Check file descriptor not being negative.
Files:      src/os_unix.c

Patch 7.4.1596
Problem:    Memory leak. (Coverity)
Solution:   Free the pattern.
Files:      src/ex_cmds2.c

Patch 7.4.1597
```

```
Problem:    Memory leak when out of memory. (Coverity)
Solution:   Free the name.
Files:      src/eval.c

Patch 7.4.1598
Problem:    When starting the GUI fails a swap file is left behind. (Joerg
            Plate)
Solution:   Preserve files before exiting. (closes #692)
Files:      src/main.c, src/gui.c

Patch 7.4.1599
Problem:    No link to Coverity.
Solution:   Add Coverity badge in README.
Files:      README.md

Patch 7.4.1600
Problem:    libs directory is not useful.
Solution:   Remove arp.library, it was only for very old Amiga versions.
Files:      libs/arp.library, Filelist

Patch 7.4.1601
Problem:    README files take a lot of space in the top directory.
Solution:   Move most of them to "READMEdir".
Files:      Filelist, Makefile, README.txt.info, README_ami.txt,
            README_ami.txt.info, README_amibin.txt, README_amibin.txt.info,
            README_amisrc.txt, README_amisrc.txt.info, README_bindos.txt,
            README_dos.txt, README_extra.txt, README_mac.txt, README_ole.txt,
            README_os2.txt, README_os390.txt, README_src.txt,
            README_srcdos.txt, README_unix.txt, README_vms.txt,
            README_w32s.txt, READMEdir/README.txt.info,
            READMEdir/README_ami.txt, READMEdir/README_ami.txt.info,
            READMEdir/README_amibin.txt, READMEdir/README_amibin.txt.info,
            READMEdir/README_amisrc.txt, READMEdir/README_amisrc.txt.info,
            READMEdir/README_bindos.txt, READMEdir/README_dos.txt,
            READMEdir/README_extra.txt, READMEdir/README_mac.txt,
            READMEdir/README_ole.txt, READMEdir/README_os2.txt,
            READMEdir/README_os390.txt, READMEdir/README_src.txt,
            READMEdir/README_srcdos.txt, READMEdir/README_unix.txt,
            READMEdir/README_vms.txt, READMEdir/README_w32s.txt,

Patch 7.4.1602
Problem:    Info files take space in the top directory.
Solution:   Move them to "READMEdir".
Files:      Filelist, src.info, Contents.info, runtime.info, vimdir.info,
            Vim.info, Xxd.info, READMEdir/src.info, READMEdir/Contents.info,
            READMEdir/runtime.info, READMEdir/vimdir.info, READMEdir/Vim.info,
            READMEdir/Xxd.info

Patch 7.4.1603
Problem:    Timer with an ":echo" command messes up display.
Solution:   Redraw depending on the mode. (Hirohito Higashi)  Avoid the more
            prompt being used recursively.
Files:      src/screen.c, src/message.c
```

```
Patch 7.4.1604
Problem:    Although emoji characters are ambiguous width, best is to treat
            them as full width.
Solution:   Update the Unicode character tables. Add the 'emoji' options.
            (Yasuhiro Matsumoto)
Files:      runtime/doc/options.txt, runtime/optwin.vim,
            runtime/tools/unicode.vim, src/mbyte.c, src/option.c, src/option.h

Patch 7.4.1605
Problem:    Catching exception that won't be thrown.
Solution:   Remove try/catch.
Files:      src/testdir/test55.in

Patch 7.4.1606
Problem:    Having type() handle a Funcref that is or isn't a partial
            differently causes problems for existing scripts.
Solution:   Make type() return the same value. (Thinca)
Files:      src/eval.c, src/testdir/test_viml.vim

Patch 7.4.1607
Problem:    Comparing a function that exists on two dicts is not backwards
            compatible. (Thinca)
Solution:   Only compare the function, not what the partial adds.
Files:      src/eval.c, src/testdir/test_alot.vim, src/testdir/test_expr.vim

Patch 7.4.1608
Problem:    string() doesn't handle a partial.
Solution:   Make a string from a partial.
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1609
Problem:    Contents file is only for Amiga distro.
Solution:   Move it to "README dir".  Update some info.
Files:      Filelist, Contents, README dir/Contents

Patch 7.4.1610
Problem:    Compiler warnings for non-virtual destructor.
Solution:   Mark the classes final. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/gui_dwrite.cpp, src/if_ole.cpp

Patch 7.4.1611
Problem:    The versplit feature makes the code unnecessary complicated.
Solution:   Remove FEAT_VERTSPLIT, always support vertical splits when
            FEAT_WINDOWS is defined.
Files:      src/buffer.c, src/charset.c, src/eval.c, src/ex_cmds.c,
            src/ex_docmd.c, src/ex_getln.c, src/gui.c, src/if_lua.c,
            src/if_mzsch.c, src/if_ruby.c, src/main.c, src/misc1.c,
            src/misc2.c, src/move.c, src/normal.c, src/option.c,
            src/quickfix.c, src/screen.c, src/syntax.c, src/term.c, src/ui.c,
            src/window.c, src/globals.h, src/gui.h, src/if_py_both.h,
            src/option.h, src/structs.h, src/term.h
            src/feature.h, src/vim.h, src/version.c

Patch 7.4.1612 (after 7.4.1611)
```

```
Problem:    Can't build with small features.
Solution:   Move code and #ifdefs.
Files:      src/ex_getln.c

Patch 7.4.1613 (after 7.4.1612)
Problem:    Still can't build with small features.
Solution:   Adjust #ifdefs.
Files:      src/ex_getln.c

Patch 7.4.1614
Problem:    Still quickfix test in old style.
Solution:   Turn test 10 into a new style test.
Files:      src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/main.aap, src/testdir/test10.in,
            src/testdir/test10.ok, src/testdir/test_quickfix.vim,
            src/testdir/test10a.in, src/testdir/test10a.ok

Patch 7.4.1615
Problem:    Build fails with tiny features.
Solution:   Adjust #ifdefs.
Files:      src/normal.c, src/window.c

Patch 7.4.1616
Problem:    Malformed channel request causes a hang.
Solution:   Drop malformed message. (Damien)
Files:      src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel.py

Patch 7.4.1617
Problem:    When a JSON message is split it isn't decoded.
Solution:   Wait a short time for the rest of the message to arrive.
Files:      src/channel.c, src/json.c, src/structs.h,
            src/testdir/test_channel.vim, src/testdir/test_channel.py

Patch 7.4.1618
Problem:    Starting job with output to buffer changes options in the current
            buffer.
Solution:   Set "curbuf" earlier. (Yasuhiro Matsumoto)
Files:      src/channel.c

Patch 7.4.1619
Problem:    When 'fileformats' is set in the vimrc it applies to new buffers
            but not the initial buffer.
Solution:   Set 'fileformat' when starting up. (Mike Williams)
Files:      src/option.c

Patch 7.4.1620
Problem:    Emoji characters are not considered as a kind of word character.
Solution:   Give emoji characters a word class number. (Yasuhiro Matsumoto)
Files:      src/mbyte.c

Patch 7.4.1621
Problem:    Channel test doesn't work with Python 2.6.
Solution:   Add number in formatting placeholder. (Wiredool)
```

```
Files:      src/testdir/test_channel.py

Patch 7.4.1622
Problem:    Channel demo doesn't work with Python 2.6.
Solution:   Add number in formatting placeholder
Files:      runtime/tools/demoserver.py

Patch 7.4.1623
Problem:    All Channels share the message ID, it keeps getting bigger.
Solution:   Use a message ID per channel.
Files:      src/channel.c, src/proto/channel.pro, src/structs.h

Patch 7.4.1624
Problem:    Can't get info about a channel.
Solution:   Add ch_info().
Files:      src/eval.c, src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, runtime/doc/eval.txt

Patch 7.4.1625
Problem:    Trying to close file descriptor that isn't open.
Solution:   Check for negative number.
Files:      src/os_unix.c

Patch 7.4.1626 (after 7.4.1624)
Problem:    Missing changes to structs.
Solution:   Include the changes.
Files:      src/structs.h

Patch 7.4.1627
Problem:    Channel out_cb and err_cb are not tested.
Solution:   Add a test.
Files:      src/testdir/test_channel.vim

Patch 7.4.1628
Problem:    64-bit Compiler warning.
Solution:   Change type of variable. (Mike Williams)
Files:      src/channel.c

Patch 7.4.1629
Problem:    Handling emoji characters as full width has problems with
            backwards compatibility.
Solution:   Remove ambiguous and double width characters from the emoji table.
            Use a separate table for the character class.
            (partly by Yasuhiro Matsumoto)
Files:      runtime/tools/unicode.vim, src/mbyte.c

Patch 7.4.1630
Problem:    Unicode table for double width is outdated.
Solution:   Update to the latest Unicode standard.
Files:      src/mbyte.c

Patch 7.4.1631
Problem:    Compiler doesn't understand switch on all enum values. (Tony
            Mechelynck)
```

```
Solution:   Initialize variable.
Files:      src/channel.c

Patch 7.4.1632
Problem:    List of test targets is outdated.
Solution:   Update to current list of test targets.
Files:      src/Makefile

Patch 7.4.1633
Problem:    If the help tags file was removed "make install" fails. (Tony
            Mechelynck)
Solution:   Only try moving the file if it exists.
Files:      src/Makefile

Patch 7.4.1634
Problem:    Vertical movement after CTRL-A ends up in the wrong column.
            (Urtica Dioica)
Solution:   Set curswant when appropriate. (Hirohito Higashi)
Files:      src/ops.c, src/testdir/test_increment.vim

Patch 7.4.1635
Problem:    Channel test is a bit flaky.
Solution:   Remove 'DETACH' if it's there.
Files:      src/testdir/test_channel.vim

Patch 7.4.1636
Problem:    When 'F' is in 'shortmess' the prompt for the encryption key isn't
            displayed. (Toothpik)
Solution:   Reset msg_silent.
Files:      src/ex_getln.c

Patch 7.4.1637
Problem:    Can't build with older MinGW compiler.
Solution:   Change option from c++11 to gnu++11. (Ken Takata)
Files:      src/Make_cyg_ming.mak

Patch 7.4.1638
Problem:    When binding a function to a dict the reference count is wrong.
Solution:   Decrement dict reference count, only reference the function when
            actually making a copy. (Ken Takata)
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1639
Problem:    Invoking garbage collection may cause a double free.
Solution:   Don't free the dict in a partial when recursive is FALSE.
Files:      src/eval.c

Patch 7.4.1640
Problem:    Crash when an autocommand changes a quickfix list. (Dominique)
Solution:   Check whether an entry is still valid. (Yegappan Lakshmanan,
            Hirohito Higashi)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1641
```

```
Problem:    Using unterminated string.
Solution:   Add NUL before calling vim_strsave_shellescape(). (James McCoy)
Files:      src/eval.c, src/testdir/test105.in, src/testdir/test105.ok

Patch 7.4.1642
Problem:    Handling emoji characters as full width has problems with
            backwards compatibility.
Solution:   Only put characters in the 1f000 range in the emoji table.
Files:      runtime/tools/unicode.vim, src/mbyte.c

Patch 7.4.1643 (after 7.4.1641)
Problem:    Terminating file name has side effects.
Solution:   Restore the character. (mostly by James McCoy, closes #713)
Files:      src/eval.c, src/testdir/test105.in, src/testdir/test105.ok

Patch 7.4.1644
Problem:    Using string() on a partial that exists in the dictionary it binds
            results in an error. (Nikolai Pavlov)
Solution:   Make string() not fail on a recursively nested structure. (Ken
            Takata)
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1645
Problem:    When a dict contains a partial it can't be redefined as a
            function. (Nikolai Pavlov)
Solution:   Remove the partial when overwriting with a function.
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1646
Problem:    Using Python vim.bindeval() on a partial doesn't work. (Nikolai
            Pavlov)
Solution:   Add VAR_PARTIAL support in Python.
Files:      src/if_py_both.h, src/testdir/test_partial.vim

Patch 7.4.1647
Problem:    Using freed memory after setqflist() and ":caddbuffer".  (Dominique)
Solution:   Set qf_ptr when adding the first item to the quickfix list.
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1648
Problem:    Compiler has a problem copying a string into di_key[]. (Yegappan
            Lakshmanan)
Solution:   Add dictitem16_T.
Files:      src/structs.h, src/eval.c

Patch 7.4.1649
Problem:    The matchit plugin needs to be copied to be used.
Solution:   Put the matchit plugin in an optional package.
Files:      Filelist, runtime/macros/matchit.vim, runtime/macros/matchit.txt,
            runtime/macros/README.txt, src/Makefile,
            runtime/pack/dist/opt/matchit/plugin/matchit.vim,
            runtime/pack/dist/opt/matchit/doc/matchit.txt,
            runtime/pack/dist/opt/matchit/doc/tags,
            runtime/doc/usr_05.txt, runtime/doc/usr_toc.txt
```

Patch 7.4.1650
Problem: Quickfix test fails.
Solution: Accept any number of matches.
Files: src/testdir/test_quickfix.vim

Patch 7.4.1651
Problem: Some dead (MSDOS) code remains.
Solution: Remove the unused lines. (Ken Takata)
Files: src/misc1.c

Patch 7.4.1652
Problem: Old style test for fnamemodify().
Solution: Turn it into a new style test.
Files: src/testdir/test105.in, src/testdir/test105.ok,
            src/testdir/test_fnamemodify.vim, src/testdir/test_alot.vim,
            src/testdir/Make_all.mak

Patch 7.4.1653 (after 7.4.1649)
Problem: Users who loaded matchit.vim manually have to change their
            startup. (Gary Johnson)
Solution: Add a file in the old location that loads the package.
Files: runtime/macros/matchit.vim, Filelist

Patch 7.4.1654
Problem: Crash when using expand('%:S') in a buffer without a name.
Solution: Don't set a NUL. (James McCoy, closes #714)
Files: src/eval.c, src/testdir/test_fnamemodify.vim

Patch 7.4.1655
Problem: remote_expr() hangs. (Ramel)
Solution: Check for messages in the waiting loop.
Files: src/if_xcmdsrv.c

Patch 7.4.1656
Problem: Crash when using partial with a timer.
Solution: Increment partial reference count. (Hirohito Higashi)
Files: src/eval.c, src/testdir/test_timers.vim

Patch 7.4.1657
Problem: On Unix in a terminal: channel messages are not handled right away.
            (Jackson Alves de Aquino)
Solution: Break the loop for timers when something was received.
Files: src/os_unix.c

Patch 7.4.1658
Problem: A plugin does not know when VimEnter autocommands were already
            triggered.
Solution: Add the v:vim_did_enter variable.
Files: src/eval.c, src/main.c, src/vim.h, src/testdir/test_autocmd.vim,
            src/testdir/test_alot.vim, runtime/doc/autocmd.txt,
            runtime/doc/eval.txt

Patch 7.4.1659 (after 7.4.1657)

```
Problem:    Compiler warning for argument type. (Manuel Ortega)
Solution:   Remove "&".
Files:      src/os_unix.c

Patch 7.4.1660
Problem:    has('patch-7.4.1') doesn't work.
Solution:   Fix off-by-one error. (Thinca)
Files:      src/eval.c, src/testdir/test_expr.vim, src/testdir/test60.in,
            src/testdir/test60.ok

Patch 7.4.1661
Problem:    No test for special characters in channel eval command.
Solution:   Testing sending and receiving text with special characters.
Files:      src/testdir/test_channel.vim, src/testdir/test_channel.py

Patch 7.4.1662
Problem:    No test for an invalid Ex command on a channel.
Solution:   Test handling an invalid command gracefully.  Avoid getting an
            error message, do write it to the channel log.
Files:      src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel.py

Patch 7.4.1663
Problem:    In tests it's often useful to check if a pattern matches.
Solution:   Add assert_match().
Files:      src/eval.c, src/testdir/test_assert.vim,
            src/testdir/test_channel.vim, runtime/doc/eval.txt

Patch 7.4.1664
Problem:    Crash in :cgetexpr.
Solution:   Check for NULL pointer. (Dominique) Add a test.
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1665
Problem:    Crash when calling job_start() with a NULL string. (Dominique)
Solution:   Check for an invalid argument.
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1666
Problem:    When reading JSON from a channel all readahead is used.
Solution:   Use the fill function to reduce overhead.
Files:      src/channel.c, src/json.c, src/structs.h

Patch 7.4.1667
Problem:    Win32: waiting on a pipe with fixed sleep time.
Solution:   Start with a short delay and increase it when looping.
Files:      src/channel.c

Patch 7.4.1668
Problem:    channel_get_all() does multiple allocations.
Solution:   Compute the size and allocate once.
Files:      src/channel.c

Patch 7.4.1669
```

```
Problem:    When writing buffer lines to a pipe Vim may block.
Solution:   Avoid blocking, write more lines later.
Files:      src/channel.c, src/misc2.c, src/os_unix.c, src/structs.h,
            src/vim.h, src/proto/channel.pro, src/testdir/test_channel.vim

Patch 7.4.1670
Problem:    Completion doesn't work well for a variable containing "#".
Solution:   Recognize the "#". (Watiko)
Files:      src/eval.c

Patch 7.4.1671
Problem:    When help exists in multiple languages, adding @ab while "ab" is
            the default help language is unnecessary.
Solution:   Leave out "@ab" when not needed. (Ken Takata)
Files:      src/ex_getln.c

Patch 7.4.1672
Problem:    The Dvorak support is a bit difficult to install.
Solution:   Turn it into an optional package.
Files:      runtime/macros/dvorak, runtime/macros/README.txt,
            runtime/pack/dist/opt/dvorak/plugin/dvorak.vim,
            runtime/pack/dist/opt/dvorak/dvorak/enable.vim,
            runtime/pack/dist/opt/dvorak/dvorak/disable.vim

Patch 7.4.1673
Problem:    The justify plugin has to be copied or sourced to be used.
Solution:   Turn it into a package.
Files:      runtime/macros/justify.vim, runtime/macros/README.txt,
            runtime/pack/dist/opt/justify/plugin/justify.vim, Filelist

Patch 7.4.1674
Problem:    The editexisting plugin has to be copied or sourced to be used.
Solution:   Turn it into a package.
Files:      runtime/macros/editexisting.vim, runtime/macros/README.txt,
            runtime/pack/dist/opt/editexisting/plugin/editexisting.vim,
            Filelist

Patch 7.4.1675
Problem:    The swapmous plugin has to be copied or sourced to be used.
Solution:   Turn it into the swapmouse package.
Files:      runtime/macros/swapmous.vim, runtime/macros/README.txt,
            runtime/pack/dist/opt/swapmouse/plugin/swapmouse.vim, Filelist

Patch 7.4.1676
Problem:    The shellmenu plugin has to be copied or sourced to be used.
Solution:   Turn it into a package.
Files:      runtime/macros/shellmenu.vim, runtime/macros/README.txt,
            runtime/pack/dist/opt/shellmenu/plugin/shellmenu.vim, Filelist

Patch 7.4.1677
Problem:    A reference to the removed file_select plugin remains.
Solution:   Remove it.
Files:      runtime/macros/README.txt
```

```
Patch 7.4.1678
Problem:    Warning for unused argument.
Solution:   Add UNUSED. (Dominique Pelle)
Files:      src/if_mzsch.c

Patch 7.4.1679
Problem:    Coverity: copying value of v_lock without initializing it.
Solution:   Init v_lock in rettv_list_alloc() and rettv_dict_alloc().
Files:      src/eval.c

Patch 7.4.1680
Problem:    Coverity warns for not checking name length (false positive).
Solution:   Only copy the characters we know are there.
Files:      src/channel.c

Patch 7.4.1681
Problem:    Coverity warns for fixed size buffer length (false positive).
Solution:   Add a check for the name length.
Files:      src/eval.c

Patch 7.4.1682
Problem:    Coverity: no check for NULL.
Solution:   Add check for invalid argument to assert_match().
Files:      src/eval.c

Patch 7.4.1683
Problem:    Generated .bat files do not support --nofork.
Solution:   Add check for --nofork.  Also add "setlocal". (Kevin Cantú,
            closes #659)
Files:      src/dosinst.c

Patch 7.4.1684
Problem:    README text is slightly outdated.
Solution:   Mention the README_dir directory.
Files:      README.md, README.txt

Patch 7.4.1685
Problem:    There is no easy way to get all the information about a match.
Solution:   Add matchstrpos(). (Ozaki Kiichi)
Files:      runtime/doc/eval.txt, runtime/doc/usr_41.txt, src/eval.c,
            src/testdir/test_alot.vim, src/testdir/test_matchstrpos.vim

Patch 7.4.1686
Problem:    When running tests $HOME/.viminfo is written. (James McCoy)
Solution:   Add 'nviminfo' to the 'viminfo' option. (closes #722)
Files:      src/testdir/test_backspace_opt.vim, src/testdir/test_viminfo.vim,
            src/testdir/runtest.vim.

Patch 7.4.1687
Problem:    The channel close_cb option does not work.
Solution:   Use jo_close_partial instead of jo_err_partial. (Damien)
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1688
```

```
Problem:    MzScheme does not support partial.
Solution:   Add minimal partial support. (Ken Takata)
Files:      src/if_mzsch.c

Patch 7.4.1689
Problem:    Ruby interface has inconsistent coding style.
Solution:   Fix the coding style. (Ken Takata)
Files:      src/if_ruby.c

Patch 7.4.1690
Problem:    Can't compile with the conceal feature but without multi-byte.
Solution:   Adjust #ifdef. (Owen Leibman)
Files:      src/eval.c, src/window.c

Patch 7.4.1691
Problem:    When switching to a new buffer and an autocommand applies syntax
            highlighting an ml_get error may occur.
Solution:   Check "syn_buf" against the buffer in the window. (Alexander von
            Buddenbrock, closes #676)
Files:      src/syntax.c

Patch 7.4.1692
Problem:    feedkeys('i', 'x') gets stuck, waits for a character to be typed.
Solution:   Behave like ":normal". (Yasuhiro Matsumoto)
Files:      src/eval.c, src/testdir/test_feedkeys.vim

Patch 7.4.1693
Problem:    Building the Perl interface gives compiler warnings.
Solution:   Remove a pragma. Add noreturn attributes. (Damien)
Files:      src/if_perl.xs

Patch 7.4.1694
Problem:    Win32 gvim doesn't work with "dvorakj" input method.
Solution:   Wait for QS_ALLINPUT instead of QS_ALLEVENTS. (Yukihiro Nakadaira)
Files:      src/gui_w32.c

Patch 7.4.1695
Problem:    ":syn reset" clears the effect ":syn iskeyword". (James McCoy)
Solution:   Remove clearing the syntax keywords.
Files:      src/syntax.c

Patch 7.4.1696
Problem:    When using :stopinsert in a silent mapping the "INSERT" message
            isn't cleared. (Coacher)
Solution:   Always clear the message. (Christian Brabandt, closes #718)
Files:      src/ex_docmd.c, src/proto/screen.pro, src/screen.c

Patch 7.4.1697
Problem:    Display problems when the 'ambiwidth' and 'emoji' options are not
            set properly or the terminal doesn't behave as expected.
Solution:   After drawing an ambiguous width character always position the
            cursor.
Files:      src/mbyte.c, src/screen.c, src/proto/mbyte.pro
```

```
Patch 7.4.1698
Problem:    Two tests fail when running tests with MinGW. (Michael Soyka)
Solution:   Convert test_getcwd.ok test_wordcount.ok to unix fileformat.
Files:      src/testdir/Make_ming.mak

Patch 7.4.1699
Problem:    :packadd does not work the same when used early or late.
Solution:   Always load plugins matching "plugin/**/*.vim".
Files:      src/ex_cmds2.c, src/testdir/test_packadd.vim

Patch 7.4.1700
Problem:    Equivalence classes are not properly tested.
Solution:   Add tests for multi-byte and latin1. Fix an error. (Owen Leibman)
Files:      src/regexp.c, src/testdir/Make_all.mak,
            src/testdir/test_alot_latin.vim, src/testdir/test_alot_utf8.vim,
            src/testdir/test_regexp_latin.vim,
            src/testdir/test_regexp_utf8.vim

Patch 7.4.1701
Problem:    Equivalence classes still tested in old style tests.
Solution:   Remove the duplicate.
Files:      src/testdir/test44.in, src/testdir/test44.ok,
            src/testdir/test99.in, src/testdir/test99.ok

Patch 7.4.1702
Problem:    Using freed memory when parsing 'printoptions' fails.
Solution:   Save the old options and restore them in case of an error.
            (Dominique)
Files:      src/hardcopy.c, src/testdir/test_hardcopy.vim

Patch 7.4.1703
Problem:    Can't assert for not equal and not matching.
Solution:   Add assert_notmatch() and assert_notequal().
Files:      src/eval.c, runtime/doc/eval.txt, src/testdir/test_assert.vim

Patch 7.4.1704
Problem:    Using freed memory with "wincmd p". (Dominique Pelle)
Solution:   Also clear "prevwin" in other tab pages.
Files:      src/window.c

Patch 7.4.1705
Problem:    The 'guifont' option does not allow for a quality setting.
Solution:   Add the "q" item, supported on MS-Windows. (Yasuhiro Matsumoto)
Files:      runtime/doc/options.txt, src/gui_w32.c, src/os_mswin.c,
            src/proto/os_mswin.pro

Patch 7.4.1706
Problem:    Old style function declaration breaks build.
Solution:   Remove __ARGS().
Files:      src/proto/os_mswin.pro

Patch 7.4.1707
Problem:    Cannot use empty dictionary key, even though it can be useful.
Solution:   Allow using an empty dictionary key.
```

```
Files:      src/hashtab.c, src/eval.c, src/testdir/test_expr.vim

Patch 7.4.1708
Problem:    New regexp engine does not work properly with EBCDIC.
Solution:   Define equivalence class characters. (Owen Leibman)
Files:      src/regexp_nfa.c

Patch 7.4.1709
Problem:    Mistake in #ifdef.
Solution:   Change PROOF_QUALITY to DRAFT_QUALITY. (Ken Takata)
Files:      src/os_mswin.c

Patch 7.4.1710
Problem:    Not all output of an external command is read.
Solution:   Avoid timing out when the process has exited. (closes #681)
Files:      src/os_unix.c

Patch 7.4.1711
Problem:    When using try/catch in 'statusline' it is still considered an
            error and the status line will be disabled.
Solution:   Check did_emsg instead of called_emsg. (haya14busa, closes #729)
Files:      src/screen.c, src/testdir/test_statusline.vim,
            src/testdir/test_alot.vim

Patch 7.4.1712
Problem:    For plugins in packages, plugin authors need to take care of all
            dependencies.
Solution:   When loading "start" packages and for :packloadall, first add all
            directories to 'runtimepath' before sourcing plugins.
Files:      src/ex_cmds2.c, src/testdir/test_packadd.vim

Patch 7.4.1713
Problem:    GTK GUI doesn't work on Wayland.
Solution:   Specify that only the X11 backend is allowed. (Simon McVittie)
Files:      src/gui_gtk_x11.c

Patch 7.4.1714
Problem:    Non-GUI specific settings in the gvimrc_example file.
Solution:   Move some settings to the vimrc_example file.  Remove setting
            'hlsearch' again. (suggested by Hirohito Higashi)
Files:      runtime/vimrc_example.vim, runtime/gvimrc_example.vim

Patch 7.4.1715
Problem:    Double free when a partial is in a cycle with a list or dict.
            (Nikolai Pavlov)
Solution:   Do not free a nested list or dict used by the partial.
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1716
Problem:    'autochdir' doesn't work for the first file. (Rob Hoelz)
Solution:   Call DO_AUTOCHDIR after startup. (Christian Brabandt, closes #704)
Files:      src/main.c

Patch 7.4.1717
```

```
Problem:    Leaking memory when opening a channel fails.
Solution:   Unreference partials in job options.
Files:      src/eval.c, src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim

Patch 7.4.1718
Problem:    Coverity: not using return value of set_ref_in_item().
Solution:   Use the return value.
Files:      src/eval.c

Patch 7.4.1719
Problem:    Leaking memory when there is a cycle involving a job and a
            partial.
Solution:   Add a copyID to job and channel.  Set references in items referred
            by them.  Go through all jobs and channels to find unreferenced
            items.  Also, decrement reference counts when garbage collecting.
Files:      src/eval.c, src/channel.c, src/netbeans.c, src/globals.h,
            src/ops.c, src/regexp.c, src/tag.c, src/proto/channel.pro,
            src/proto/eval.pro, src/testdir/test_partial.vim, src/structs.h

Patch 7.4.1720
Problem:    Tests fail without the job feature.
Solution:   Skip tests when the job feature is not present.
Files:      src/testdir/test_partial.vim

Patch 7.4.1721
Problem:    The vimtbar files are unused.
Solution:   Remove them. (Ken Takata)
Files:      src/vimtbar.dll, src/vimtbar.h, src/vimtbar.lib, Filelist

Patch 7.4.1722
Problem:    Crash when calling garbagecollect() after starting a job.
Solution:   Set the copyID on job and channel. (Hirohito Higashi, Ozaki
            Kiichi)
Files:      src/eval.c

Patch 7.4.1723
Problem:    When using try/catch in 'tabline' it is still considered an
            error and the tabline will be disabled.
Solution:   Check did_emsg instead of called_emsg. (haya14busa, closes #746)
Files:      src/screen.c, src/testdir/test_tabline.vim,
            src/testdir/test_alot.vim

Patch 7.4.1724 (after 7.4.1723)
Problem:    Tabline test fails in GUI.
Solution:   Remove 'e' from 'guioptions'.
Files:      src/testdir/test_tabline.vim

Patch 7.4.1725
Problem:    Compiler errors for non-ANSI compilers.
Solution:   Remove // comment.  Remove comma at end of enum. (Michael Jarvis)
Files:      src/eval.c

Patch 7.4.1726
```

```
Problem:    ANSI compiler complains about string length.
Solution:   Split long string in two parts. (Michael Jarvis)
Files:      src/ex_cmds.c

Patch 7.4.1727
Problem:    Cannot detect a crash in tests when caused by garbagecollect().
Solution:   Add garbagecollect_for_testing().  Do not free a job if is still
            useful.
Files:      src/channel.c, src/eval.c, src/getchar.c, src/main.c, src/vim.h,
            src/proto/eval.pro, src/testdir/runtest.vim,
            src/testdir/test_channel.vim, runtime/doc/eval.txt

Patch 7.4.1728
Problem:    The help for functions require a space after the "(".
Solution:   Make CTRL-] on a function name ignore the arguments. (Hirohito
            Higashi)
Files:      src/ex_cmds.c, src/testdir/test_help_tagjump.vim,
            runtime/doc/eval.txt

Patch 7.4.1729
Problem:    The Perl interface cannot use 'print' operator for writing
            directly in standard IO.
Solution:   Add a minimal implementation of PerlIO Layer feature and try to
            use it for STDOUT/STDERR. (Damien)
Files:      src/if_perl.xs, src/testdir/test_perl.vim

Patch 7.4.1730
Problem:    It is not easy to get a character out of a string.
Solution:   Add strgetchar() and strcharpart().
Files:      src/eval.c, src/testdir/test_expr.vim

Patch 7.4.1731
Problem:    Python: turns partial into simple funcref.
Solution:   Use partials like partials. (Nikolai Pavlov, closes #734)
Files:      runtime/doc/if_pyth.txt, src/eval.c, src/if_py_both.h,
            src/if_python.c, src/if_python3.c, src/proto/eval.pro,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.4.1732
Problem:    Folds may close when using autocomplete. (Anmol Sethi)
Solution:   Increment/decrement disable_fold. (Christian Brabandt, closes
            #643)
Files:      src/edit.c, src/fold.c, src/globals.h

Patch 7.4.1733
Problem:    "make install" doesn't know about cross-compiling. (Christian
            Neukirchen)
Solution:   Add CROSS_COMPILING. (closes #740)
Files:      src/configure.in, src/auto/configure, src/config.mk.in,
            src/Makefile

Patch 7.4.1734 (after 7.4.1730)
Problem:    Test fails when not using utf-8.
```

```
Solution:   Split test in regular and utf-8 part.
Files:      src/testdir/test_expr.vim, src/testdir/test_expr_utf8.vim,
            src/testdir/test_alot_utf8.vim

Patch 7.4.1735
Problem:    It is not possible to only see part of the message history.  It is
            not possible to clear messages.
Solution:   Add a count to ":messages" and a clear argument. (Yasuhiro
            Matsumoto)
Files:      runtime/doc/message.txt, src/ex_cmds.h, src/message.c,
            src/testdir/test_messages.vim, src/testdir/test_alot.vim

Patch 7.4.1736 (after 7.4.1731)
Problem:    Unused variable.
Solution:   Remove it. (Yasuhiro Matsumoto)
Files:      src/if_py_both.h

Patch 7.4.1737
Problem:    Argument marked as unused is used.
Solution:   Remove UNUSED.
Files:      src/message.c

Patch 7.4.1738
Problem:    Count for ":messages" depends on number of lines.
Solution:   Add ADDR_OTHER address type.
Files:      src/ex_cmds.h

Patch 7.4.1739
Problem:    Messages test fails on MS-Windows.
Solution:   Adjust the asserts.  Skip the "messages maintainer" line if not
            showing all messages.
Files:      src/message.c, src/testdir/test_messages.vim

Patch 7.4.1740
Problem:    syn-cchar defined with matchadd() does not appear if there are no
            other syntax definitions which matches buffer text.
Solution:   Check for startcol. (Ozaki Kiichi, haya14busa, closes #757)
Files:      src/screen.c, src/testdir/Make_all.mak,
            src/testdir/test_alot_utf8.vim, src/testdir/test_match_conceal.in,
            src/testdir/test_match_conceal.ok,
            src/testdir/test_matchadd_conceal.vim,
            src/testdir/test_matchadd_conceal_utf8.vim,
            src/testdir/test_undolevels.vim

Patch 7.4.1741
Problem:    Not testing utf-8 characters.
Solution:   Move the right asserts to the test_expr_utf8 test.
Files:      src/testdir/test_expr.vim, src/testdir/test_expr_utf8.vim

Patch 7.4.1742
Problem:    strgetchar() does not work correctly.
Solution:   use mb_cptr2len().  Add a test. (Naruhiko Nishino)
Files:      src/eval.c, src/testdir/test_expr_utf8.vim
```

Patch 7.4.1743
Problem: Clang warns for uninitialized variable. (Michael Jarvis)
Solution: Initialize it.
Files: src/if_py_both.h

Patch 7.4.1744
Problem: Python: Converting a sequence may leak memory.
Solution: Decrement a reference. (Nikolai Pavlov)
Files: src/if_py_both.h

Patch 7.4.1745
Problem: README file is not clear about where to get Vim.
Solution: Add links to github, releases and the Windows installer.
            (Suggested by Christian Brabandt)
Files: README.md, README.txt

Patch 7.4.1746
Problem: Memory leak in Perl.
Solution: Decrement the reference count. Add a test. (Damien)
Files: src/if_perl.xs, src/testdir/test_perl.vim

Patch 7.4.1747
Problem: Coverity: missing check for NULL pointer.
Solution: Check for out of memory.
Files: src/if_py_both.h

Patch 7.4.1748
Problem: "gD" does not find match in first column of first line. (Gary
            Johnson)
Solution: Accept match at the cursor.
Files: src/normal.c, src/testdir/test_goto.vim, src/testdir/test_alot.vim

Patch 7.4.1749
Problem: When using GTK 3.20 there are a few warnings.
Solution: Use new functions when available. (Kazunobu Kuriyama)
Files: src/gui_beval.c src/gui_gtk_x11.c

Patch 7.4.1750
Problem: When a buffer gets updated while in command line mode, the screen
            may be messed up.
Solution: Postpone the redraw when the screen is scrolled.
Files: src/channel.c

Patch 7.4.1751
Problem: Crash when 'tagstack' is off. (Dominique Pelle)
Solution: Fix it. (Hirohito Higashi)
Files: src/tag.c, src/testdir/test_alot.vim, src/testdir/test_tagjump.vim

Patch 7.4.1752
Problem: When adding to the quickfix list the current position is reset.
Solution: Do not reset the position when not needed. (Yegappan Lakshmanan)
Files: src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1753

```
Problem:    "noinsert" in 'completeopt' is sometimes ignored.
Solution:   Set the variables when the 'completeopt' was set. (Ozaki Kiichi)
Files:      src/edit.c, src/option.c, src/proto/edit.pro

Patch 7.4.1754
Problem:    When 'filetype' was set and reloading a buffer which does not
            cause it to be set, the syntax isn't loaded. (KillTheMule)
Solution:   Remember whether the FileType event was fired and fire it if not.
            (Anton Lindqvist, closes #747)
Files:      src/fileio.c, src/testdir/test_syntax.vim

Patch 7.4.1755
Problem:    When using getreg() on a non-existing register a NULL list is
            returned. (Bjorn Linse)
Solution:   Allocate an empty list. Add a test.
Files:      src/eval.c, src/testdir/test_expr.vim

Patch 7.4.1756
Problem:    "dll" options are not expanded.
Solution:   Expand environment variables. (Ozaki Kiichi)
Files:      src/option.c, src/testdir/test_alot.vim,
            src/testdir/test_expand_dllpath.vim

Patch 7.4.1757
Problem:    When using complete() it may set 'modified' even though nothing
            was inserted.
Solution:   Use Down/Up instead of Next/Previous match. (Shougo Matsu, closes
            #745)
Files:      src/edit.c

Patch 7.4.1758
Problem:    Triggering CursorHoldI when in CTRL-X mode causes problems.
Solution:   Do not trigger CursorHoldI in CTRL-X mode. Add "!" flag to
            feedkeys() (test with that didn't work though).
Files:      src/edit.c, src/eval.c

Patch 7.4.1759
Problem:    When using feedkeys() in a timer the inserted characters are not
            used right away.
Solution:   Break the wait loop when characters have been added to typebuf.
            use this for testing CursorHoldI.
Files:      src/gui.c, src/os_win32.c, src/os_unix.c,
            src/testdir/test_autocmd.vim

Patch 7.4.1760 (after 7.4.1759)
Problem:    Compiler warning for unused variable.
Solution:   Add #ifdef. (John Marriott)
Files:      src/os_win32.c

Patch 7.4.1761
Problem:    Coverity complains about ignoring return value.
Solution:   Add "(void)" to get rid of the warning.
Files:      src/eval.c
```

```
Patch 7.4.1762
Problem:    Coverity: useless assignments.
Solution:   Remove them.
Files:      src/search.c

Patch 7.4.1763
Problem:    Coverity: useless assignment.
Solution:   Add #if 0.
Files:      src/spell.c

Patch 7.4.1764
Problem:    C++ style comment. (Ken Takata)
Solution:   Finish the work started here: don't call perror() when stderr
            isn't working.
Files:      src/os_unix.c

Patch 7.4.1765
Problem:    Undo options are not together in the options window.
Solution:   Put them together.  (Gary Johnson)
Files:      runtime/optwin.vim

Patch 7.4.1766
Problem:    Building instructions for MS-Windows are outdated.
Solution:   Mention setting SDK_INCLUDE_DIR. (Ben Franklin, closes #771)  Move
            outdated instructions further down.
Files:      src/INSTALLpc.txt

Patch 7.4.1767
Problem:    When installing Vim on a GTK system the icon cache is not updated.
Solution:   Update the GTK icon cache when possible. (Kazunobu Kuriyama)
Files:      src/Makefile, src/configure.in, src/config.mk.in,
            src/auto/configure

Patch 7.4.1768
Problem:    Arguments of setqflist() are not checked properly.
Solution:   Add better checks, add a test. (Nikolai Pavlov, Hirohito Higashi,
            closes #661)
Files:      src/eval.c, src/testdir/test_quickfix.vim

Patch 7.4.1769
Problem:    No "closed", "errors" and "encoding" attribute on Python output.
Solution:   Add attributes and more tests. (Roland Puntaier, closes #622)
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c,
            src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.4.1770
Problem:    Cannot use true color in the terminal.
Solution:   Add the 'guicolors' option. (Nikolai Pavlov)
Files:      runtime/doc/options.txt, runtime/doc/term.txt,
            runtime/doc/various.txt, src/auto/configure, src/config.h.in,
            src/configure.in, src/eval.c, src/globals.h, src/hardcopy.c,
            src/option.c, src/option.h, src/proto/term.pro, src/screen.c,
            src/structs.h, src/syntax.c, src/term.c, src/term.h,
```

```
            src/version.c, src/vim.h

Patch 7.4.1771 (after 7.4.1768)
Problem:    Warning for unused variable.
Solution:   Add #ifdef. (John Marriott)
Files:      src/eval.c

Patch 7.4.1772 (after 7.4.1767)
Problem:    Installation fails when $GTK_UPDATE_ICON_CACHE is empty.
Solution:   Add quotes. (Kazunobu Kuriyama)
Files:      src/Makefile

Patch 7.4.1773 (after 7.4.1770)
Problem:    Compiler warnings. (Dominique Pelle)
Solution:   Add UNUSED. Add type cast. Avoid a buffer overflow.
Files:      src/syntax.c, src/term.c

Patch 7.4.1774 (after 7.4.1770)
Problem:    Cterm true color feature has warnings.
Solution:   Add type casts.
Files:      src/screen.c, src/syntax.c, src/term.c

Patch 7.4.1775
Problem:    The rgb.txt file is not installed.
Solution:   Install the file. (Christian Brabandt)
Files:      src/Makefile

Patch 7.4.1776
Problem:    Using wrong buffer length.
Solution:   use the right name. (Kazunobu Kuriyama)
Files:      src/term.c

Patch 7.4.1777
Problem:    Newly added features can escape the sandbox.
Solution:   Add checks for restricted and secure. (Yasuhiro Matsumoto)
Files:      src/eval.c

Patch 7.4.1778
Problem:    When using the term truecolor feature, the t_8f and t_8b termcap
            options are not set by default.
Solution:   Move the values to before BT_EXTRA_KEYS. (Christian Brabandt)
Files:      src/term.c

Patch 7.4.1779
Problem:    Using negative index in strcharpart(). (Yegappan Lakshmanan)
Solution:   Assume single byte when using a negative index.
Files:      src/eval.c

Patch 7.4.1780
Problem:    Warnings reported by cppcheck.
Solution:   Fix the warnings. (Dominique Pelle)
Files:      src/ex_cmds2.c, src/json.c, src/misc1.c, src/ops.c,
            src/regexp_nfa.c
```

```
Patch 7.4.1781
Problem:    synIDattr() does not respect 'guicolors'.
Solution:   Change the condition for the mode. (Christian Brabandt)
Files:      src/eval.c

Patch 7.4.1782
Problem:    strcharpart() does not work properly with some multi-byte
            characters.
Solution:   Use mb_cptr2len() instead of mb_char2len(). (Hirohito Higashi)
Files:      src/eval.c, src/testdir/test_expr_utf8.vim

Patch 7.4.1783
Problem:    The old regexp engine doesn't handle character classes correctly.
            (Manuel Ortega)
Solution:   Use regmbc() instead of regc().  Add a test.
Files:      src/regexp.c, src/testdir/test_regexp_utf8.vim

Patch 7.4.1784
Problem:    The termtruecolor feature is enabled differently from many other
            features.
Solution:   Enable the termtruecolor feature for the big build, not through
            configure.
Files:      src/configure.in, src/config.h.in, src/auto/configure,
            src/feature.h

Patch 7.4.1785 (after 7.4.1783)
Problem:    Regexp test fails on windows.
Solution:   set 'isprint' to the right value for testing.
Files:      src/testdir/test_regexp_utf8.vim

Patch 7.4.1786
Problem:    Compiled-in colors do not match rgb.txt.
Solution:   Use the rgb.txt colors. (Kazunobu Kuriyama)
Files:      src/term.c

Patch 7.4.1787
Problem:    When a job ends the close callback is invoked before other
            callbacks. On Windows the close callback is not called.
Solution:   First invoke out/err callbacks before the close callback.
            Make the close callback work on Windows.
Files:      src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, src/testdir/test_channel_pipe.py

Patch 7.4.1788
Problem:    NSIS script is missing packages.
Solution:   Add the missing directories. (Ken Takata)
Files:      nsis/gvim.nsi

Patch 7.4.1789
Problem:    Cannot use ch_read() in the close callback.
Solution:   Do not discard the channel if there is readahead.  Do not discard
            readahead if there is a close callback.
Files:      src/eval.c, src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim
```

Patch 7.4.1790
Problem: Leading white space in a job command matters. (Andrew Stewart)
Solution: Skip leading white space.
Files: src/os_unix.c

Patch 7.4.1791
Problem: Channel could be garbage collected too early.
Solution: Don't free a channel or remove it from a job when it is still
            useful.
Files: src/channel.c

Patch 7.4.1792
Problem: Color name decoding is implemented several times.
Solution: Move it to term.c. (Christian Brabandt)
Files: src/gui_mac.c, src/gui_photon.c, src/gui_w32.c,
            src/proto/term.pro, src/term.c

Patch 7.4.1793
Problem: Some character classes may differ between systems. On OS/X the
            regexp test fails.
Solution: Make this less dependent on the system. (idea by Kazunobu Kuriyama)
Files: src/regexp.c, src/regexp_nfa.c

Patch 7.4.1794 (after 7.4.1792)
Problem: Can't build on MS-Windows.
Solution: Add missing declaration.
Files: src/gui_w32.c

Patch 7.4.1795
Problem: Compiler warning for redefining RGB. (John Marriott)
Solution: Rename it to TORGB.
Files: src/term.c

Patch 7.4.1796 (after 7.4.1795)
Problem: Colors are wrong on MS-Windows. (Christian Robinson)
Solution: Use existing RGB macro if it exists. (Ken Takata)
Files: src/term.c

Patch 7.4.1797
Problem: Warning from Windows 64 bit compiler.
Solution: Change int to size_t. (Mike Williams)
Files: src/term.c

Patch 7.4.1798
Problem: Still compiler warning for unused return value. (Charles Campbell)
Solution: Assign to ignoredp.
Files: src/term.c

Patch 7.4.1799
Problem: 'guicolors' is a confusing option name.
Solution: Use 'termguicolors' instead. (Hirohito Higashi, Ken Takata)
Files: runtime/doc/options.txt, runtime/doc/term.txt,
            runtime/doc/various.txt, runtime/syntax/dircolors.vim, src/eval.c,

```
            src/feature.h, src/globals.h, src/hardcopy.c, src/option.c,
            src/option.h, src/proto/term.pro, src/screen.c, src/structs.h,
            src/syntax.c, src/term.c, src/version.c, src/vim.h

Patch 7.4.1800 (after 7.4.1799)
Problem:    Unnecessary #ifdef.
Solution:   Just use USE_24BIT. (Ken Takata)
Files:      src/syntax.c

Patch 7.4.1801
Problem:    Make uninstall leaves file behind.
Solution:   Delete rgb.txt. (Kazunobu Kuriyama)
Files:      src/Makefile

Patch 7.4.1802
Problem:    Quickfix doesn't handle long lines well, they are split.
Solution:   Drop characters after a limit. (Anton Lindqvist)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim,
            src/testdir/samples/quickfix.txt

Patch 7.4.1803
Problem:    GTK3 doesn't handle menu separators properly.
Solution:   Use gtk_separator_menu_item_new(). (Kazunobu Kuriyama)
Files:      src/gui_gtk.c

Patch 7.4.1804
Problem:    Can't use Vim as MANPAGER.
Solution:   Add manpager.vim. (Enno Nagel, closes #491)
Files:      runtime/doc/filetype.txt, runtime/plugin/manpager.vim

Patch 7.4.1805
Problem:    Running tests in shadow dir fails.
Solution:   Link the samples directory
Files:      src/Makefile

Patch 7.4.1806
Problem:    'termguicolors' option missing from the options window.
Solution:   Add the entry.
Files:      runtime/optwin.vim

Patch 7.4.1807
Problem:    Test_out_close_cb sometimes fails.
Solution:   Always write DETACH to out, not err.
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1808 (after 7.4.1806)
Problem:    Using wrong feature name to check for 'termguicolors'.
Solution:   Use the right feature name. (Ken Takata)
Files:      runtime/optwin.vim

Patch 7.4.1809 (after 7.4.1808)
Problem:    Using wrong short option name for 'termguicolors'.
Solution:   Use the option name.
Files:      runtime/optwin.vim
```

```
Patch 7.4.1810
Problem:    Sending DETACH after a channel was closed isn't useful.
Solution:   Only add DETACH for a netbeans channel.
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1811
Problem:    Netbeans channel gets garbage collected.
Solution:   Set reference in nb_channel.
Files:      src/eval.c, src/netbeans.c, src/proto/netbeans.pro

Patch 7.4.1812
Problem:    Failure on startup with Athena and Motif.
Solution:   Check for INVALCOLOR. (Kazunobu Kuriyama)
Files:      src/syntax.c, src/vim.h

Patch 7.4.1813
Problem:    Memory access error when running test_quickfix.
Solution:   Allocate one more byte. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 7.4.1814
Problem:    A channel may be garbage collected while it's still being used by
            a job. (James McCoy)
Solution:   Mark the channel as used if the job is still used.  Do the same
            for channels that are still used.
Files:      src/eval.c, src/channel.c, src/proto/channel.pro

Patch 7.4.1815
Problem:    Compiler warnings for unused variables. (Ajit Thakkar)
Solution:   Add a dummy initialization. (Yasuhiro Matsumoto)
Files:      src/quickfix.c

Patch 7.4.1816
Problem:    Looping over a null list throws an error.
Solution:   Skip over the for loop.
Files:      src/eval.c, src/testdir/test_expr.vim

Patch 7.4.1817
Problem:    The screen is not updated if a callback is invoked when closing a
            channel.
Solution:   Invoke redraw_after_callback().
Files:      src/channel.c

Patch 7.4.1818
Problem:    Help completion adds @en to all matches except the first one.
Solution:   Remove "break", go over all items.
Files:      src/ex_getln.c

Patch 7.4.1819
Problem:    Compiler warnings when sprintf() is a macro.
Solution:   Don't interrupt sprintf() with an #ifdef. (Michael Jarvis,
            closes #788)
Files:      src/fileio.c, src/tag.c, src/term.c
```

Patch 7.4.1820
Problem: Removing language from help tags too often.
Solution: Only remove @en when not needed. (Hirohito Higashi)
Files: src/ex_getln.c, src/testdir/test_help_tagjump.vim

Patch 7.4.1821 (after 7.4.1820)
Problem: Test fails on MS-Windows.
Solution: Sort the completion results.
Files: src/testdir/test_help_tagjump.vim

Patch 7.4.1822
Problem: Redirecting stdout of a channel to "null" doesn't work. (Nicola)
Solution: Correct the file descriptor number.
Files: src/os_unix.c

Patch 7.4.1823
Problem: Warning from 64 bit compiler.
Solution: Add type cast. (Mike Williams)
Files: src/quickfix.c

Patch 7.4.1824
Problem: When a job is no longer referenced and does not have an exit
            callback the process may hang around in defunct state. (Nicola)
Solution: Call job_status() if the job is running and won't get freed
            because it might still be useful.
Files: src/channel.c

Patch 7.4.1825
Problem: When job writes to buffer nothing is written. (Nicola)
Solution: Do not discard a channel before writing is done.
Files: src/channel.c

Patch 7.4.1826
Problem: Callbacks are invoked when it's not safe. (Andrew Stewart)
Solution: When a channel is to be closed don't invoke callbacks right away,
            wait for a safe moment.
Files: src/structs.h, src/channel.c

Patch 7.4.1827
Problem: No error when invoking a callback when it's not safe.
Solution: Add an error message. Avoid the error when freeing a channel.
Files: src/structs.h, src/channel.c

Patch 7.4.1828
Problem: May try to access buffer that's already freed.
Solution: When freeing a buffer remove it from any channel.
Files: src/buffer.c, src/channel.c, src/proto/channel.pro

Patch 7.4.1829 (after 7.4.1828)
Problem: No message on channel log when buffer was freed.
Solution: Log a message.
Files: src/channel.c

```
Patch 7.4.1830
Problem:    non-antialiased misnamed.
Solution:   Use NONANTIALIASED and NONANTIALIASED_QUALITY. (Kim Brouer,
            closes #793)
Files:      src/os_mswin.c, runtime/doc/options.txt

Patch 7.4.1831
Problem:    When timer_stop() is called with a string there is no proper error
            message.
Solution:   Require getting a number. (Bjorn Linse)
Files:      src/eval.c

Patch 7.4.1832
Problem:    Memory leak in debug commands.
Solution:   Free memory before overwriting the pointer. (hint by Justin Keyes)
Files:      src/ex_cmds2.c

Patch 7.4.1833
Problem:    Cannot use an Ex command for 'keywordprg'.
Solution:   Accept an Ex command. (Nelo-Thara Wallus)
Files:      src/normal.c, runtime/doc/options.txt

Patch 7.4.1834
Problem:    Possible crash when conceal is active.
Solution:   Check for the screen to be valid when redrawing a line.
Files:      src/screen.c

Patch 7.4.1835
Problem:    When splitting and closing a window the status height changes.
Solution:   Compute the frame height correctly. (Hirohito Higashi)
Files:      src/window.c, src/testdir/test_alot.vim,
            src/testdir/test_window_cmd.vim

Patch 7.4.1836
Problem:    When using a partial on a dictionary it always gets bound to that
            dictionary.
Solution:   Make a difference between binding a function to a dictionary
            explicitly or automatically.
Files:      src/structs.h, src/eval.c, src/testdir/test_partial.vim,
            runtime/doc/eval.txt

Patch 7.4.1837
Problem:    The BufUnload event is triggered twice, when :bunload is used with
            `bufhidden` set to `unload` or `delete`.
Solution:   Do not trigger the event when ml_mfp is NULL. (Hirohito Higashi)
Files:      src/buffer.c, src/testdir/test_autocmd.vim

Patch 7.4.1838
Problem:    Functions specifically for testing do not sort together.
Solution:   Rename garbagecollect_for_testing() to test_garbagecollect_now().
            Add test_null_list(), test_null_dict(), etc.
Files:      src/eval.c, src/testdir/test_expr.vim,
            src/testdir/test_channel.vim, runtime/doc/eval.txt
```

Patch 7.4.1839
Problem: Cannot get the items stored in a partial.
Solution: Support using get() on a partial.
Files: src/eval.c, src/testdir/test_partial.vim, runtime/doc/eval.txt

Patch 7.4.1840
Problem: When using packages an "after" directory cannot be used.
Solution: Add the "after" directory of the package to 'runtimepath' if it
            exists.
Files: src/ex_cmds2.c, src/testdir/test_packadd.vim

Patch 7.4.1841
Problem: The code to reallocate the buffer used for quickfix is repeated.
Solution: Move the code to a function. (Yegappan Lakshmanan, closes #831)
Files: src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1842 (after 7.4.1839)
Problem: get() works for Partial but not for Funcref.
Solution: Accept Funcref. Also return the function itself. (Nikolai Pavlov)
Files: src/eval.c, src/testdir/test_partial.vim, runtime/doc/eval.txt

Patch 7.4.1843
Problem: Tests involving Python are flaky.
Solution: Set the pt_auto field. Add tests. (Nikolai Pavlov)
Files: runtime/doc/if_pyth.txt, src/if_py_both.h, src/testdir/test86.in,
            src/testdir/test86.ok, src/testdir/test87.in,
            src/testdir/test87.ok

Patch 7.4.1844
Problem: Using old function name in comment. More functions should start
            with test_.
Solution: Rename function in comment. (Hirohito Higashi) Rename
            disable_char_avail_for_testing() to test_disable_char_avail().
            And alloc_fail() to test_alloc_fail().
Files: src/eval.c, src/getchar.c, src/testdir/runtest.vim,
            src/testdir/test_cursor_func.vim, src/testdir/test_quickfix.vim,
            runtime/doc/eval.txt

Patch 7.4.1845
Problem: Mentioning NetBeans when reading from channel. (Ramel Eshed)
Solution: Make the text more generic.
Files: src/channel.c

Patch 7.4.1846
Problem: Ubsan detects a multiplication overflow.
Solution: Don't use orig_mouse_time when it's zero. (Dominique Pelle)
Files: src/term.c

Patch 7.4.1847
Problem: Getting an item from a NULL dict crashes. Setting a register to a
            NULL list crashes. (Nikolai Pavlov, issue #768) Comparing a NULL
            dict with a NULL dict fails.
Solution: Properly check for NULL.
Files: src/eval.c, src/testdir/test_expr.vim

Patch 7.4.1848
Problem: Can't build with Strawberry Perl 5.24.
Solution: Define S_SvREFCNT_dec() if needed. (Damien, Ken Takata)
Files: src/if_perl.xs

Patch 7.4.1849
Problem: Still trying to read from channel that is going to be closed.
            (Ramel Eshed)
Solution: Check if ch_to_be_closed is set.
Files: src/channel.c

Patch 7.4.1850
Problem: GUI freezes when using a job. (Shougo Matsu)
Solution: Unregister the channel when there is an input error.
Files: src/channel.c

Patch 7.4.1851
Problem: test_syn_attr fails when using the GUI. (Dominique Pelle)
Solution: Escape the font name properly.
Files: src/testdir/test_syn_attr.vim

Patch 7.4.1852
Problem: Unix: Cannot run all tests with the GUI.
Solution: Add the "testgui" target.
Files: src/Makefile, src/testdir/Makefile

Patch 7.4.1853
Problem: Crash when job and channel are in the same dict while using
            partials. (Luc Hermitte)
Solution: Do not decrement the channel reference count too early.
Files: src/channel.c

Patch 7.4.1854
Problem: When setting 'termguicolors' the Ignore highlighting doesn't work.
            (Charles Campbell)
Solution: Handle the color names "fg" and "bg" when the GUI isn't running
            and no colors are specified, fall back to black and white.
Files: src/syntax.c

Patch 7.4.1855
Problem: Valgrind reports memory leak for job that is not freed.
Solution: Free all jobs on exit. Add test for failing job.
Files: src/channel.c, src/misc2.c, src/proto/channel.pro,
            src/testdir/test_partial.vim

Patch 7.4.1856 (after 7.4.1855)
Problem: failing job test fails on MS-Windows.
Solution: Expect "fail" status instead of "dead".
Files: src/testdir/test_partial.vim

Patch 7.4.1857
Problem: When a channel appends to a buffer that is 'nomodifiable' there is
            an error but appending is done anyway.

Solution: Add the 'modifiable' option. Refuse to write to a 'nomodifiable'
            when the value is 1.
Files: src/structs.h, src/channel.c, src/testdir/test_channel.vim,
            runtime/doc/channel.txt

Patch 7.4.1858
Problem: When a channel writes to a buffer it doesn't find a buffer by the
            short name but re-uses it anyway.
Solution: Find buffer also by the short name.
Files: src/channel.c, src/buffer.c, src/vim.h

Patch 7.4.1859
Problem: Cannot use a function reference for "exit_cb".
Solution: Use get_callback(). (Yegappan Lakshmanan)
Files: src/channel.c, src/structs.h

Patch 7.4.1860
Problem: Using a partial for timer_start() may cause a crash.
Solution: Set the copyID in timer objects. (Ozaki Kiichi)
Files: src/testdir/test_timers.vim, src/eval.c, src/ex_cmds2.c,
            src/proto/ex_cmds2.pro

Patch 7.4.1861
Problem: Compiler warnings with 64 bit compiler.
Solution: Change int to size_t. (Mike Williams)
Files: src/ex_cmds2.c

Patch 7.4.1862
Problem: string() with repeated argument does not give a result usable by
            eval().
Solution: Refactor echo_string and tv2string(), moving the common part to
            echo_string_core(). (Ken Takata)
Files: src/eval.c, src/testdir/test_viml.vim, src/testdir/test86.ok,
            src/testdir/test87.ok

Patch 7.4.1863
Problem: Compiler warnings on Win64.
Solution: Adjust types, add type casts. (Ken Takata)
Files: src/if_mzsch.c, src/if_perl.xs, src/if_ruby.c, src/version.c

Patch 7.4.1864
Problem: Python: encoding error with Python 2.
Solution: Use "getcwdu" instead of "getcwd". (Ken Takata)
Files: src/if_py_both.h

Patch 7.4.1865
Problem: Memory leaks in test49. (Dominique Pelle)
Solution: Use NULL instead of an empty string.
Files: src/eval.c

Patch 7.4.1866
Problem: Invalid memory access when exiting with EXITFREE defined.
            (Dominique Pelle)
Solution: Set "really_exiting" and skip error messages.

```
Files:      src/misc2.c, src/eval.c

Patch 7.4.1867
Problem:    Memory leak in test_matchstrpos.
Solution:   Free the string before overwriting. (Yegappan Lakshmanan)
Files:      src/eval.c

Patch 7.4.1868
Problem:    Setting really_exiting causes memory leaks to be reported.
Solution:   Add the in_free_all_mem flag.
Files:      src/globals.h, src/misc2.c, src/eval.c

Patch 7.4.1869
Problem:    Can't build with old version of Perl.
Solution:   Define PERLIO_FUNCS_DECL. (Tom G. Christensen)
Files:      src/if_perl.xs

Patch 7.4.1870 (after 7.4.1863)
Problem:    One more Win64 compiler warning.
Solution:   Change declared argument type. (Ken Takata)
Files:      src/if_mzsch.c

Patch 7.4.1871
Problem:    Appending to the quickfix list while the quickfix window is open
            is very slow.
Solution:   Do not delete all the lines, only append the new ones.  Avoid
            using a window while updating the list. (closes #841)
Files:      src/quickfix.c

Patch 7.4.1872
Problem:    Still build problem with old version of Perl.
Solution:   Also define SvREFCNT_inc_void_NN if needed. (Tom G. Christensen)
Files:      src/if_perl.xs

Patch 7.4.1873
Problem:    When a callback adds a timer the GUI doesn't use it until later.
            (Ramel Eshed)
Solution:   Return early if a callback adds a timer.
Files:      src/ex_cmds2.c, src/gui_gtk_x11.c, src/gui_w32.c, src/gui_x11.c,
            src/globals.h

Patch 7.4.1874
Problem:    Unused variable in Win32 code.
Solution:   Remove it. (Mike Williams)
Files:      src/gui_w32.c

Patch 7.4.1875
Problem:    Comparing functions and partials doesn't work well.
Solution:   Add tests. (Nikolai Pavlov)  Compare the dict and arguments in the
            partial. (closes #813)
Files:      src/eval.c, src/testdir/test_partial.vim

Patch 7.4.1876
Problem:    Typing "k" at the hit-enter prompt has no effect.
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Solution:   Don't assume recursive use of the prompt if a character was typed.
            (Hirohito Higashi)
Files:      src/message.c

Patch 7.4.1877
Problem:    No test for invoking "close_cb" when writing to a buffer.
Solution:   Add using close_cb to a test case.
Files:      src/testdir/test_channel.vim

Patch 7.4.1878
Problem:    Whether a job has exited isn't detected until a character is
            typed.  After calling exit_cb the cursor is in the wrong place.
Solution:   Don't wait forever for a character to be typed when there is a
            pending job.  Update the screen if needed after calling exit_cb.
Files:      src/os_unix.c, src/channel.c, src/proto/channel.pro

Patch 7.4.1879 (after 7.4.1877)
Problem:    Channel test is flaky.
Solution:   Wait for close_cb to be invoked.
Files:      src/testdir/test_channel.vim

Patch 7.4.1880
Problem:    MS-Windows console build defaults to not having +channel.
Solution:   Include the channel feature if building with huge features.
Files:      src/Make_mvc.mak

Patch 7.4.1881
Problem:    Appending to a long quickfix list is slow.
Solution:   Add qf_last.
Files:      src/quickfix.c

Patch 7.4.1882
Problem:    Check for line break at end of line wrong. (Dominique Pelle)
Solution:   Correct the logic.
Files:      src/quickfix.c

Patch 7.4.1883
Problem:    Cppcheck found 2 incorrect printf formats.
Solution:   Use %ld and %lx. (Dominique Pelle)
Files:      src/VisVim/Commands.cpp, src/gui_mac.c

Patch 7.4.1884
Problem:    Updating marks in a quickfix list is very slow when the list is
            long.
Solution:   Only update marks if the buffer has a quickfix entry.
Files:      src/structs.h, src/quickfix.c

Patch 7.4.1885
Problem:    MinGW console build defaults to not having +channel.
Solution:   Include the channel feature if building with huge features. (Ken
            Takata)
Files:      src/Make_cyg_ming.mak

Patch 7.4.1886
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Problem:    When waiting for a character is interrupted by receiving channel
            data and the first character of a mapping was typed, the mapping
            times out. (Ramel Eshed)
Solution:   When dealing with channel data don't return from mch_inchar().
Files:      src/getchar.c, src/proto/getchar.pro, src/os_unix.c

Patch 7.4.1887
Problem:    When receiving channel data 'updatetime' is not respected.
Solution:   Recompute the waiting time after being interrupted.
Files:      src/os_unix.c

Patch 7.4.1888
Problem:    Wrong computation of remaining wait time in RealWaitForChar()
Solution:   Remember the original waiting time.
Files:      src/os_unix.c

Patch 7.4.1889
Problem:    When umask is set to 0177 Vim can't create temp files. (Lcd)
Solution:   Also correct umask when using mkdtemp().
Files:      src/fileio.c

Patch 7.4.1890
Problem:    GUI: When channel data is received the cursor blinking is
            interrupted.  (Ramel Eshed)
Solution:   Don't update the cursor when it is blinking.
Files:      src/screen.c, src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro,
            src/gui_mac.c, src/proto/gui_mac.pro, src/gui_photon.c,
            src/proto/gui_photon.pro, src/gui_w32.c, src/proto/gui_w32.pro,
            src/gui_x11.c, src/proto/gui_x11.pro

Patch 7.4.1891
Problem:    Channel reading very long lines is slow.
Solution:   Collapse multiple buffers until a NL is found.
Files:      src/channel.c, src/netbeans.c, src/proto/channel.pro,
            src/structs.h

Patch 7.4.1892
Problem:    balloon eval only gets the window number, not the ID.
Solution:   Add v:beval_winid.
Files:      src/eval.c, src/gui_beval.c, src/vim.h

Patch 7.4.1893
Problem:    Cannot easily get the window ID for a buffer.
Solution:   Add bufwinid().
Files:      src/eval.c, runtime/doc/eval.txt

Patch 7.4.1894
Problem:    Cannot get the window ID for a mouse click.
Solution:   Add v:mouse_winid.
Files:      src/eval.c, src/vim.h, runtime/doc/eval.txt

Patch 7.4.1895
Problem:    Cannot use a window ID where a window number is expected.
Solution:   Add LOWEST_WIN_ID, so that the window ID can be used where a
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            number is expected.
Files:      src/window.c, src/eval.c, src/vim.h, runtime/doc/eval.txt,
            src/testdir/test_window_id.vim

Patch 7.4.1896
Problem:    Invoking mark_adjust() when adding a new line below the last line
            is pointless.
Solution:   Skip calling mark_adjust() when appending below the last line.
Files:      src/misc1.c, src/ops.c

Patch 7.4.1897
Problem:    Various typos, long lines and style mistakes.
Solution:   Fix the typos, wrap lines, improve style.
Files:      src/buffer.c, src/ex_docmd.c, src/getchar.c, src/option.c,
            src/main.aap, src/testdir/README.txt,
            src/testdir/test_reltime.vim, src/testdir/test_tagjump.vim,
            src/INSTALL, src/config.aap.in, src/if_mzsch.c

Patch 7.4.1898
Problem:    User commands don't support modifiers.
Solution:   Add the <mods> item. (Yegappan Lakshmanan, closes #829)
Files:      runtime/doc/map.txt, src/ex_docmd.c, src/testdir/Make_all.mak,
            src/testdir/test_usercommands.vim

Patch 7.4.1899
Problem:    GTK 3: cursor blinking doesn't work well.
Solution:   Instead of gui_gtk_window_clear() use gui_mch_clear_block().
            (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 7.4.1900
Problem:    Using CTRL-] in the help on "{address}." doesn't work.
Solution:   Recognize an item in {}. (Hirohito Higashi, closes #814)
Files:      src/ex_cmds.c, src/testdir/test_help_tagjump.vim

Patch 7.4.1901
Problem:    Win32: the "Disabled" menu items would appear enabled.
Solution:   Use submenu_id if there is a parent. (Shane Harper, closes #834)
Files:      src/gui_w32.c

Patch 7.4.1902
Problem:    No test for collapsing buffers for a channel.  Some text is lost.
Solution:   Add a simple test.  Set rq_buflen correctly.
Files:      src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel_pipe.py

Patch 7.4.1903
Problem:    When writing viminfo merging current history with history in
            viminfo may drop recent history entries.
Solution:   Add new format for viminfo lines, use it for history entries.  Use
            a timestamp for ordering the entries. Add test_settime().
            Add the viminfo version.  Does not do merging on timestamp yet.
Files:      src/eval.c, src/ex_getln.c, src/ex_cmds.c, src/structs.h,
            src/globals.h, src/proto/ex_cmds.pro, src/proto/ex_getln.pro,
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            src/testdir/test_viminfo.vim

Patch 7.4.1904 (after 7.4.1903)
Problem:    Build fails.
Solution:   Add missing changes.
Files:      src/vim.h

Patch 7.4.1905 (after 7.4.1903)
Problem:    Some compilers can't handle a double semicolon.
Solution:   Remove one semicolon.
Files:      src/ex_cmds.c

Patch 7.4.1906
Problem:    Collapsing channel buffers and searching for NL does not work
            properly. (Xavier de Gaye, Ramel Eshed)
Solution:   Do not assume the buffer contains a NUL or not.  Change NUL bytes
            to NL to avoid the string is truncated.
Files:      src/channel.c, src/netbeans.c, src/proto/channel.pro

Patch 7.4.1907
Problem:    Warnings from 64 bit compiler.
Solution:   Change type to size_t. (Mike Williams)
Files:      src/ex_cmds.c

Patch 7.4.1908
Problem:    Netbeans uses uninitialized pointer and freed memory.
Solution:   Set "buffer" at the right place (hint by Ken Takata)
Files:      src/netbeans.c

Patch 7.4.1909
Problem:    Doubled semicolons.
Solution:   Reduce to one. (Dominique Pelle)
Files:      src/dosinst.c, src/fold.c, src/gui_gtk_x11.c, src/gui_w32.c,
            src/main.c, src/misc2.c

Patch 7.4.1910
Problem:    Tests using external command to delete directory.
Solution:   Use delete().
Files:      src/testdir/test17.in, src/testdir/test73.in,
            src/testdir/test_getcwd.in

Patch 7.4.1911
Problem:    Recent history lines may be lost when exiting Vim.
Solution:   Merge history using the timestamp.
Files:      src/ex_getln.c, src/ex_cmds.c, src/vim.h, src/proto/ex_getln.pro,
            src/testdir/test_viminfo.vim

Patch 7.4.1912
Problem:    No test for using setqflist() on an older quickfix list.
Solution:   Add a couple of tests.
Files:      src/testdir/test_quickfix.vim

Patch 7.4.1913
Problem:    When ":doautocmd" is used modelines are used even when no
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            autocommands were executed. (Daniel Hahler)
Solution: Skip processing modelines. (closes #854)
Files: src/fileio.c, src/ex_cmds.c, src/ex_docmd.c, src/proto/fileio.pro

Patch 7.4.1914
Problem: Executing autocommands while using the signal stack has a high
            chance of crashing Vim.
Solution: Don't invoke autocommands when on the signal stack.
Files: src/os_unix.c

Patch 7.4.1915
Problem: The effect of the PopupMenu autocommand isn't directly visible.
Solution: Call gui_update_menus() before displaying the popup menu. (Shane
            Harper, closes #855)
Files: src/menu.c

Patch 7.4.1916 (after 7.4.1906)
Problem: No proper test for what 7.4.1906 fixes.
Solution: Add a test for reading many lines.
Files: src/testdir/test_channel.vim

Patch 7.4.1917
Problem: History lines read from viminfo in different encoding than when
            writing are not converted.
Solution: Convert the history lines.
Files: src/ex_cmds.c, src/testdir/test_viminfo.vim

Patch 7.4.1918
Problem: Not enough testing for parsing viminfo lines.
Solution: Add test with viminfo lines in bad syntax. Fix memory leak.
Files: src/ex_cmds.c, src/ex_getln.c, src/testdir/test_viminfo.vim

Patch 7.4.1919
Problem: Register contents is not merged when writing viminfo.
Solution: Use timestamps for register contents.
Files: src/ops.c, src/ex_getln.c, src/ex_cmds.c, src/proto/ex_cmds.pro,
            src/proto/ex_getln.pro, src/proto/ops.pro, src/vim.h

Patch 7.4.1920 (after 7.4.1919)
Problem: Missing test changes.
Solution: Update viminfo test.
Files: src/testdir/test_viminfo.vim

Patch 7.4.1921 (after 7.4.1919)
Problem: vim_time() not included when needed.
Solution: Adjust #ifdef.
Files: src/ex_cmds.c

Patch 7.4.1922
Problem: Ruby 2.4.0 unifies Fixnum and Bignum into Integer.
Solution: Use rb_cInteger. (Weiyong Mao)
Files: src/if_ruby.c

Patch 7.4.1923

Problem: Command line editing is not tested much.
Solution: Add tests for expanding the file name and 'wildmenu'.
Files: src/testdir/test_cmdline.vim, src/testdir/Make_all.mak

Patch 7.4.1924
Problem: Missing "void" for functions without argument.
Solution: Add "void". (Hirohito Higashi)
Files: src/channel.c, src/edit.c, src/ex_cmds2.c, src/ops.c, src/screen.c

Patch 7.4.1925
Problem: Viminfo does not merge file marks properly.
Solution: Use a timestamp. Add the :clearjumps command.
Files: src/mark.c, src/ex_cmds.c, src/ex_docmd.c, src/proto/mark.pro,
            src/structs.h, src/vim.h, src/ex_cmds.h,
            src/testdir/test_viminfo.vim

Patch 7.4.1926
Problem: Possible crash with many history items.
Solution: Avoid the index going past the last item.
Files: src/ex_getln.c

Patch 7.4.1927
Problem: Compiler warning for signed/unsigned.
Solution: Add type cast.
Files: src/if_mzsch.c

Patch 7.4.1928
Problem: Overwriting pointer argument.
Solution: Assign to what it points to. (Dominique Pelle)
Files: src/fileio.c

Patch 7.4.1929
Problem: Inconsistent indenting and weird name.
Solution: Fix indent, make name all upper case. (Ken Takata)
Files: src/if_ruby.c

Patch 7.4.1930
Problem: Can't build without +spell but with +quickfix. (Charles)
Solution: Add better #ifdef around ml_append_buf(). (closes #864)
Files: src/memline.c

Patch 7.4.1931
Problem: Using both old and new style file mark lines from viminfo.
Solution: Skip the old style lines if the viminfo file was written with a
            Vim version that supports the new style.
Files: src/ex_cmds.c

Patch 7.4.1932
Problem: When writing viminfo the jumplist is not merged with the one in
            the viminfo file.
Solution: Merge based on timestamp.
Files: src/mark.c, src/testdir/test_viminfo.vim

Patch 7.4.1933

Problem: Compiler warning about uninitialized variable. (Yegappan)
Solution: Give it a dummy value.
Files: src/ex_getln.c

Patch 7.4.1934
Problem: New style tests not executed with MinGW compiler.
Solution: Add new style test support. (Yegappan Lakshmanan)
Files: src/testdir/Make_ming.mak

Patch 7.4.1935
Problem: When using the GUI search/replace a second match right after the
            replacement is skipped.
Solution: Add the SEARCH_START flag. (Mleddy)
Files: src/gui.c

Patch 7.4.1936
Problem: Off-by-one error in bounds check. (Coverity)
Solution: Check register number properly.
Files: src/ops.c

Patch 7.4.1937
Problem: No test for directory stack in quickfix.
Solution: Add a test. (Yegappan Lakshmanan)
Files: src/testdir/test_quickfix.vim

Patch 7.4.1938
Problem: When writing viminfo numbered marks were duplicated.
Solution: Check for duplicates between current numbered marks and the ones
            read from viminfo.
Files: src/mark.c

Patch 7.4.1939
Problem: Memory access error when reading viminfo. (Dominique Pelle)
Solution: Correct index in jumplist when at the end.
Files: src/mark.c, src/testdir/test_viminfo.vim

Patch 7.4.1940
Problem: "gd" hangs in some situations. (Eric Biggers)
Solution: Remove the SEARCH_START flag when looping. Add a test.
Files: src/normal.c, src/testdir/test_goto.vim

Patch 7.4.1941
Problem: Not all quickfix tests are also done with the location lists.
Solution: Test more quickfix code. Use user commands instead of "exe".
            (Yegappan Lakshmanan)
Files: src/testdir/test_quickfix.vim

Patch 7.4.1942
Problem: Background is not drawn properly when 'termguicolors' is set.
Solution: Check cterm_normal_bg_color. (Jacob Niehus, closes #805)
Files: src/screen.c

Patch 7.4.1943
Problem: Coverity warns for unreachable code.

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Solution:   Remove the code that won't do anything.
Files:      src/mark.c

Patch 7.4.1944
Problem:    Win32: Cannot compile with XPM feature using VC2015
Solution:   Add XPM libraries compiled with VC2015, and enable to build
            gvim.exe which supports XPM using VC2015. (Ken Takata)
Files:      src/Make_mvc.mak, src/xpm/x64/lib-vc14/libXpm.lib,
            src/xpm/x86/lib-vc14/libXpm.lib

Patch 7.4.1945
Problem:    The Man plugin doesn't work that well.
Solution:   Use "g:ft_man_open_mode" to be able open man pages in vert split
            or separate tab. Set nomodifiable for buffer with man content. Add
            a test. (Andrey Starodubtsev, closes #873)
Files:      runtime/ftplugin/man.vim, src/testdir/test_man.vim,
            src/testdir/Make_all.mak

Patch 7.4.1946 (after 7.4.1944)
Problem:    File list does not include new XPM libraries.
Solution:   Add the file list entries.
Files:      Filelist

Patch 7.4.1947
Problem:    Viminfo continuation line with wrong length isn't skipped. (Marius
            Gedminas)
Solution:   Skip a line when encountering an error, but not two lines.
Files:      src/ex_cmds.c

Patch 7.4.1948
Problem:    Using Ctrl-A with double-byte encoding may result in garbled text.
Solution:   Skip to the start of a character. (Hirohito Higashi)
Files:      src/ops.c

Patch 7.4.1949
Problem:    Minor problems with the quickfix code.
Solution:   Fix the problems. (Yegappan Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1950
Problem:    Quickfix long lines test not executed for buffer.
Solution:   Call the function to test long lines. (Yegappan Lakshmanan)
Files:      src/testdir/test_quickfix.vim

Patch 7.4.1951
Problem:    Ruby test is old style.
Solution:   Convert to a new style test. (Ken Takata)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/test_ruby.in,
            src/testdir/test_ruby.ok, src/testdir/test_ruby.vim

Patch 7.4.1952
Problem:    Cscope interface does not support finding assignments.
Solution:   Add the "a" command. (ppettina, closes #882)
Files:      runtime/doc/if_cscop.txt, src/if_cscope.c
```

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Patch 7.4.1953
Problem:    Not all parts of the quickfix code are tested.
Solution:   Add more tests. (Yegappan Lakshmanan)
Files:      src/testdir/samples/quickfix.txt,
            src/testdir/test_quickfix.vim

Patch 7.4.1954 (after 7.4.1948)
Problem:    No test for what 7.4.1948 fixes.
Solution:   Add a test. (Hirohito Higashi, closes #880)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_increment_dbcs.vim

Patch 7.4.1955
Problem:    Using 32-bit Perl with 64-bit time_t causes memory corruption.
            (Christian Brabandt)
Solution:   Use time_T instead of time_t for global variables. (Ken Takata)
Files:      src/ex_cmds.c, src/globals.h, src/misc2.c, src/proto/ex_cmds.pro,
            src/proto/misc2.pro, src/structs.h, src/vim.h

Patch 7.4.1956
Problem:    When using CTRL-W f and pressing "q" at the ATTENTION dialog the
            newly opened window is not closed.
Solution:   Close the window and go back to the original one. (Norio Takagi,
            Hirohito Higashi)
Files:      src/window.c, src/testdir/test_window_cmd.vim

Patch 7.4.1957
Problem:    Perl interface has obsolete workaround.
Solution:   Remove the workaround added by 7.3.623. (Ken Takata)
Files:      src/if_perl.xs

Patch 7.4.1958
Problem:    Perl interface preprocessor statements not nicely indented.
Solution:   Improve the indenting. (Ken Takata)
Files:      src/if_perl.xs

Patch 7.4.1959
Problem:    Crash when running test_channel.vim on Windows.
Solution:   Check for NULL pointer result from FormatMessage(). (Christian
            Brabandt)
Files:      src/channel.c

Patch 7.4.1960
Problem:    Unicode standard 9 was released.
Solution:   Update the character property tables. (Christian Brabandt)
Files:      src/mbyte.c

Patch 7.4.1961
Problem:    When 'insertmode' is reset while doing completion the popup menu
            remains even though Vim is in Normal mode.
Solution:   Ignore stop_insert_mode when the popup menu is visible.  Don't set
            stop_insert_mode when 'insertmode' was already off. (Christian
            Brabandt)
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Files:      src/edit.c, src/option.c, src/Makefile, src/testdir/test_alot.vim,
            src/testdir/test_popup.vim

Patch 7.4.1962
Problem:    Two test files for increment/decrement.
Solution:   Move the old style test into the new style test. (Hirohito
            Higashi, closes #881)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/main.aap,
            src/testdir/test35.in, src/testdir/test35.ok,
            src/testdir/test_increment.vim

Patch 7.4.1963
Problem:    Running Win32 Vim in mintty does not work.
Solution:   Detect mintty and give a helpful error message. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak, src/iscygpty.c,
            src/iscygpty.h, src/main.c, Filelist

Patch 7.4.1964
Problem:    The quickfix init function is too big.
Solution:   Factor out parsing 'errorformat' to a separate function. (Yegappan
            Lakshmanan)
Files:      src/quickfix.c

Patch 7.4.1965
Problem:    When using a job in raw mode to append to a buffer garbage
            characters are added.
Solution:   Do not replace the trailing NUL with a NL. (Ozaki Kiichi)
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.1966
Problem:    Coverity reports a resource leak.
Solution:   Close "fd" also when bailing out.
Files:      src/quickfix.c

Patch 7.4.1967
Problem:    Falling back from NFA to old regexp engine does not work properly.
            (fritzophrenic)
Solution:   Do not restore nfa_match. (Christian Brabandt, closes #867)
Files:      src/regexp_nfa.c, src/testdir/test64.in, src/testdir/test64.ok

Patch 7.4.1968
Problem:    Invalid memory access with "\<C-">.
Solution:   Do not recognize this as a special character. (Dominique Pelle)
Files:      src/misc2.c, src/testdir/test_expr.vim

Patch 7.4.1969
Problem:    When the netbeans channel is closed consuming the buffer may cause
            a crash.
Solution:   Check for nb_channel not to be NULL. (Xavier de Gaye)
Files:      src/netbeans.c

Patch 7.4.1970
Problem:    Using ":insert" in an empty buffer sets the jump mark. (Ingo
            Karkat)
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Solution:   Don't adjust marks when replacing the empty line in an empty
            buffer. (closes #892)
Files:      src/ex_cmds.c, src/testdir/test_jumps.vim,
            src/testdir/test_alot.vim

Patch 7.4.1971
Problem:    It is not easy to see unrecognized error lines below the current
            error position.
Solution:   Add ":clist +count".
Files:      src/quickfix.c, runtime/doc/quickfix.txt

Patch 7.4.1972
Problem:    On Solaris select() does not work as expected when there is
            typeahead.
Solution:   Add ICANON when sleeping. (Ozaki Kiichi)
Files:      src/os_unix.c

Patch 7.4.1973
Problem:    On MS-Windows the package directory may be added at the end
            because of forward/backward slash differences. (Matthew
            Desjardins)
Solution:   Ignore slash differences.
Files:      src/ex_cmds2.c

Patch 7.4.1974
Problem:    GUI has a problem with some termcodes.
Solution:   Handle negative numbers. (Kazunobu Kuriyama)
Files:      src/gui.c

Patch 7.4.1975
Problem:    On MS-Windows large files (> 2Gbyte) cause problems.
Solution:   Use "off_T" instead of "off_t".  Use "stat_T" instead of "struct
            stat".  Use 64 bit system functions if available.  (Ken Takata)
Files:      src/Makefile, src/buffer.c, src/diff.c, src/eval.c, src/ex_cmds.c,
            src/ex_cmds2.c, src/fileio.c, src/gui.c, src/gui_at_fs.c,
            src/if_cscope.c, src/main.c, src/memfile.c, src/memline.c,
            src/misc1.c, src/misc2.c, src/netbeans.c, src/os_mswin.c,
            src/os_win32.c, src/proto/fileio.pro, src/proto/memline.pro,
            src/proto/os_mswin.pro, src/pty.c, src/quickfix.c, src/spell.c,
            src/structs.h, src/tag.c, src/testdir/Make_all.mak,
            src/testdir/test_largefile.vim, src/testdir/test_stat.vim,
            src/undo.c, src/vim.h

Patch 7.4.1976
Problem:    Number variables are not 64 bits while they could be.
Solution:   Add the num64 feature. (Ken Takata, Yasuhiro Matsumoto)
Files:      runtime/doc/eval.txt, runtime/doc/various.txt,
            src/Make_cyg_ming.mak, src/Make_mvc.mak, src/charset.c,
            src/eval.c, src/ex_cmds.c, src/ex_getln.c, src/feature.h,
            src/fileio.c, src/fold.c, src/json.c, src/message.c, src/misc1.c,
            src/misc2.c, src/ops.c, src/option.c, src/proto/charset.pro,
            src/proto/eval.pro, src/quickfix.c, src/structs.h,
            src/testdir/test_viml.vim, src/version.c
```

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Patch 7.4.1977
Problem:    With 64 bit changes don't need three calls to sprintf().
Solution:   Simplify the code, use vim_snprintf(). (Ken Takata)
Files:      src/fileio.c

Patch 7.4.1978 (after 7.4.1975)
Problem:    Large file test does not delete its output.
Solution:   Delete the output. Check size properly when possible. (Ken Takata)
Files:      src/testdir/test_largefile.vim

Patch 7.4.1979 (after 7.4.1976)
Problem:    Getting value of binary option is wrong. (Kent Sibilev)
Solution:   Fix type cast.  Add a test.
Files:      src/option.c, src/testdir/test_expr.vim

Patch 7.4.1980
Problem:    'errorformat' is parsed for every call to ":caddexpr".  Can't add
            to two location lists asynchronously.
Solution:   Keep the previously parsed data when appropriate. (mostly by
            Yegappan Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.1981
Problem:    No testing for Farsi code.
Solution:   Add a minimal test.  Clean up Farsi code.
Files:      src/farsi.c, src/Makefile, src/charset.c, src/normal.c,
            src/proto/main.pro, src/testdir/Make_all.mak,
            src/testdir/test_farsi.vim

Patch 7.4.1982
Problem:    Viminfo file contains duplicate change marks.
Solution:   Drop duplicate marks.
Files:      src/mark.c

Patch 7.4.1983
Problem:    farsi.c and arabic.c are included in a strange way.
Solution:   Build them like other files.
Files:      src/main.c, src/farsi.c, src/arabic.c, src/proto.h,
            src/proto/main.pro, src/proto/farsi.pro, src/proto/arabic.pro,
            src/Makefile, src/Make_bc5.mak, src/Make_cyg_ming.mak,
            src/Make_dice.mak, src/Make_ivc.mak, src/Make_manx.mak,
            src/Make_morph.mak, src/Make_mvc.mak, src/Make_sas.mak,
            Filelist

Patch 7.4.1984
Problem:    Not all quickfix features are tested.
Solution:   Add a few more tests. (Yegappan Lakshmanan)
Files:      src/testdir/test_quickfix.vim

Patch 7.4.1985 (after 7.4.1983)
Problem:    Missing changes in VMS build file.
Solution:   Use the right file name.
Files:      src/Make_vms.mms
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Patch 7.4.1986
Problem:    Compiler warns for loss of data.
Solution:   Use size_t instead of int. (Christian Brabandt)
Files:      src/ex_cmds2.c

Patch 7.4.1987
Problem:    When copying unrecognized lines for viminfo, end up with useless
            continuation lines.
Solution:   Skip continuation lines.
Files:      src/ex_cmds.c

Patch 7.4.1988
Problem:    When updating viminfo with file marks there is no time order.
Solution:   Remember the time when a buffer was last used, store marks for
            the most recently used buffers.
Files:      src/buffer.c, src/structs.h, src/mark.c, src/main.c,
            src/ex_cmds.c, src/proto/mark.pro, src/testdir/test_viminfo.vim

Patch 7.4.1989
Problem:    filter() and map() only accept a string argument.
Solution:   Implement using a Funcref argument (Yasuhiro Matsumoto, Ken
            Takata)
Files:      runtime/doc/eval.txt, src/Makefile, src/eval.c,
            src/testdir/test_alot.vim, src/testdir/test_filter_map.vim,
            src/testdir/test_partial.vim

Patch 7.4.1990 (after 7.4.1952)
Problem:    Cscope items are not sorted.
Solution:   Put the new "a" command first. (Ken Takata)
Files:      src/if_cscope.c

Patch 7.4.1991
Problem:    glob() does not add a symbolic link when there are no wildcards.
Solution:   Remove the call to mch_getperm().
Files:      src/misc1.c

Patch 7.4.1992
Problem:    Values for true and false can be confusing.
Solution:   Update the documentation.  Add a test.  Make v:true evaluate to
            TRUE for a non-zero-arg.
Files:      runtime/doc/eval.txt, src/eval.c, src/Makefile,
            src/testdir/test_true_false.vim, src/testdir/test_alot.vim

Patch 7.4.1993
Problem:    Not all TRUE and FALSE arguments are tested.
Solution:   Add a few more tests.
Files:      src/testdir/test_true_false.vim

Patch 7.4.1994 (after 7.4.1993)
Problem:    True-false test fails.
Solution:   Filter the dict to only keep the value that matters.
Files:      src/testdir/test_true_false.vim

Patch 7.4.1995
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Problem:    GUI: cursor drawn in wrong place if a timer callback causes a
            screen update. (David Samvelyan)
Solution:   Also redraw the cursor when it's blinking and on.
Files:      src/gui_gtk_x11.c, src/gui_mac.c, src/gui_photon.c, src/gui_w32.c,
            src/gui_x11.c, src/screen.c, src/proto/gui_gtk_x11.pro,
            src/proto/gui_mac.pro, src/proto/gui_photon.pro,
            src/proto/gui_w32.pro, src/proto/gui_x11.pro

Patch 7.4.1996
Problem:    Capturing the output of a command takes a few commands.
Solution:   Add evalcmd().
Files:      src/eval.c, runtime/doc/eval.txt, src/testdir/test_alot.vim,
            src/Makefile, src/testdir/test_evalcmd.vim

Patch 7.4.1997
Problem:    Cannot easily scroll the quickfix window.
Solution:   Add ":cbottom".
Files:      src/ex_cmds.h, src/quickfix.c, src/proto/quickfix.pro,
            src/ex_docmd.c, src/testdir/test_quickfix.vim,
            runtime/doc/quickfix.txt

Patch 7.4.1998
Problem:    When writing buffer lines to a job there is no NL to NUL
            conversion.
Solution:   Make it work symmetrical with writing lines from a job into a
            buffer.
Files:      src/channel.c, src/proto/channel.pro, src/netbeans.c

Patch 7.4.1999
Problem:    evalcmd() doesn't work recursively.
Solution:   Use redir_evalcmd instead of redir_vname.
Files:      src/message.c, src/eval.c, src/globals.h, src/proto/eval.pro,
            src/testdir/test_evalcmd.vim

Patch 7.4.2000 (after 7.4.1999)
Problem:    Evalcmd test fails.
Solution:   Add missing piece.
Files:      src/ex_docmd.c

Patch 7.4.2001 (after 7.4.2000)
Problem:    Tiny build fails. (Tony Mechelynck)
Solution:   Add #ifdef.
Files:      src/ex_docmd.c

Patch 7.4.2002
Problem:    Crash when passing number to filter() or map().
Solution:   Convert to a string. (Ozaki Kiichi)
Files:      src/eval.c, src/testdir/test_filter_map.vim

Patch 7.4.2003
Problem:    Still cursor flickering when a callback updates the screen. (David
            Samvelyan)
Solution:   Put the cursor in the right position after updating the screen.
Files:      src/screen.c
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Patch 7.4.2004
Problem:    GUI: cursor displayed in the wrong position.
Solution:   Correct screen_cur_col and screen_cur_row.
Files:      src/screen.c

Patch 7.4.2005
Problem:    After using evalcmd() message output is in the wrong position.
            (Christian Brabandt)
Solution:   Reset msg_col.
Files:      src/eval.c

Patch 7.4.2006
Problem:    Crash when using tabnext in BufUnload autocmd. (Norio Takagi)
Solution:   First check that the current buffer is the right one. (Hirohito
            Higashi)
Files:      src/buffer.c, src/testdir/test_autocmd.vim

Patch 7.4.2007
Problem:    Running the tests leaves a viminfo file behind.
Solution:   Make the viminfo option empty.
Files:      src/testdir/runtest.vim

Patch 7.4.2008
Problem:    evalcmd() has a confusing name.
Solution:   Rename to execute().  Make silent optional.  Support a list of
            commands.
Files:      src/eval.c, src/ex_docmd.c, src/message.c, src/globals.h,
            src/proto/eval.pro, src/Makefile, src/testdir/test_evalcmd.vim,
            src/testdir/test_execute_func.vim, src/testdir/test_alot.vim,
            runtime/doc/eval.txt

Patch 7.4.2009 (after 7.4.2008)
Problem:    Messages test fails.
Solution:   Don't set redir_execute before returning.  Add missing version
            number.
Files:      src/eval.c

Patch 7.4.2010
Problem:    There is a :cbottom command but no :lbottom command.
Solution:   Add :lbottom. (Yegappan Lakshmanan)
Files:      runtime/doc/index.txt, runtime/doc/quickfix.txt, src/ex_cmds.h,
            src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.2011
Problem:    It is not easy to get a list of command arguments.
Solution:   Add getcompletion(). (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/eval.c, src/ex_docmd.c,
            src/proto/ex_docmd.pro, src/testdir/test_cmdline.vim

Patch 7.4.2012 (after 7.4.2011)
Problem:    Test for getcompletion() does not pass on all systems.
Solution:   Only test what is supported.
Files:      src/testdir/test_cmdline.vim
```

```
Patch 7.4.2013
Problem:    Using "noinsert" in 'completeopt' breaks redo.
Solution:   Set compl_curr_match. (Shougo Matsu, closes #874)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 7.4.2014
Problem:    Using "noinsert" in 'completeopt' does not insert match.
Solution:   Set compl_enter_selects. (Shougo Matsu, closes #875)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 7.4.2015
Problem:    When a file gets a name when writing it 'acd' is not effective.
            (Dan Church)
Solution:   Invoke DO_AUTOCHDIR after writing the file. (Allen Haim, closes
            #777, closes #803)  Add test_autochdir() to enable 'acd' before
            "starting" is reset.
Files:      src/ex_cmds.c, src/buffer.c, src/eval.c, src/globals.h,
            src/Makefile, src/testdir/test_autochdir.vim,
            src/testdir/Make_all.mak

Patch 7.4.2016
Problem:    Warning from MinGW about _WIN32_WINNT redefined. (John Marriott)
Solution:   First undefine it. (Ken Takata)
Files:      src/Make_cyg_ming.mak

Patch 7.4.2017
Problem:    When there are many errors adding them to the quickfix list takes
            a long time.
Solution:   Add BLN_NOOPT.  Don't call buf_valid() in buf_copy_options().
            Remember the last file name used.  When going through the buffer
            list start from the end of the list.  Only call buf_valid() when
            autocommands were executed.
Files:      src/buffer.c, src/option.c, src/quickfix.c, src/vim.h

Patch 7.4.2018
Problem:    buf_valid() can be slow when there are many buffers.
Solution:   Add bufref_valid(), only go through the buffer list when a buffer
            was freed.
Files:      src/structs.h, src/buffer.c, src/quickfix.c, src/proto/buffer.pro

Patch 7.4.2019
Problem:    When ignoring case utf_fold() may consume a lot of time.
Solution:   Optimize for ASCII.
Files:      src/mbyte.c

Patch 7.4.2020
Problem:    Can't build without +autocmd feature.
Solution:   Adjust #ifdefs.
Files:      src/buffer.c

Patch 7.4.2021
Problem:    Still too many buf_valid() calls.
Solution:   Make au_new_curbuf a bufref.  Use bufref_valid() in more places.
```

```
Files:      src/ex_cmds.c, src/buffer.c, src/globals.h

Patch 7.4.2022
Problem:    Warnings from 64 bit compiler.
Solution:   Add type casts. (Mike Williams)
Files:      src/eval.c

Patch 7.4.2023
Problem:    buflist_findname_stat() may find a dummy buffer.
Solution:   Set the BF_DUMMY flag after loading a dummy buffer.  Start
            finding buffers from the end of the list.
Files:      src/quickfix.c, src/buffer.c

Patch 7.4.2024
Problem:    More buf_valid() calls can be optimized.
Solution:   Use bufref_valid() instead.
Files:      src/buffer.c, src/ex_cmds.c, src/structs.h, src/channel.c,
            src/diff.c, src/eval.c, src/ex_cmds2.c, src/ex_docmd.c,
            src/ex_getln.c, src/fileio.c, src/main.c, src/misc2.c,
            src/netbeans.c, src/quickfix.c, src/spell.c, src/term.c,
            src/if_py_both.h, src/window.c, src/proto/buffer.pro,
            src/proto/window.pro

Patch 7.4.2025
Problem:    The cursor blinking stops or is irregular when receiving date over
            a channel and writing it in a buffer, and when updating the status
            line. (Ramel Eshed)
Solution:   Make it a bit better by flushing GUI output.  Don't redraw the
            cursor after updating the screen if the blink state is off.
Files:      src/gui_gtk_x11.c, src/screen.c

Patch 7.4.2026
Problem:    Reference counting for callbacks isn't right.
Solution:   Add free_callback(). (Ken Takata)  Fix reference count.
Files:      src/channel.c, src/eval.c, src/ex_cmds2.c, src/proto/eval.pro

Patch 7.4.2027
Problem:    Can't build with +eval but without +menu.
Solution:   Add #ifdef. (John Marriott)
Files:      src/eval.c

Patch 7.4.2028
Problem:    cppcheck warns for using index before limits check.
Solution:   Swap the expressions. (Dominique Pelle)
Files:      src/mbyte.c

Patch 7.4.2029
Problem:    printf() does not work with 64 bit numbers.
Solution:   use the "L" length modifier. (Ken Takata)
Files:      src/message.c, src/testdir/test_expr.vim

Patch 7.4.2030
Problem:    ARCH must be set properly when using MinGW.
Solution:   Detect the default value of ARCH from the current compiler. (Ken
```

            Takata)
Files: src/Make_cyg_ming.mak

Patch 7.4.2031
Problem: The list_lbr_utf8 test fails if ~/.vim/syntax/c.vim sets
            'textwidth' to a non-zero value. (Oyvind A. Holm)
Solution: Add a setup.vim file that sets 'runtimepath' and $HOME to a safe
            value. (partly by Christian Brabandt, closes #912)
Files: src/testdir/setup.vim, src/testdir/amiga.vim, src/testdir/dos.vim,
            src/testdir/unix.vim, src/testdir/vms.vim, src/testdir/runtest.vim

Patch 7.4.2032 (after 7.4.2030)
Problem: Build fails with 64 bit MinGW. (Axel Bender)
Solution: Handle dash vs. underscore. (Ken Takata, Hirohito Higashi)
Files: src/Make_cyg_ming.mak

Patch 7.4.2033
Problem: 'cscopequickfix' option does not accept new value "a".
Solution: Adjust list of command characters. (Ken Takata)
Files: src/option.h, src/Makefile, src/testdir/test_cscope.vim,
            src/testdir/Make_all.mak

Patch 7.4.2034 (after 7.4.2032)
Problem: Build fails with some version of MinGW. (illusorypan)
Solution: Recognize mingw32. (Ken Takata, closes #921)
Files: src/Make_cyg_ming.mak

Patch 7.4.2035
Problem: On Solaris with ZFS the ACL may get removed.
Solution: Always restore the ACL for Solaris ZFS. (Danek Duvall)
Files: src/fileio.c

Patch 7.4.2036
Problem: Looking up a buffer by number is slow if there are many.
Solution: Use a hashtab.
Files: src/structs.h, src/buffer.c

Patch 7.4.2037 (after 7.4.2036)
Problem: Small build fails.
Solution: Adjust #ifdefs.
Files: src/hashtab.c

Patch 7.4.2038 (after 7.4.2036)
Problem: Small build still fails.
Solution: Adjust more #ifdefs.
Files: src/globals.h, src/buffer.c

Patch 7.4.2039
Problem: The Netbeans integration is not tested.
Solution: Add a first Netbeans test.
Files: src/testdir/test_netbeans.vim, src/testdir/test_netbeans.py,
            src/testdir/Make_all.mak, src/Makefile,
            src/testdir/test_channel.vim, src/testdir/shared.vim

```
Patch 7.4.2040
Problem:    New files missing from distribution.
Solution:   Add new test scripts.
Files:      Filelist

Patch 7.4.2041
Problem:    Netbeans file authentication not tested.
Solution:   Add a test.
Files:      src/testdir/test_netbeans.vim

Patch 7.4.2042
Problem:    GTK: display updating is not done properly and can be slow.
Solution:   Use gdk_display_flush() instead of gdk_display_sync(). Don't call
            gdk_window_process_updates().  (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 7.4.2043
Problem:    setbuvfar() causes a screen redraw.
Solution:   Only use aucmd_prepbuf() for options.
Files:      src/eval.c

Patch 7.4.2044
Problem:    filter() and map() either require a string or defining a function.
Solution:   Support lambda, a short way to define a function that evaluates an
            expression. (Yasuhiro Matsumoto, Ken Takata)
Files:      runtime/doc/eval.txt, src/eval.c, src/testdir/test_alot.vim,
            src/Makefile, src/testdir/test_channel.vim,
            src/testdir/test_lambda.vim

Patch 7.4.2045
Problem:    Memory leak when using a function callback.
Solution:   Don't save the function name when it's in the partial.
Files:      src/channel.c

Patch 7.4.2046
Problem:    The qf_init_ext() function is too big.
Solution:   Refactor it. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 7.4.2047
Problem:    Compiler warning for initializing a struct.
Solution:   Initialize in another way. (Anton Lindqvist)
Files:      src/quickfix.c

Patch 7.4.2048
Problem:    There is still code and help for unsupported systems.
Solution:   Remove the code and text. (Hirohito Higashi)
Files:      runtime/doc/eval.txt, runtime/lang/menu_sk_sk.vim,
            runtime/menu.vim, runtime/optwin.vim, src/Make_bc5.mak,
            src/ex_docmd.c, src/feature.h, src/fileio.c, src/globals.h,
            src/main.c, src/memfile.c, src/memline.c, src/misc1.c,
            src/misc2.c, src/option.c, src/option.h, src/os_unix.c,
            src/os_unix.h, src/proto.h, src/term.c, src/undo.c, src/version.c,
            src/vim.h, src/xxd/xxd.c
```

```
Patch 7.4.2049
Problem:    There is no way to get a list of the error lists.
Solution:   Add ":chistory" and ":lhistory".
Files:      src/ex_cmds.h, src/quickfix.c, src/ex_docmd.c, src/message.c,
            src/proto/quickfix.pro, src/testdir/test_quickfix.vim

Patch 7.4.2050
Problem:    When using ":vimgrep" may end up with duplicate buffers.
Solution:   When adding an error list entry pass the buffer number if possible.
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.2051
Problem:    No proper testing of trunc_string().
Solution:   Add a unittest for message.c.
Files:      src/Makefile, src/message.c, src/message_test.c, src/main.c,
            src/proto/main.pro, src/structs.h

Patch 7.4.2052
Problem:    Coverage report is messed up by the unittests.
Solution:   Add a separate test target for script tests.  Use that when
            collecting coverage information.
Files:      src/Makefile

Patch 7.4.2053
Problem:    Can't run scripttests in the top directory.
Solution:   Add targets to the top Makefile.
Files:      Makefile

Patch 7.4.2054 (after 7.4.2048)
Problem:    Wrong part of #ifdef removed.
Solution:   Use the right part. (Hirohito Higashi)
Files:      src/os_unix.c

Patch 7.4.2055
Problem:    eval.c is too big
Solution:   Move Dictionary functions to dict.c
Files:      src/eval.c, src/dict.c, src/vim.h, src/globals.h,
            src/proto/eval.pro, src/proto/dict.pro, src/Makefile, Filelist

Patch 7.4.2056 (after 7.4.2055)
Problem:    Build fails.
Solution:   Add missing changes.
Files:      src/proto.h

Patch 7.4.2057
Problem:    eval.c is too big.
Solution:   Move List functions to list.c
Files:      src/eval.c, src/dict.c, src/list.c, src/proto.h, src/Makefile,
            src/globals.h, src/proto/eval.pro, src/proto/list.pro, Filelist

Patch 7.4.2058
Problem:    eval.c is too big.
Solution:   Move user functions to userfunc.c
```

```
Files:      src/userfunc.c, src/eval.c, src/vim.h, src/globals.h,
            src/structs.h, src/proto.h, src/Makefile, src/proto/eval.pro,
            src/proto/userfunc.pro, Filelist

Patch 7.4.2059
Problem:    Non-Unix builds fail.
Solution:   Update Makefiles for new files.
Files:      src/Make_bc5.mak, src/Make_cyg_ming.mak, src/Make_dice.mak,
            src/Make_ivc.mak, src/Make_manx.mak, src/Make_morph.mak,
            src/Make_mvc.mak, src/Make_sas.mak

Patch 7.4.2060 (after 7.4.2059)
Problem:    Wrong file name.
Solution:   Fix typo.
Files:      src/Make_mvc.mak

Patch 7.4.2061
Problem:    qf_init_ext() is too big.
Solution:   Move code to qf_parse_line() (Yegappan Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.2062
Problem:    Using dummy variable to compute struct member offset.
Solution:   Use offsetof().
Files:      src/globals.h, src/macros.h, src/vim.h, src/spell.c

Patch 7.4.2063
Problem:    eval.c is still too big.
Solution:   Split off internal functions to evalfunc.c.
Files:      src/eval.c, src/evalfunc.c, src/list.c, src/proto.h,
            src/globals.h, src/vim.h, src/proto/eval.pro,
            src/proto/evalfunc.pro, src/proto/list.pro, src/Makefile, Filelist,
            src/Make_bc5.mak, src/Make_cyg_ming.mak, src/Make_dice.mak,
            src/Make_ivc.mak, src/Make_manx.mak, src/Make_morph.mak,
            src/Make_mvc.mak, src/Make_sas.mak

Patch 7.4.2064
Problem:    Coverity warns for possible buffer overflow.
Solution:   Use vim_strcat() instead of strcat().
Files:      src/quickfix.c

Patch 7.4.2065
Problem:    Compiler warns for uninitialized variable. (John Marriott)
Solution:   Set lnum to the right value.
Files:      src/evalfunc.c

Patch 7.4.2066
Problem:    getcompletion() not well tested.
Solution:   Add more testing.
Files:      src/testdir/test_cmdline.vim

Patch 7.4.2067
Problem:    Compiler warning for char/char_u conversion. (Tony Mechelynck)
            Inefficient code.
```

```
Solution:   Use more lines to fill with spaces. (Nikolai Pavlov) Add type cast.
Files:      src/quickfix.c

Patch 7.4.2068
Problem:    Not all arguments of trunc_string() are tested.  Memory access
            error when running the message tests.
Solution:   Add another test case. (Yegappan Lakshmanan)  Make it easy to run
            unittests with valgrind.  Fix the access error.
Files:      src/message.c, src/message_test.c, src/Makefile

Patch 7.4.2069
Problem:    spell.c is too big.
Solution:   Split it in spell file handling and spell checking.
Files:      src/spell.c, src/spellfile.c, src/spell.h, src/Makefile,
            src/proto/spell.pro, src/proto/spellfile.pro, src/proto.h
            Filelist, src/Make_bc5.mak, src/Make_cyg_ming.mak,
            src/Make_dice.mak, src/Make_ivc.mak, src/Make_manx.mak,
            src/Make_morph.mak, src/Make_mvc.mak, src/Make_sas.mak

Patch 7.4.2070 (after 7.4.2069)
Problem:    Missing change to include file.
Solution:   Include the spell header file.
Files:      src/vim.h

Patch 7.4.2071
Problem:    The return value of type() is difficult to use.
Solution:   Define v:t_ constants. (Ken Takata)
Files:      runtime/doc/eval.txt, src/eval.c, src/evalfunc.c,
            src/testdir/test_channel.vim, src/testdir/test_viml.vim, src/vim.h

Patch 7.4.2072
Problem:    substitute() does not support a Funcref argument.
Solution:   Support a Funcref like it supports  a string starting with "\=".
Files:      src/evalfunc.c, src/regexp.c, src/eval.c, src/proto/eval.pro,
            src/proto/regexp.pro, src/testdir/test_expr.vim

Patch 7.4.2073
Problem:    rgb.txt is read for every color name.
Solution:   Load rgb.txt once. (Christian Brabandt)  Add a test.
Files:      runtime/rgb.txt, src/term.c, src/testdir/test_syn_attr.vim

Patch 7.4.2074
Problem:    One more place using a dummy variable.
Solution:   Use offsetof(). (Ken Takata)
Files:      src/userfunc.c

Patch 7.4.2075
Problem:    No autocommand event to initialize a window or tab page.
Solution:   Add WinNew and TabNew events. (partly by Felipe Morales)
Files:      src/fileio.c, src/window.c, src/vim.h,
            src/testdir/test_autocmd.vim, runtime/doc/autocmd.txt

Patch 7.4.2076
Problem:    Syntax error when dict has '>' key.
```

```
Solution:   Check for endchar. (Ken Takata)
Files:      src/userfunc.c, src/testdir/test_lambda.vim

Patch 7.4.2077
Problem:    Cannot update 'tabline' when a tab was closed.
Solution:   Add the TabClosed autocmd event. (partly by Felipe Morales)
Files:      src/fileio.c, src/window.c, src/vim.h,
            src/testdir/test_autocmd.vim, runtime/doc/autocmd.txt

Patch 7.4.2078
Problem:    Running checks in po directory fails.
Solution:   Add colors used in syntax.c to the builtin color table.
Files:      src/term.c

Patch 7.4.2079
Problem:    Netbeans test fails on non-Unix systems.
Solution:   Only do the permission check on Unix systems.
Files:      src/testdir/test_netbeans.vim

Patch 7.4.2080
Problem:    When using PERROR() on some systems assert_fails() does not see
            the error.
Solution:   Make PERROR() always report the error.
Files:      src/vim.h, src/message.c, src/proto/message.pro

Patch 7.4.2081
Problem:    Line numbers in the error list are not always adjusted.
Solution:   Set b_has_qf_entry properly. (Yegappan Lakshmanan)
Files:      src/quickfix.c, src/structs.h, src/testdir/test_quickfix.vim

Patch 7.4.2082
Problem:    Not much test coverage for digraphs.
Solution:   Add a new style digraph test. (Christian Brabandt)
Files:      src/Makefile, src/testdir/test_alot.vim,
            src/testdir/test_digraph.vim

Patch 7.4.2083
Problem:    Coverity complains about not restoring a value.
Solution:   Restore the value, although it's not really needed.  Change return
            to jump to cleanup, might leak memory.
Files:      src/userfunc.c

Patch 7.4.2084
Problem:    New digraph test makes testing hang.
Solution:   Don't set "nocp".
Files:      src/testdir/test_digraph.vim

Patch 7.4.2085
Problem:    Digraph tests fails on some systems.
Solution:   Run it separately and set 'encoding' early.
Files:      src/testdir/Make_all.mak, src/testdir/test_alot.vim,
            src/testdir/test_digraph.vim

Patch 7.4.2086
```

```
Problem:    Using the system default encoding makes tests unpredictable.
Solution:   Always use utf-8 or latin1 in the new style tests.  Remove setting
            encoding and scriptencoding where it is not needed.
Files:      src/testdir/runtest.vim, src/testdir/test_channel.vim,
            src/testdir/test_digraph.vim, src/testdir/test_expand_dllpath.vim,
            src/testdir/test_expr_utf8.vim, src/testdir/test_json.vim,
            src/testdir/test_matchadd_conceal_utf8.vim,
            src/testdir/test_regexp_utf8.vim, src/testdir/test_visual.vim,
            src/testdir/test_alot_utf8.vim,

Patch 7.4.2087
Problem:    Digraph code test coverage is still low.
Solution:   Add more tests. (Christian Brabandt)
Files:      src/testdir/test_digraph.vim

Patch 7.4.2088 (after 7.4.2087)
Problem:    Keymap test fails with normal features.
Solution:   Bail out if the keymap feature is not supported.
Files:      src/testdir/test_digraph.vim

Patch 7.4.2089
Problem:    Color handling of X11 GUIs is too complicated.
Solution:   Simplify the code.  Use RGBA where appropriate. (Kazunobu
            Kuriyama)
Files:      src/gui.h, src/gui_beval.c, src/gui_gtk_x11.c, src/netbeans.c

Patch 7.4.2090
Problem:    Using submatch() in a lambda passed to substitute() is verbose.
Solution:   Use a static list and pass it as an optional argument to the
            function.  Fix memory leak.
Files:      src/structs.h, src/list.c, src/userfunc.c, src/channel.c,
            src/eval.c, src/evalfunc.c, src/ex_cmds2.c, src/regexp.c,
            src/proto/list.pro, src/proto/userfunc.pro,
            src/testdir/test_expr.vim, runtime/doc/eval.txt

Patch 7.4.2091
Problem:    Coverity reports a resource leak when out of memory.
Solution:   Close the file before returning.
Files:      src/term.c

Patch 7.4.2092
Problem:    GTK 3 build fails with older GTK version.
Solution:   Check the pango version. (Kazunobu Kuriyama)
Files:      src/gui_beval.c

Patch 7.4.2093
Problem:    Netbeans test fails once in a while.  Leaving log file behind.
Solution:   Add it to the list of flaky tests.  Disable logfile.
Files:      src/testdir/runtest.vim, src/testdir/test_channel.vim

Patch 7.4.2094
Problem:    The color allocation in X11 is overly complicated.
Solution:   Remove find_closest_color(), XAllocColor() already does this.
            (Kazunobu Kuriyama)
```

```
Files:      src/gui_x11.c

Patch 7.4.2095
Problem:    Man test fails when run with the GUI.
Solution:   Adjust for different behavior of GUI.  Add assert_inrange().
Files:      src/eval.c, src/evalfunc.c, src/proto/eval.pro,
            src/testdir/test_assert.vim, src/testdir/test_man.vim,
            runtime/doc/eval.txt

Patch 7.4.2096
Problem:    Lambda functions show up with completion.
Solution:   Don't show lambda functions. (Ken Takata)
Files:      src/userfunc.c, src/testdir/test_cmdline.vim

Patch 7.4.2097
Problem:    Warning from 64 bit compiler.
Solution:   use size_t instead of int. (Mike Williams)
Files:      src/message.c

Patch 7.4.2098
Problem:    Text object tests are old style.
Solution:   Turn them into new style tests. (James McCoy, closes #941)
Files:      src/testdir/Make_all.mak, src/testdir/test_textobjects.in,
            src/testdir/test_textobjects.ok, src/testdir/test_textobjects.vim,
            src/Makefile

Patch 7.4.2099
Problem:    When a keymap is active only "(lang)" is displayed. (Ilya
            Dogolazky)
Solution:   Show the keymap name. (Dmitri Vereshchagin, closes #933)
Files:      src/buffer.c, src/proto/screen.pro, src/screen.c

Patch 7.4.2100
Problem:    "cgn" and "dgn" do not work correctly with a single character
            match and the replacement includes the searched pattern. (John
            Beckett)
Solution:   If the match is found in the wrong column try in the next column.
            Turn the test into new style. (Christian Brabandt)
Files:      src/search.c, src/testdir/Make_all.mak, src/Makefile,
            src/testdir/test53.in, src/testdir/test53.ok,
            src/testdir/test_gn.vim

Patch 7.4.2101
Problem:    Looping over windows, buffers and tab pages is inconsistent.
Solution:   Use FOR_ALL_ macros everywhere. (Yegappan Lakshmanan)
Files:      src/buffer.c, src/diff.c, src/edit.c, src/eval.c, src/evalfunc.c,
            src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c, src/fileio.c,
            src/globals.h, src/gui.c, src/gui_mac.c, src/if_lua.c,
            src/if_mzsch.c, src/if_perl.xs, src/if_ruby.c, src/if_tcl.c,
            src/main.c, src/mark.c, src/memfile.c, src/memline.c, src/misc1.c,
            src/move.c, src/netbeans.c, src/normal.c, src/option.c,
            src/quickfix.c, src/screen.c, src/spell.c, src/term.c,
            src/window.c, src/workshop.c
```

```
Patch 7.4.2102 (after 7.4.2101)
Problem:    Tiny build with GUI fails.
Solution:   Revert one FOR_ALL_ change.
Files:      src/gui.c

Patch 7.4.2103
Problem:    Can't have "augroup END" right after ":au!".
Solution:   Check for the bar character before the command argument.
Files:      src/fileio.c, src/testdir/test_autocmd.vim,
            runtime/doc/autocmd.txt

Patch 7.4.2104
Problem:    Code duplication when unreferencing a function.
Solution:   De-duplicate.
Files:      src/userfunc.c

Patch 7.4.2105
Problem:    Configure reports default features to be "normal" while it is
            "huge".
Solution:   Change the default text.  Build with newer autoconf.
Files:      src/configure.in, src/auto/configure

Patch 7.4.2106
Problem:    Clang warns about missing field in initializer.
Solution:   Define COMMA and use it.  (Kazunobu Kuriyama)
Files:      src/ex_cmds.c, src/globals.h, src/vim.h

Patch 7.4.2107 (after 7.4.2106)
Problem:    Misplaced equal sign.
Solution:   Remove it.
Files:      src/globals.h

Patch 7.4.2108
Problem:    Netbeans test is flaky.
Solution:   Wait for the cursor to be positioned.
Files:      src/testdir/test_netbeans.vim

Patch 7.4.2109
Problem:    Setting 'display' to "lastline" is a drastic change, while
            omitting it results in lots of "@" lines.
Solution:   Add "truncate" to show "@@@" for a truncated line.
Files:      src/option.h, src/screen.c, runtime/doc/options.txt

Patch 7.4.2110
Problem:    When there is an CmdUndefined autocmd then the error for a missing
            command is E464 instead of E492. (Manuel Ortega)
Solution:   Don't let the pointer be NULL.
Files:      src/ex_docmd.c, src/testdir/test_usercommands.vim

Patch 7.4.2111
Problem:    Defaults are very conservative.
Solution:   Move settings from vimrc_example.vim to defaults.vim.  Load
            defaults.vim if no .vimrc was found.
Files:      src/main.c, src/version.c, src/os_amiga.h, src/os_dos.h,
```

```
            src/os_mac.h, src/os_unix.h, src/feature.h, src/Makefile,
            runtime/vimrc_example.vim, runtime/defaults.vim,
            runtime/evim.vim, Filelist, runtime/doc/starting.txt

Patch 7.4.2112
Problem:    getcompletion(.., 'dir') returns a match with trailing "*" when
            there are no matches. (Chdiza)
Solution:   Return an empty list when there are no matches.  Add a trailing
            slash to directories. (Yegappan Lakshmanan)  Add tests for no
            matches. (closes #947)
Files:      src/evalfunc.c, src/testdir/test_cmdline.vim

Patch 7.4.2113
Problem:    Test for undo is flaky.
Solution:   Turn it into a new style test.  Use test_settime() to avoid
            flakyness.
Files:      src/Makefile, src/undo.c, src/testdir/test61.in,
            src/testdir/test61.ok, src/testdir/test_undo.vim,
            src/testdir/test_undolevels.vim, src/testdir/Make_all.mak,
            src/testdir/test_alot.vim

Patch 7.4.2114
Problem:    Tiny build fails.
Solution:   Always include vim_time().
Files:      src/ex_cmds.c

Patch 7.4.2115
Problem:    Loading defaults.vim with -C argument.
Solution:   Don't load the defaults script with -C argument.  Test sourcing
            the defaults script.  Set 'display' to "truncate".
Files:      src/main.c, src/Makefile, runtime/defaults.vim,
            src/testdir/test_startup.vim, src/testdir/Make_all.mak

Patch 7.4.2116
Problem:    The default vimrc for Windows is very conservative.
Solution:   Use the defaults.vim in the Windows installer.
Files:      src/dosinst.c

Patch 7.4.2117
Problem:    Deleting an augroup that still has autocmds does not give a
            warning.  The next defined augroup takes its place.
Solution:   Give a warning and prevent the index being used for another group
            name.
Files:      src/fileio.c, src/testdir/test_autocmd.vim

Patch 7.4.2118
Problem:    Mac: can't build with tiny features.
Solution:   Don't define FEAT_CLIPBOARD unconditionally. (Kazunobu Kuriyama)
Files:      src/vim.h

Patch 7.4.2119
Problem:    Closures are not supported.
Solution:   Capture variables in lambdas from the outer scope. (Yasuhiro
            Matsumoto, Ken Takata)
```

```
Files:      runtime/doc/eval.txt, src/eval.c, src/ex_cmds2.c, src/globals.h,
            src/proto/eval.pro, src/proto/userfunc.pro,
            src/testdir/test_lambda.vim, src/userfunc.c

Patch 7.4.2120
Problem:    User defined functions can't be a closure.
Solution:   Add the "closure" argument. Allow using :unlet on a bound
            variable. (Yasuhiro Matsumoto, Ken Takata)
Files:      runtime/doc/eval.txt, src/testdir/test_lambda.vim, src/userfunc.c,
            src/eval.c src/proto/userfunc.pro

Patch 7.4.2121
Problem:    No easy way to check if lambda and closure are supported.
Solution:   Add the +lambda feature.
Files:      src/evalfunc.c, src/version.c, src/testdir/test_lambda.vim

Patch 7.4.2122 (after 7.4.2118)
Problem:    Mac: don't get +clipboard in huge build.
Solution:   Move #define down below including feature.h
Files:      src/vim.h

Patch 7.4.2123
Problem:    No new style test for diff mode.
Solution:   Add a test.  Check that folds are in sync.
Files:      src/Makefile, src/testdir/test_diffmode.vim,
            src/testdir/Make_all.mak, src/testdir/test47.in,
            src/testdir/test47.ok

Patch 7.4.2124
Problem:    diffmode test leaves files behind, breaking another test.
Solution:   Delete the files.
Files:      src/testdir/test_diffmode.vim

Patch 7.4.2125
Problem:    Compiler warning for loss of data.
Solution:   Add a type cast. (Christian Brabandt)
Files:      src/message.c

Patch 7.4.2126
Problem:    No tests for :diffget and :diffput
Solution:   Add tests.
Files:      src/testdir/test_diffmode.vim

Patch 7.4.2127
Problem:    The short form of ":noswapfile" is ":noswap" instead of ":nos".
            (Kent Sibilev)
Solution:   Only require three characters.  Add a test for the short forms.
Files:      src/ex_docmd.c, src/testdir/test_usercommands.vim

Patch 7.4.2128
Problem:    Memory leak when saving for undo fails.
Solution:   Free allocated memory. (Hirohito Higashi)
Files:      src/ex_cmds.c
```

```
Patch 7.4.2129
Problem:    Memory leak when using timer_start(). (Dominique Pelle)
Solution:   Don't copy the callback when using a partial.
Files:      src/evalfunc.c

Patch 7.4.2130
Problem:    Pending timers cause false memory leak reports.
Solution:   Free all timers on exit.
Files:      src/ex_cmds2.c, src/proto/ex_cmds2.pro, src/misc2.c

Patch 7.4.2131
Problem:    More memory leaks when using partial, e.g. for "exit-cb".
Solution:   Don't copy the callback when using a partial.
Files:      src/channel.c

Patch 7.4.2132
Problem:    test_partial has memory leaks reported.
Solution:   Add a note about why this happens.
Files:      src/testdir/test_partial.vim

Patch 7.4.2133 (after 7.4.2128)
Problem:    Can't build with tiny features.
Solution:   Add #ifdef.
Files:      src/ex_cmds.c

Patch 7.4.2134
Problem:    No error for using function() badly.
Solution:   Check for passing wrong function name. (Ken Takata)
Files:      src/eval.c, src/evalfunc.c, src/proto/userfunc.pro,
            src/testdir/test_expr.vim, src/userfunc.c, src/vim.h

Patch 7.4.2135
Problem:    Various tiny issues.
Solution:   Update comments, white space, etc.
Files:      src/diff.c, src/digraph.c, src/testdir/test80.in,
            src/testdir/test_channel.vim, src/testdir/Makefile,
            runtime/menu.vim, src/INSTALLpc.txt, src/xpm/README.txt

Patch 7.4.2136
Problem:    Closure function fails.
Solution:   Don't reset uf_scoped when it points to another funccal.
Files:      src/userfunc.c, src/testdir/test_lambda.vim

Patch 7.4.2137
Problem:    Using function() with a name will find another function when it is
            redefined.
Solution:   Add funcref().  Refer to lambda using a partial.  Fix several
            reference counting issues.
Files:      src/vim.h, src/structs.h, src/userfunc.c, src/eval.c,
            src/evalfunc.c, src/channel.c, src/proto/eval.pro,
            src/proto/userfunc.pro, src/if_mzsch.c, src/regexp.c, src/misc2.c,
            src/if_py_both.h, src/testdir/test_expr.vim, runtime/doc/eval.txt

Patch 7.4.2138
```

```
Problem:    Test 86 and 87 fail.
Solution:   Call func_ref() also for regular functions.
Files:      src/if_py_both.h

Patch 7.4.2139
Problem:    :delfunction causes illegal memory access.
Solution:   Correct logic when deciding to free a function.
Files:      src/userfunc.c, src/testdir/test_lambda.vim

Patch 7.4.2140
Problem:    Tiny build fails.
Solution:   Add dummy typedefs.
Files:      src/structs.h

Patch 7.4.2141
Problem:    Coverity reports bogus NULL check.
Solution:   When checking for a variable in the funccal scope don't pass the
            varname.
Files:      src/userfunc.c, src/proto/userfunc.pro, src/eval.c

Patch 7.4.2142
Problem:    Leaking memory when redefining a function.
Solution:   Don't increment the function reference count when it's found by
            name. Don't remove the wrong function from the hashtab.  More
            reference counting fixes.
Files:      src/structs.h, src/userfunc.c

Patch 7.4.2143
Problem:    A funccal is garbage collected while it can still be used.
Solution:   Set copyID in all referenced functions.  Do not list lambda
            functions with ":function".
Files:      src/userfunc.c, src/proto/userfunc.pro, src/eval.c,
            src/testdir/test_lambda.vim

Patch 7.4.2144
Problem:    On MS-Windows quickfix does not handle a line with 1023 bytes
            ending in CR-LF properly.
Solution:   Don't consider CR a line break. (Ken Takata)
Files:      src/quickfix.c

Patch 7.4.2145
Problem:    Win32: Using CreateThread/ExitThread is not safe.
Solution:   Use _beginthreadex and return from the thread. (Ken Takata)
Files:      src/os_win32.c

Patch 7.4.2146
Problem:    Not enough testing for popup menu.  CTRL-E does not always work
            properly.
Solution:   Add more tests.  When using CTRL-E check if the popup menu is
            visible. (Christian Brabandt)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 7.4.2147 (after 7.4.2146)
Problem:    test_alot fails.
```

Solution: Close window.
Files: src/testdir/test_popup.vim

Patch 7.4.2148
Problem: Not much testing for cscope.
Solution: Add a test that uses the cscope program. (Christian Brabandt)
Files: src/testdir/test_cscope.vim

Patch 7.4.2149
Problem: If a test leaves a window open a following test may fail.
Solution: Always close extra windows after running a test.
Files: src/testdir/runtest.vim, src/testdir/test_popup.vim

Patch 7.4.2150
Problem: Warning with MinGW 64. (John Marriott)
Solution: Change return type. (Ken Takata)
Files: src/os_win32.c

Patch 7.4.2151
Problem: Quickfix test fails on MS-Windows.
Solution: Close the help window. (Christian Brabandt)
Files: src/testdir/test_quickfix.vim

Patch 7.4.2152
Problem: No proper translation of messages with a count.
Solution: Use ngettext(). (Sergey Alyoshin)
Files: src/evalfunc.c, src/fold.c, src/os_win32.c, src/screen.c, src/vim.h

Patch 7.4.2153
Problem: GUI test isn't testing much.
Solution: Turn into a new style test. Execute a shell command.
Files: src/testdir/test_gui.vim, src/testdir/test16.in,
            src/testdir/test16.ok, src/testdir/Make_all.mak, src/Makefile,
            src/testdir/Make_vms.mms

Patch 7.4.2154
Problem: Test_communicate() fails sometimes.
Solution: Add it to the flaky tests.
Files: src/testdir/runtest.vim

Patch 7.4.2155
Problem: Quotes make GUI test fail on MS-Windows.
Solution: Remove quotes, strip white space.
Files: src/testdir/test_gui.vim

Patch 7.4.2156
Problem: Compiler warning.
Solution: Add type cast. (Ken Takata, Mike Williams)
Files: src/os_win32.c

Patch 7.4.2157
Problem: Test_job_start_fails() is expected to report memory leaks, making
            it hard to see other leaks in test_partial.
Solution: Move Test_job_start_fails() to a separate test file.

```
Files:      src/testdir/test_partial.vim, src/testdir/test_job_fails.vim,
            src/Makefile, src/testdir/Make_all.mak

Patch 7.4.2158
Problem:    Result of getcompletion('', 'cscope') depends on previous
            completion. (Christian Brabandt)
Solution:   Call set_context_in_cscope_cmd().
Files:      src/evalfunc.c, src/testdir/test_cmdline.vim

Patch 7.4.2159
Problem:    Insufficient testing for cscope.
Solution:   Add more tests. (Dominique Pelle)
Files:      src/testdir/test_cscope.vim

Patch 7.4.2160
Problem:    setmatches() mixes up values. (Nikolai Pavlov)
Solution:   Save the string instead of reusing a shared buffer.
Files:      src/dict.c, src/evalfunc.c, src/testdir/test_expr.vim,

Patch 7.4.2161 (after 7.4.2160)
Problem:    Expression test fails without conceal feature.
Solution:   Only check "conceal" with the conceal feature.
Files:      src/testdir/test_expr.vim

Patch 7.4.2162
Problem:    Result of getcompletion('', 'sign') depends on previous
            completion.
Solution:   Call set_context_in_sign_cmd(). (Dominique Pelle)
Files:      src/evalfunc.c, src/testdir/test_cmdline.vim

Patch 7.4.2163
Problem:    match() and related functions tested with old style test.
Solution:   Convert to new style test. (Hirohito Higashi)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/test63.in,
            src/testdir/test63.ok, src/testdir/test_alot.vim,
            src/testdir/test_match.vim, src/testdir/test_matchstrpos.vim

Patch 7.4.2164
Problem:    It is not possible to use plugins in an "after" directory to tune
            the behavior of a package.
Solution:   First load plugins from non-after directories, then packages and
            finally plugins in after directories.
            Reset 'loadplugins' before executing --cmd arguments.
Files:      src/main.c, src/vim.h, src/ex_cmds2.c, src/testdir/Makefile,
            src/testdir/shared.vim, src/testdir/test_startup.vim,
            src/testdir/setup.vim, runtime/doc/starting.txt

Patch 7.4.2165 (after 7.4.2164)
Problem:    Startup test fails on MS-Windows.
Solution:   Don't check output if RunVim() returns zero.
Files:      src/testdir/test_startup.vim

Patch 7.4.2166 (after 7.4.2164)
Problem:    Small build can't run startup test.
```

```
Solution:   Skip the test.
Files:      src/testdir/test_startup.vim

Patch 7.4.2167 (after 7.4.2164)
Problem:    Small build can't run tests.
Solution:   Don't try setting 'packpath'.
Files:      src/testdir/setup.vim

Patch 7.4.2168
Problem:    Not running the startup test on MS-Windows.
Solution:   Write vimcmd.
Files:      src/testdir/Make_ming.mak, src/testdir/Make_dos.mak

Patch 7.4.2169 (after 7.4.2168)
Problem:    Startup test gets stuck on MS-Windows.
Solution:   Use double quotes.
Files:      src/testdir/shared.vim, src/testdir/test_startup.vim

Patch 7.4.2170
Problem:    Cannot get information about timers.
Solution:   Add timer_info().
Files:      src/evalfunc.c, src/ex_cmds2.c, src/proto/ex_cmds2.pro,
            runtime/doc/eval.txt

Patch 7.4.2171 (after 7.4.2170)
Problem:    MS-Windows build fails.
Solution:   Add QueryPerformanceCounter().
Files:      src/ex_cmds2.c

Patch 7.4.2172
Problem:    No test for "vim --help".
Solution:   Add a test.
Files:      src/testdir/test_startup.vim, src/testdir/shared.vim

Patch 7.4.2173 (after 7.4.2172)
Problem:    Can't test help on MS-Windows.
Solution:   Skip the test.
Files:      src/testdir/test_startup.vim

Patch 7.4.2174
Problem:    Adding duplicate flags to 'whichwrap' leaves commas behind.
Solution:   Also remove the commas. (Naruhiko Nishino)
Files:      src/Makefile, src/option.c, src/testdir/Make_all.mak,
            src/testdir/test_alot.vim, src/testdir/test_options.in,
            src/testdir/test_options.ok, src/testdir/test_options.vim

Patch 7.4.2175
Problem:    Insufficient testing of cscope.
Solution:   Add more tests. (Dominique Pelle)
Files:      src/testdir/test_cscope.vim

Patch 7.4.2176
Problem:    #ifdefs in main() are complicated.
Solution:   Always define vim_main2().  Move params to the file level.
```

            (suggested by Ken Takata)
Files: src/main.c, src/structs.h, src/vim.h, src/if_mzsch.c,
            src/proto/if_mzsch.pro

Patch 7.4.2177
Problem: No testing for -C and -N command line flags, file arguments,
            startuptime.
Solution: Add tests.
Files: src/testdir/test_startup.vim, src/testdir/shared.vim

Patch 7.4.2178
Problem: No test for reading from stdin.
Solution: Add a test.
Files: src/testdir/test_startup.vim, src/testdir/shared.vim

Patch 7.4.2179 (after 7.4.2178)
Problem: Reading from stdin test fails on MS-Windows.
Solution: Strip the extra space.
Files: src/testdir/test_startup.vim

Patch 7.4.2180
Problem: There is no easy way to stop all timers. There is no way to
            temporary pause a timer.
Solution: Add timer_stopall() and timer_pause().
Files: src/evalfunc.c, src/ex_cmds2.c, src/proto/ex_cmds2.pro,
            src/structs.h, src/testdir/test_timers.vim,
            src/testdir/shared.vim, runtime/doc/eval.txt

Patch 7.4.2181
Problem: Compiler warning for unused variable.
Solution: Remove it. (Dominique Pelle)
Files: src/ex_cmds2.c

Patch 7.4.2182
Problem: Color Grey40 used in startup but not in the short list.
Solution: Add Grey40 to the builtin colors.
Files: src/term.c

Patch 7.4.2183
Problem: Sign tests are old style.
Solution: Turn them into new style tests. (Dominique Pelle)
Files: src/Makefile, src/testdir/Make_all.mak, src/testdir/test_signs.in,
            src/testdir/test_signs.ok, src/testdir/test_signs.vim,

Patch 7.4.2184
Problem: Tests that use RunVim() do not actually perform the test.
Solution: Use "return" instead of "call". (Ken Takata)
Files: src/testdir/shared.vim

Patch 7.4.2185
Problem: Test glob2regpat does not test much.
Solution: Add a few more test cases. (Dominique Pelle)
Files: src/testdir/test_glob2regpat.vim

```
Patch 7.4.2186
Problem:    Timers test is flaky.
Solution:   Relax the sleep time check.
Files:      src/testdir/test_timers.vim

Patch 7.4.2187 (after 7.4.2185)
Problem:    glob2regpat test fails on Windows.
Solution:   Remove the checks that use backslashes.
Files:      src/testdir/test_glob2regpat.vim

Patch 7.4.2188 (after 7.4.2146)
Problem:    Completion does not work properly with some plugins.
Solution:   Revert the part related to typing CTRL-E. (closes #972)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 7.4.2189
Problem:    Cannot detect encoding in a fifo.
Solution:   Extend the stdin way of detecting encoding to fifo.  Add a test
            for detecting encoding on stdin and fifo. (Ken Takata)
Files:      src/buffer.c, src/fileio.c, src/Makefile,
            src/testdir/Make_all.mak, src/testdir/test_startup_utf8.vim,
            src/vim.h

Patch 7.4.2190
Problem:    When startup test fails it's not easy to find out why.
            GUI test fails with Gnome.
Solution:   Add the help entry matches to a list an assert that.
            Set $HOME for Gnome to create .gnome2 directory.
Files:      src/testdir/test_startup.vim, src/testdir/test_gui.vim

Patch 7.4.2191
Problem:    No automatic prototype for vim_main2().
Solution:   Move the #endif. (Ken Takata)
Files:      src/main.c, src/vim.h, src/proto/main.pro

Patch 7.4.2192
Problem:    Generating prototypes with Cygwin doesn't work well.
Solution:   Change #ifdefs. (Ken Takata)
Files:      src/gui.h, src/gui_w32.c, src/ops.c, src/proto/fileio.pro,
            src/proto/message.pro, src/proto/normal.pro, src/proto/ops.pro,
            src/vim.h

Patch 7.4.2193
Problem:    With Gnome when the GUI can't start test_startup hangs.
Solution:   Call gui_mch_early_init_check(). (Hirohito Higashi)
Files:      src/gui.c, src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro

Patch 7.4.2194
Problem:    Sign tests don't cover enough.
Solution:   Add more test cases. (Dominique Pelle)
Files:      src/testdir/test_signs.vim

Patch 7.4.2195
Problem:    MS-Windows: The vimrun program does not support Unicode.
```

```
Solution:   Use GetCommandLineW().  Cleanup old #ifdefs. (Ken Takata)
Files:      src/vimrun.c

Patch 7.4.2196
Problem:    glob2regpat test doesn't test everything on MS-Windows.
Solution:   Add patterns with backslash handling.
Files:      src/testdir/test_glob2regpat.vim

Patch 7.4.2197
Problem:    All functions are freed on exit, which may hide leaks.
Solution:   Only free named functions, not reference counted ones.
Files:      src/userfunc.c

Patch 7.4.2198
Problem:    Test alot sometimes fails under valgrind. (Dominique Pelle)
Solution:   Avoid passing a callback with the wrong number of arguments.
Files:      src/testdir/test_partial.vim

Patch 7.4.2199
Problem:    In the GUI the cursor is hidden when redrawing any window,
            causing flicker.
Solution:   Only undraw the cursor when updating the window it's in.
Files:      src/screen.c, src/gui.c, src/proto/gui.pro, src/gui_gtk_x11.c

Patch 7.4.2200
Problem:    Cannot get all information about a quickfix list.
Solution:   Add an optional argument to get/set loc/qf list(). (Yegappan
            Lakshmanan)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/proto/quickfix.pro,
            src/quickfix.c, src/tag.c, src/testdir/test_quickfix.vim

Patch 7.4.2201
Problem:    The sign column disappears when the last sign is deleted.
Solution:   Add the 'signcolumn' option. (Christian Brabandt)
Files:      runtime/doc/options.txt, runtime/optwin.vim, src/edit.c,
            src/move.c, src/option.c, src/option.h, src/proto/option.pro,
            src/screen.c, src/structs.h, src/testdir/test_options.vim

Patch 7.4.2202
Problem:    Build fails with small features.
Solution:   Correct option initialization.
Files:      src/option.c

Patch 7.4.2203
Problem:    Test fails with normal features.
Solution:   Check is signs are supported.
Files:      src/testdir/test_options.vim

Patch 7.4.2204
Problem:    It is not easy to get information about buffers, windows and
            tabpages.
Solution:   Add getbufinfo(), getwininfo() and gettabinfo(). (Yegappan
            Lakshmanan)
Files:      runtime/doc/eval.txt, runtime/doc/usr_41.txt, src/dict.c,
```

```
            src/evalfunc.c, src/option.c, src/proto/dict.pro,
            src/proto/option.pro, src/proto/window.pro,
            src/testdir/Make_all.mak, src/testdir/test_bufwintabinfo.vim,
            src/window.c, src/Makefile

Patch 7.4.2205
Problem:    'wildignore' always applies to getcompletion().
Solution:   Add an option to use 'wildignore' or not. (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/testdir/test_cmdline.vim

Patch 7.4.2206
Problem:    Warning for unused function.
Solution:   Put the function inside #ifdef. (John Marriott)
Files:      src/evalfunc.c

Patch 7.4.2207
Problem:    The +xpm feature is not sorted properly in :version output.
Solution:   Move it up. (Tony Mechelynck)
Files:      src/version.c

Patch 7.4.2208
Problem:    Test for mappings is old style.
Solution:   Convert the test to new style.
Files:      src/testdir/test_mapping.vim, src/testdir/test_mapping.in,
            src/testdir/test_mapping.ok, src/Makefile,
            src/testdir/test_alot.vim, src/testdir/Make_all.mak

Patch 7.4.2209
Problem:    Cannot map <M-">. (Stephen Riehm)
Solution:   Solve the memory access problem in another way. (Dominique Pelle)
            Allow for using <M-\"> in a string.
Files:      src/eval.c, src/gui_mac.c, src/misc2.c, src/option.c,
            src/proto/misc2.pro, src/syntax.c, src/term.c,
            src/testdir/test_mapping.vim

Patch 7.4.2210
Problem:    On OSX configure mixes up a Python framework and the Unix layout.
Solution:   Make configure check properly. (Tim D. Smith, closes #980)
Files:      src/configure.in, src/auto/configure

Patch 7.4.2211
Problem:    Mouse support is not automatically enabled with simple term.
Solution:   Recognize "st" and other names. (Manuel Schiller, closes #963)
Files:      src/os_unix.c

Patch 7.4.2212
Problem:    Mark " is not set when closing a window in another tab. (Guraga)
Solution:   Check all tabs for the window to be valid. (based on patch by
            Hirohito Higashi, closes #974)
Files:      src/window.c, src/proto/window.pro, src/buffer.c,
            src/testdir/test_viminfo.vim

Patch 7.4.2213
Problem:    Cannot highlight the "~" lines at the end of a window differently.
```

Solution: Add the EndOfBuffer highlighting. (Marco Hinz, James McCoy)
Files: runtime/doc/options.txt, runtime/doc/syntax.txt, src/option.c,
            src/screen.c, src/syntax.c, src/vim.h

Patch 7.4.2214
Problem: A font that uses ligatures messes up the screen display.
Solution: Put spaces between characters when building the glyph table.
            (based on a patch from Manuel Schiller)
Files: src/gui_gtk_x11.c

Patch 7.4.2215
Problem: It's not easy to find out if a window is a quickfix or location
            list window.
Solution: Add "loclist" and "quickfix" entries to the dict returned by
            getwininfo(). (Yegappan Lakshmanan)
Files: runtime/doc/eval.txt, src/evalfunc.c,
            src/testdir/test_bufwintabinfo.vim

Patch 7.4.2216 (after 7.4.2215)
Problem: Test fails without the +sign feature.
Solution: Only check for signcolumn with the +sign feature.
Files: src/testdir/test_bufwintabinfo.vim

Patch 7.4.2217
Problem: When using matchaddpos() a character after the end of the line can
            be highlighted.
Solution: Only highlight existing characters. (Hirohito Higashi)
Files: src/screen.c, src/structs.h, src/testdir/test_match.vim

Patch 7.4.2218
Problem: Can't build with +timers when +digraph is not included.
Solution: Change #ifdef for e_number_exp. (Damien)
Files: src/globals.h

Patch 7.4.2219
Problem: Recursive call to substitute gets stuck in sandbox. (Nikolai
            Pavlov)
Solution: Handle the recursive call. (Christian Brabandt, closes #950)
            Add a test.
Files: src/ex_cmds.c, src/testdir/test_regexp_latin.vim

Patch 7.4.2220
Problem: printf() gives an error when the argument for %s is not a string.
            (Ozaki Kiichi)
Solution: Behave like invoking string() on the argument. (Ken Takata)
Files: runtime/doc/eval.txt, src/message.c, src/testdir/test_expr.vim

Patch 7.4.2221
Problem: printf() does not support binary format.
Solution: Add %b and %B. (Ozaki Kiichi)
Files: runtime/doc/eval.txt, src/message.c, src/testdir/test_expr.vim

Patch 7.4.2222
Problem: Sourcing a script where a character has 0x80 as a second byte does

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            not work. (Filipe L B Correia)
Solution:   Turn 0x80 into K_SPECIAL KS_SPECIAL KE_FILLER. (Christian
            Brabandt, closes #728)  Add a test case.
Files:      src/getchar.c, src/proto/getchar.pro, src/misc1.c,
            src/testdir/test_regexp_utf8.vim

Patch 7.4.2223
Problem:    Buffer overflow when using latin1 character with feedkeys().
Solution:   Check for an illegal character.  Add a test.
Files:      src/testdir/test_regexp_utf8.vim, src/testdir/test_source_utf8.vim,
            src/testdir/test_alot_utf8.vim, src/Makefile, src/getchar.c,
            src/macros.h, src/evalfunc.c, src/os_unix.c, src/os_win32.c,
            src/spell.c,

Patch 7.4.2224
Problem:    Compiler warnings with older compiler and 64 bit numbers.
Solution:   Add "LL" to large values. (Mike Williams)
Files:      src/eval.c, src/evalfunc.c

Patch 7.4.2225
Problem:    Crash when placing a sign in a deleted buffer.
Solution:   Check for missing buffer name. (Dominique Pelle). Add a test.
Files:      src/ex_cmds.c, src/testdir/test_signs.vim

Patch 7.4.2226
Problem:    The field names used by getbufinfo(), gettabinfo() and
            getwininfo() are not consistent.
Solution:   Use bufnr, winnr and tabnr. (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/evalfunc.c,
            src/testdir/test_bufwintabinfo.vim

Patch 7.4.2227
Problem:    Tab page tests are old style.
Solution:   Change into new style tests. (Hirohito Higashi)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/test62.in,
            src/testdir/test62.ok, src/testdir/test_alot.vim,
            src/testdir/test_tabpage.vim

Patch 7.4.2228
Problem:    Test files have inconsistent modelines.
Solution:   Don't set 'tabstop' to 2, use 'sts' and 'sw'.
Files:      src/testdir/README.txt, src/testdir/test_backspace_opt.vim,
            src/testdir/test_digraph.vim, src/testdir/test_gn.vim
            src/testdir/test_help_tagjump.vim,
            src/testdir/test_increment_dbcs.vim,
            src/testdir/test_increment.vim, src/testdir/test_match.vim,
            src/testdir/test_tagjump.vim, src/testdir/test_window_cmd.vim,
            src/testdir/test_regexp_latin.vim, src/testdir/test_timers.vim

Patch 7.4.2229
Problem:    Startup test fails on Solaris.
Solution:   Recognize a character device. (Danek Duvall)
Files:      src/buffer.c, src/fileio.c, src/proto/fileio.pro, src/vim.h
```

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Patch 7.4.2230
Problem:    There is no equivalent of 'smartcase' for a tag search.
Solution:   Add value "followscs" and "smart" to 'tagcase'. (Christian
            Brabandt, closes #712) Turn tagcase test into new style.
Files:      runtime/doc/options.txt, runtime/doc/tagsrch.txt, src/option.h,
            src/tag.c, src/search.c, src/proto/search.pro,
            src/testdir/test_tagcase.in, src/testdir/test_tagcase.ok,
            src/testdir/test_tagcase.vim, src/Makefile,
            src/testdir/Make_all.mak, src/testdir/test_alot.vim

Patch 7.4.2231
Problem:    ":oldfiles" output is a very long list.
Solution:   Add a pattern argument. (Coot, closes #575)
Files:      runtime/doc/starting.txt, src/ex_cmds.h, src/eval.c,
            src/ex_cmds.c, src/proto/eval.pro, src/proto/ex_cmds.pro,
            src/testdir/test_viminfo.vim

Patch 7.4.2232
Problem:    The default ttimeoutlen is very long.
Solution:   Use "100". (Hirohito Higashi)
Files:      runtime/defaults.vim

Patch 7.4.2233
Problem:    Crash when using funcref() with invalid name. (Dominique Pelle)
Solution:   Check for NULL translated name.
Files:      src/evalfunc.c, src/testdir/test_expr.vim

Patch 7.4.2234
Problem:    Can't build with +eval but without +quickfix. (John Marriott)
Solution:   Move skip_vimgrep_pat() to separate #ifdef block.
Files:      src/quickfix.c

Patch 7.4.2235
Problem:    submatch() does not check for a valid argument.
Solution:   Give an error if the argument is out of range. (Dominique Pelle)
Files:      src/evalfunc.c, src/testdir/test_expr.vim

Patch 7.4.2236
Problem:    The 'langnoremap' option leads to double negatives.  And it does
            not work for the last character of a mapping.
Solution:   Add 'langremap' with the opposite value.  Keep 'langnoremap' for
            backwards compatibility.  Make it work for the last character of a
            mapping.  Make the test work.
Files:      runtime/doc/options.txt, runtime/defaults.vim, src/option.c,
            src/option.h, src/macros.h, src/testdir/test_mapping.vim

Patch 7.4.2237
Problem:    Can't use "." and "$" with ":tab".
Solution:   Support a range for ":tab". (Hirohito Higashi)
Files:      runtime/doc/tabpage.txt, src/ex_docmd.c,
            src/testdir/test_tabpage.vim

Patch 7.4.2238
Problem:    With SGR mouse reporting (suckless terminal) the mouse release and
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            scroll up/down is confused.
Solution:   Don't see a release as a scroll up/down. (Ralph Eastwood)
Files:      src/term.c

Patch 7.4.2239
Problem:    Warning for missing declaration of skip_vimgrep_pat(). (John
            Marriott)
Solution:   Move it to another file.
Files:      src/quickfix.c, src/proto/quickfix.pro, src/ex_cmds.c,
            src/proto/ex_cmds.pro

Patch 7.4.2240
Problem:    Tests using the sleep time can be flaky.
Solution:   Use reltime() if available. (Partly by Shane Harper)
Files:      src/testdir/shared.vim, src/testdir/test_timers.vim

Patch 7.4.2241 (after 7.4.2240)
Problem:    Timer test sometimes fails.
Solution:   Increase the maximum time for repeating timer.
Files:      src/testdir/test_timers.vim

Patch 7.4.2242 (after 7.4.2240)
Problem:    Timer test sometimes fails.
Solution:   Increase the maximum time for callback timer test.
Files:      src/testdir/test_timers.vim

Patch 7.4.2243
Problem:    Warning for assigning negative value to unsigned. (Danek Duvall)
Solution:   Make cterm_normal_fg_gui_color and _bg_ guicolor_T, cast to long_u
            only when an unsigned is needed.
Files:      src/structs.h, src/globals.h, src/screen.c, src/term.c,
            src/syntax.c, src/gui_gtk_x11.c, src/gui.c, src/gui_mac.c,
            src/gui_photon.c, src/gui_w32.c, src/gui_x11.c,
            src/proto/term.pro, src/proto/gui_gtk_x11.pro,
            src/proto/gui_mac.pro, src/proto/gui_photon.pro,
            src/proto/gui_w32.pro, src/proto/gui_x11.pro

Patch 7.4.2244
Problem:    Adding pattern to ":oldfiles" is not a generic solution.
Solution:   Add the ":filter /pat/ cmd" command modifier.  Only works for some
            commands right now.
Files:      src/structs.h, src/ex_docmd.c, src/ex_cmds.h, src/message.c,
            src/proto/message.pro, runtime/doc/starting.txt,
            runtime/doc/various.txt, src/testdir/test_viminfo.vim,
            src/testdir/test_alot.vim, src/testdir/test_filter_cmd.vim,
            src/Makefile

Patch 7.4.2245 (after 7.4.2244)
Problem:    Filter test fails.
Solution:   Include missing changes.
Files:      src/buffer.c

Patch 7.4.2246 (after 7.4.2244)
Problem:    Oldfiles test fails.
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Solution:   Include missing changes.
Files:      src/ex_cmds.c

Patch 7.4.2247 (after 7.4.2244)
Problem:    Tiny build fails. (Tony Mechelynck)
Solution:   Remove #ifdef.
Files:      src/ex_cmds.c

Patch 7.4.2248
Problem:    When cancelling the :ptjump prompt a preview window is opened for
            a following command.
Solution:   Reset g_do_tagpreview. (Hirohito Higashi)  Add a test.  Avoid that
            the test runner gets stuck in trying to close a window.
Files:      src/tag.c, src/testdir/test_tagjump.vim, src/testdir/runtest.vim

Patch 7.4.2249
Problem:    Missing colon in error message.
Solution:   Add the colon. (Dominique Pelle)
Files:      src/userfunc.c

Patch 7.4.2250
Problem:    Some error messages cannot be translated.
Solution:   Enclose them in _() and N_(). (Dominique Pelle)
Files:      src/channel.c, src/evalfunc.c, src/ex_cmds.c, src/spell.c,
            src/window.c

Patch 7.4.2251
Problem:    In rare cases diffing 4 buffers is not enough.
Solution:   Raise the limit to 8. (closes #1000)
Files:      src/structs.h, runtime/doc/diff.txt

Patch 7.4.2252
Problem:    Compiler warnings for signed/unsigned in expression.
Solution:   Remove type cast. (Dominique Pelle)
Files:      src/vim.h

Patch 7.4.2253
Problem:    Check for Windows 3.1 will always return false.  (Christian
            Brabandt)
Solution:   Remove the dead code.
Files:      src/gui_w32.c, src/evalfunc.c, src/ex_cmds.c, src/option.c,
            src/os_win32.c, src/version.c, src/proto/gui_w32.pro

Patch 7.4.2254
Problem:    Compiler warnings in MzScheme code.
Solution:   Add UNUSED.  Remove unreachable code.
Files:      src/if_mzsch.c

Patch 7.4.2255
Problem:    The script that checks translations can't handle plurals.
Solution:   Check for plural msgid and msgstr entries.  Leave the cursor on
            the first error.
Files:      src/po/check.vim
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Patch 7.4.2256
Problem:    Coverity complains about null pointer check.
Solution:   Remove wrong and superfluous error check.
Files:      src/eval.c

Patch 7.4.2257
Problem:    Coverity complains about not checking for NULL.
Solution:   Check for out of memory.
Files:      src/if_py_both.h

Patch 7.4.2258
Problem:    Two JSON messages are sent without a separator.
Solution:   Separate messages with a NL. (closes #1001)
Files:      src/json.c, src/channel.c, src/vim.h, src/testdir/test_channel.py,
            src/testdir/test_channel.vim, runtime/doc/channel.txt

Patch 7.4.2259
Problem:    With 'incsearch' can only see the next match.
Solution:   Make CTRL-N/CTRL-P move to the previous/next match. (Christian
            Brabandt)
Files:      runtime/doc/cmdline.txt, src/ex_getln.c, src/testdir/Make_all.mak,
            src/testdir/test_search.vim, src/Makefile

Patch 7.4.2260 (after 7.4.2258)
Problem:    Channel test is flaky.
Solution:   Add a newline to separate JSON messages.
Files:      src/testdir/test_channel.vim

Patch 7.4.2261 (after 7.4.2259)
Problem:    Build fails with small features.
Solution:   Move "else" inside the #ifdef.
Files:      src/ex_getln.c

Patch 7.4.2262
Problem:    Fail to read register content from viminfo if it is 438 characters
            long. (John Chen)
Solution:   Adjust the check for line wrapping. (closes #1010)
Files:      src/testdir/test_viminfo.vim, src/ex_cmds.c

Patch 7.4.2263
Problem:    :filter does not work for many commands.  Can only get matching
            messages.
Solution:   Make :filter work for :command, :map, :list, :number and :print.
            Make ":filter!" show non-matching lines.
Files:      src/getchar.c, src/ex_cmds.c, src/ex_cmds.h, src/ex_docmd.c,
            src/message.c, src/structs.h, src/testdir/test_filter_cmd.vim

Patch 7.4.2264
Problem:    When adding entries to an empty quickfix list the title is reset.
Solution:   Improve handling of the title. (Yegappan Lakshmanan)
Files:      src/testdir/test_quickfix.vim, src/quickfix.c

Patch 7.4.2265
Problem:    printf() isn't tested much.
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Solution:   Add more tests for printf(). (Dominique Pelle)
Files:      src/testdir/test_expr.vim

Patch 7.4.2266 (after 7.4.2265)
Problem:    printf() test fails on Windows. "-inf" is not used.
Solution:   Check for Windows-specific values for "nan".  Add sign to "inf"
            when appropriate.
Files:      src/message.c, src/testdir/test_expr.vim

Patch 7.4.2267 (after 7.4.2266)
Problem:    Build fails on MS-Windows.
Solution:   Add define to get isinf().
Files:      src/message.c

Patch 7.4.2268 (after 7.4.2259)
Problem:    Using CTRL-N and CTRL-P for incsearch shadows completion keys.
Solution:   Use CTRL-T and CTRL-G instead.
Files:      runtime/doc/cmdline.txt, src/ex_getln.c,
            src/testdir/test_search.vim

Patch 7.4.2269
Problem:    Using 'hlsearch' highlighting instead of matchpos if there is no
            search match.
Solution:   Pass NULL as last item to next_search_hl() when searching for
            'hlsearch' match. (Shane Harper, closes #1013)
Files:      src/screen.c, src/testdir/test_match.vim.

Patch 7.4.2270
Problem:    Insufficient testing for NUL bytes on a raw channel.
Solution:   Add a test for writing and reading.
Files:      src/testdir/test_channel.vim

Patch 7.4.2271
Problem:    Netbeans test doesn't read settings from file.
Solution:   Use "-Xnbauth".
Files:      src/testdir/test_netbeans.vim

Patch 7.4.2272
Problem:    getbufinfo(), getwininfo() and gettabinfo() are inefficient.
Solution:   Instead of making a copy of the variables dictionary, use a
            reference.
Files:      src/evalfunc.c

Patch 7.4.2273
Problem:    getwininfo() and getbufinfo() are inefficient.
Solution:   Do not make a copy of all window/buffer-local options.  Make it
            possible to get them with gettabwinvar() or getbufvar().
Files:      src/evalfunc.c, src/eval.c, src/testdir/test_bufwintabinfo.vim,
            runtime/doc/eval.txt

Patch 7.4.2274
Problem:    Command line completion on "find **/filename" drops sub-directory.
Solution:   Handle this case separately. (Harm te Hennepe, closes #932, closes
            #939)
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Files:      src/misc1.c, src/testdir/test_cmdline.vim

Patch 7.4.2275
Problem:    ":diffoff!" does not remove filler lines.
Solution:   Force a redraw and invalidate the cursor. (closes #1014)
Files:      src/diff.c, src/testdir/test_diffmode.vim

Patch 7.4.2276
Problem:    Command line test fails on Windows when run twice.
Solution:   Wipe the buffer so that the directory can be deleted.
Files:      src/testdir/test_cmdline.vim

Patch 7.4.2277
Problem:    Memory leak in getbufinfo() when there is a sign. (Dominique
            Pelle)
Solution:   Remove extra vim_strsave().
Files:      src/evalfunc.c

Patch 7.4.2278
Problem:    New users have no idea of the 'scrolloff' option.
Solution:   Set 'scrolloff' in defaults.vim.
Files:      runtime/defaults.vim

Patch 7.4.2279
Problem:    Starting diff mode with the cursor in the last line might end up
            only showing one closed fold. (John Beckett)
Solution:   Scroll the window to show the same relative cursor position.
Files:      src/diff.c, src/window.c, src/proto/window.pro

Patch 7.4.2280
Problem:    printf() doesn't handle infinity float values correctly.
Solution:   Add a table with possible infinity values. (Dominique Pelle)
Files:      src/message.c, src/testdir/test_expr.vim

Patch 7.4.2281
Problem:    Timer test fails sometimes.
Solution:   Reduce minimum time by 1 msec.
Files:      src/testdir/test_timers.vim

Patch 7.4.2282
Problem:    When a child process is very fast waiting 10 msec for it is
            noticeable. (Ramel Eshed)
Solution:   Start waiting for 1 msec and gradually increase.
Files:      src/os_unix.c

Patch 7.4.2283
Problem:    Part of ":oldfiles" command isn't cleared. (Lifepillar)
Solution:   Clear the rest of the line. (closes 1018)
Files:      src/ex_cmds.c

Patch 7.4.2284
Problem:    Comment in scope header file is outdated. (KillTheMule)
Solution:   Point to the help instead. (closes #1017)
Files:      src/if_cscope.h
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Patch 7.4.2285
Problem:    Generated files are outdated.
Solution:   Generate the files.  Avoid errors when generating prototypes.
Files:      src/if_mzsch.h, src/Makefile, src/option.h, src/os_mac_conv.c,
            src/os_amiga.c, src/vim.h, src/structs.h, src/os_win32.c,
            src/if_lua.c, src/proto/mbyte.pro

Patch 7.4.2286
Problem:    The tee program isn't included.  Makefile contains build
            instructions that don't work.
Solution:   Update the Filelist and build instructions. Remove build
            instructions for DOS and old Windows.  Add the tee program.
Files:      Filelist, Makefile, nsis/gvim.nsi

Patch 7.4.2287
Problem:    The callback passed to ch_sendraw() is not used.
Solution:   Pass the read part, not the send part. (haya14busa, closes #1019)
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.2288
Problem:    MS-Windows build instructions are clumsy. "dosbin" doesn't build.
Solution:   Add rename.bat. Fix building "dosbin".
Files:      Makefile, Filelist, rename.bat

Patch 7.4.2289
Problem:    When installing and $DESTDIR is set the icons probably won't be
            installed.
Solution:   Create the icon directories if $DESTDIR is not empty. (Danek
            Duvall)
Files:      src/Makefile

Patch 7.4.2290
Problem:    Compiler warning in tiny build. (Tony Mechelynck)
Solution:   Add #ifdef around infinity_str().
Files:      src/message.c

Patch 7.4.2291
Problem:    printf() handles floats wrong when there is a sign.
Solution:   Fix placing the sign.  Add tests. (Dominique Pelle)
Files:      src/testdir/test_expr.vim, runtime/doc/eval.txt, src/message.c

Patch 7.4.2292 (after 7.4.2291)
Problem:    Not all systems understand %F in printf().
Solution:   Use %f.
Files:      src/message.c

Patch 7.4.2293
Problem:    Modelines in source code are inconsistent.
Solution:   Use the same line in most files.  Add 'noet'.  (Naruhiko Nishino)
Files:      src/alloc.h, src/arabic.c, src/arabic.h, src/ascii.h,
            src/blowfish.c, src/buffer.c, src/channel.c, src/charset.c,
            src/crypt.c, src/crypt_zip.c, src/dict.c, src/diff.c,
            src/digraph.c, src/dosinst.c, src/dosinst.h, src/edit.c,
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src/eval.c, src/evalfunc.c, src/ex_cmds.c, src/ex_cmds.h,
src/ex_cmds2.c, src/ex_docmd.c, src/ex_eval.c, src/ex_getln.c,
src/farsi.c, src/farsi.h, src/feature.h, src/fileio.c, src/fold.c,
src/getchar.c, src/glbl_ime.cpp, src/glbl_ime.h, src/globals.h,
src/gui.c, src/gui.h, src/gui_at_fs.c, src/gui_at_sb.c,
src/gui_at_sb.h, src/gui_athena.c, src/gui_beval.c,
src/gui_beval.h, src/gui_gtk.c, src/gui_gtk_f.c, src/gui_gtk_f.h,
src/gui_gtk_vms.h, src/gui_gtk_x11.c, src/gui_mac.c,
src/gui_motif.c, src/gui_photon.c, src/gui_w32.c, src/gui_x11.c,
src/gui_x11_pm.h, src/gui_xmdlg.c, src/gui_xmebw.c,
src/gui_xmebw.h, src/gui_xmebwp.h, src/hangulin.c, src/hardcopy.c,
src/hashtab.c, src/if_cscope.c, src/if_cscope.h, src/if_mzsch.c,
src/if_mzsch.h, src/if_ole.cpp, src/if_perl.xs, src/if_perlsfio.c,
src/if_python3.c, src/if_ruby.c, src/if_tcl.c, src/if_xcmdsrv.c,
src/integration.c, src/integration.h, src/iscygpty.c, src/json.c,
src/json_test.c, src/keymap.h, src/list.c, src/macros.h,
src/main.c, src/mark.c, src/mbyte.c, src/memfile.c,
src/memfile_test.c, src/memline.c, src/menu.c, src/message.c,
src/message_test.c, src/misc1.c, src/misc2.c, src/move.c,
src/nbdebug.c, src/nbdebug.h, src/netbeans.c, src/normal.c,
src/ops.c, src/option.c, src/option.h, src/os_amiga.c,
src/os_amiga.h, src/os_beos.c, src/os_beos.h, src/os_dos.h,
src/os_mac.h, src/os_mac_conv.c, src/os_macosx.m, src/os_mint.h,
src/os_mswin.c, src/os_qnx.c, src/os_qnx.h, src/os_unix.c,
src/os_unix.h, src/os_unixx.h, src/os_vms.c, src/os_w32dll.c,
src/os_w32exe.c, src/os_win32.c, src/os_win32.h, src/popupmnu.c,
src/proto.h, src/pty.c, src/quickfix.c, src/regexp.c,
src/regexp.h, src/regexp_nfa.c, src/screen.c, src/search.c,
src/sha256.c, src/spell.c, src/spell.h, src/spellfile.c,
src/structs.h, src/syntax.c, src/tag.c, src/term.c, src/term.h,
src/termlib.c, src/ui.c, src/undo.c, src/uninstal.c,
src/userfunc.c, src/version.c, src/version.h, src/vim.h,
src/vim.rc, src/vimio.h, src/vimrun.c, src/winclip.c,
src/window.c, src/workshop.c, src/workshop.h, src/wsdebug.c,
src/wsdebug.h, src/xpm_w32.c

Patch 7.4.2294
Problem: Sign test fails on MS-Windows when using the distributed zip
          archives.
Solution: Create dummy files instead of relying on files in the pixmaps
          directory.
Files: src/testdir/test_signs.vim

Patch 7.4.2295 (after 7.4.2293)
Problem: Cscope test fails.
Solution: Avoid checking for specific line and column numbers.
Files: src/testdir/test_cscope.vim

Patch 7.4.2296
Problem: No tests for :undolist and "U" command.
Solution: Add tests. (Dominique Pelle)
Files: src/testdir/test_undo.vim

Patch 7.4.2297

```
Problem:    When starting a job that reads from a buffer and reaching the end,
            the job hangs.
Solution:   Close the pipe or socket when all lines were read.
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 7.4.2298
Problem:    It is not possible to close the "in" part of a channel.
Solution:   Add ch_close_in().
Files:      src/evalfunc.c, src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, runtime/doc/eval.txt,
            runtime/doc/channel.txt

Patch 7.4.2299
Problem:    QuickFixCmdPre and QuickFixCmdPost autocommands are not always
            triggered.
Solution:   Also trigger on ":cexpr", ":cbuffer", etc. (Yegappan Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 7.4.2300
Problem:    Get warning for deleting autocommand group when the autocommand
            using the group is scheduled for deletion. (Pavol Juhas)
Solution:   Check for deleted autocommand.
Files:      src/fileio.c, src/testdir/test_autocmd.vim

Patch 7.4.2301
Problem:    MS-Windows: some files remain after testing.
Solution:   Close the channel output file.  Wait for the file handle to be
            closed before deleting the file.
Files:      src/os_win32.c, src/testdir/test_channel.vim

Patch 7.4.2302
Problem:    Default interface versions for MS-Windows are outdated.
Solution:   Use Active Perl 5.24, Python 3.5.2.  Could only make it work with
            Ruby 1.9.2.
Files:      src/bigvim.bat, src/bigvim64.bat, src/Make_mvc.mak

Patch 7.4.2303
Problem:    When using "is" the mode isn't always updated.
Solution:   Redraw the command line. (Christian Brabandt)
Files:      src/search.c

Patch 7.4.2304
Problem:    In a timer callback the timer itself can't be found or stopped.
            (Thinca)
Solution:   Do not remove the timer from the list, remember whether it was
            freed.
Files:      src/ex_cmds2.c, src/testdir/test_timers.vim

Patch 7.4.2305
Problem:    Marks, writefile and nested function tests are old style.
Solution:   Turn them into new style tests. (Yegappan Lakshmanan)
Files:      src/testdir/Make_all.mak, src/testdir/test_marks.in,
            src/testdir/test_marks.ok, src/testdir/test_marks.vim,
            src/testdir/test_nested_function.in,
```

```
            src/testdir/test_nested_function.ok,
            src/testdir/test_nested_function.vim,
            src/testdir/test_writefile.in, src/testdir/test_writefile.ok,
            src/testdir/test_writefile.vim, src/Makefile

Patch 7.4.2306
Problem:    Default value for 'langremap' is wrong.
Solution:   Set the right value. (Jürgen Krämer)  Add a test.
Files:      src/option.c, src/testdir/test_mapping.vim

Patch 7.4.2307
Problem:    Several tests are old style.
Solution:   Turn them into new style tests. (Yegappan Lakshmanan)
Files:      src/testdir/Make_all.mak, src/testdir/test102.in,
            src/testdir/test102.ok, src/testdir/test46.in,
            src/testdir/test46.ok, src/testdir/test81.in,
            src/testdir/test81.ok, src/testdir/test_charsearch.in,
            src/testdir/test_charsearch.ok, src/testdir/test_charsearch.vim,
            src/testdir/test_fnameescape.vim, src/testdir/test_substitute.vim,
            src/Makefile

Patch 7.4.2308 (after 7.4.2307)
Problem:    Old charsearch test still listed in Makefile.
Solution:   Remove the line.
Files:      src/testdir/Make_all.mak

Patch 7.4.2309
Problem:    Crash when doing tabnext in a BufUnload autocmd. (Dominique Pelle)
Solution:   When detecting that the tab page changed, don't just abort but
            delete the window where w_buffer is NULL.
Files:      src/window.c, src/testdir/test_tabpage.vim

Patch 7.4.2310 (after 7.4.2304)
Problem:    Accessing freed memory when a timer does not repeat.
Solution:   Free after removing it. (Dominique Pelle)
Files:      src/ex_cmds2.c

Patch 7.4.2311
Problem:    Appveyor 64 bit build still using Python 3.4
Solution:   Switch to Python 3.5. (Ken Takata, closes #1032)
Files:      appveyor.yml, src/appveyor.bat

Patch 7.4.2312
Problem:    Crash when autocommand moves to another tab. (Dominique Pelle)
Solution:   When navigating to another window halfway the :edit command go
            back to the right window.
Files:      src/buffer.c, src/ex_cmds.c, src/ex_getln.c, src/ex_docmd.c,
            src/window.c, src/proto/ex_getln.pro, src/testdir/test_tabpage.vim

Patch 7.4.2313
Problem:    Crash when deleting an augroup and listing an autocommand.
            (Dominique Pelle)
Solution:   Make sure deleted_augroup is valid.
Files:      src/fileio.c, src/testdir/test_autocmd.vim
```

```
Patch 7.4.2314
Problem:    No error when deleting an augroup while it's the current one.
Solution:   Disallow deleting an augroup when it's the current one.
Files:      src/fileio.c, src/testdir/test_autocmd.vim

Patch 7.4.2315
Problem:    Insufficient testing for Normal mode commands.
Solution:   Add a big test. (Christian Brabandt, closes #1029)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_normal.vim

Patch 7.4.2316
Problem:    Channel sort test is flaky.
Solution:   Add a check the output has been read.
Files:      src/testdir/test_channel.vim

Patch 7.4.2317 (after 7.4.2315)
Problem:    Normal mode tests fail on MS-Windows.
Solution:   Do some tests only on Unix.  Set 'fileformat' to "unix".
Files:      src/testdir/test_normal.vim

Patch 7.4.2318
Problem:    When 'incsearch' is not set CTRL-T and CTRL-G are not inserted as
            before.
Solution:   Move #ifdef and don't use goto.
Files:      src/ex_getln.c

Patch 7.4.2319
Problem:    No way for a system wide vimrc to stop loading defaults.vim.
            (Christian Hesse)
Solution:   Bail out of defaults.vim if skip_defaults_vim was set.
Files:      runtime/defaults.vim

Patch 7.4.2320
Problem:    Redraw problem when using 'incsearch'.
Solution:   Save the current view when deleting characters. (Christian
            Brabandt) Fix that the '" mark is set in the wrong position. Don't
            change the search start when using BS.
Files:      src/ex_getln.c, src/normal.c, src/testdir/test_search.vim

Patch 7.4.2321
Problem:    When a test is commented out we forget about it.
Solution:   Let a test throw an exception with "Skipped" and list skipped test
            functions. (Christian Brabandt)
Files:      src/testdir/Makefile, src/testdir/runtest.vim,
            src/testdir/test_popup.vim, src/testdir/README.txt

Patch 7.4.2322
Problem:    Access memory beyond the end of the line. (Dominique Pelle)
Solution:   Adjust the cursor column.
Files:      src/move.c, src/testdir/test_normal.vim

Patch 7.4.2323
```

```
Problem:    Using freed memory when using 'formatexpr'. (Dominique Pelle)
Solution:   Make a copy of 'formatexpr' before evaluating it.
Files:      src/ops.c, src/testdir/test_normal.vim

Patch 7.4.2324
Problem:    Crash when editing a new buffer and BufUnload autocommand wipes
            out the new buffer. (Norio Takagi)
Solution:   Don't allow wiping out this buffer. (partly by Hirohito Higashi)
            Move old style test13 into test_autocmd. Avoid ml_get error when
            editing a file.
Files:      src/structs.h, src/buffer.c, src/ex_cmds.c, src/ex_docmd.c,
            src/window.c, src/testdir/test13.in, src/testdir/test13.ok,
            src/testdir/test_autocmd.vim, src/testdir/Make_all.mak,
            src/Makefile

Patch 7.4.2325 (after 7.4.2324)
Problem:    Tiny build fails.
Solution:   Add #ifdef.
Files:      src/buffer.c

Patch 7.4.2326
Problem:    Illegal memory access when Visual selection starts in invalid
            position. (Dominique Pelle)
Solution:   Correct position when needed.
Files:      src/normal.c, src/misc2.c, src/proto/misc2.pro

Patch 7.4.2327
Problem:    Freeing a variable that is on the stack.
Solution:   Don't free res_tv or err_tv. (Ozaki Kiichi)
Files:      src/channel.c

Patch 7.4.2328
Problem:    Crash when BufWinLeave autocmd goes to another tab page. (Hirohito
            Higashi)
Solution:   Make close_buffer() go back to the right window.
Files:      src/buffer.c, src/testdir/test_autocmd.vim

Patch 7.4.2329
Problem:    Error for min() and max() contains %s. (Nikolai Pavlov)
Solution:   Pass the function name. (closes #1040)
Files:      src/evalfunc.c, src/testdir/test_expr.vim

Patch 7.4.2330
Problem:    Coverity complains about not checking curwin to be NULL.
Solution:   Use firstwin to avoid the warning.
Files:      src/buffer.c

Patch 7.4.2331
Problem:    Using CTRL-X CTRL-V to complete a command line from Insert mode
            does not work after entering an expression on the command line.
Solution:   Don't use "ccline" when not actually using a command line. (test
            by Hirohito Higashi)
Files:      src/edit.c, src/ex_getln.c, src/proto/ex_getln.pro,
            src/testdir/test_popup.vim
```

```
Patch 7.4.2332
Problem:    Crash when stop_timer() is called in a callback of a callback.
            Vim hangs when the timer callback uses too much time.
Solution:   Set tr_id to -1 when a timer is to be deleted. Don't keep calling
            callbacks forever. (Ozaki Kiichi)
Files:      src/evalfunc.c, src/ex_cmds2.c, src/structs.h,
            src/proto/ex_cmds2.pro, src/testdir/test_timers.vim

Patch 7.4.2333
Problem:    Outdated comments in test.
Solution:   Cleanup normal mode test. (Christian Brabandt)
Files:      src/testdir/test_normal.vim

Patch 7.4.2334
Problem:    On MS-Windows test_getcwd leaves Xtopdir behind.
Solution:   Set 'noswapfile'. (Michael Soyka)
Files:      src/testdir/test_getcwd.in

Patch 7.4.2335
Problem:    taglist() is slow. (Luc Hermitte)
Solution:   Check for CTRL-C less often when doing a linear search. (closes
            #1044)
Files:      src/tag.c

Patch 7.4.2336
Problem:    Running normal mode tests leave a couple of files behind.
            (Yegappan Lakshmanan)
Solution:   Delete the files. (Christian Brabandt)
Files:      src/testdir/test_normal.vim

Patch 7.4.2337
Problem:    taglist() is still slow. (Luc Hermitte)
Solution:   Check for CTRL-C less often when finding duplicates.
Files:      src/tag.c

Patch 7.4.2338
Problem:    Can't build with small features. (John Marriott)
Solution:   Nearly always define FEAT_TAG_BINS.
Files:      src/feature.h, src/tag.c

Patch 7.4.2339
Problem:    Tab page test fails when run as fake root.
Solution:   Check 'buftype' instead of 'filetype'. (James McCoy, closes #1042)
Files:      src/testdir/test_tabpage.vim

Patch 7.4.2340
Problem:    MS-Windows: Building with Ruby uses old version.
Solution:   Update to 2.2.X. Use clearer name for the API version. (Ken
            Takata)
Files:      Makefile, src/INSTALLpc.txt, src/Make_cyg_ming.mak,
            src/Make_mvc.mak, src/bigvim.bat

Patch 7.4.2341
```

```
Problem:    Tiny things.  Test doesn't clean up properly.
Solution:   Adjust comment and white space. Restore option value.
Files:      src/ex_cmds.c, src/message.c, src/testdir/test_autocmd.vim

Patch 7.4.2342
Problem:    Typo in MS-Windows build script.
Solution:   change "w2" to "22".
Files:      src/bigvim.bat

Patch 7.4.2343
Problem:    Too many old style tests.
Solution:   Turn several into new style tests. (Yegappan Lakshmanan)
Files:      src/testdir/Make_all.mak, src/testdir/test101.in,
            src/testdir/test101.ok, src/testdir/test18.in,
            src/testdir/test18.ok, src/testdir/test2.in, src/testdir/test2.ok,
            src/testdir/test21.in, src/testdir/test21.ok,
            src/testdir/test6.in, src/testdir/test6.ok,
            src/testdir/test_arglist.vim, src/testdir/test_charsearch.vim,
            src/testdir/test_fnameescape.vim, src/testdir/test_gf.vim,
            src/testdir/test_hlsearch.vim, src/testdir/test_smartindent.vim,
            src/testdir/test_tagjump.vim, src/Makefile

Patch 7.4.2344
Problem:    The "Reading from channel output..." message can be unwanted.
            Appending to a buffer leaves an empty first line behind.
Solution:   Add the "out_msg" and "err_msg" options. Writing the first line
            overwrites the first, empty line.
Files:      src/structs.h, src/channel.c, src/testdir/test_channel.vim,
            runtime/doc/channel.txt

Patch 7.4.2345 (after 7.4.2340)
Problem:    For MinGW RUBY_API_VER_LONG isn't set correctly.  Many default
            version numbers are outdated.
Solution:   Set RUBY_API_VER_LONG to RUBY_VER_LONG. Use latest stable releases
            for defaults. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 7.4.2346
Problem:    Autocommand test fails when run directly, passes when run as part
            of test_alot.
Solution:   Add command to make the cursor move.  Close a tab page.
Files:      src/testdir/test_autocmd.vim

Patch 7.4.2347
Problem:    Crash when closing a buffer while Visual mode is active.
            (Dominique Pelle)
Solution:   Adjust the position before computing the number of lines.
            When closing the current buffer stop Visual mode.
Files:      src/buffer.c, src/normal.c, src/testdir/test_normal.vim

Patch 7.4.2348
Problem:    Crash on exit when EXITFREE is defined. (Dominique Pelle)
Solution:   Don't access curwin when exiting.
Files:      src/buffer.c
```

```
Patch 7.4.2349
Problem:    Valgrind reports using uninitialized memory. (Dominique Pelle)
Solution:   Check the length before checking for a NUL.
Files:      src/message.c

Patch 7.4.2350
Problem:    Test 86 and 87 fail with some version of Python.
Solution:   Unify "can't" and "cannot".  Unify quotes.
Files:      src/testdir/test86.in, src/testdir/test86.ok,
            src/testdir/test87.in, src/testdir/test87.ok

Patch 7.4.2351
Problem:    Netbeans test fails when run from unpacked MS-Windows sources.
Solution:   Open README.txt instead of Makefile.
Files:      src/testdir/test_netbeans.py, src/testdir/test_netbeans.vim

Patch 7.4.2352
Problem:    Netbeans test fails in shadow directory.
Solution:   Also copy README.txt to the shadow directory.
Files:      src/Makefile

Patch 7.4.2353
Problem:    Not enough test coverage for Normal mode commands.
Solution:   Add more tests. (Christian Brabandt)
Files:      src/testdir/test_normal.vim

Patch 7.4.2354
Problem:    The example that explains nested backreferences does not work
            properly with the new regexp engine. (Harm te Hennepe)
Solution:   Also save the end position when adding a state. (closes #990)
Files:      src/regexp_nfa.c, src/testdir/test_regexp_latin.vim

Patch 7.4.2355
Problem:    Regexp fails to match when using "\>\)\?". (Ramel)
Solution:   When a state is already in the list, but addstate_here() is used
            and the existing state comes later, add the new state anyway.
Files:      src/regexp_nfa.c, src/testdir/test_regexp_latin.vim

Patch 7.4.2356
Problem:    Reading past end of line when using previous substitute pattern.
            (Dominique Pelle)
Solution:   Don't set "pat" only set "searchstr".
Files:      src/search.c, src/testdir/test_search.vim

Patch 7.4.2357
Problem:    Attempt to read history entry while not initialized.
Solution:   Skip when the index is negative.
Files:      src/ex_getln.c

Patch 7.4.2358
Problem:    Compiler warnings with Solaris Studio when using GTK3. (Danek
            Duvall)
Solution:   Define FUNC2GENERIC depending on the system. (Kazunobu Kuriyama)
```

```
Files:      src/gui.h, src/gui_beval.c, src/gui_gtk_f.c

Patch 7.4.2359
Problem:    Memory leak in timer_start().
Solution:   Check the right field to be NULL.
Files:      src/evalfunc.c, src/testdir/test_timers.vim

Patch 7.4.2360
Problem:    Invalid memory access when formatting. (Dominique Pelle)
Solution:   Make sure cursor line and column are associated.
Files:      src/misc1.c

Patch 7.4.2361
Problem:    Checking for last_timer_id to overflow is not reliable. (Ozaki
            Kiichi)
Solution:   Check for the number not going up.
Files:      src/ex_cmds2.c

Patch 7.4.2362
Problem:    Illegal memory access with ":1@". (Dominique Pelle)
Solution:   Correct cursor column after setting the line number.  Also avoid
            calling end_visual_mode() when not in Visual mode.
Files:      src/ex_docmd.c, src/buffer.c

Patch 7.4.2363
Problem:    Superfluous function prototypes.
Solution:   Remove them.
Files:      src/regexp.c

Patch 7.4.2364
Problem:    Sort test sometimes fails.
Solution:   Add it to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 7.4.2365
Problem:    Needless line break. Confusing directory name.
Solution:   Remove line break.  Prepend "../" to "tools".
Files:      Makefile, src/normal.c

Patch 7.4.2366
Problem:    MS-Windows gvim.exe does not have DirectX support.
Solution:   Add the DIRECTX to the script.
Files:      src/bigvim.bat

Patch 7.4.2367 (after 7.4.2364)
Problem:    Test runner misses a comma.
Solution:   Add the comma.
Files:      src/testdir/runtest.vim


==============================================================================
VERSION 8.1                                  version-8.1   version8.1   vim-8.1

This section is about improvements made between version 8.0 and 8.1.
```

This release has hundreds of bug fixes, there is a new feature and there are
many minor improvements.

The terminal window new-terminal-window

You can now open a window which functions as a terminal. You can use it for:
- Running a command, such as "make", while editing in other windows
- Running a shell and execute several commands
- Use the terminal debugger plugin, see terminal-debugger

All of this is especially useful when running Vim on a remote (ssh)
connection, when you can't easily open more terminals.

For more information see terminal-window .

Changed changed-8.1

Internal: A few C99 features are now allowed such as // comments and a
comma after the last enum entry. See style-compiler .

Since patch 8.0.0029 removed support for older MS-Windows systems, only
MS-Windows XP and later are supported.

Added added-8.1

Various syntax, indent and other plugins were added.

Quickfix improvements (by Yegappan Lakshmanan):
	Added support for modifying any quickfix/location list in the quickfix
	stack.
	Added a unique identifier for every quickfix/location list.
	Added support for associating any Vim type as a context information to
	a quickfix/location list.
	Enhanced the getqflist(), getloclist(), setqflist() and setloclist()
	functions to get and set the various quickfix/location list attributes.
	Added the QuickFixLine highlight group to highlight the current line
	in the quickfix window.
	The quickfix buffer b:changedtick variable is incremented for every
	change to the contained quickfix list.
	Added a changedtick variable to a quickfix/location list which is
	incremented when the list is modified.
	Added support for parsing text using 'errorformat' without creating a
	new quickfix list.
	Added support for the "module" item to a quickfix entry which can be
	used for display purposes instead of a long file name.
	Added support for freeing all the lists in the quickfix/location stack.
	When opening a quickfix window using the :copen/:cwindow commands, the

```
        supplied split modifiers are used.

Functions:
        All the term_ functions.

         assert_beeps()
         assert_equalfile()
         assert_report()
         balloon_show()
         balloon_split()
         ch_canread()
         getchangelist()
         getjumplist()
         getwinpos()
         pyxeval()
         remote_startserver()
         setbufline()
         test_ignore_error()
         test_override()
         trim()
         win_screenpos()

Autocommands:
         CmdlineChanged
         CmdlineEnter
         CmdlineLeave
         ColorSchemePre
         DirChanged
         ExitPre
         TerminalOpen
         TextChangedP
         TextYankPost

Commands:
         :pyx
         :pythonx
         :pyxdo
         :pyxfile
         :terminal
         :tmapclear
         :tmap
         :tnoremap
         :tunmap

Options:
        'balloonevalterm'
        'imstyle'
        'mzschemedll'
        'mzschemegcdll'
        'makeencoding'
        'pumwidth'
        'pythonhome'
        'pythonthreehome'
        'pyxversion'
```

```
        'termwinkey'
        'termwinscroll'
        'termwinsize'
        'viminfofile'
        'winptydll'
```

Patches   patches-8.1

```
Patch 8.0.0001
Problem:    Intro screen still mentions version7. (Paul)
Solution:   Change it to version8.
Files:      src/version.c

Patch 8.0.0002
Problem:    The netrw plugin does not work.
Solution:   Make it accept version 8.0.
Files:      runtime/autoload/netrw.vim

Patch 8.0.0003
Problem:    getwinvar() returns wrong Value of boolean and number options,
            especially non big endian systems. (James McCoy)
Solution:   Cast the pointer to long or int. (closes #1060)
Files:      src/option.c, src/testdir/test_bufwintabinfo.vim

Patch 8.0.0004
Problem:    A string argument for function() that is not a function name
            results in an error message with NULL. (Christian Brabandt)
Solution:   Use the argument for the error message.
Files:      src/evalfunc.c, src/testdir/test_expr.vim

Patch 8.0.0005
Problem:    Netbeans test fails with Python 3. (Jonathonf)
Solution:   Encode the string before sending it. (closes #1070)
Files:      src/testdir/test_netbeans.py

Patch 8.0.0006
Problem:    ":lb" is interpreted as ":lbottom" while the documentation says it
            means ":lbuffer".
Solution:   Adjust the order of the commands. (haya14busa, closes #1093)
Files:      src/ex_cmds.h

Patch 8.0.0007
Problem:    Vim 7.4 is still mentioned in a few places.
Solution:   Update to Vim 8.  (Uncle Bill, closes #1094)
Files:      src/INSTALLpc.txt, src/vimtutor, uninstal.txt

Patch 8.0.0008
Problem:    Popup complete test is disabled.
Solution:   Enable the test and change the assert. (Hirohito Higashi)
Files:      src/testdir/test_popup.vim

Patch 8.0.0009
```

```
Problem:    Unnecessary workaround for AppVeyor.
Solution:   Revert patch 7.4.990. (Christian Brabandt)
Files:      appveyor.yml

Patch 8.0.0010
Problem:    Crash when editing file that starts with crypt header. (igor2x)
Solution:   Check for length of text. (Christian Brabandt) Add a test.
Files:      src/fileio.c, src/testdir/test_crypt.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.0011
Problem:    On OSX Test_pipe_through_sort_all() sometimes fails.
Solution:   Add the test to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.0012
Problem:    Typos in comments.
Solution:   Change "its" to "it's". (Matthew Brener, closes #1088)
Files:      src/evalfunc.c, src/main.aap, src/nbdebug.c, src/netbeans.c,
            src/quickfix.c, src/workshop.c, src/wsdebug.c

Patch 8.0.0013 (after 8.0.0011)
Problem:    Missing comma in list.
Solution:   Add the comma.
Files:      src/testdir/runtest.vim

Patch 8.0.0014
Problem:    Crypt tests are old style.
Solution:   Convert to new style.
Files:      src/testdir/test71.in, src/testdir/test71.ok,
            src/testdir/test71a.in, src/testdir/test_crypt.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.0015
Problem:    Can't tell which part of a channel has "buffered" status.
Solution:   Add an optional argument to ch_status().  Let ch_info() also
            return "buffered" for out_status and err_status.
Files:      src/evalfunc.c, src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, runtime/doc/eval.txt

Patch 8.0.0016 (after 8.0.0015)
Problem:    Build fails.
Solution:   Include missing change.
Files:      src/eval.c

Patch 8.0.0017
Problem:    Cannot get the number of the current quickfix or location list.
Solution:   Use the current list if "nr" in "what" is zero. (Yegappan
            Lakshmanan)  Remove debug command from test.
Files:      src/quickfix.c, src/testdir/test_quickfix.vim,
            runtime/doc/eval.txt

Patch 8.0.0018
Problem:    When using ":sleep" channel input is not handled.
```

```
Solution:   When there is a channel check for input also when not in raw mode.
            Check every 100 msec.
Files:      src/channel.c, src/proto/channel.pro, src/ui.c, src/proto/ui.pro,
            src/ex_docmd.c, src/os_amiga.c, src/proto/os_amiga.pro,
            src/os_unix.c, src/proto/os_unix.pro, src/os_win32.c,
            src/proto/os_win32.pro

Patch 8.0.0019
Problem:    Test_command_count is old style.
Solution:   Turn it into a new style test. (Naruhiko Nishino)
            Use more assert functions.
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/test_alot.vim,
            src/testdir/test_autocmd.vim, src/testdir/test_command_count.in,
            src/testdir/test_command_count.ok,
            src/testdir/test_command_count.vim

Patch 8.0.0020
Problem:    The regexp engines are not reentrant.
Solution:   Add regexec_T and save/restore the state when needed.
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test_expr.vim,
            runtime/doc/eval.txt, runtime/doc/change.txt

Patch 8.0.0021
Problem:    In the GUI when redrawing the cursor it may be on the second half
            of a double byte character.
Solution:   Correct the cursor column. (Yasuhiro Matsumoto)
Files:      src/screen.c

Patch 8.0.0022
Problem:    If a channel in NL mode is missing the NL at the end the remaining
            characters are dropped.
Solution:   When the channel is closed use the remaining text. (Ozaki Kiichi)
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 8.0.0023
Problem:    "gd" and "gD" may find a match in a comment or string.
Solution:   Ignore matches in comments and strings. (Anton Lindqvist)
Files:      src/normal.c, src/testdir/test_goto.vim

Patch 8.0.0024
Problem:    When the netbeans channel closes, "DETACH" is put in the output
            part. (Ozaki Kiichi)
Solution:   Write "DETACH" in the socket part.
Files:      src/channel.c, src/testdir/test_netbeans.vim

Patch 8.0.0025
Problem:    Inconsistent use of spaces vs tabs in gd test.
Solution:   Use tabs. (Anton Lindqvist)
Files:      src/testdir/test_goto.vim

Patch 8.0.0026
Problem:    Error format with %W, %C and %Z does not work. (Gerd Wachsmuth)
Solution:   Skip code when qf_multiignore is set. (Lcd)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim
```

```
Patch 8.0.0027
Problem:    A channel is closed when reading on stderr or stdout fails, but
            there may still be something to read on another part.
Solution:   Turn ch_to_be_closed into a bitfield. (Ozaki Kiichi)
Files:      src/channel.c, src/eval.c, src/structs.h, src/proto/channel.pro,
            src/testdir/test_channel.vim

Patch 8.0.0028
Problem:    Superfluous semicolons.
Solution:   Remove them. (Ozaki Kiichi)
Files:      src/ex_cmds2.c

Patch 8.0.0029
Problem:    Code for MS-Windows is complicated because of the exceptions for
            old systems.
Solution:   Drop support for MS-Windows older than Windows XP. (Ken Takata)
Files:      runtime/doc/gui_w32.txt, runtime/doc/os_win32.txt,
            runtime/doc/todo.txt, src/GvimExt/Makefile, src/Make_mvc.mak,
            src/evalfunc.c, src/ex_cmds.c, src/ex_docmd.c, src/gui_w32.c,
            src/if_cscope.c, src/misc1.c, src/misc2.c, src/option.c,
            src/os_mswin.c, src/os_win32.c, src/os_win32.h,
            src/proto/os_mswin.pro, src/proto/os_win32.pro, src/version.c

Patch 8.0.0030
Problem:    Mouse mode is not automatically detected for tmux.
Solution:   Check for 'term' to be "tmux". (Michael Henry)
Files:      src/os_unix.c

Patch 8.0.0031
Problem:    After ":bwipeout" 'fileformat' is not set to the right default.
Solution:   Get the default from 'fileformats'. (Mike Williams)
Files:      src/option.c, src/Makefile, src/testdir/test_fileformat.vim,
            src/testdir/test_alot.vim

Patch 8.0.0032
Problem:    Tests may change the input file when something goes wrong.
Solution:   Avoid writing the input file.
Files:      src/testdir/test51.in, src/testdir/test67.in,
            src/testdir/test97.in, src/testdir/test_tabpage.vim

Patch 8.0.0033
Problem:    Cannot use overlapping positions with matchaddpos().
Solution:   Check end of match. (Ozaki Kiichi) Add a test (Hirohito Higashi)
Files:      src/screen.c, src/testdir/test_match.vim

Patch 8.0.0034
Problem:    No completion for ":messages".
Solution:   Complete "clear" argument. (Hirohito Higashi)
Files:      src/ex_docmd.c, src/ex_getln.c, src/proto/ex_docmd.pro,
            src/testdir/test_cmdline.vim, src/vim.h,
            runtime/doc/eval.txt, runtime/doc/map.txt

Patch 8.0.0035 (after 7.4.2013)
```

```
Problem:    Order of matches for 'omnifunc' is messed up. (Danny Su)
Solution:   Do not set compl_curr_match when called from complete_check().
            (closes #1168)
Files:      src/edit.c, src/evalfunc.c, src/proto/edit.pro, src/search.c,
            src/spell.c, src/tag.c, src/testdir/test76.in,
            src/testdir/test76.ok, src/testdir/test_popup.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.0036
Problem:    Detecting that a job has finished may take a while.
Solution:   Check for a finished job more often (Ozaki Kiichi)
Files:      src/channel.c, src/os_unix.c, src/os_win32.c,
            src/proto/os_unix.pro, src/proto/os_win32.pro,
            src/testdir/test_channel.vim

Patch 8.0.0037
Problem:    Get E924 when switching tabs. ()
Solution:   Use win_valid_any_tab() instead of win_valid(). (Martin Vuille,
            closes #1167, closes #1171)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.0038
Problem:    OPEN_CHR_FILES not defined for FreeBSD using Debian userland
            files.
Solution:   Check for __FreeBSD_kernel__. (James McCoy, closes #1166)
Files:      src/vim.h

Patch 8.0.0039
Problem:    When Vim 8 reads an old viminfo and exits, the next time marks are
            not read from viminfo. (Ned Batchelder)
Solution:   Set a mark when it wasn't set before, even when the timestamp is
            zero. (closes #1170)
Files:      src/mark.c, src/testdir/test_viminfo.vim

Patch 8.0.0040 (after 8.0.0033)
Problem:    Whole line highlighting with matchaddpos() does not work.
Solution:   Check for zero length. (Hirohito Higashi)
Files:      src/screen.c, src/testdir/test_match.vim

Patch 8.0.0041
Problem:    When using Insert mode completion but not actually inserting
            anything an undo item is still created. (Tommy Allen)
Solution:   Do not call stop_arrow() when not inserting anything.
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0042 (after 8.0.0041)
Problem:    When using Insert mode completion with 'completeopt' containing
            "noinsert" change is not saved for undo.  (Tommy Allen)
Solution:   Call stop_arrow() before inserting for pressing Enter.
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0043 (after 8.0.0041)
Problem:    When using Insert mode completion with 'completeopt' containing
            "noinsert" with CTRL-N the change is not saved for undo.  (Tommy
```

            Allen)
Solution: Call stop_arrow() before inserting for any key.
Files: src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0044
Problem: In diff mode the cursor may end up below the last line, resulting
            in an ml_get error.
Solution: Check the line to be valid.
Files: src/move.c, src/diff.c, src/proto/diff.pro,
            src/testdir/test_diffmode.vim

Patch 8.0.0045
Problem: Calling job_stop() right after job_start() does not work.
Solution: Block signals while fork is still busy. (Ozaki Kiichi, closes
            #1155)
Files: src/auto/configure, src/config.h.in, src/configure.in,
            src/os_unix.c, src/testdir/test_channel.vim

Patch 8.0.0046
Problem: Using NUL instead of NULL.
Solution: Change to NULL. (Dominique Pelle)
Files: src/ex_cmds.c, src/json.c

Patch 8.0.0047
Problem: Crash when using the preview window from an unnamed buffer.
            (lifepillar)
Solution: Do not clear the wrong buffer. (closes #1200)
Files: src/popupmnu.c

Patch 8.0.0048
Problem: On Windows job_stop() stops cmd.exe, not the processes it runs.
            (Linwei)
Solution: Iterate over all processes and terminate the one where the parent
            is the job process. (Yasuhiro Matsumoto, closes #1184)
Files: src/os_win32.c, src/structs.h

Patch 8.0.0049
Problem: When a match ends in part of concealed text highlighting, it might
            mess up concealing by resetting prev_syntax_id.
Solution: Do not reset prev_syntax_id and add a test to verify. (Christian
            Brabandt, closes #1092)
Files: src/screen.c, src/testdir/test_matchadd_conceal.vim

Patch 8.0.0050
Problem: An exiting job is detected with a large latency.
Solution: Check for pending job more often. (Ozaki Kiichi) Change the
            double loop in mch_inchar() into one.
Files: src/channel.c, src/os_unix.c, src/testdir/shared.vim,
            src/testdir/test_channel.vim

Patch 8.0.0051 (after 8.0.0048)
Problem: New code for job_stop() breaks channel test on AppVeyor.
Solution: Revert the change.
Files: src/os_win32.c, src/structs.h

```
Patch 8.0.0052 (after 8.0.0049)
Problem:    Conceal test passes even without the bug fix.
Solution:   Add a redraw command. (Christian Brabandt)
Files:      src/testdir/test_matchadd_conceal.vim

Patch 8.0.0053 (after 8.0.0047)
Problem:    No test for what 8.0.0047 fixes.
Solution:   Add a test. (Hirohito Higashi)
Files:      src/testdir/test_popup.vim

Patch 8.0.0054 (after 8.0.0051)
Problem:    On Windows job_stop() stops cmd.exe, not the processes it runs.
            (Linwei)
Solution:   Iterate over all processes and terminate the one where the parent
            is the job process. Now only when there is no job object.
            (Yasuhiro Matsumoto, closes #1203)
Files:      src/os_win32.c

Patch 8.0.0055
Problem:    Minor comment and style deficiencies.
Solution:   Update comments and fix style.
Files:      src/buffer.c, src/misc2.c, src/os_unix.c

Patch 8.0.0056
Problem:    When setting 'filetype' there is no check for a valid name.
Solution:   Only allow valid characters in 'filetype', 'syntax' and 'keymap'.
Files:      src/option.c, src/testdir/test_options.vim

Patch 8.0.0057 (after 8.0.0056)
Problem:    Tests fail without the 'keymap' features.
Solution:   Check for feature in test.
Files:      src/testdir/test_options.vim

Patch 8.0.0058
Problem:    Positioning of the popup menu is not good.
Solution:   Position it better. (Hirohito Higashi)
Files:      src/popupmnu.c

Patch 8.0.0059
Problem:    Vim does not build on VMS systems.
Solution:   Various changes for VMS. (Zoltan Arpadffy)
Files:      src/json.c, src/macros.h, src/Make_vms.mms, src/os_unix.c,
            src/os_unix.h, src/os_vms.c, src/os_vms_conf.h,
            src/proto/os_vms.pro, src/testdir/Make_vms.mms

Patch 8.0.0060
Problem:    When using an Ex command for 'keywordprg' it is escaped as with a
            shell command. (Romain Lafourcade)
Solution:   Escape for an Ex command. (closes #1175)
Files:      src/normal.c, src/testdir/test_normal.vim

Patch 8.0.0061 (after 8.0.0058)
Problem:    Compiler warning for unused variable.
```

```
Solution:   Add #ifdef. (John Marriott)
Files:      src/popupmnu.c

Patch 8.0.0062
Problem:    No digraph for HORIZONTAL ELLIPSIS.
Solution:   Use ",.". (Hans Ginzel, closes #1226)
Files:      src/digraph.c, runtime/doc/digraph.txt

Patch 8.0.0063
Problem:    Compiler warning for comparing with unsigned. (Zoltan Arpadffy)
Solution:   Change <= to ==.
Files:      src/undo.c

Patch 8.0.0064 (after 8.0.0060)
Problem:    Normal test fails on MS-Windows.
Solution:   Don't try using an illegal file name.
Files:      src/testdir/test_normal.vim

Patch 8.0.0065 (after 8.0.0056)
Problem:    Compiler warning for unused function in tiny build. (Tony
            Mechelynck)
Solution:   Add #ifdef.
Files:      src/option.c

Patch 8.0.0066
Problem:    when calling an operator function when 'linebreak' is set, it is
            internally reset before calling the operator function.
Solution:   Restore 'linebreak' before calling op_function(). (Christian
            Brabandt)
Files:      src/normal.c, src/testdir/test_normal.vim

Patch 8.0.0067
Problem:    VMS has a problem with infinity.
Solution:   Avoid an overflow. (Zoltan Arpadffy)
Files:      src/json.c, src/macros.h

Patch 8.0.0068
Problem:    Checking did_throw after executing autocommands is wrong. (Daniel
            Hahler)
Solution:   Call aborting() instead, and only when autocommands were executed.
Files:      src/quickfix.c, src/if_cscope.c, src/testdir/test_quickfix.vim

Patch 8.0.0069
Problem:    Compiler warning for self-comparison.
Solution:   Define ONE_WINDOW and add #ifdef.
Files:      src/globals.h, src/buffer.c, src/ex_docmd.c, src/move.c,
            src/screen.c, src/quickfix.c, src/window.c

Patch 8.0.0070
Problem:    Tests referred in Makefile that no longer exist.
Solution:   Remove test71 and test74 entries. (Michael Soyka)
Files:      src/testdir/Mak_ming.mak

Patch 8.0.0071
```

```
Problem:    Exit value from a shell command is wrong. (Hexchain Tong)
Solution:   Do not check for ended jobs while waiting for a shell command.
            (ichizok, closes #1196)
Files:      src/os_unix.c

Patch 8.0.0072
Problem:    MS-Windows: Crash with long font name. (Henry Hu)
Solution:   Fix comparing with LF_FACESIZE. (Ken Takata, closes #1243)
Files:      src/os_mswin.c

Patch 8.0.0073 (after 8.0.0069)
Problem:    More comparisons between firstwin and lastwin.
Solution:   Use ONE_WINDOW for consistency. (Hirohito Higashi)
Files:      src/buffer.c, src/ex_cmds.c, src/ex_docmd.c, src/option.c,
            src/window.c

Patch 8.0.0074
Problem:    Cannot make Vim fail on an internal error.
Solution:   Add IEMSG() and IEMSG2(). (Dominique Pelle)  Avoid reporting an
            internal error without mentioning where.
Files:      src/globals.h, src/blowfish.c, src/dict.c, src/edit.c, src/eval.c,
            src/evalfunc.c, src/ex_eval.c, src/getchar.c, src/gui_beval.c,
            src/gui_w32.c, src/hangulin.c, src/hashtab.c, src/if_cscope.c,
            src/json.c, src/memfile.c, src/memline.c, src/message.c,
            src/misc2.c, src/option.c, src/quickfix.c, src/regexp.c,
            src/spell.c, src/undo.c, src/userfunc.c, src/vim.h, src/window.c,
            src/proto/misc2.pro, src/proto/message.pro, src/Makefile

Patch 8.0.0075
Problem:    Using number for exception type lacks type checking.
Solution:   Use an enum.
Files:      src/structs.h, src/ex_docmd.c, src/ex_eval.c,
            src/proto/ex_eval.pro

Patch 8.0.0076
Problem:    Channel log has double parens ()().
Solution:   Remove () for write_buf_line. (Yasuhiro Matsumoto)
Files:      src/channel.c

Patch 8.0.0077
Problem:    The GUI code is not tested by Travis.
Solution:   Install the virtual framebuffer.
Files:      .travis.yml

Patch 8.0.0078
Problem:    Accessing freed memory in quickfix.
Solution:   Reset pointer when freeing 'errorformat'. (Dominique Pelle)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.0079
Problem:    Accessing freed memory in quickfix. (Dominique Pelle)
Solution:   Do not free the current list when adding to it.
Files:      src/quickfix.c, src/testdir/test_quickfix.vim
```

```
Patch 8.0.0080
Problem:    The OS X build fails on Travis.
Solution:   Skip the virtual framebuffer on OS X.
Files:      .travis.yml

Patch 8.0.0081
Problem:    Inconsistent function names.
Solution:   Rename do_cscope to ex_cscope.  Clean up comments.
Files:      src/ex_cmds.h, src/if_cscope.c, src/ex_docmd.c,
            src/proto/if_cscope.pro

Patch 8.0.0082
Problem:    Extension for configure should be ".ac".
Solution:   Rename configure.in to configure.ac. (James McCoy, closes #1173)
Files:      src/configure.in, src/configure.ac, Filelist, src/Makefile,
            src/blowfish.c, src/channel.c, src/config.h.in, src/main.aap,
            src/os_unix.c, src/INSTALL, src/mysign

Patch 8.0.0083
Problem:    Using freed memory with win_getid(). (Dominique Pelle)
Solution:   For the current tab use curwin.
Files:      src/window.c, src/testdir/test_window_id.vim

Patch 8.0.0084
Problem:    Using freed memory when adding to a quickfix list. (Dominique
            Pelle)
Solution:   Clear the directory name.
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.0085
Problem:    Using freed memory with recursive function call. (Dominique Pelle)
Solution:   Make a copy of the function name.
Files:      src/eval.c, src/testdir/test_nested_function.vim

Patch 8.0.0086
Problem:    Cannot add a comment after ":hide". (Norio Takagi)
Solution:   Make it work, add a test. (Hirohito Higashi)
Files:      src/Makefile, src/ex_cmds.h, src/ex_docmd.c,
            src/testdir/Make_all.mak, src/testdir/test_hide.vim

Patch 8.0.0087
Problem:    When the channel callback gets job info the job may already have
            been deleted. (lifepillar)
Solution:   Do not delete the job when the channel is still useful. (ichizok,
            closes #1242, closes #1245)
Files:      src/channel.c, src/eval.c, src/os_unix.c, src/os_win32.c,
            src/structs.h, src/testdir/test_channel.vim

Patch 8.0.0088
Problem:    When a test fails in Setup or Teardown the problem is not reported.
Solution:   Add a try/catch. (Hirohito Higashi)
Files:      src/testdir/runtest.vim

Patch 8.0.0089
```

```
Problem:    Various problems with GTK 3.22.2.
Solution:   Fix the problems, add #ifdefs. (Kazunobu Kuriyama)
Files:      src/gui_beval.c, src/gui_gtk.c, src/gui_gtk_x11.c

Patch 8.0.0090
Problem:    Cursor moved after last character when using 'breakindent'.
Solution:   Fix the cursor positioning.  Turn the breakindent test into new
            style.  (Christian Brabandt)
Files:      src/screen.c, src/testdir/Make_all.mak,
            src/testdir/test_breakindent.in, src/testdir/test_breakindent.ok,
            src/testdir/test_breakindent.vim, src/Makefile

Patch 8.0.0091
Problem:    Test_help_complete sometimes fails in MS-Windows console.
Solution:   Use getcompletion() instead of feedkeys() and command line
            completion. (Hirohito Higashi)
Files:      src/testdir/test_help_tagjump.vim

Patch 8.0.0092
Problem:    C indenting does not support nested namespaces that C++ 17 has.
Solution:   Add check that passes double colon inside a name. (Pauli, closes
            #1214)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 8.0.0093
Problem:    Not using multiprocess build feature.
Solution:   Enable multiprocess build with MSVC 10. (Ken Takata)
Files:      src/Make_mvc.mak

Patch 8.0.0094
Problem:    When vimrun.exe is not found the error message is not properly
            encoded.
Solution:   Use utf-16 and MessageBoxW(). (Ken Takata)
Files:      src/os_win32.c

Patch 8.0.0095
Problem:    Problems with GTK 3.22.2 fixed in 3.22.4.
Solution:   Adjust the #ifdefs. (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 8.0.0096
Problem:    When the input or output is not a tty Vim appears to hang.
Solution:   Add the --ttyfail argument.  Also add the "ttyin" and "ttyout"
            features to be able to check in Vim script.
Files:      src/globals.h, src/structs.h, src/main.c, src/evalfunc.c,
            runtime/doc/starting.txt, runtime/doc/eval.txt

Patch 8.0.0097
Problem:    When a channel callback consumes a lot of time Vim becomes
            unresponsive. (skywind)
Solution:   Bail out of checking channel readahead after 100 msec.
Files:      src/os_unix.c, src/misc2.c, src/vim.h, src/os_win32.c,
            src/channel.c
```

```
Patch 8.0.0098 (after 8.0.0097)
Problem:    Can't build on MS-Windows.
Solution:   Add missing parenthesis.
Files:      src/vim.h

Patch 8.0.0099
Problem:    Popup menu always appears above the cursor when it is in the lower
            half of the screen. (Matt Gardner)
Solution:   Compute the available space better. (Hirohito Higashi,
            closes #1241)
Files:      src/popupmnu.c

Patch 8.0.0100
Problem:    Options that are a file name may contain non-filename characters.
Solution:   Check for more invalid characters.
Files:      src/option.c

Patch 8.0.0101
Problem:    Some options are not strictly checked.
Solution:   Add flags for stricter checks.
Files:      src/option.c

Patch 8.0.0102 (after 8.0.0101)
Problem:    Cannot set 'dictionary' to a path.
Solution:   Allow for slash and backslash.  Add a test (partly by Daisuke
            Suzuki, closes #1279, closes #1284)
Files:      src/option.c, src/testdir/test_options.vim

Patch 8.0.0103
Problem:    May not process channel readahead. (skywind)
Solution:   If there is readahead don't block on input.
Files:      src/channel.c, src/proto/channel.pro, src/os_unix.c,
            src/os_win32.c, src/misc2.c

Patch 8.0.0104
Problem:    Value of 'thesaurus' option not checked properly.
Solution:   Add P_NDNAME flag. (Daisuke Suzuki)
Files:      src/option.c, src/testdir/test_options.vim

Patch 8.0.0105
Problem:    When using ch_read() with zero timeout, can't tell the difference
            between reading an empty line and nothing available.
Solution:   Add ch_canread().
Files:      src/evalfunc.c, src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, src/testdir/shared.vim,
            runtime/doc/eval.txt, runtime/doc/channel.txt

Patch 8.0.0106 (after 8.0.0100)
Problem:    Cannot use a semicolon in 'backupext'. (Jeff)
Solution:   Allow for a few more characters when "secure" isn't set.
Files:      src/option.c

Patch 8.0.0107
Problem:    When reading channel output in a timer, messages may go missing.
```

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            (Skywind)
Solution:   Add the "drop" option.  Write error messages in the channel log.
            Don't have ch_canread() check for the channel being open.
Files:      src/structs.h, src/channel.c, src/message.c, src/evalfunc.c,
            src/proto/channel.pro, runtime/doc/channel.txt

Patch 8.0.0108 (after 8.0.0107)
Problem:    The channel "drop" option is not tested.
Solution:   Add a test.
Files:      src/testdir/test_channel.vim

Patch 8.0.0109
Problem:    Still checking if memcmp() exists while every system should have
            it now.
Solution:   Remove vim_memcmp().  (James McCoy, closes #1295)
Files:      src/config.h.in, src/configure.ac, src/misc2.c, src/os_vms_conf.h,
            src/osdef1.h.in, src/search.c, src/tag.c, src/vim.h

Patch 8.0.0110
Problem:    Drop command doesn't use existing window.
Solution:   Check the window width properly. (Hirohito Higashi)
Files:      src/buffer.c, src/testdir/test_tabpage.vim

Patch 8.0.0111
Problem:    The :history command is not tested.
Solution:   Add tests. (Dominique Pelle)
Files:      runtime/doc/cmdline.txt, src/testdir/test_history.vim

Patch 8.0.0112
Problem:    Tests 92 and 93 are old style.
Solution:   Make test92 and test93 new style. (Hirohito Higashi, closes #1289)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/test92.in, src/testdir/test92.ok,
            src/testdir/test93.in, src/testdir/test93.ok,
            src/testdir/test_mksession.vim,
            src/testdir/test_mksession_utf8.vim

Patch 8.0.0113
Problem:    MS-Windows: message box to prompt for saving changes may appear on
            the wrong monitor.
Solution:   Adjust the CenterWindow function. (Ken Takata)
Files:      src/gui_w32.c

Patch 8.0.0114
Problem:    Coding style not optimal.
Solution:   Add spaces. (Ken Takata)
Files:      src/gui_w32.c, src/os_mswin.c

Patch 8.0.0115
Problem:    When building with Cygwin libwinpthread isn't found.
Solution:   Link winpthread statically. (jmmerz, closes #1255, closes #1256)
Files:      src/Make_cyg_ming.mak

Patch 8.0.0116
```

```
Problem:    When reading English help and using CTRl-] the language from
            'helplang' is used.
Solution:   Make help tag jumps keep the language. (Tatsuki, test by Hirohito
            Higashi, closes #1249)
Files:      src/tag.c, src/testdir/test_help_tagjump.vim

Patch 8.0.0117
Problem:    Parallel make fails. (J. Lewis Muir)
Solution:   Make sure the objects directory exists. (closes #1259)
Files:      src/Makefile

Patch 8.0.0118
Problem:    "make proto" adds extra function prototype.
Solution:   Add #ifdef.
Files:      src/misc2.c

Patch 8.0.0119
Problem:    No test for using CTRL-R on the command line.
Solution:   Add a test. (Dominique Pelle) And some more.
Files:      src/testdir/test_cmdline.vim

Patch 8.0.0120
Problem:    Channel test is still flaky on OS X.
Solution:   Set the drop argument to "never".
Files:      src/testdir/test_channel.vim

Patch 8.0.0121
Problem:    Setting 'cursorline' changes the curswant column. (Daniel Hahler)
Solution:   Add the P_RWINONLY flag. (closes #1297)
Files:      src/option.c, src/testdir/test_goto.vim

Patch 8.0.0122
Problem:    Channel test is still flaky on OS X.
Solution:   Add a short sleep.
Files:      src/testdir/test_channel.py

Patch 8.0.0123
Problem:    Modern Sun compilers define "__sun" instead of "sun".
Solution:   Use __sun. (closes #1296)
Files:      src/mbyte.c, src/pty.c, src/os_unixx.h, src/vim.h

Patch 8.0.0124
Problem:    Internal error for assert_inrange(1, 1).
Solution:   Adjust number of allowed arguments. (Dominique Pelle)
Files:      src/evalfunc.c, src/testdir/test_assert.vim

Patch 8.0.0125
Problem:    Not enough testing for entering Ex commands.
Solution:   Add test for CTRL-\ e {expr}. (Dominique Pelle)
Files:      src/testdir/test_cmdline.vim

Patch 8.0.0126
Problem:    Display problem with 'foldcolumn' and a wide character.
            (esiegerman)
```

```
Solution:   Don't use "extra" but an allocated buffer. (Christian Brabandt,
            closes #1310)
Files:      src/screen.c, src/testdir/Make_all.mak, src/Makefile,
            src/testdir/test_display.vim

Patch 8.0.0127
Problem:    Cancelling completion still inserts text when formatting is done
            for 'textwidth'. (lacygoill)
Solution:   Don't format when CTRL-E was typed. (Hirohito Higashi,
            closes #1312)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0128 (after 8.0.0126)
Problem:    Display test fails on MS-Windows.
Solution:   Set 'isprint' to "@".
Files:      src/testdir/test_display.vim

Patch 8.0.0129
Problem:    Parallel make still doesn't work. (Lewis Muir)
Solution:   Define OBJ_MAIN.
Files:      src/Makefile

Patch 8.0.0130
Problem:    Configure uses "ushort" while the Vim code doesn't.
Solution:   Use "unsigned short" instead. (Fredrik Fornwall, closes #1314)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.0131
Problem:    Not enough test coverage for syntax commands.
Solution:   Add more tests. (Dominique Pelle)
Files:      src/testdir/test_syntax.vim

Patch 8.0.0132 (after 8.0.0131)
Problem:    Test fails because of using :finish.
Solution:   Change to return.
Files:      src/testdir/test_syntax.vim

Patch 8.0.0133
Problem:    "2;'(" causes ml_get errors in an empty buffer.  (Dominique Pelle)
Solution:   Check the cursor line earlier.
Files:      src/ex_docmd.c, src/testdir/test_cmdline.vim

Patch 8.0.0134
Problem:    Null pointer access reported by UBsan.
Solution:   Check curwin->w_buffer is not NULL. (Yegappan Lakshmanan)
Files:      src/ex_cmds.c

Patch 8.0.0135
Problem:    An address relative to the current line, ":.,+3y", does not work
            properly on a closed fold. (Efraim Yawitz)
Solution:   Correct for including the closed fold. (Christian Brabandt)
Files:      src/ex_docmd.c, src/testdir/test_fold.vim,
            src/testdir/Make_all.mak, src/Makefile
```

Patch 8.0.0136
Problem: When using indent folding and changing indent the wrong fold is
            opened. (Jonathan Fudger)
Solution: Open the fold under the cursor a bit later. (Christian Brabandt)
Files: src/ops.c, src/testdir/test_fold.vim

Patch 8.0.0137
Problem: When 'maxfuncdepth' is set above 200 the nesting is limited to
            200. (Brett Stahlman)
Solution: Allow for Ex command recursion depending on 'maxfuncdepth'.
Files: src/ex_docmd.c, src/testdir/test_nested_function.vim

Patch 8.0.0138 (after 8.0.0137)
Problem: Small build fails.
Solution: Add #ifdef.
Files: src/ex_docmd.c

Patch 8.0.0139 (after 8.0.0135)
Problem: Warning for unused argument.
Solution: Add UNUSED.
Files: src/ex_docmd.c

Patch 8.0.0140
Problem: Pasting inserted text in Visual mode does not work properly.
            (Matthew Malcomson)
Solution: Stop Visual mode before stuffing the inserted text. (Christian
            Brabandt, from neovim #5709)
Files: src/ops.c, src/testdir/test_visual.vim

Patch 8.0.0141 (after 8.0.0137)
Problem: Nested function test fails on AppVeyor.
Solution: Disable the test on Windows for now.
Files: src/testdir/test_nested_function.vim

Patch 8.0.0142
Problem: Normal colors are wrong with 'termguicolors'.
Solution: Initialize to INVALCOLOR instead of zero. (Ben Jackson, closes
            #1344)
Files: src/syntax.c

Patch 8.0.0143
Problem: Line number of current buffer in getbufinfo() is wrong.
Solution: For the current buffer use the current line number. (Ken Takata)
Files: src/evalfunc.c

Patch 8.0.0144
Problem: When using MSVC the GvimExt directory is cleaned twice.
Solution: Remove the lines. (Ken Takata)
Files: src/Make_mvc.mak

Patch 8.0.0145
Problem: Running tests on MS-Windows is a little bit noisy.
Solution: Redirect some output to "nul". (Ken Takata)
Files: src/testdir/Make_dos.mak

```
Patch 8.0.0146
Problem:    When using 'termguicolors' on MS-Windows the RGB definition causes
            the colors to be wrong.
Solution:   Undefined RGB and use our own. (Gabriel Barta)
Files:      src/term.c

Patch 8.0.0147
Problem:    searchpair() does not work when 'magic' is off. (Chris Paul)
Solution:   Add \m in the pattern. (Christian Brabandt, closes #1341)
Files:      src/evalfunc.c, src/testdir/test_search.vim

Patch 8.0.0148
Problem:    When a C preprocessor statement has two line continuations the
            following line does not have the right indent. (Ken Takata)
Solution:   Add the indent of the previous continuation line. (Hirohito
            Higashi)
Files:      src/misc1.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 8.0.0149
Problem:    ":earlier" and ":later" do not work after startup or reading the
            undo file.
Solution:   Use absolute time stamps instead of relative to the Vim start
            time. (Christian Brabandt, Pavel Juhas, closes #1300, closes
            #1254)
Files:      src/testdir/test_undo.vim, src/undo.c

Patch 8.0.0150
Problem:    When the pattern of :filter does not have a separator then
            completion of the command fails.
Solution:   Skip over the pattern. (Ozaki Kiichi, closes #1299)
Files:      src/ex_docmd.c, src/testdir/test_filter_cmd.vim

Patch 8.0.0151
Problem:    To pass buffer content to system() and systemlist() one has to
            first create a string or list.
Solution:   Allow passing a buffer number. (LemonBoy, closes #1240)
Files:      runtime/doc/eval.txt, src/Makefile, src/evalfunc.c,
            src/testdir/Make_all.mak, src/testdir/test_system.vim

Patch 8.0.0152
Problem:    Running the channel test creates channellog.
Solution:   Delete the debug line.
Files:      src/testdir/test_channel.vim

Patch 8.0.0153 (after 8.0.0151)
Problem:    system() test fails on MS-Windows.
Solution:   Deal with extra space and CR.
Files:      src/testdir/test_system.vim

Patch 8.0.0154 (after 8.0.0151)
Problem:    system() test fails on OS/X.
Solution:   Deal with leading spaces.
Files:      src/testdir/test_system.vim
```

```
Patch 8.0.0155
Problem:    When sorting zero elements a NULL pointer is passed to qsort(),
            which ubsan warns for.
Solution:   Don't call qsort() if there are no elements. (Dominique Pelle)
Files:      src/syntax.c

Patch 8.0.0156
Problem:    Several float functions are not covered by tests.
Solution:   Add float tests. (Dominique Pelle)
Files:      src/Makefile, src/testdir/test_alot.vim,
            src/testdir/test_float_func.vim

Patch 8.0.0157
Problem:    No command line completion for ":syntax spell" and ":syntax sync".
Solution:   Implement the completion. (Dominique Pelle)
Files:      src/syntax.c, src/testdir/test_syntax.vim

Patch 8.0.0158 (after 8.0.0156)
Problem:    On MS-Windows some float functions return a different value when
            passed unusual values.  strtod() doesn't work for "inf" and "nan".
Solution:   Accept both results.  Fix str2float() for MS-Windows.  Also
            reorder assert function arguments.
Files:      src/testdir/test_float_func.vim, src/eval.c

Patch 8.0.0159
Problem:    Using a NULL pointer when using feedkeys() to trigger drawing a
            tabline.
Solution:   Skip drawing a tabline if TabPageIdxs is NULL. (Dominique Pelle)
            Also fix recursing into getcmdline() from the cmd window.
Files:      src/screen.c, src/ex_getln.c

Patch 8.0.0160
Problem:    EMSG() is sometimes used for internal errors.
Solution:   Change them to IEMSG(). (Dominique Pelle)  And a few more.
Files:      src/regexp_nfa.c, src/channel.c, src/eval.c

Patch 8.0.0161 (after 8.0.0159)
Problem:    Build fails when using small features.
Solution:   Update #ifdef for using save_ccline. (Hirohito Higashi)
Files:      src/ex_getln.c

Patch 8.0.0162
Problem:    Build error on Fedora 23 with small features and gnome2.
Solution:   Undefine ngettext(). (Hirohito Higashi)
Files:      src/gui_gtk.c, src/gui_gtk_x11.c

Patch 8.0.0163
Problem:    Ruby 2.4 no longer supports rb_cFixnum.
Solution:   move rb_cFixnum into an #ifdef. (Kazuki Sakamoto, closes #1365)
Files:      src/if_ruby.c

Patch 8.0.0164
Problem:    Outdated and misplaced comments.
```

```
Solution:   Fix the comments.
Files:      src/charset.c, src/getchar.c, src/list.c, src/misc2.c,
            src/testdir/README.txt

Patch 8.0.0165
Problem:    Ubsan warns for integer overflow.
Solution:   Swap two conditions. (Dominique Pelle)
Files:      src/regexp_nfa.c

Patch 8.0.0166
Problem:    JSON with a duplicate key gives an internal error. (Lcd)
Solution:   Give a normal error.  Avoid an error when parsing JSON from a
            remote client fails.
Files:      src/evalfunc.c, src/json.c, src/channel.c,
            src/testdir/test_json.vim

Patch 8.0.0167
Problem:    str2nr() and str2float() do not always work with negative values.
Solution:   Be more flexible about handling signs. (LemonBoy, closes #1332)
            Add more tests.
Files:      src/evalfunc.c, src/testdir/test_float_func.vim,
            src/testdir/test_functions.vim, src/testdir/test_alot.vim,
            src/Makefile

Patch 8.0.0168
Problem:    Still some float functionality is not covered by tests.
Solution:   Add more tests. (Dominique Pelle, closes #1364)
Files:      src/testdir/test_float_func.vim

Patch 8.0.0169
Problem:    For complicated string json_decode() may run out of stack space.
Solution:   Change the recursive solution into an iterative solution.
Files:      src/json.c

Patch 8.0.0170 (after 8.0.0169)
Problem:    Channel test fails for using freed memory.
Solution:   Fix memory use in json_decode().
Files:      src/json.c

Patch 8.0.0171
Problem:    JS style JSON does not support single quotes.
Solution:   Allow for single quotes. (Yasuhiro Matsumoto, closes #1371)
Files:      src/json.c, src/testdir/test_json.vim, src/json_test.c,
            runtime/doc/eval.txt

Patch 8.0.0172 (after 8.0.0159)
Problem:    The command selected in the command line window is not executed.
            (Andrey Starodubtsev)
Solution:   Save and restore the command line at a lower level. (closes #1370)
Files:      src/ex_getln.c, src/testdir/test_history.vim

Patch 8.0.0173
Problem:    When compiling with EBCDIC defined the build fails. (Yaroslav
            Kuzmin)
```

```
Solution:   Move sortFunctions() to the right file.  Avoid warning for
            redefining __SUSV3.
Files:      src/eval.c, src/evalfunc.c, src/os_unixx.h

Patch 8.0.0174
Problem:    For completion "locale -a" is executed on MS-Windows, even though
            it most likely won't work.
Solution:   Skip executing "locale -a" on MS-Windows. (Ken Takata)
Files:      src/ex_cmds2.c

Patch 8.0.0175
Problem:    Setting language in gvim on MS-Windows does not work when
            libintl.dll is dynamically linked with msvcrt.dll.
Solution:   Use putenv() from libintl as well. (Ken Takata, closes #1082)
Files:      src/mbyte.c, src/misc1.c, src/os_win32.c, src/proto/os_win32.pro,
            src/vim.h

Patch 8.0.0176
Problem:    Using :change in between :function and :endfunction fails.
Solution:   Recognize :change inside a function. (ichizok, closes #1374)
Files:      src/userfunc.c, src/testdir/test_viml.vim

Patch 8.0.0177
Problem:    When opening a buffer on a directory and inside a try/catch then
            the BufEnter event is not triggered.
Solution:   Return NOTDONE from readfile() for a directory and deal with the
            three possible return values. (Justin M. Keyes, closes #1375,
            closes #1353)
Files:      src/buffer.c, src/ex_cmds.c, src/ex_docmd.c, src/fileio.c,
            src/memline.c

Patch 8.0.0178
Problem:    test_command_count may fail when a previous test interferes, seen
            on MS-Windows.
Solution:   Run it separately.
Files:      src/testdir/test_alot.vim, src/testdir/Make_all.mak

Patch 8.0.0179
Problem:    'formatprg' is a global option but the value may depend on the
            type of buffer. (Sung Pae)
Solution:   Make 'formatprg' global-local. (closes #1380)
Files:      src/structs.h, src/option.h, src/option.c, src/normal.c,
            runtime/doc/options.txt, src/testdir/test_normal.vim

Patch 8.0.0180
Problem:    Error E937 is used both for duplicate key in JSON and for trying
            to delete a buffer that is in use.
Solution:   Rename the JSON error to E938. (Norio Takagi, closes #1376)
Files:      src/json.c, src/testdir/test_json.vim

Patch 8.0.0181
Problem:    When 'cursorbind' and 'cursorcolumn' are both on, the column
            highlight in non-current windows is wrong.
Solution:   Add validate_cursor(). (Masanori Misono, closes #1372)
```

```
Files:      src/move.c

Patch 8.0.0182
Problem:    When 'cursorbind' and 'cursorline' are set, but 'cursorcolumn' is
            not, then the cursor line highlighting is not updated. (Hirohito
            Higashi)
Solution:   Call redraw_later() with NOT_VALID.
Files:      src/move.c

Patch 8.0.0183
Problem:    Ubsan warns for using a pointer that is not aligned.
Solution:   First copy the address. (Yegappan Lakshmanan)
Files:      src/channel.c

Patch 8.0.0184
Problem:    When in Ex mode and an error is caught by try-catch, Vim still
            exits with a non-zero exit code.
Solution:   Don't set ex_exitval when inside a try-catch. (partly by Christian
            Brabandt)
Files:      src/message.c, src/testdir/test_system.vim

Patch 8.0.0185 (after 8.0.0184)
Problem:    The system() test fails on MS-Windows.
Solution:   Skip the test on MS-Windows.
Files:      src/testdir/test_system.vim

Patch 8.0.0186
Problem:    The error message from assert_notequal() is confusing.
Solution:   Only mention the expected value.
Files:      src/eval.c, src/testdir/test_assert.vim

Patch 8.0.0187
Problem:    Building with a new Ruby version fails.
Solution:   Use ruby_sysinit() instead of NtInitialize(). (Tomas Volf,
            closes #1382)
Files:      src/if_ruby.c

Patch 8.0.0188 (after 8.0.0182)
Problem:    Using NOT_VALID for redraw_later() to update the cursor
            line/column highlighting is not efficient.
Solution:   Call validate_cursor() when 'cul' or 'cuc' is set.
Files:      src/move.c

Patch 8.0.0189
Problem:    There are no tests for the :profile command.
Solution:   Add tests. (Dominique Pelle, closes #1383)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_profile.vim

Patch 8.0.0190
Problem:    Detecting duplicate tags uses a slow linear search.
Solution:   Use a much faster hash table solution. (James McCoy, closes #1046)
            But don't add hi_keylen, it makes hash tables 50% bigger.
Files:      src/tag.c
```

```
Patch 8.0.0191 (after 8.0.0187)
Problem:    Some systems do not have ruby_sysinit(), causing the build to
            fail.
Solution:   Clean up how ruby_sysinit() and NtInitialize() are used. (Taro
            Muraoka)
Files:      src/if_ruby.c

Patch 8.0.0192 (after 8.0.0190)
Problem:    Build fails with tiny features.
Solution:   Change #ifdef for hash_clear().  Avoid warning for unused
            argument.
Files:      src/hashtab.c, src/if_cscope.c

Patch 8.0.0193 (after 8.0.0188)
Problem:    Accidentally removed #ifdef.
Solution:   Put it back. (Masanori Misono)
Files:      src/move.c

Patch 8.0.0194 (after 8.0.0189)
Problem:    Profile tests fails if total and self time are equal.
Solution:   Make one time optional.
Files:      src/testdir/test_profile.vim

Patch 8.0.0195 (after 8.0.0190)
Problem:    Jumping to a tag that is a static item in the current file fails.
            (Kazunobu Kuriyama)
Solution:   Make sure the first byte of the tag key is not NUL. (Suggested by
            James McCoy, closes #1387)
Files:      src/tag.c, src/testdir/test_tagjump.vim

Patch 8.0.0196 (after 8.0.0194)
Problem:    The test for :profile is slow and does not work on MS-Windows.
Solution:   Use the "-es" argument. (Dominique Pelle)  Swap single and double
            quotes for system()
Files:      src/testdir/test_profile.vim

Patch 8.0.0197
Problem:    On MS-Windows the system() test skips a few parts.
Solution:   Swap single and double quotes for the command.
Files:      src/testdir/test_system.vim

Patch 8.0.0198
Problem:    Some syntax arguments take effect even after "if 0". (Taylor
            Venable)
Solution:   Properly skip the syntax statements.  Make "syn case" and "syn
            conceal" report the current state.  Fix that "syn clear" didn't
            reset the conceal flag.  Add tests for :syntax skipping properly.
Files:      src/syntax.c, src/testdir/test_syntax.vim

Patch 8.0.0199
Problem:    Warning for an unused parameter when the libcall feature is
            disabled.  Warning for a function type cast when compiling with
            -pedantic.
```

```
Solution:   Add UNUSED.  Use a different type cast. (Damien Molinier)
Files:      src/evalfunc.c, src/os_unix.c

Patch 8.0.0200
Problem:    Some syntax arguments are not tested.
Solution:   Add more syntax command tests.
Files:      src/testdir/test_syntax.vim

Patch 8.0.0201
Problem:    When completing a group name for a highlight or syntax command
            cleared groups are included.
Solution:   Skip groups that have been cleared.
Files:      src/syntax.c, src/testdir/test_syntax.vim

Patch 8.0.0202
Problem:    No test for invalid syntax group name.
Solution:   Add a test for group name error and warning.
Files:      src/testdir/test_syntax.vim

Patch 8.0.0203
Problem:    Order of complication flags is sometimes wrong.
Solution:   Put interface-specific flags before ALL_CFLAGS. (idea by Yousong
            Zhou, closes #1100)
Files:      src/Makefile

Patch 8.0.0204
Problem:    Compiler warns for uninitialized variable. (Tony Mechelynck)
Solution:   When skipping set "id" to -1.
Files:      src/syntax.c

Patch 8.0.0205
Problem:    After :undojoin some commands don't work properly, such as :redo.
            (Matthew Malcomson)
Solution:   Don't set curbuf->b_u_curhead. (closes #1390)
Files:      src/undo.c, src/testdir/test_undo.vim

Patch 8.0.0206
Problem:    Test coverage for :retab insufficient.
Solution:   Add test for :retab. (Dominique Pelle, closes #1391)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/test_retab.vim

Patch 8.0.0207
Problem:    Leaking file descriptor when system() cannot find the buffer.
            (Coverity)
Solution:   Close the file descriptor.  (Dominique Pelle, closes #1398)
Files:      src/evalfunc.c

Patch 8.0.0208
Problem:    Internally used commands for CTRL-Z and mouse click end up in
            history. (Matthew Malcomson)
Solution:   Use do_cmdline_cmd() instead of stuffing them in the readahead
            buffer. (James McCoy, closes #1395)
Files:      src/edit.c, src/normal.c
```

```
Patch 8.0.0209
Problem:    When using :substitute with the "c" flag and 'cursorbind' is set
            the cursor is not updated in other windows.
Solution:   Call do_check_cursorbind(). (Masanori Misono)
Files:      src/ex_cmds.c

Patch 8.0.0210
Problem:    Vim does not support bracketed paste, as implemented by xterm and
            other terminals.
Solution:   Add t_BE, t_BD, t_PS and t_PE.
Files:      src/term.c, src/term.h, src/option.c, src/misc2.c, src/keymap.h,
            src/edit.c, src/normal.c, src/evalfunc.c, src/getchar.c,
            src/vim.h, src/proto/edit.pro, runtime/doc/term.txt

Patch 8.0.0211 (after 8.0.0210)
Problem:    Build fails if the multi-byte feature is disabled.
Solution:   Change #ifdef around ins_char_bytes.
Files:      src/misc1.c

Patch 8.0.0212
Problem:    The buffer used to store a key name theoretically could be too
            small. (Coverity)
Solution:   Count all possible modifier characters.  Add a check for the
            length just in case.
Files:      src/keymap.h, src/misc2.c

Patch 8.0.0213
Problem:    The Netbeans "specialKeys" command does not check if the argument
            fits in the buffer. (Coverity)
Solution:   Add a length check.
Files:      src/netbeans.c

Patch 8.0.0214
Problem:    Leaking memory when syntax cluster id is unknown. (Coverity)
Solution:   Free the memory.
Files:      src/syntax.c

Patch 8.0.0215
Problem:    When a Cscope line contains CTRL-L a NULL pointer may be used.
            (Coverity)
Solution:   Don't check for an emacs tag in a cscope line.
Files:      src/tag.c

Patch 8.0.0216
Problem:    When decoding JSON with a JS style object the JSON test may use a
            NULL pointer. (Coverity)
Solution:   Check for a NULL pointer.
Files:      src/json.c, src/json_test.c

Patch 8.0.0217 (after 8.0.0215)
Problem:    Build fails without the cscope feature.
Solution:   Add #ifdef.
Files:      src/tag.c
```

```
Patch 8.0.0218
Problem:    No command line completion for :cexpr, :cgetexpr, :caddexpr, etc.
Solution:   Make completion work. (Yegappan Lakshmanan)  Add a test.
Files:      src/ex_docmd.c, src/testdir/test_cmdline.vim

Patch 8.0.0219
Problem:    Ubsan reports errors for integer overflow.
Solution:   Define macros for minimum and maximum values.  Select an
            expression based on the value. (Mike Williams)
Files:      src/charset.c, src/eval.c, src/evalfunc.c, src/structs.h,
            src/testdir/test_viml.vim

Patch 8.0.0220
Problem:    Completion for :match does not show "none" and other missing
            highlight names.
Solution:   Skip over cleared entries before checking the index to be at the
            end.
Files:      src/syntax.c, src/testdir/test_cmdline.vim

Patch 8.0.0221
Problem:    Checking if PROTO is defined inside a function has no effect.
Solution:   Remove the check for PROTO. (Hirohito Higashi)
Files:      src/misc1.c

Patch 8.0.0222
Problem:    When a multi-byte character ends in a zero byte, putting blockwise
            text puts it before the character instead of after it.
Solution:   Use int instead of char for the character under the cursor.
            (Luchr, closes #1403)  Add a test.
Files:      src/ops.c, src/testdir/test_put.vim, src/Makefile,
            src/testdir/test_alot.vim

Patch 8.0.0223
Problem:    Coverity gets confused by the flags passed to find_tags() and
            warns about uninitialized variable.
Solution:   Disallow using cscope and help tags at the same time.
Files:      src/tag.c

Patch 8.0.0224
Problem:    When 'fileformats' is changed in a BufReadPre auto command, it
            does not take effect in readfile(). (Gary Johnson)
Solution:   Check the value of 'fileformats' after executing auto commands.
            (Christian Brabandt)
Files:      src/fileio.c, src/testdir/test_fileformat.vim

Patch 8.0.0225
Problem:    When a block is visually selected and put is used on the end of
            the selection only one line is changed.
Solution:   Check for the end properly. (Christian Brabandt, neovim issue
            5781)
Files:      src/ops.c, src/testdir/test_put.vim

Patch 8.0.0226
Problem:    The test for patch 8.0.0224 misses the CR characters and passes
```

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            even without the fix. (Christian Brabandt)
Solution:   Use double quotes and \<CR>.
Files:      src/testdir/test_fileformat.vim

Patch 8.0.0227
Problem:    Crash when 'fileformat' is forced to "dos" and the first line in
            the file is empty and does not have a CR character.
Solution:   Don't check for CR before the start of the buffer.
Files:      src/fileio.c, src/testdir/test_fileformat.vim

Patch 8.0.0228 (after 8.0.0210)
Problem:    When pasting test in an xterm on the command line it is surrounded
            by <PasteStart> and <PasteEnd>. (Johannes Kaltenbach)
Solution:   Add missing changes.
Files:      src/ex_getln.c, src/term.c

Patch 8.0.0229 (after 8.0.0179)
Problem:    When freeing a buffer the local value of the 'formatprg' option is
            not cleared.
Solution:   Add missing change.
Files:      src/buffer.c

Patch 8.0.0230 (after 8.0.0210)
Problem:    When using bracketed paste line breaks are not respected.
Solution:   Turn CR characters into a line break if the text is being
            inserted. (closes #1404)
Files:      src/edit.c

Patch 8.0.0231
Problem:    There are no tests for bracketed paste mode.
Solution:   Add a test.  Fix repeating with "normal .".
Files:      src/edit.c, src/testdir/test_paste.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.0232
Problem:    Pasting in Insert mode does not work when bracketed paste is used
            and 'esckeys' is off.
Solution:   When 'esckeys' is off disable bracketed paste in Insert mode.
Files:      src/edit.c

Patch 8.0.0233 (after 8.0.0231)
Problem:    The paste test fails if the GUI is being used.
Solution:   Skip the test in the GUI.
Files:      src/testdir/test_paste.vim

Patch 8.0.0234 (after 8.0.0225)
Problem:    When several lines are visually selected and one of them is short,
            using put may cause a crash. (Axel Bender)
Solution:   Check for a short line. (Christian Brabandt)
Files:      src/ops.c, src/testdir/test_put.vim

Patch 8.0.0235
Problem:    Memory leak detected when running tests for diff mode.
Solution:   Free p_extra_free.
```

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Files:      src/screen.c

Patch 8.0.0236 (after 8.0.0234)
Problem:    Gcc complains that a variable may be used uninitialized. Confusion
            between variable and label name. (John Marriott)
Solution:   Initialize it.  Rename end to end_lnum.
Files:      src/ops.c

Patch 8.0.0237
Problem:    When setting wildoptions=tagfile the completion context is not set
            correctly. (desjardins)
Solution:   Check for EXPAND_TAGS_LISTFILES. (Christian Brabandt, closes #1399)
Files:      src/ex_getln.c, src/testdir/test_cmdline.vim

Patch 8.0.0238
Problem:    When using bracketed paste autoindent causes indent to be
            increased.
Solution:   Disable 'ai' and set 'paste' temporarily. (Ken Takata)
Files:      src/edit.c, src/testdir/test_paste.vim

Patch 8.0.0239
Problem:    The address sanitizer sometimes finds errors, but it needs to be
            run manually.
Solution:   Add an environment to Travis with clang and the address sanitizer.
            (Christian Brabandt)  Also include changes only on github.
Files:      .travis.yml

Patch 8.0.0240 (after 8.0.0239)
Problem:    The clang build on CI fails with one configuration.
Solution:   Redo a previous patch that was accidentally reverted.
Files:      .travis.yml

Patch 8.0.0241
Problem:    Vim defines a mch_memmove() function but it doesn't work, thus is
            always unused.
Solution:   Remove the mch_memmove implementation. (suggested by Dominique
            Pelle)
Files:      src/os_unix.h, src/misc2.c, src/vim.h

Patch 8.0.0242
Problem:    Completion of user defined functions is not covered by tests.
Solution:   Add tests.  Also test various errors of user-defined commands.
            (Dominique Pelle, closes #1413)
Files:      src/testdir/test_usercommands.vim

Patch 8.0.0243
Problem:    When making a character lower case with tolower() changes the byte
            count, it is not made lower case.
Solution:   Add strlow_save(). (Dominique Pelle, closes #1406)
Files:      src/evalfunc.c, src/misc2.c, src/proto/misc2.pro,
            src/testdir/test_functions.vim

Patch 8.0.0244
Problem:    When the user sets t_BE empty after startup to disable bracketed
```

```
            paste, this has no direct effect.
Solution:   When t_BE is made empty write t_BD.  When t_BE is made non-empty
            write the new value.
Files:      src/option.c

Patch 8.0.0245
Problem:    The generated zh_CN.cp936.po message file is not encoded properly.
Solution:   Instead of using zh_CN.po as input, use zh_CN.UTF-8.po.
Files:      src/po/Makefile

Patch 8.0.0246
Problem:    Compiler warnings for int to pointer conversion.
Solution:   Fix macro for mch_memmove(). (John Marriott)
Files:      src/vim.h

Patch 8.0.0247
Problem:    Under some circumstances, one needs to type Ctrl-N or Ctrl-P twice
            to have a menu entry selected. (Lifepillar)
Solution:   call ins_compl_free(). (Christian Brabandt, closes #1411)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0248
Problem:    vim_strcat() cannot handle overlapping arguments.
Solution:   Use mch_memmove() instead of strcpy(). (Justin M. Keyes,
            closes #1415)
Files:      src/misc2.c

Patch 8.0.0249
Problem:    When two submits happen quick after each other, the tests for the
            first one may error out.
Solution:   Use a git depth of 10 instead of 1. (Christian Brabandt)
Files:      .travis.yml

Patch 8.0.0250
Problem:    When virtcol() gets a column that is not the first byte of a
            multi-byte character the result is unpredictable. (Christian
            Ludwig)
Solution:   Correct the column to the first byte of a multi-byte character.
            Change the utf-8 test to new style.
Files:      src/charset.c, src/testdir/test_utf8.in, src/testdir/test_utf8.ok,
            src/testdir/test_utf8.vim, src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_alot_utf8.vim

Patch 8.0.0251
Problem:    It is not so easy to write a script that works with both Python 2
            and Python 3, even when the Python code works with both.
Solution:   Add 'pyxversion', :pyx, etc. (Marc Weber, Ken Takata)
Files:      Filelist, runtime/doc/eval.txt, runtime/doc/if_pyth.txt,
            runtime/doc/index.txt, runtime/doc/options.txt,
            runtime/optwin.vim, runtime/doc/quickref.txt,
            runtime/doc/usr_41.txt, src/Makefile, src/evalfunc.c,
            src/ex_cmds.h, src/ex_cmds2.c, src/ex_docmd.c, src/if_python.c,
            src/if_python3.c, src/option.c, src/option.h,
            src/proto/ex_cmds2.pro, src/testdir/Make_all.mak,
```

```
            src/testdir/pyxfile/py2_magic.py,
            src/testdir/pyxfile/py2_shebang.py,
            src/testdir/pyxfile/py3_magic.py,
            src/testdir/pyxfile/py3_shebang.py, src/testdir/pyxfile/pyx.py,
            src/testdir/test_pyx2.vim, src/testdir/test_pyx3.vim
            src/userfunc.c

Patch 8.0.0252
Problem:    Characters below 256 that are not one byte are not always
            recognized as word characters.
Solution:   Make vim_iswordc() and vim_iswordp() work the same way. Add a test
            for this. (Ozaki Kiichi)
Files:      src/Makefile, src/charset.c, src/kword_test.c, src/mbyte.c,
            src/proto/mbyte.pro

Patch 8.0.0253
Problem:    When creating a session when 'winminheight' is 2 or larger and
            loading that session gives an error.
Solution:   Also set 'winminheight' before setting 'winheight' to 1. (Rafael
            Bodill, neovim #5717)
Files:      src/ex_docmd.c, src/testdir/test_mksession.vim

Patch 8.0.0254
Problem:    When using an assert function one can either specify a message or
            get a message about what failed, not both.
Solution:   Concatenate the error with the message.
Files:      src/eval.c, src/testdir/test_assert.vim

Patch 8.0.0255
Problem:    When calling setpos() with a buffer argument it often is ignored.
            (Matthew Malcomson)
Solution:   Make the buffer argument work for all marks local to a buffer.
            (neovim #5713)  Add more tests.
Files:      src/mark.c, src/testdir/test_marks.vim, runtime/doc/eval.txt

Patch 8.0.0256 (after 8.0.0255)
Problem:    Tests fail because some changes were not included.
Solution:   Add changes to evalfunc.c
Files:      src/evalfunc.c

Patch 8.0.0257 (after 8.0.0252)
Problem:    The keyword test file is not included in the archive.
Solution:   Update the list of files.
Files:      Filelist

Patch 8.0.0258 (after 8.0.0253)
Problem:    mksession test leaves file behind.
Solution:   Delete the file.  Rename files to start with "X".
Files:      src/testdir/test_mksession.vim

Patch 8.0.0259
Problem:    Tab commands do not handle count correctly. (Ken Hamada)
Solution:   Add ADDR_TABS_RELATIVE. (Hirohito Higashi)
Files:      runtime/doc/tabpage.txt, src/ex_cmds.h, src/ex_docmd.c,
```

```
            src/testdir/test_tabpage.vim

Patch 8.0.0260
Problem:    Build fails with tiny features.
Solution:   Move get_tabpage_arg() inside #ifdef.
Files:      src/ex_docmd.c

Patch 8.0.0261
Problem:    Not enough test coverage for eval functions.
Solution:   Add more tests. (Dominique Pelle, closes #1420)
Files:      src/testdir/test_functions.vim

Patch 8.0.0262
Problem:    Farsi support is barely tested.
Solution:   Add more tests for Farsi.  Clean up the code.
Files:      src/edit.c, src/farsi.c, src/testdir/test_farsi.vim

Patch 8.0.0263
Problem:    Farsi support is not tested enough.
Solution:   Add more tests for Farsi.  Clean up the code.
Files:      src/farsi.c, src/testdir/test_farsi.vim

Patch 8.0.0264
Problem:    Memory error reported by ubsan, probably for using the string
            returned by execute().
Solution:   NUL terminate the result of execute().
Files:      src/evalfunc.c

Patch 8.0.0265
Problem:    May get ml_get error when :pydo deletes lines or switches to
            another buffer. (Nikolai Pavlov, issue #1421)
Solution:   Check the buffer and line every time.
Files:      src/if_py_both.h, src/testdir/test_python2.vim,
            src/testdir/test_python3.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.0266
Problem:    Compiler warning for using uninitialized variable.
Solution:   Set tab_number also when there is an error.
Files:      src/ex_docmd.c

Patch 8.0.0267
Problem:    A channel test sometimes fails on Mac.
Solution:   Add the test to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.0268
Problem:    May get ml_get error when :luado deletes lines or switches to
            another buffer. (Nikolai Pavlov, issue #1421)
Solution:   Check the buffer and line every time.
Files:      src/if_lua.c, src/testdir/test_lua.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.0269
```

```
Problem:    May get ml_get error when :perldo deletes lines or switches to
            another buffer. (Nikolai Pavlov, issue #1421)
Solution:   Check the buffer and line every time.
Files:      src/if_perl.xs, src/testdir/test_perl.vim

Patch 8.0.0270
Problem:    May get ml_get error when :rubydo deletes lines or switches to
            another buffer. (Nikolai Pavlov, issue #1421)
Solution:   Check the buffer and line every time.
Files:      src/if_ruby.c, src/testdir/test_ruby.vim

Patch 8.0.0271
Problem:    May get ml_get error when :tcldo deletes lines or switches to
            another buffer. (Nikolai Pavlov, closes #1421)
Solution:   Check the buffer and line every time.
Files:      src/if_tcl.c, src/testdir/test_tcl.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.0272
Problem:    Crash on exit is not detected when running tests.
Solution:   Remove the dash before the command. (Dominique Pelle, closes
            #1425)
Files:      src/testdir/Makefile

Patch 8.0.0273
Problem:    Dead code detected by Coverity when not using gnome.
Solution:   Rearrange the #ifdefs to avoid dead code.
Files:      src/gui_gtk_x11.c

Patch 8.0.0274
Problem:    When update_single_line() is called recursively, or another screen
            update happens while it is busy, errors may occur.
Solution:   Check and update updating_screen. (Christian Brabandt)
Files:      src/screen.c

Patch 8.0.0275
Problem:    When checking for CTRL-C typed the GUI may detect a screen resize
            and redraw the screen, causing trouble.
Solution:   Set updating_screen in ui_breakcheck().
Files:      src/ui.c

Patch 8.0.0276
Problem:    Checking for FEAT_GUI_GNOME inside GTK 3 code is unnecessary.
Solution:   Remove the #ifdef. (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 8.0.0277
Problem:    The GUI test may trigger fontconfig and take a long time.
Solution:   Set $XDG_CACHE_HOME. (Kazunobu Kuriyama)
Files:      src/testdir/unix.vim, src/testdir/test_gui.vim

Patch 8.0.0278 (after 8.0.0277)
Problem:    GUI test fails on MS-Windows.
Solution:   Check that tester_HOME exists.
```

```
Files:      src/testdir/test_gui.vim

Patch 8.0.0279
Problem:    With MSVC 2015 the dll name is vcruntime140.dll.
Solution:   Check the MSVC version and use the right dll name. (Ken Takata)
Files:      src/Make_mvc.mak

Patch 8.0.0280
Problem:    On MS-Windows setting an environment variable with multi-byte
            strings does not work well.
Solution:   Use wputenv when possible. (Taro Muraoka, Ken Takata)
Files:      src/misc1.c, src/os_win32.c, src/os_win32.h,
            src/proto/os_win32.pro, src/vim.h

Patch 8.0.0281
Problem:    MS-Windows files are still using ARGSUSED while most other files
            have UNUSED.
Solution:   Change ARGSUSED to UNUSED or delete it.
Files:      src/os_win32.c, src/gui_w32.c, src/os_mswin.c, src/os_w32exe.c,
            src/winclip.c

Patch 8.0.0282
Problem:    When doing a Visual selection and using "I" to go to insert mode,
            CTRL-O needs to be used twice to go to Normal mode. (Coacher)
Solution:   Check for the return value of edit(). (Christian Brabandt,
            closes #1290)
Files:      src/normal.c, src/ops.c

Patch 8.0.0283
Problem:    The return value of mode() does not indicate that completion is
            active in Replace and Insert mode. (Zhen-Huan (Kenny) Hu)
Solution:   Add "c" or "x" for two kinds of completion. (Yegappan Lakshmanan,
            closes #1397)  Test some more modes.
Files:      runtime/doc/eval.txt, src/evalfunc.c,
            src/testdir/test_functions.vim, src/testdir/test_mapping.vim

Patch 8.0.0284
Problem:    The Test_collapse_buffers() test failed once, looks like it is
            flaky.
Solution:   Add it to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.0285 (after 8.0.0277)
Problem:    Tests fail with tiny build on Unix.
Solution:   Only set g:tester_HOME when build with the +eval feature.
Files:      src/testdir/unix.vim

Patch 8.0.0286
Problem:    When concealing is active and the screen is resized in the GUI it
            is not immediately redrawn.
Solution:   Use update_prepare() and update_finish() from
            update_single_line().
Files:      src/screen.c
```

```
Patch 8.0.0287
Problem:    Cannot access the arguments of the current function in debug mode.
            (Luc Hermitte)
Solution:   use get_funccal(). (LemonBoy, closes #1432, closes #1352)
Files:      src/userfunc.c

Patch 8.0.0288 (after 8.0.0284)
Problem:    Errors reported while running tests.
Solution:   Put comma in the right place.
Files:      src/testdir/runtest.vim

Patch 8.0.0289
Problem:    No test for "ga" and :ascii.
Solution:   Add a test. (Dominique Pelle, closes #1429)
Files:      src/Makefile, src/testdir/test_alot.vim, src/testdir/test_ga.vim

Patch 8.0.0290
Problem:    If a wide character doesn't fit at the end of the screen line, and
            the line doesn't fit on the screen, then the cursor position may
            be wrong. (anliting)
Solution:   Don't skip over wide character. (Christian Brabandt, closes #1408)
Files:      src/screen.c

Patch 8.0.0291 (after 8.0.0282)
Problem:    Visual block insertion does not insert in all lines.
Solution:   Don't bail out of insert too early. Add a test. (Christian
            Brabandt, closes #1290)
Files:      src/ops.c, src/testdir/test_visual.vim

Patch 8.0.0292
Problem:    The stat test is a bit slow.
Solution:   Remove a couple of sleep comments and reduce another.
Files:      src/testdir/test_stat.vim

Patch 8.0.0293
Problem:    Some tests have a one or three second wait.
Solution:   Reset the 'showmode' option.  Use a test time of one to disable
            sleep after an error or warning message.
Files:      src/misc1.c, src/testdir/runtest.vim, src/testdir/test_normal.vim

Patch 8.0.0294
Problem:    Argument list is not stored correctly in a session file.
            (lgpasquale)
Solution:   Use "$argadd" instead of "argadd". (closes #1434)
Files:      src/ex_docmd.c, src/testdir/test_mksession.vim

Patch 8.0.0295 (after 8.0.0293)
Problem:    test_viml hangs.
Solution:   Put resetting 'more' before sourcing the script.
Files:      src/testdir/runtest.vim

Patch 8.0.0296
Problem:    Bracketed paste can only append, not insert.
Solution:   When the cursor is in the first column insert the text.
```

```
Files:      src/normal.c, src/testdir/test_paste.vim, runtime/doc/term.txt

Patch 8.0.0297
Problem:    Double free on exit when using a closure. (James McCoy)
Solution:   Split free_al_functions in two parts. (closes #1428)
Files:      src/userfunc.c, src/structs.h

Patch 8.0.0298
Problem:    Ex command range with repeated search does not work. (Bruce
            DeVisser)
Solution:   Skip over \/, \? and \&.
Files:      src/ex_docmd.c, src/testdir/test_cmdline.vim

Patch 8.0.0299
Problem:    When the GUI window is resized Vim does not always take over the
            new size. (Luchr)
Solution:   Reset new_p_guifont in gui_resize_shell().  Call
            gui_may_resize_shell() in the main loop.
Files:      src/main.c, src/gui.c

Patch 8.0.0300
Problem:    Cannot stop diffing hidden buffers. (Daniel Hahler)
Solution:   When using :diffoff! make the whole list if diffed buffers empty.
            (closes #736)
Files:      src/diff.c, src/testdir/test_diffmode.vim

Patch 8.0.0301
Problem:    No tests for ":set completion" and various errors of the :set
            command.
Solution:   Add more :set tests. (Dominique Pelle, closes #1440)
Files:      src/testdir/test_options.vim

Patch 8.0.0302
Problem:    Cannot set terminal key codes with :let.
Solution:   Make it work.
Files:      src/option.c, src/testdir/test_assign.vim

Patch 8.0.0303
Problem:    Bracketed paste does not work in Visual mode.
Solution:   Delete the text before pasting
Files:      src/normal.c, src/ops.c, src/proto/ops.pro,
            src/testdir/test_paste.vim

Patch 8.0.0304 (after 8.0.0302)
Problem:    Assign test fails in the GUI.
Solution:   Skip the test for setting t_k1.
Files:      src/testdir/test_assign.vim

Patch 8.0.0305
Problem:    Invalid memory access when option has duplicate flag.
Solution:   Correct pointer computation. (Dominique Pelle, closes #1442)
Files:      src/option.c, src/testdir/test_options.vim

Patch 8.0.0306
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```
Problem:    mode() not sufficiently tested.
Solution:   Add more tests. (Yegappan Lakshmanan)
Files:      src/testdir/test_functions.vim

Patch 8.0.0307
Problem:    Asan detects a memory error when EXITFREE is defined. (Dominique
            Pelle)
Solution:   In getvcol() check for ml_get_buf() returning an empty string.
            Also skip adjusting the scroll position.  Set "exiting" in
            mch_exit() for all systems.
Files:      src/charset.c, src/window.c, src/os_mswin.c, src/os_win32.c,
            src/os_amiga.c

Patch 8.0.0308
Problem:    When using a symbolic link, the package path will not be inserted
            at the right position in 'runtimepath'. (Dugan Chen, Norio Takagi)
Solution:   Resolve symbolic links when finding the right position in
            'runtimepath'. (Hirohito Higashi)
Files:      src/ex_cmds2.c, src/testdir/test_packadd.vim

Patch 8.0.0309
Problem:    Cannot use an empty key in json.
Solution:   Allow for using an empty key.
Files:      src/json.c, src/testdir/test_json.vim

Patch 8.0.0310
Problem:    Not enough testing for GUI functionality.
Solution:   Add tests for v:windowid and getwinpos[xy](). (Kazunobu Kuriyama)
Files:      src/testdir/test_gui.vim

Patch 8.0.0311
Problem:    Linebreak tests are old style.
Solution:   Turn the tests into new style. Share utility functions. (Ozaki
            Kiichi, closes #1444)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_breakindent.vim, src/testdir/test_listlbr.in,
            src/testdir/test_listlbr.ok, src/testdir/test_listlbr.vim,
            src/testdir/test_listlbr_utf8.in,
            src/testdir/test_listlbr_utf8.ok,
            src/testdir/test_listlbr_utf8.vim, src/testdir/view_util.vim

Patch 8.0.0312
Problem:    When a json message arrives in pieces, the start is dropped and
            the decoding fails.
Solution:   Do not drop the start when it is still needed. (Kay Zheng)  Add a
            test.  Reset the timeout when something is received.
Files:      src/channel.c, src/testdir/test_channel.vim, src/structs.h,
            src/testdir/test_channel_pipe.py

Patch 8.0.0313 (after 8.0.0310)
Problem:    Not enough testing for GUI functionality.
Solution:   Add tests for the GUI font. (Kazunobu Kuriyama)
Files:      src/testdir/test_gui.vim
```

```
Patch 8.0.0314
Problem:    getcmdtype(), getcmdpos() and getcmdline() are not tested.
Solution:   Add tests. (Yegappan Lakshmanan)
Files:      src/testdir/test_cmdline.vim

Patch 8.0.0315
Problem:    ":help :[range]" does not work. (Tony Mechelynck)
Solution:   Translate to insert a backslash.
Files:      src/ex_cmds.c

Patch 8.0.0316
Problem:    ":help z?" does not work. (Pavol Juhas)
Solution:   Remove exception for z?.
Files:      src/ex_cmds.c

Patch 8.0.0317
Problem:    No test for setting 'guifont'.
Solution:   Add a test for X11 GUIs. (Kazunobu Kuriyama)
Files:      src/testdir/test_gui.vim

Patch 8.0.0318
Problem:    Small mistake in 7x13 font name.
Solution:   Use ISO 8859-1 name instead of 10646-1. (Kazunobu Kuriyama)
Files:      src/testdir/test_gui.vim

Patch 8.0.0319
Problem:    Insert mode completion does not respect "start" in 'backspace'.
Solution:   Check whether backspace can go before where insert started.
            (Hirohito Higashi)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0320
Problem:    Warning for unused variable with small build.
Solution:   Change #ifdef to exclude FEAT_CMDWIN. (Kazunobu Kuriyama)
Files:      src/ex_getln.c

Patch 8.0.0321
Problem:    When using the tiny version trying to load the matchit plugin
            gives an error. On MS-Windows some default mappings fail.
Solution:   Add a check if the command used is available. (Christian Brabandt)
Files:      runtime/mswin.vim, runtime/macros/matchit.vim

Patch 8.0.0322
Problem:    Possible overflow with spell file where the tree length is
            corrupted.
Solution:   Check for an invalid length (suggested by shqking)
Files:      src/spellfile.c

Patch 8.0.0323
Problem:    When running the command line tests there is a one second wait.
Solution:   Change an Esc to Ctrl-C. (Yegappan Lakshmanan)
Files:      src/testdir/test_cmdline.vim

Patch 8.0.0324
```

```
Problem:    Illegal memory access with "1;y".
Solution:   Call check_cursor() instead of check_cursor_lnum(). (Dominique
            Pelle, closes #1455)
Files:      src/ex_docmd.c, src/testdir/test_cmdline.vim

Patch 8.0.0325
Problem:    Packadd test does not clean up symlink.
Solution:   Delete the link. (Hirohito Higashi)
Files:      src/testdir/test_packadd.vim

Patch 8.0.0326 (after 8.0.0325)
Problem:    Packadd test uses wrong directory name.
Solution:   Use the variable name value. (Hirohito Higashi)
Files:      src/testdir/test_packadd.vim

Patch 8.0.0327
Problem:    The E11 error message in the command line window is not
            translated.
Solution:   use _(). (Hirohito Higashi)
Files:      src/ex_docmd.c

Patch 8.0.0328
Problem:    The "zero count" error doesn't have a number. (Hirohito Higashi)
Solution:   Give it a number and be more specific about the error.
Files:      src/globals.h

Patch 8.0.0329
Problem:    Xfontset and guifontwide are not tested.
Solution:   Add tests. (Kazunobu Kuriyama)
Files:      src/testdir/test_gui.vim

Patch 8.0.0330
Problem:    Illegal memory access after "vapo". (Dominique Pelle)
Solution:   Fix the cursor column.
Files:      src/search.c, src/testdir/test_visual.vim

Patch 8.0.0331
Problem:    Restoring help snapshot accesses freed memory. (Dominique Pelle)
Solution:   Don't restore a snapshot when the window closes.
Files:      src/window.c, src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_help.vim

Patch 8.0.0332
Problem:    GUI test fails on some systems.
Solution:   Try different language settings. (Kazunobu Kuriyama)
Files:      src/testdir/test_gui.vim

Patch 8.0.0333
Problem:    Illegal memory access when 'complete' ends in a backslash.
Solution:   Check for trailing backslash. (Dominique Pelle, closes #1478)
Files:      src/option.c, src/testdir/test_options.vim

Patch 8.0.0334
Problem:    Can't access b:changedtick from a dict reference.
```

```
Solution:   Make changedtick a member of the b: dict. (inspired by neovim
            #6112)
Files:      src/structs.h, src/buffer.c, src/edit.c, src/eval.c,
            src/evalfunc.c, src/ex_docmd.c, src/main.c, src/globals.h,
            src/fileio.c, src/memline.c, src/misc1.c, src/syntax.c,
            src/proto/eval.pro, src/testdir/test_changedtick.vim,
            src/Makefile, src/testdir/test_alot.vim, src/testdir/test91.in,
            src/testdir/test91.ok, src/testdir/test_functions.vim

Patch 8.0.0335 (after 8.0.0335)
Problem:    Functions test fails.
Solution:   Use the right buffer number.
Files:      src/testdir/test_functions.vim

Patch 8.0.0336
Problem:    Flags of :substitute not sufficiently tested.
Solution:   Test up to two letter flag combinations. (James McCoy, closes
            #1479)
Files:      src/testdir/test_substitute.vim

Patch 8.0.0337
Problem:    Invalid memory access in :recover command.
Solution:   Avoid access before directory name. (Dominique Pelle,
            closes #1488)
Files:      src/Makefile, src/memline.c, src/testdir/test_alot.vim,
            src/testdir/test_recover.vim

Patch 8.0.0338 (after 8.0.0337)
Problem:    :recover test fails on MS-Windows.
Solution:   Use non-existing directory on MS-Windows.
Files:      src/testdir/test_recover.vim

Patch 8.0.0339
Problem:    Illegal memory access with vi'
Solution:   For quoted text objects bail out if the Visual area spans more
            than one line.
Files:      src/search.c, src/testdir/test_visual.vim

Patch 8.0.0340
Problem:    Not checking return value of dict_add(). (Coverity)
Solution:   Handle a failure.
Files:      src/buffer.c

Patch 8.0.0341
Problem:    When using complete() and typing a character undo is saved after
            the character was inserted. (Shougo)
Solution:   Save for undo before inserting the character.
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0342
Problem:    Double free when compiled with EXITFREE and setting 'ttytype'.
Solution:   Avoid setting P_ALLOCED on 'ttytype'. (Dominique Pelle,
            closes #1461)
Files:      src/option.c, src/testdir/test_options.vim
```

```
Patch 8.0.0343
Problem:    b:changedtick can be unlocked, even though it has no effect.
            (Nikolai Pavlov)
Solution:   Add a check and error E940. (closes #1496)
Files:      src/eval.c, src/testdir/test_changedtick.vim, runtime/doc/eval.txt

Patch 8.0.0344
Problem:    Unlet command leaks memory. (Nikolai Pavlov)
Solution:   Free the memory on error. (closes #1497)
Files:      src/eval.c, src/testdir/test_unlet.vim

Patch 8.0.0345
Problem:    islocked('d.changedtick') does not work.
Solution:   Make it work.
Files:      src/buffer.c, src/eval.c, src/evalfunc.c, src/vim.h,
            src/testdir/test_changedtick.vim,

Patch 8.0.0346
Problem:    Vim relies on limits.h to be included indirectly, but on Solaris 9
            it may not be. (Ben Fritz)
Solution:   Always include limits.h.
Files:      src/os_unixx.h, src/vim.h

Patch 8.0.0347
Problem:    When using CTRL-X CTRL-U inside a comment, the use of the comment
            leader may not work. (Klement)
Solution:   Save and restore did_ai. (Christian Brabandt, closes #1494)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0348
Problem:    When building with a shadow directory on macOS lacks the
            +clipboard feature.
Solution:   Link *.m files, specifically os_macosx.m. (Kazunobu Kuriyama)
Files:      src/Makefile

Patch 8.0.0349
Problem:    Redrawing errors with GTK 3.
Solution:   When updating, first clear all rectangles and then draw them.
            (Kazunobu Kuriyama, Christian Ludwig, closes #848)
Files:      src/gui_gtk_x11.c

Patch 8.0.0350
Problem:    Not enough test coverage for Perl.
Solution:   Add more Perl tests. (Dominique Pelle, closes #1500)
Files:      src/testdir/test_perl.vim

Patch 8.0.0351
Problem:    No test for concatenating an empty string that results from out of
            bounds indexing.
Solution:   Add a simple test.
Files:      src/testdir/test_expr.vim

Patch 8.0.0352
```

```
Problem:    The condition for when a typval needs to be cleared is too
            complicated.
Solution:   Init the type to VAR_UNKNOWN and always clear it.
Files:      src/eval.c

Patch 8.0.0353
Problem:    If [RO] in the status line is translated to a longer string, it is
            truncated to 4 bytes.
Solution:   Skip over the resulting string. (Jente Hidskes, closes #1499)
Files:      src/screen.c

Patch 8.0.0354
Problem:    Test to check that setting termcap key fails sometimes.
Solution:   Check for "t_k1" to exist. (Christian Brabandt, closes #1459)
Files:      src/testdir/test_assign.vim

Patch 8.0.0355
Problem:    Using uninitialized memory when 'isfname' is empty.
Solution:   Don't call getpwnam() without an argument. (Dominique Pelle,
            closes #1464)
Files:      src/misc1.c, src/testdir/test_options.vim

Patch 8.0.0356 (after 8.0.0342)
Problem:    Leaking memory when setting 'ttytype'.
Solution:   Get free_oldval from the right option entry.
Files:      src/option.c

Patch 8.0.0357
Problem:    Crash when setting 'guicursor' to weird value.
Solution:   Avoid negative size. (Dominique Pelle, closes #1465)
Files:      src/misc2.c, src/testdir/test_options.vim

Patch 8.0.0358
Problem:    Invalid memory access in C-indent code.
Solution:   Don't go over end of empty line. (Dominique Pelle, closes #1492)
Files:      src/edit.c, src/testdir/test_options.vim

Patch 8.0.0359
Problem:    'number' and 'relativenumber' are not properly tested.
Solution:   Add tests, change old style to new style tests. (Ozaki Kiichi,
            closes #1447)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/test89.in, src/testdir/test89.ok,
            src/testdir/test_alot.vim, src/testdir/test_findfile.vim,
            src/testdir/test_number.vim

Patch 8.0.0360
Problem:    Sometimes VimL is used, which is confusing.
Solution:   Consistently use "Vim script". (Hirohito Higashi)
Files:      runtime/doc/if_mzsch.txt, runtime/doc/if_pyth.txt,
            runtime/doc/syntax.txt, runtime/doc/usr_02.txt,
            runtime/doc/version7.txt, src/Makefile, src/eval.c,
            src/ex_getln.c, src/if_py_both.h, src/if_xcmdsrv.c,
            src/testdir/Make_all.mak, src/testdir/runtest.vim,
```

```
            src/testdir/test49.vim, src/testdir/test_vimscript.vim,
            src/testdir/test_viml.vim

Patch 8.0.0361
Problem:    GUI initialisation is not sufficiently tested.
Solution:   Add the gui_init test. (Kazunobu Kuriyama)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Makefile,
            src/testdir/gui_init.vim, src/testdir/setup_gui.vim,
            src/testdir/test_gui.vim, src/testdir/test_gui_init.vim, Filelist

Patch 8.0.0362 (after 8.0.0361)
Problem:    Tests fail on MS-Windows.
Solution:   Use $*.vim instead of $<.
Files:      src/testdir/Make_dos.mak

Patch 8.0.0363
Problem:    Travis is too slow to keep up with patches.
Solution:   Increase git depth to 20
Files:      .travis.yml

Patch 8.0.0364
Problem:    ]s does not move cursor with two spell errors in one line. (Manuel
            Ortega)
Solution:   Don't stop search immediately when wrapped, search the line first.
            (Ken Takata)  Add a test.
Files:      src/spell.c, src/Makefile, src/testdir/test_spell.vim,
            src/testdir/Make_all.mak

Patch 8.0.0365
Problem:    Might free a dict item that wasn't allocated.
Solution:   Call dictitem_free(). (Nikolai Pavlov)  Use this for
            b:changedtick.
Files:      src/dict.c, src/structs.h, src/buffer.c, src/edit.c,
            src/evalfunc.c, src/ex_docmd.c, src/fileio.c, src/main.c,
            src/memline.c, src/misc1.c, src/syntax.c

Patch 8.0.0366 (after 8.0.0365)
Problem:    Build fails with tiny features.
Solution:   Add #ifdef.
Files:      src/buffer.c

Patch 8.0.0367
Problem:    If configure defines _LARGE_FILES some include files are included
            before it is defined.
Solution:   Include vim.h first. (Sam Thursfield, closes #1508)
Files:      src/gui_at_sb.c, src/gui_athena.c, src/gui_motif.c, src/gui_x11.c,
            src/gui_xmdlg.c

Patch 8.0.0368
Problem:    Not all options are tested with a range of values.
Solution:   Generate a test script from the source code.
Files:      Filelist, src/gen_opt_test.vim, src/testdir/test_options.vim,
            src/Makefile
```

```
Patch 8.0.0369 (after 8.0.0368)
Problem:    The 'balloondelay', 'ballooneval' and 'balloonexpr' options are
            not defined without the +balloon_eval feature. Testing that an
            option value fails does not work for unsupported options.
Solution:   Make the options defined but not supported.  Don't test if
            setting unsupported options fails.
Files:      src/option.c, src/gen_opt_test.vim

Patch 8.0.0370
Problem:    Invalid memory access when setting wildchar empty.
Solution:   Avoid going over the end of the option value. (Dominique Pelle,
            closes #1509)  Make option test check all number options with
            empty value.
Files:      src/gen_opt_test.vim, src/option.c, src/testdir/test_options.vim

Patch 8.0.0371 (after 8.0.0365)
Problem:    Leaking memory when setting v:completed_item.
Solution:   Or the flags instead of setting them.
Files:      src/eval.c

Patch 8.0.0372
Problem:    More options are not always defined.
Solution:   Consistently define all possible options.
Files:      src/option.c, src/testdir/test_expand_dllpath.vim

Patch 8.0.0373
Problem:    Build fails without +folding.
Solution:   Move misplaced #ifdef.
Files:      src/option.c

Patch 8.0.0374
Problem:    Invalid memory access when using :sc in Ex mode. (Dominique Pelle)
Solution:   Avoid the column being negative.  Also fix a hang in Ex mode.
Files:      src/ex_getln.c, src/ex_cmds.c, src/testdir/test_substitute.vim

Patch 8.0.0375
Problem:    The "+ register is not tested.
Solution:   Add a test using another Vim instance to change the "+ register.
            (Kazunobu Kuriyama)
Files:      src/testdir/test_gui.vim

Patch 8.0.0376
Problem:    Size computations in spell file reading are not exactly right.
Solution:   Make "len" a "long" and check with LONG_MAX.
Files:      src/spellfile.c

Patch 8.0.0377
Problem:    Possible overflow when reading corrupted undo file.
Solution:   Check if allocated size is not too big. (King)
Files:      src/undo.c

Patch 8.0.0378
Problem:    Another possible overflow when reading corrupted undo file.
```

```
Solution:   Check if allocated size is not too big. (King)
Files:      src/undo.c

Patch 8.0.0379
Problem:    CTRL-Z and mouse click use CTRL-O unnecessary.
Solution:   Remove stuffing CTRL-O. (James McCoy, closes #1453)
Files:      src/edit.c, src/normal.c

Patch 8.0.0380
Problem:    With 'linebreak' set and 'breakat' includes ">" a double-wide
            character results in "<<" displayed.
Solution:   Check for the character not to be replaced. (Ozaki Kiichi,
            closes #1456)
Files:      src/screen.c, src/testdir/test_listlbr_utf8.vim

Patch 8.0.0381
Problem:    Diff mode is not sufficiently tested.
Solution:   Add more diff mode tests. (Dominique Pelle, closes #1515)
Files:      src/testdir/test_diffmode.vim

Patch 8.0.0382 (after 8.0.0380)
Problem:    Warning in tiny build for unused variable. (Tony Mechelynck)
Solution:   Add #ifdefs.
Files:      src/screen.c

Patch 8.0.0383 (after 8.0.0382)
Problem:    Misplaced #ifdef. (Christ van Willigen)
Solution:   Split assignment.
Files:      src/screen.c

Patch 8.0.0384
Problem:    Timer test failed for no apparent reason.
Solution:   Mark the test as flaky.
Files:      src/testdir/runtest.vim

Patch 8.0.0385
Problem:    No tests for arabic.
Solution:   Add a first test for arabic. (Dominique Pelle, closes #1518)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_arabic.vim

Patch 8.0.0386
Problem:    Tiny build has a problem with generating the options test.
Solution:   Change the "if" to skip over statements.
Files:      src/gen_opt_test.vim

Patch 8.0.0387
Problem:    compiler warnings
Solution:   Add type casts. (Christian Brabandt)
Files:      src/channel.c, src/memline.c,

Patch 8.0.0388
Problem:    filtering lines through "cat", without changing the line count,
            changes manual folds.
```

```
Solution:   Change how marks and folds are adjusted. (Matthew Malcomson, from
            neovim #6194).
Files:      src/fold.c, src/testdir/test_fold.vim

Patch 8.0.0389
Problem:    Test for arabic does not check what is displayed.
Solution:   Improve what is asserted. (Dominique Pelle, closes #1523)
            Add a first shaping test.
Files:      src/testdir/test_arabic.vim

Patch 8.0.0390
Problem:    When the window scrolls horizontally when the popup menu is
            displayed part of it may not be cleared. (Neovim issue #6184)
Solution:   Remove the menu when the windows scrolled. (closes #1524)
Files:      src/edit.c

Patch 8.0.0391
Problem:    Arabic support is verbose and not well tested.
Solution:   Simplify the code.  Add more tests.
Files:      src/arabic.c, src/testdir/test_arabic.vim

Patch 8.0.0392
Problem:    GUI test fails with Athena and Motif.
Solution:   Add test_ignore_error().  Use it to ignore the "failed to create
            input context" error.
Files:      src/message.c, src/proto/message.pro, src/evalfunc.c,
            src/testdir/test_gui.vim, runtime/doc/eval.txt

Patch 8.0.0393 (after 8.0.0190)
Problem:    When the same tag appears more than once, the order is
            unpredictable. (Charles Campbell)
Solution:   Besides using a dict for finding duplicates, use a grow array for
            keeping the tags in sequence.
Files:      src/tag.c, src/testdir/test_tagjump.vim

Patch 8.0.0394
Problem:    Tabs are not aligned when scrolling horizontally and a Tab doesn't
            fit. (Axel Bender)
Solution:   Handle a Tab as a not fitting character. (Christian Brabandt)
            Also fix that ":redraw" does not scroll horizontally to show the
            cursor.  And fix the test that depended on the old behavior.
Files:      src/screen.c, src/ex_docmd.c, src/testdir/test_listlbr.vim,
            src/testdir/test_listlbr_utf8.vim,
            src/testdir/test_breakindent.vim

Patch 8.0.0395 (after 8.0.0392)
Problem:    Testing the + register fails with Motif.
Solution:   Also ignore the "failed to create input context" error in the
            second gvim.  Don't use msg() when it would result in a dialog.
Files:      src/message.c, src/testdir/test_gui.vim, src/testdir/setup_gui.vim

Patch 8.0.0396
Problem:    'balloonexpr' only works synchronously.
Solution:   Add balloon_show(). (Jusufadis Bakamovic, closes #1449)
```

```
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/os_unix.c,
            src/os_win32.c

Patch 8.0.0397 (after 8.0.0392)
Problem:    Cannot build with the viminfo feature but without the eval
            feature.
Solution:   Adjust #ifdef. (John Marriott)
Files:      src/message.c, src/misc2.c

Patch 8.0.0398
Problem:    Illegal memory access with "t".
Solution:   Use strncmp() instead of memcmp(). (Dominique Pelle, closes #1528)
Files:      src/search.c, src/testdir/test_search.vim

Patch 8.0.0399
Problem:    Crash when using balloon_show() when not supported. (Hirohito
            Higashi)
Solution:   Check for balloonEval not to be NULL. (Ken Takata)
Files:      src/evalfunc.c, src/testdir/test_functions.vim

Patch 8.0.0400
Problem:    Some tests have a one second delay.
Solution:   Add --not-a-term in RunVim().
Files:      src/testdir/shared.vim

Patch 8.0.0401
Problem:    Test fails with missing balloon feature.
Solution:   Add check for balloon feature.
Files:      src/testdir/test_functions.vim

Patch 8.0.0402
Problem:    :map completion does not have <special>. (Dominique Pelle)
Solution:   Recognize <special> in completion.  Add a test.
Files:      src/getchar.c, src/testdir/test_cmdline.vim

Patch 8.0.0403
Problem:    GUI tests may fail.
Solution:   Ignore the E285 error better. (Kazunobu Kuriyama)
Files:      src/testdir/test_gui.vim, src/testdir/test_gui_init.vim

Patch 8.0.0404
Problem:    Not enough testing for quickfix.
Solution:   Add some more tests. (Yegappan Lakshmanan)
Files:      src/testdir/test_quickfix.vim

Patch 8.0.0405
Problem:    v:progpath may become invalid after ":cd".
Solution:   Turn v:progpath into a full path if needed.
Files:      src/main.c, src/testdir/test_startup.vim, runtime/doc/eval.txt

Patch 8.0.0406
Problem:    The arabic shaping code is verbose.
Solution:   Shorten the code without changing the functionality.
Files:      src/arabic.c
```

Patch 8.0.0407 (after 8.0.0388)
Problem: Filtering folds with marker method not tested.
Solution: Also set 'foldmethod' to "marker".
Files: src/testdir/test_fold.vim

Patch 8.0.0408
Problem: Updating folds does not work properly when inserting a file and a
            few other situations.
Solution: Adjust the way folds are updated. (Matthew Malcomson)
Files: src/fold.c, src/testdir/test_fold.vim

Patch 8.0.0409
Problem: set_progpath is defined but not always used
Solution: Adjust #ifdef.
Files: src/main.c

Patch 8.0.0410
Problem: Newer gettext/iconv library has extra dll file.
Solution: Add the file to the Makefile and nsis script. (Christian Brabandt)
Files: Makefile, nsis/gvim.nsi

Patch 8.0.0411
Problem: We can't change the case in menu entries, it breaks translations.
Solution: Ignore case when looking up a menu translation.
Files: src/menu.c, src/testdir/test_menu.vim

Patch 8.0.0412 (after 8.0.0411)
Problem: Menu test fails on MS-Windows.
Solution: Use a menu entry with only ASCII characters.
Files: src/testdir/test_menu.vim

Patch 8.0.0413 (after 8.0.0412)
Problem: Menu test fails on MS-Windows using gvim.
Solution: First delete the English menus.
Files: src/testdir/test_menu.vim

Patch 8.0.0414
Problem: Balloon eval is not tested.
Solution: Add a few balloon tests. (Kazunobu Kuriyama)
Files: src/testdir/test_gui.vim

Patch 8.0.0415 (after 8.0.0414)
Problem: Balloon test fails on MS-Windows.
Solution: Test with 0x7fffffff instead of 0xffffffff.
Files: src/testdir/test_gui.vim

Patch 8.0.0416
Problem: Setting v:progpath is not quite right.
Solution: On MS-Windows add the extension. On Unix use the full path for a
            relative directory. (partly by James McCoy, closes #1531)
Files: src/main.c, src/os_win32.c, src/os_unix.c

Patch 8.0.0417

```
Problem:    Test for the clipboard fails sometimes.
Solution:   Add it to the flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.0418
Problem:    ASAN logs are disabled and don't cause a failure.
Solution:   Enable ASAN logs and fail if not empty. (James McCoy,
            closes #1425)
Files:      .travis.yml

Patch 8.0.0419
Problem:    Test for v:progpath fails on MS-Windows.
Solution:   Expand to full path.  Also add ".exe" when the path is an absolute
            path.
Files:      src/os_win32.c, src/main.c

Patch 8.0.0420
Problem:    When running :make the output may be in the system encoding,
            different from 'encoding'.
Solution:   Add the 'makeencoding' option. (Ken Takata)
Files:      runtime/doc/options.txt, runtime/doc/quickfix.txt,
            runtime/doc/quickref.txt, src/Makefile, src/buffer.c,
            src/if_cscope.c, src/main.c, src/option.c, src/option.h,
            src/proto/quickfix.pro, src/quickfix.c, src/structs.h,
            src/testdir/Make_all.mak, src/testdir/test_makeencoding.py,
            src/testdir/test_makeencoding.vim

Patch 8.0.0421
Problem:    Diff mode is displayed wrong when adding a line at the end of a
            buffer.
Solution:   Adjust marks in diff mode. (James McCoy, closes #1329)
Files:      src/misc1.c, src/ops.c, src/testdir/test_diffmode.vim

Patch 8.0.0422
Problem:    Python test fails with Python 3.6.
Solution:   Convert new exception messages to old ones. (closes #1359)
Files:      src/testdir/test87.in

Patch 8.0.0423
Problem:    The effect of adding "#" to 'cinoptions' is not always removed.
            (David Briscoe)
Solution:   Reset b_ind_hash_comment. (Christian Brabandt, closes #1475)
Files:      src/misc1.c, src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_cindent.vim, src/testdir/test3.in

Patch 8.0.0424
Problem:    Compiler warnings on MS-Windows. (Ajit Thakkar)
Solution:   Add type casts.
Files:      src/os_win32.c

Patch 8.0.0425
Problem:    Build errors when building without folding.
Solution:   Add #ifdefs. (John Marriott)
Files:      src/diff.c, src/edit.c, src/option.c, src/syntax.c
```

```
Patch 8.0.0426
Problem:    Insufficient testing for statusline.
Solution:   Add several tests. (Dominique Pelle, closes #1534)
Files:      src/testdir/test_statusline.vim

Patch 8.0.0427
Problem:    'makeencoding' missing from the options window.
Solution:   Add the entry.
Files:      runtime/optwin.vim

Patch 8.0.0428
Problem:    Git and hg see new files after running tests. (Manuel Ortega)
Solution:   Add the generated file to .hgignore (or .gitignore). Delete the
            resulting verbose file. (Christian Brabandt)  Improve dependency
            on opt_test.vim.  Reset the 'more' option.
Files:      .hgignore, src/gen_opt_test.vim, src/testdir/gen_opt_test.vim,
            src/Makefile, src/testdir/Make_all.mak, src/testdir/Makefile,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak,
            Filelist

Patch 8.0.0429
Problem:    Options test does not always test everything.
Solution:   Fix dependency for opt_test.vim.  Give a message when opt_test.vim
            was not found.
Files:      src/testdir/test_options.vim, src/testdir/gen_opt_test.vim,
            src/testdir/Makefile, src/testdir/Make_all.mak,
            src/testdir/Make_dos.mak, src/testdir/Make_ming.mak

Patch 8.0.0430
Problem:    Options test fails or hangs on MS-Windows.
Solution:   Run it separately instead of part of test_alot.  Use "-S" instead
            of "-u" to run the script.  Fix failures.
Files:      src/testdir/Make_all.mak, src/testdir/test_alot.vim,
            src/testdir/Makefile, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/gen_opt_test.vim

Patch 8.0.0431
Problem:    'cinoptions' cannot set indent for extern block.
Solution:   Add the "E" flag in 'cinoptions'. (Hirohito Higashi)
Files:      runtime/doc/indent.txt, src/misc1.c, src/structs.h,
            src/testdir/test_cindent.vim

Patch 8.0.0432
Problem:    "make shadow" creates an invalid link.
Solution:   Don't link "*.vim". (Kazunobu Kuriyama)
Files:      src/Makefile

Patch 8.0.0433
Problem:    Quite a few beeps when running tests.
Solution:   Set 'belloff' for these tests. (Christian Brabandt)
Files:      src/testdir/test103.in, src/testdir/test14.in,
            src/testdir/test29.in, src/testdir/test30.in,
            src/testdir/test32.in, src/testdir/test45.in,
```

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            src/testdir/test72.in, src/testdir/test73.in,
            src/testdir/test77.in, src/testdir/test78.in,
            src/testdir/test85.in, src/testdir/test94.in,
            src/testdir/test_alot.vim, src/testdir/test_alot_utf8.vim,
            src/testdir/test_close_count.in, src/testdir/test_cmdline.vim,
            src/testdir/test_diffmode.vim, src/testdir/test_digraph.vim,
            src/testdir/test_erasebackword.in, src/testdir/test_normal.vim,
            src/testdir/test_packadd.vim, src/testdir/test_search.vim,
            src/testdir/test_textobjects.vim, src/testdir/test_undo.vim,
            src/testdir/test_usercommands.vim, src/testdir/test_visual.vim

Patch 8.0.0434
Problem:    Clang version not correctly detected.
Solution:   Adjust the configure script. (Kazunobu Kuriyama)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.0435
Problem:    Some functions are not tested.
Solution:   Add more tests for functions. (Dominique Pelle, closes #1541)
Files:      src/testdir/test_functions.vim

Patch 8.0.0436
Problem:    Running the options test sometimes resizes the terminal.
Solution:   Clear out t_WS.
Files:      src/testdir/gen_opt_test.vim

Patch 8.0.0437
Problem:    The packadd test does not create the symlink correctly and does
            not test the right thing.
Solution:   Create the directory and symlink correctly.
Files:      src/testdir/test_packadd.vim

Patch 8.0.0438
Problem:    The fnamemodify test changes 'shell' in a way later tests may not
            be able to use system().
Solution:   Save and restore 'shell'.
Files:      src/testdir/test_fnamemodify.vim

Patch 8.0.0439
Problem:    Using ":%argdel" while the argument list is already empty gives an
            error. (Pavol Juhas)
Solution:   Don't give an error. (closes #1546)
Files:      src/ex_cmds2.c, src/testdir/test_arglist.vim

Patch 8.0.0440
Problem:    Not enough test coverage in Insert mode.
Solution:   Add lots of tests.  Add test_override(). (Christian Brabandt,
            closes #1521)
Files:      runtime/doc/eval.txt, runtime/doc/usr_41.txt, src/edit.c,
            src/evalfunc.c, src/globals.h,  src/screen.c,
            src/testdir/Make_all.mak, src/testdir/test_cursor_func.vim,
            src/testdir/test_edit.vim, src/testdir/test_search.vim,
            src/testdir/test_assert.vim, src/Makefile, src/testdir/runtest.vim
```

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Patch 8.0.0441
Problem:    Dead code in #ifdef.
Solution:   Remove the #ifdef and #else part.
Files:      src/option.c

Patch 8.0.0442
Problem:    Patch shell command uses double quotes around the argument, which
            allows for $HOME to be expanded. (Etienne)
Solution:   Use single quotes on Unix. (closes #1543)
Files:      src/diff.c, src/testdir/test_diffmode.vim

Patch 8.0.0443
Problem:    Terminal width is set to 80 in test3.
Solution:   Instead of setting 'columns' set 'wrapmargin' depending on
            'columns.
Files:      src/testdir/test3.in

Patch 8.0.0444 (after 8.0.0442)
Problem:    Diffpatch fails when the file name has a quote.
Solution:   Escape the name properly. (zetzei)
Files:      src/diff.c, src/testdir/test_diffmode.vim

Patch 8.0.0445
Problem:    Getpgid is not supported on all systems.
Solution:   Add a configure check.
Files:      src/configure.ac, src/auto/configure, src/config.h.in,
            src/os_unix.c

Patch 8.0.0446
Problem:    The ";" command does not work after characters with a lower byte
            that is NUL.
Solution:   Properly check for not having a previous character. (Hirohito
            Higashi)
Files:      src/Makefile, src/search.c, src/testdir/test_alot_utf8.vim,
            src/testdir/test_charsearch_utf8.vim

Patch 8.0.0447
Problem:    Getting font name does not work on X11.
Solution:   Implement gui_mch_get_fontname() for X11.  Add more GUI tests.
            (Kazunobu Kuriyama)
Files:      src/gui_x11.c, src/syntax.c, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Makefile,
            src/testdir/gui_init.vim, src/testdir/gui_preinit.vim,
            src/testdir/test_gui.vim, src/testdir/test_gui_init.vim,
            Filelist

Patch 8.0.0448
Problem:    Some macros are in lower case, which can be confusing.
Solution:   Make a few lower case macros upper case.
Files:      src/macros.h, src/buffer.c, src/charset.c, src/ops.c, src/diff.c,
            src/edit.c, src/evalfunc.c, src/ex_cmds.c, src/ex_getln.c,
            src/fileio.c, src/fold.c, src/gui.c, src/gui_beval.c, src/main.c,
            src/mark.c, src/misc1.c, src/move.c, src/normal.c,
            src/option.c, src/popupmnu.c, src/regexp.c, src/screen.c,
```

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            src/search.c, src/spell.c, src/tag.c, src/ui.c, src/undo.c,
            src/version.c, src/workshop.c, src/if_perl.xs

Patch 8.0.0449 (after 8.0.0448)
Problem:    Part of fold patch accidentally included.
Solution:   Revert that part of the patch.
Files:      src/ex_cmds.c

Patch 8.0.0450
Problem:    v:progpath is not reliably set.
Solution:   Read /proc/self/exe if possible. (idea by Michal Grochmal)
            Also fixes missing #if.
Files:      src/main.c, src/config.h.in

Patch 8.0.0451
Problem:    Some macros are in lower case.
Solution:   Make a few more macros upper case. Avoid lower case macros use an
            argument twice.
Files:      src/macros.h, src/charset.c, src/misc2.c, src/proto/misc2.pro,
            src/edit.c, src/eval.c, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/fileio.c, src/fold.c,
            src/gui.c, src/gui_gtk.c, src/mark.c, src/memline.c, src/mbyte.c,
            src/menu.c, src/message.c, src/misc1.c, src/ops.c, src/option.c,
            src/os_amiga.c, src/os_mswin.c, src/os_unix.c, src/os_win32.c,
            src/popupmnu.c, src/regexp.c, src/regexp_nfa.c, src/screen.c,
            src/search.c, src/spell.c, src/spellfile.c, src/syntax.c,
            src/tag.c, src/ui.c, src/undo.c, src/window.c

Patch 8.0.0452
Problem:    Some macros are in lower case.
Solution:   Make a few more macros upper case.
Files:      src/vim.h, src/macros.h, src/evalfunc.c, src/fold.c,
            src/gui_gtk.c, src/gui_gtk_x11.c, src/charset.c, src/diff.c,
            src/edit.c, src/eval.c, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/fileio.c, src/getchar.c,
            src/gui.c, src/gui_w32.c, src/if_cscope.c, src/mbyte.c,
            src/menu.c, src/message.c, src/misc1.c, src/misc2.c, src/normal.c,
            src/ops.c, src/option.c, src/os_unix.c, src/os_win32.c,
            src/quickfix.c, src/regexp.c, src/regexp_nfa.c, src/screen.c,
            src/search.c, src/spell.c, src/syntax.c, src/tag.c, src/userfunc.c

Patch 8.0.0453
Problem:    Adding fold marker creates new comment.
Solution:   Use an existing comment if possible. (LemonBoy, closes #1549)
Files:      src/ops.c, src/proto/ops.pro, src/fold.c,
            src/testdir/test_fold.vim

Patch 8.0.0454
Problem:    Compiler warnings for comparing unsigned char with 256 always
            being true. (Manuel Ortega)
Solution:   Add type cast.
Files:      src/screen.c, src/charset.c

Patch 8.0.0455
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Problem:    The mode test may hang in Test_mode(). (Michael Soyka)
Solution:   Set 'complete' to only search the current buffer (as suggested by
            Michael)
Files:      src/testdir/test_functions.vim

Patch 8.0.0456
Problem:    Typo in MinGW test makefile.
Solution:   Change an underscore to a dot. (Michael Soyka)
Files:      src/testdir/Make_ming.mak

Patch 8.0.0457
Problem:    Using :move messes up manual folds.
Solution:   Split adjusting marks and folds.  Add foldMoveRange(). (neovim
            patch #6221)
Files:      src/ex_cmds.c, src/fold.c, src/mark.c, src/proto/fold.pro,
            src/proto/mark.pro src/testdir/test_fold.vim

Patch 8.0.0458
Problem:    Potential crash if adding list or dict to dict fails.
Solution:   Make sure the reference count is correct. (Nikolai Pavlov, closes
            #1555)
Files:      src/dict.c

Patch 8.0.0459 (after 8.0.0457)
Problem:    Old fix for :move messing up folding no longer needed, now that we
            have a proper solution.
Solution:   Revert patch 7.4.700. (Christian Brabandt)
Files:      src/ex_cmds.c

Patch 8.0.0460 (after 8.0.0452)
Problem:    Can't build on HPUX.
Solution:   Fix argument names in vim_stat(). (John Marriott)
Files:      src/misc2.c

Patch 8.0.0461 (after 8.0.0457)
Problem:    Test 45 hangs on MS-Windows.
Solution:   Reset 'shiftwidth'.  Also remove redundant function.
Files:      src/fold.c, src/testdir/test45.in

Patch 8.0.0462
Problem:    If an MS-Windows tests succeeds at first and then fails in a way
            it does not produce a test.out file it looks like the test
            succeeded.
Solution:   Delete the previous output file.
Files:      src/testdir/Make_dos.mak

Patch 8.0.0463
Problem:    Resetting 'compatible' in defaults.vim has unexpected side
            effects. (David Fishburn)
Solution:   Only reset 'compatible' if it was set.
Files:      runtime/defaults.vim

Patch 8.0.0464
Problem:    Can't find executable name on Solaris and FreeBSD.
```

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Solution:   Check for "/proc/self/path/a.out". (Danek Duvall) And for
            "/proc/curproc/file".
Files:      src/config.h.in, src/configure.ac, src/main.c,
            src/auto/configure

Patch 8.0.0465
Problem:    Off-by-one error in using :move with folding.
Solution:   Correct off-by-one mistakes and add more tests. (Matthew
            Malcomson)
Files:      src/fold.c, src/testdir/test_fold.vim

Patch 8.0.0466
Problem:    There are still a few macros that should be all-caps.
Solution:   Make a few more macros all-caps.
Files:      src/buffer.c, src/edit.c, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/farsi.c, src/fileio.c,
            src/getchar.c, src/gui_beval.c, src/hardcopy.c, src/if_cscope.c,
            src/if_xcmdsrv.c, src/mark.c, src/memline.c, src/menu.c,
            src/message.c, src/misc1.c, src/normal.c, src/ops.c, src/option.c,
            src/quickfix.c, src/screen.c, src/search.c, src/syntax.c,
            src/tag.c, src/term.c, src/term.h, src/ui.c, src/undo.c,
            src/userfunc.c, src/version.c, src/vim.h

Patch 8.0.0467
Problem:    Using g< after :for does not show the right output. (Marcin
            Szamotulski)
Solution:   Call msg_sb_eol() in :echomsg.
Files:      src/eval.c

Patch 8.0.0468
Problem:    After aborting an Ex command g< does not work. (Marcin
            Szamotulski)
Solution:   Postpone clearing scrollback messages to until the command line
            has been entered.  Also fix that the screen isn't redrawn if after
            g< the command line is cancelled.
Files:      src/message.c, src/proto/message.pro, src/ex_getln.c, src/misc2.c,
            src/gui.c

Patch 8.0.0469
Problem:    Compiler warnings on MS-Windows.
Solution:   Add type casts. (Christian Brabandt)
Files:      src/fold.c

Patch 8.0.0470
Problem:    Not enough testing for help commands.
Solution:   Add a few more help tests. (Dominique Pelle, closes #1565)
Files:      src/testdir/test_help.vim, src/testdir/test_help_tagjump.vim

Patch 8.0.0471
Problem:    Exit callback test sometimes fails.
Solution:   Add it to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.0472
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Problem:    When a test fails and test.log is created, Test_edit_CTRL_I
            matches it instead of test1.in.
Solution:   Match with runtest.vim instead.
Files:      src/testdir/test_edit.vim

Patch 8.0.0473
Problem:    No test covering arg_all().
Solution:   Add a test expanding ##.
Files:      src/testdir/test_arglist.vim

Patch 8.0.0474
Problem:    The client-server feature is not tested.
Solution:   Add a test.
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/shared.vim,
            src/testdir/test_clientserver.vim, src/os_mswin.c

Patch 8.0.0475
Problem:    Not enough testing for the client-server feature.
Solution:   Add more tests.  Add the remote_startserver() function.  Fix that
            a locally evaluated expression uses function-local variables.
Files:      src/if_xcmdsrv.c, src/evalfunc.c, src/os_mswin.c,
            src/proto/main.pro, src/testdir/test_clientserver.vim,
            runtime/doc/eval.txt

Patch 8.0.0476 (after 8.0.0475)
Problem:    Missing change to main.c.
Solution:   Add new function.
Files:      src/main.c

Patch 8.0.0477
Problem:    The client-server test may hang when failing.
Solution:   Set a timer.  Add assert_report()
Files:      src/testdir/test_clientserver.vim, src/testdir/runtest.vim,
            src/eval.c, src/evalfunc.c, src/proto/eval.pro, src/if_xcmdsrv.c,
            src/os_mswin.c, runtime/doc/eval.txt

Patch 8.0.0478
Problem:    Tests use assert_true(0) and assert_false(1) to report errors.
Solution:   Use assert_report().
Files:      src/testdir/test_cscope.vim, src/testdir/test_expr.vim,
            src/testdir/test_perl.vim, src/testdir/test_channel.vim,
            src/testdir/test_cursor_func.vim, src/testdir/test_gui.vim,
            src/testdir/test_menu.vim, src/testdir/test_popup.vim,
            src/testdir/test_viminfo.vim, src/testdir/test_vimscript.vim,
            src/testdir/test_assert.vim

Patch 8.0.0479
Problem:    remote_peek() is not tested.
Solution:   Add a test.
Files:      src/testdir/test_clientserver.vim, src/testdir/runtest.vim

Patch 8.0.0480
Problem:    The remote_peek() test fails on MS-Windows.
Solution:   Check for pending messages. Also report errors in the first run if
```

            a flaky test fails twice.
Files: src/os_mswin.c, src/testdir/runtest.vim

Patch 8.0.0481
Problem: Unnecessary if statement.
Solution: Remove the statement. Fix "it's" vs "its" mistakes. (Dominique
            Pelle, closes #1568)
Files: src/syntax.c

Patch 8.0.0482
Problem: The setbufvar() function may mess up the window layout. (Kay Z.)
Solution: Do not check the window to be valid if it is NULL.
Files: src/window.c, src/testdir/test_functions.vim

Patch 8.0.0483
Problem: Illegal memory access when using :all. (Dominique Pelle)
Solution: Adjust the cursor position right after setting "curwin".
Files: src/window.c, src/testdir/test_window_cmd.vim

Patch 8.0.0484
Problem: Using :lhelpgrep with an argument that should fail does not
            produce an error if the previous :helpgrep worked.
Solution: Use another way to detect that autocommands made the quickfix info
            invalid. (Yegappan Lakshmanan)
Files: src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.0485
Problem: Not all windows commands are tested.
Solution: Add more tests for windows commands. (Dominique Pelle,
            closes #1575) Run test_autocmd separately, it interferes with
            other tests. Fix tests that depended on side effects.
Files: src/testdir/test_window_cmd.vim, src/testdir/test_alot.vim,
            src/testdir/test_autocmd.vim, src/testdir/test_fnamemodify.vim,
            src/testdir/test_functions.vim, src/testdir/test_delete.vim,
            src/testdir/Make_all.mak

Patch 8.0.0486
Problem: Crash and endless loop when closing windows in a SessionLoadPost
            autocommand.
Solution: Check for valid tabpage. (partly neovim #6308)
Files: src/testdir/test_autocmd.vim, src/fileio.c, src/proto/window.pro,
            src/window.c

Patch 8.0.0487
Problem: The autocmd test hangs on MS-Windows.
Solution: Skip the hanging tests for now.
Files: src/testdir/test_autocmd.vim

Patch 8.0.0488
Problem: Running tests leaves an "xxx" file behind.
Solution: Delete the 'verbosefile' after resetting the option.
Files: src/testdir/gen_opt_test.vim

Patch 8.0.0489

```
Problem:    Clipboard and "* register is not tested.
Solution:   Add a test for Mac and X11. (Kazunobu Kuriyama)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/test_quotestar.vim, src/testdir/runtest.vim

Patch 8.0.0490
Problem:    Splitting a 'winfixwidth' window vertically makes it one column
            smaller. (Dominique Pelle)
Solution:   Add one to the width for the separator.
Files:      src/window.c, src/testdir/test_window_cmd.vim

Patch 8.0.0491
Problem:    The quotestar test fails when a required feature is missing.
Solution:   Prepend "Skipped" to the thrown exception.
Files:      src/testdir/test_quotestar.vim

Patch 8.0.0492
Problem:    A failing client-server request can make Vim hang.
Solution:   Add a timeout argument to functions that wait.
Files:      src/evalfunc.c, src/if_xcmdsrv.c, src/proto/if_xcmdsrv.pro,
            src/main.c, src/os_mswin.c, src/proto/os_mswin.pro,
            src/vim.h, runtime/doc/eval.txt, src/testdir/test_clientserver.vim

Patch 8.0.0493
Problem:    Crash with cd command with very long argument.
Solution:   Check for running out of space. (Dominique Pelle, closes #1576)
Files:      src/testdir/test_alot.vim, src/testdir/test_cd.vim, src/Makefile,
            src/misc2.c

Patch 8.0.0494
Problem:    Build failure with older compiler on MS-Windows.
Solution:   Move declaration to start of block.
Files:      src/evalfunc.c, src/main.c, src/os_mswin.c

Patch 8.0.0495
Problem:    The quotestar test uses a timer instead of a timeout, thus it
            cannot be rerun like a flaky test.
Solution:   Remove the timer and add a timeout. (Kazunobu Kuriyama)
Files:      src/testdir/test_quotestar.vim

Patch 8.0.0496
Problem:    Insufficient testing for folding.
Solution:   Add a couple more fold tests. (Dominique Pelle, closes #1579)
Files:      src/testdir/test_fold.vim

Patch 8.0.0497
Problem:    Arabic support is not fully tested.
Solution:   Add more tests for the untested functions.  Comment out
            unreachable code.
Files:      src/arabic.c, src/testdir/test_arabic.vim

Patch 8.0.0498
Problem:    Two autocmd tests are skipped on MS-Windows.
Solution:   Make the test pass on MS-Windows. Write the messages in a file
```

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            instead of getting the output of system().
Files:      src/testdir/test_autocmd.vim

Patch 8.0.0499
Problem:    taglist() does not prioritize tags for a buffer.
Solution:   Add an optional buffer argument. (Duncan McDougall, closes #1194)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/proto/tag.pro,
            src/Makefile, src/tag.c, src/testdir/test_alot.vim,
            src/testdir/test_taglist.vim

Patch 8.0.0500
Problem:    Quotestar test is still a bit flaky.
Solution:   Add a slower check for v:version.
Files:      src/testdir/test_quotestar.vim

Patch 8.0.0501
Problem:    On MS-Windows ":!start" does not work as expected.
Solution:   When creating a process fails try passing the argument to
            ShellExecute().  (Katsuya Hino, closes #1570)
Files:      runtime/doc/os_win32.txt, src/os_win32.c

Patch 8.0.0502
Problem:    Coverity complains about possible NULL pointer.
Solution:   Add an assert(), let's see if this works on all systems.
Files:      src/window.c

Patch 8.0.0503
Problem:    Endless loop in updating folds with 32 bit ints.
Solution:   Subtract from LHS instead of add to the RHS. (Matthew Malcomson)
Files:      src/fold.c

Patch 8.0.0504
Problem:    Looking up an Ex command is a bit slow.
Solution:   Instead of just using the first letter, also use the second letter
            to skip ahead in the list of commands. Generate the table with a
            Perl script. (Dominique Pelle, closes #1589)
Files:      src/Makefile, src/create_cmdidxs.pl, src/ex_docmd.c, Filelist

Patch 8.0.0505
Problem:    Failed window split for :stag not handled. (Coverity CID 99204)
Solution:   If the split fails skip to the end. (bstaletic, closes #1577)
Files:      src/tag.c

Patch 8.0.0506 (after 8.0.0504)
Problem:    Can't build with ANSI C.
Solution:   Move declarations to start of block.
Files:      src/ex_docmd.c

Patch 8.0.0507
Problem:    Client-server tests fail when $DISPLAY is not set.
Solution:   Check for E240 before running the test.
Files:      src/testdir/test_quotestar.vim, src/testdir/test_clientserver.vim

Patch 8.0.0508
```

```
Problem:    Coveralls no longer shows per-file coverage.
Solution:   Add coverage from codecov.io. (Christian Brabandt)
Files:      .travis.yml

Patch 8.0.0509
Problem:    No link to codecov.io results.
Solution:   Add a badge to the readme file.
Files:      README.md

Patch 8.0.0510 (after 8.0.0509)
Problem:    Typo in link to codecov.io results.
Solution:   Remove duplicate https:.
Files:      README.md

Patch 8.0.0511
Problem:    Message for skipping client-server tests is unclear.
Solution:   Be more specific about what's missing (Hirohito Higashi, Kazunobu
            Kuriyama)
Files:      src/testdir/test_quotestar.vim, src/testdir/test_clientserver.vim

Patch 8.0.0512
Problem:    Check for available characters takes too long.
Solution:   Only check did_start_blocking if wtime is negative. (Daisuke
            Suzuki, closes #1591)
Files:      src/os_unix.c

Patch 8.0.0513 (after 8.0.0201)
Problem:    Getting name of cleared highlight group is wrong. (Matt Wozniski)
Solution:   Only skip over cleared names for completion. (closes #1592)
            Also fix that a cleared group causes duplicate completions.
Files:      src/syntax.c, src/proto/syntax.pro, src/evalfunc.c,
            src/ex_cmds.c, src/testdir/test_syntax.vim,
            src/testdir/test_cmdline.vim

Patch 8.0.0514
Problem:    Script for creating cmdidxs can be improved.
Solution:   Count skipped lines instead of collecting the lines.  Add "const".
            (Dominique Pelle, closes #1594)
Files:      src/create_cmdidxs.pl, src/ex_docmd.c

Patch 8.0.0515
Problem:    ml_get errors in silent Ex mode. (Dominique Pelle)
Solution:   Clear valid flags when setting the cursor.  Set the topline when
            not in full screen mode.
Files:      src/ex_docmd.c, src/move.c, src/testdir/test_startup.vim

Patch 8.0.0516
Problem:    A large count on a normal command causes trouble. (Dominique
            Pelle)
Solution:   Make "opcount" long.
Files:      src/globals.h, src/testdir/test_normal.vim

Patch 8.0.0517
Problem:    There is no way to remove quickfix lists (for testing).
```

```
Solution:   Add the 'f' action to setqflist(). Add tests. (Yegappan
            Lakshmanan)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0518
Problem:    Storing a zero byte from a multi-byte character causes fold text
            to show up wrong.
Solution:   Avoid putting zero in ScreenLines. (Christian Brabandt,
            closes #1567)
Files:      src/screen.c, src/testdir/test_display.vim

Patch 8.0.0519
Problem:    Character classes are not well tested. They can differ between
            platforms.
Solution:   Add tests.  In the documentation make clear which classes depend
            on what library function.  Only use :cntrl: and :graph: for ASCII.
            (Kazunobu Kuriyama, Dominique Pelle, closes #1560)
            Update the documentation.
Files:      src/regexp.c, src/regexp_nfa.c, runtime/doc/pattern.txt,
            src/testdir/test_regexp_utf8.vim

Patch 8.0.0520
Problem:    Using a function pointer instead of the actual function, which we
            know.
Solution:   Change mb_ functions to utf_ functions when already checked for
            Unicode. (Dominique Pelle, closes #1582)
Files:      src/message.c, src/misc2.c, src/regexp.c, src/regexp_nfa.c,
            src/screen.c, src/spell.c

Patch 8.0.0521
Problem:    GtkForm handling is outdated.
Solution:   Get rid of event filter functions.  Get rid of GtkForm.width and
            .height.  Eliminate gtk_widget_size_request() calls. (Kazunobu
            Kuriyama)
Files:      src/gui_gtk_f.c, src/gui_gtk_f.h

Patch 8.0.0522
Problem:    MS-Windows: when 'clipboard' is "unnamed" yyp does not work in a
            :global command.
Solution:   When setting the clipboard was postponed, do not clear the
            register.
Files:      src/ops.c, src/proto/ui.pro, src/ui.c, src/globals.h,
            src/testdir/test_global.vim, src/Makefile,
            src/testdir/test_alot.vim

Patch 8.0.0523
Problem:    dv} deletes part of a multi-byte character. (Urtica Dioica)
Solution:   Include the whole character.
Files:      src/search.c, src/testdir/test_normal.vim

Patch 8.0.0524 (after 8.0.0518)
Problem:    Folds are messed up when 'encoding' is "utf-8".
Solution:   Also set the fold character when it's not multi-byte.
```

```
Files:      src/screen.c, src/testdir/test_display.vim

Patch 8.0.0525
Solution:   Completion for user command argument not tested.
Problem:    Add a test.
Files:      src/testdir/test_cmdline.vim

Patch 8.0.0526
Problem:    Coverity complains about possible negative value.
Solution:   Check return value of ftell() not to be negative.
Files:      src/os_unix.c

Patch 8.0.0527
Problem:    RISC OS support was removed long ago, but one file is still
            included.
Solution:   Delete the file. (Thomas Dziedzic, closes #1603)
Files:      Filelist, src/swis.s

Patch 8.0.0528
Problem:    When 'wildmenu' is set and 'wildmode' has "longest" then the first
            file name is highlighted, even though the text shows the longest
            match.
Solution:   Do not highlight the first match. (LemonBoy, closes #1602)
Files:      src/ex_getln.c

Patch 8.0.0529
Problem:    Line in test commented out.
Solution:   Uncomment the lines for character classes that were failing before
            8.0.0519. (Dominique Pelle, closes #1599)
Files:      src/testdir/test_regexp_utf8.vim

Patch 8.0.0530
Problem:    Buffer overflow when 'columns' is very big. (Nikolai Pavlov)
Solution:   Correctly compute where to truncate.  Fix translation.
            (closes #1600)
Files:      src/edit.c, src/testdir/test_edit.vim

Patch 8.0.0531 (after 8.0.0530)
Problem:    Test with long directory name fails on non-unix systems.
Solution:   Skip the test on non-unix systems.
Files:      src/testdir/test_edit.vim

Patch 8.0.0532 (after 8.0.0531)
Problem:    Test with long directory name fails on Mac.
Solution:   Skip the test on Mac systems.
Files:      src/testdir/test_edit.vim

Patch 8.0.0533
Problem:    Abbreviation doesn't work after backspacing newline. (Hkonrk)
Solution:   Set the insert start column. (closes #1609)
Files:      src/testdir/test_mapping.vim, src/edit.c

Patch 8.0.0534
Problem:    Defaults.vim does not work well with tiny features. (crd477)
```

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Solution:   When the +eval feature is not available always reset 'compatible'.
Files:      runtime/defaults.vim

Patch 8.0.0535
Problem:    Memory leak when exiting from within a user function.
Solution:   Clear the function call stack on exit.
Files:      src/userfunc.c

Patch 8.0.0536
Problem:    Quickfix window not updated when freeing quickfix stack.
Solution:   Update the quickfix window. (Yegappan Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.0537
Problem:    Illegal memory access with :z and large count.
Solution:   Check for number overflow, using long instead of int. (Dominique
            Pelle, closes #1612)
Files:      src/Makefile, src/ex_cmds.c, src/testdir/test_alot.vim,
            src/testdir/test_ex_z.vim

Patch 8.0.0538
Problem:    No test for falling back to default term value.
Solution:   Add a test.
Files:      src/testdir/test_startup.vim

Patch 8.0.0539 (after 8.0.0538)
Problem:    Startup test fails on Mac.
Solution:   Use another term name, "unknown" is known. Avoid a 2 second delay.
Files:      src/testdir/test_startup.vim, src/main.c, src/proto/main.pro,
            src/term.c

Patch 8.0.0540 (after 8.0.0540)
Problem:    Building unit tests fails.
Solution:   Move params outside of #ifdef.
Files:      src/main.c, src/message_test.c

Patch 8.0.0541
Problem:    Compiler warning on MS-Windows.
Solution:   Add a type cast. (Mike Williams)
Files:      src/edit.c

Patch 8.0.0542
Problem:    getpos() can return a negative line number. (haya14busa)
Solution:   Handle a zero topline and botline. (closes #1613)
Files:      src/eval.c, runtime/doc/eval.txt

Patch 8.0.0543
Problem:    Test_edit causes older xfce4-terminal to close. (Dominique Pelle)
Solution:   Reduce number of columns to 2000.  Try to restore the window
            position.
Files:      src/testdir/test_edit.vim, src/evalfunc.c, src/term.c,
            src/proto/term.pro, src/term.h

Patch 8.0.0544
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Problem:    Cppcheck warnings.
Solution:   Use temp variable. Change NUL to NULL. Swap conditions. (Dominique
            Pelle)
Files:      src/channel.c, src/edit.c, src/farsi.c

Patch 8.0.0545
Problem:    Edit test may fail on some systems.
Solution:   If creating a directory with a very long path fails, bail out.
Files:      src/testdir/test_edit.vim

Patch 8.0.0546
Problem:    Swap file exists briefly when opening the command window.
Solution:   Set the noswapfile command modifier before splitting the window.
            (James McCoy, closes #1620)
Files:      src/ex_getln.c, src/option.c

Patch 8.0.0547
Problem:    Extra line break in verbosefile when using ":echomsg". (Ingo
            Karkat)
Solution:   Don't call msg_start(). (closes #1618)
Files:      src/eval.c, src/testdir/test_cmdline.vim

Patch 8.0.0548
Problem:    Saving the redo buffer only works one time, resulting in the "."
            command not working well for a function call inside another
            function call. (Ingo Karkat)
Solution:   Save the redo buffer at every user function call. (closes #1619)
Files:      src/getchar.c, src/proto/getchar.pro, src/structs.h,
            src/fileio.c, src/userfunc.c, src/testdir/test_functions.vim

Patch 8.0.0549
Problem:    No test for the 8g8 command.
Solution:   Add a test. (Dominique Pelle, closes #1615)
Files:      src/testdir/test_normal.vim

Patch 8.0.0550
Problem:    Some etags format tags file use 0x01, breaking the parsing.
Solution:   Use 0x02 for TAG_SEP. (James McCoy, closes #1614)
Files:      src/tag.c, src/testdir/test_taglist.vim

Patch 8.0.0551
Problem:    The typeahead buffer is reallocated too often.
Solution:   Re-use the existing buffer if possible.
Files:      src/getchar.c

Patch 8.0.0552
Problem:    Toupper and tolower don't work properly for Turkish when 'casemap'
            is empty. (Bjorn Linse)
Solution:   Check the 'casemap' options when deciding how to upper/lower case.
Files:      src/charset.c, src/testdir/test_normal.vim

Patch 8.0.0553 (after 8.0.0552)
Problem:    Toupper/tolower test with Turkish locale fails on Mac.
Solution:   Skip the test on Mac.
```

```
Files:      src/testdir/test_normal.vim

Patch 8.0.0554 (after 8.0.0552)
Problem:    Toupper and tolower don't work properly for Turkish when 'casemap'
            contains "keepascii". (Bjorn Linse)
Solution:   When 'casemap' contains "keepascii" use ASCII toupper/tolower.
Files:      src/charset.c, src/testdir/test_normal.vim

Patch 8.0.0555 (after 8.0.0552)
Problem:    Toupper/tolower test fails on OSX without Darwin.
Solution:   Skip that part of the test also for OSX. (Kazunobu Kuriyama)
Files:      src/testdir/test_normal.vim

Patch 8.0.0556
Problem:    Getting the window position fails if both the GUI and term
            code is built in.
Solution:   Return after getting the GUI window position. (Kazunobu Kuriyama)
Files:      src/evalfunc.c

Patch 8.0.0557
Problem:    GTK: using static gravities is not useful.
Solution:   Remove setting static gravities. (Kazunobu Kuriyama)
Files:      src/gui_gtk_f.c

Patch 8.0.0558
Problem:    The :ownsyntax command is not tested.
Solution:   Add a test. (Dominique Pelle, closes #1622)
Files:      src/testdir/test_syntax.vim

Patch 8.0.0559
Problem:    Setting 'ttytype' to xxx does not always fail as expected. (Marvin
            Schmidt)
Solution:   Catch both possible errors. (closes #1601)
Files:      src/testdir/test_options.vim

Patch 8.0.0560
Problem:    :windo allows for ! but it's not supported.
Solution:   Disallow passing !. (Hirohito Higashi)
Files:      src/ex_cmds.h

Patch 8.0.0561
Problem:    Undefined behavior when using backslash after empty line.
Solution:   Check for an empty line. (Dominique Pelle, closes #1631)
Files:      src/misc2.c, src/testdir/test_vimscript.vim

Patch 8.0.0562
Problem:    Not enough test coverage for syntax commands.
Solution:   Add a few more tests. (Dominique Pelle, closes #1624)
Files:      src/testdir/test_cmdline.vim, src/testdir/test_syntax.vim

Patch 8.0.0563
Problem:    Crash when getting the window position in tmux. (Marvin Schmidt)
Solution:   Add t_GP to the list of terminal options. (closes #1627)
Files:      src/option.c
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Patch 8.0.0564
Problem:    Cannot detect Bazel BUILD files on some systems.
Solution:   Check for BUILD after script checks. (Issue #1340)
Files:      runtime/filetype.vim

Patch 8.0.0565
Problem:    Using freed memory in :caddbuf after clearing quickfix list.
            (Dominique Pelle)
Solution:   Set qf_last to NULL.
Files:      src/quickfix.c

Patch 8.0.0566
Problem:    Setting 'nocompatible' for the tiny version moves the cursor.
Solution:   Use another trick to skip commands when the +eval feature is
            present. (Christian Brabandt, closes #1630)
Files:      runtime/defaults.vim

Patch 8.0.0567
Problem:    Call for requesting color and ambiwidth is too early. (Hirohito
            Higashi)
Solution:   Move the call down to below resetting "starting".
Files:      src/main.c

Patch 8.0.0568
Problem:    "1gd" may hang.
Solution:   Don't get stuck in one position. (Christian Brabandt, closes #1643)
Files:      src/testdir/test_goto.vim, src/normal.c

Patch 8.0.0569
Problem:    Bracketed paste is still enabled when executing a shell command.
            (Michael Smith)
Solution:   Disable bracketed paste when going into cooked mode. (closes #1638)
Files:      src/term.c

Patch 8.0.0570
Problem:    Can't run make with several jobs, creating directories has a race
            condition.
Solution:   Use the MKDIR_P autoconf mechanism. (Eric N. Vander Weele,
            closes #1639)
Files:      src/configure.ac, src/auto/configure, src/Makefile,
            src/config.mk.in, src/install-sh, src/mkinstalldirs, Filelist

Patch 8.0.0571
Problem:    The cursor line number becomes negative when using :z^ in an empty
            buffer. (neovim #6557)
Solution:   Correct the line number.  Also reset the column.
Files:      src/testdir/test_ex_z.vim, src/ex_cmds.c

Patch 8.0.0572
Problem:    Building the command table requires Perl.
Solution:   Use a Vim script solution. (Dominique Pelle, closes #1641)
Files:      src/Makefile, src/create_cmdidxs.pl, src/create_cmdidxs.vim,
            src/ex_cmdidxs.h, src/ex_docmd.c, Filelist
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Patch 8.0.0573
Problem:    Running parallel make after distclean fails. (Manuel Ortega)
Solution:   Instead of using targets "scratch config myself" use "reconfig".
Files:      src/Makefile, src/config.mk.dist

Patch 8.0.0574
Problem:    Get only one quickfix list after :caddbuf.
Solution:   Reset qf_multiline. (Yegappan Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.0575
Problem:    Using freed memory when resetting 'indentexpr' while evaluating
            it. (Dominique Pelle)
Solution:   Make a copy of 'indentexpr'.
Files:      src/misc1.c, src/testdir/test_options.vim

Patch 8.0.0576 (after 8.0.0570 and 8.0.0573)
Problem:    Can't build when configure chooses "install-sh". (Daniel Hahler)
Solution:   Always use install-sh.  Fix remaining use of mkinstalldirs.
            (closes #1647)
Files:      src/installman.sh, src/installml.sh, src/config.mk.in,
            src/configure.ac, src/auto/configure, src/Makefile

Patch 8.0.0577 (after 8.0.0575)
Problem:    Warning for uninitialized variable. (John Marriott)
Solution:   Initialize "indent".
Files:      src/misc1.c

Patch 8.0.0578
Problem:    :simalt on MS-Windows does not work properly.
Solution:   Put something in the typeahead buffer. (Christian Brabandt)
Files:      src/gui_w32.c

Patch 8.0.0579
Problem:    Duplicate test case for quickfix.
Solution:   Remove the function. (Yegappan Lakshmanan)
Files:      src/testdir/test_quickfix.vim

Patch 8.0.0580
Problem:    Cannot set the valid flag with setqflist().
Solution:   Add the "valid" argument. (Yegappan Lakshmanan, closes #1642)
Files:      runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0581
Problem:    Moving folded text is sometimes not correct.
Solution:   Bail out when "move_end" is zero. (Matthew Malcomson)
Files:      src/fold.c, src/testdir/test_fold.vim

Patch 8.0.0582
Problem:    Illegal memory access with z= command. (Dominique Pelle)
Solution:   Avoid case folded text to be longer than the original text.  Use
            MB_PTR2LEN() instead of MB_BYTE2LEN().
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Files:      src/spell.c, src/testdir/test_spell.vim

Patch 8.0.0583
Problem:    Fold test hangs on MS-Windows.
Solution:   Avoid overflow in compare.
Files:      src/fold.c

Patch 8.0.0584
Problem:    Memory leak when executing quickfix tests.
Solution:   Free the list reference. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.0585
Problem:    Test_options fails when run in the GUI.
Solution:   Also check the 'imactivatekey' value when the GUI is not running.
            Specify test values that work and that fail.
Files:      src/option.c, src/testdir/gen_opt_test.vim

Patch 8.0.0586
Problem:    No test for mapping timing out.
Solution:   Add a test.
Files:      src/testdir/test_mapping.vim

Patch 8.0.0587
Problem:    Configure check for return value of tgetent is skipped.
Solution:   Always perform the check. (Marvin Schmidt, closes #1664)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.0588
Problem:    job_stop() often assumes the channel will be closed, while the job
            may not actually be stopped. (Martin Gammelsæter)
Solution:   Only assume the job stops on "kill".  Don't send a signal if the
            job has already ended. (closes #1632)
Files:      src/channel.c

Patch 8.0.0589 (after 8.0.0578)
Problem:    :simalt still does not work.
Solution:   Use K_NOP instead of K_IGNORE. (Christian Brabandt)
Files:      src/gui_w32.c

Patch 8.0.0590
Problem:    Cannot add a context to locations.
Solution:   Add the "context" entry in location entries. (Yegappan Lakshmanan,
            closes #1012)
Files:      src/eval.c, src/proto/quickfix.pro, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0591
Problem:    Changes to eval functionality not documented.
Solution:   Include all the changes.
Files:      runtime/doc/eval.txt

Patch 8.0.0592
Problem:    If a job writes to a buffer and the user is typing a command, the
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            screen isn't updated. When a message is displayed the changed
            buffer may cause it to be cleared. (Ramel Eshed)
Solution:   Update the screen and then the command line if the screen didn't
            scroll. Avoid inserting screen lines, as it clears any message.
            Update the status line when the buffer changed.
Files:      src/channel.c, src/screen.c, src/ex_getln.c, src/globals.h,
            src/vim.h, src/proto/ex_getln.pro, src/proto/screen.pro

Patch 8.0.0593
Problem:    Duplication of code for adding a list or dict return value.
Solution:   Add rettv_dict_set() and rettv_list_set(). (Yegappan Lakshmanan)
Files:      src/dict.c, src/eval.c, src/evalfunc.c, src/if_perl.xs, src/list.c,
            src/proto/dict.pro, src/proto/list.pro

Patch 8.0.0594 (after 8.0.0592)
Problem:    Build failure when windows feature is missing.
Solution:   Add #ifdef.
Files:      src/screen.c

Patch 8.0.0595 (after 8.0.0590)
Problem:    Coverity warning for not checking return value of dict_add().
Solution:   Check the return value for FAIL.
Files:      src/quickfix.c

Patch 8.0.0596
Problem:    Crash when complete() is called after complete_add() in
            'completefunc'. (Lifepillar)
Solution:   Bail out if compl_pattern is NULL. (closes #1668)
            Also avoid using freed memory.
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0597
Problem:    Off-by-one error in buffer size computation.
Solution:   Use ">=" instead of ">". (LemonBoy, closes #1694)
Files:      src/quickfix.c

Patch 8.0.0598
Problem:    Building with gcc 7.1 yields new warnings.
Solution:   Initialize result. (John Marriott)
Files:      src/ex_docmd.c

Patch 8.0.0599
Problem:    diff mode is insufficiently tested
Solution:   Add more test cases. (Dominique Pelle, closes #1685)
Files:      src/diff.c, src/testdir/test_diffmode.vim

Patch 8.0.0600
Problem:    test_recover fails on some systems.
Solution:   Explicitly check if "/" is writable. (Ken Takata)
Files:      src/testdir/test_recover.vim

Patch 8.0.0601
Problem:    No test coverage for :spellrepall.
Solution:   Add a test. (Dominique Pelle, closes #1717)
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Files:      src/testdir/test_spell.vim

Patch 8.0.0602
Problem:    When gF fails to edit the file the cursor still moves to the found
            line number.
Solution:   Check the return value of do_ecmd(). (Michael Hwang)
Files:      src/normal.c, src/testdir/test_gf.vim

Patch 8.0.0603 (after 8.0.0602)
Problem:    gF test fails on MS-Windows.
Solution:   Use @ instead of : before the line number
Files:      src/testdir/test_gf.vim

Patch 8.0.0604 (after 8.0.0603)
Problem:    gF test still fails on MS-Windows.
Solution:   Use : before the line number and remove it from 'isfname'.
Files:      src/testdir/test_gf.vim

Patch 8.0.0605
Problem:    The buffer that quickfix caches for performance may become
            invalid. (Daniel Hahler)
Solution:   Reset qf_last_bufref in qf_init_ext(). (Daniel Hahler,
            closes #1728, closes #1676)
Files:      src/quickfix.c

Patch 8.0.0606
Problem:    Cannot set the context for a specified quickfix list.
Solution:   Use the list index instead of the current list. (Yegappan
            Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.0607
Problem:    When creating a bufref, then using :bwipe and :new it might get
            the same memory and bufref_valid() returns true.
Solution:   Add br_fnum to check the buffer number didn't change.
Files:      src/structs.h, src/buffer.c, src/globals.h, src/if_py_both.h,
            src/quickfix.c

Patch 8.0.0608
Problem:    Cannot manipulate other than the current quickfix list.
Solution:   Pass the list index to quickfix functions. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.0609
Problem:    For some people the hint about quitting is not sufficient.
Solution:   Put <Enter> separately.  Also use ":qa!" to get out even when
            there are changes.
Files:      src/normal.c

Patch 8.0.0610
Problem:    The screen is redrawn when t_BG is set and used to detect the
            value for 'background'.
Solution:   Don't redraw when the value of 'background' didn't change.
Files:      src/term.c.
```

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Patch 8.0.0611
Problem:    When t_u7 is sent a few characters in the second screen line are
            overwritten and not redrawn later. (Rastislav Barlik)
Solution:   Move redrawing the screen to after overwriting the characters.
Files:      src/main.c, src/term.c.

Patch 8.0.0612
Problem:    Package directories are added to 'runtimepath' only after loading
            non-package plugins.
Solution:   Split off the code to add package directories to 'runtimepath'.
            (Ingo Karkat, closes #1680)
Files:      src/ex_cmds2.c, src/globals.h, src/main.c, src/proto/ex_cmds2.pro,
            src/testdir/test_startup.vim

Patch 8.0.0613
Problem:    The conf filetype detection is done before ftdetect scripts from
            packages that are added later.
Solution:   Add the FALLBACK argument to :setfiletype. (closes #1679,
            closes #1693)
Files:      src/ex_docmd.c, runtime/filetype.vim, src/Makefile,
            src/testdir/test_filetype.vim, src/testdir/test_alot.vim

Patch 8.0.0614
Problem:    float2nr() is not exactly right.
Solution:   Make float2nr() more accurate.  Turn test65 into a new style test.
            (Hirohito Higashi, closes #1688)
Files:      src/Makefile, src/evalfunc.c, src/testdir/Make_all.mak,
            src/testdir/Make_vms.mms, src/testdir/test65.in,
            src/testdir/test65.ok, src/testdir/test_float_func.vim,
            src/testdir/test_vimscript.vim, src/macros.h

Patch 8.0.0615
Problem:    Using % with :hardcopy wrongly escapes spaces. (Alexey Muranov)
Solution:   Expand % differently. (Christian Brabandt, closes #1682)
Files:      src/ex_docmd.c, src/testdir/test_hardcopy.vim


Patch 8.0.0616
Problem:    When setting the cterm background with ":hi Normal" the value of
            'background' may be set wrongly.
Solution:   Check that the color is less than 16.  Don't set 'background' when
            it was set explicitly. (LemonBoy, closes #1710)
Files:      src/syntax.c, src/testdir/test_syntax.vim

Patch 8.0.0617 (after 8.0.0615)
Problem:    Hardcopy test hangs on MS-Windows.
Solution:   Check the postscript feature is supported.
Files:      src/testdir/test_hardcopy.vim

Patch 8.0.0618
Problem:    NFA regex engine handles [0-z] incorrectly.
Solution:   Return at the right point. (James McCoy, closes #1703)
Files:      src/regexp_nfa.c, src/testdir/test36.in, src/testdir/test36.ok
```

Patch 8.0.0619
Problem: In the GUI, when a timer uses feedkeys(), it still waits for an
            event. (Raymond Ko)
Solution: Check tb_change_cnt in one more place.
Files: src/gui.c

Patch 8.0.0620
Problem: Since we only support GTK versions that have it, the check for
            HAVE_GTK_MULTIHEAD is no longer needed.
Solution: Remove HAVE_GTK_MULTIHEAD. (Kazunobu Kuriyama)
Files: src/config.h.in, src/configure.ac, src/auto/configure,
            src/gui_beval.c, src/gui_gtk_x11.c, src/mbyte.c

Patch 8.0.0621
Problem: The ":stag" command does not respect 'switchbuf'.
Solution: Check 'switchbuf' for tag commands that may open a new window.
            (Ingo Karkat, closes #1681) Define macros for the return values
            of getfile().
Files: src/tag.c, src/testdir/test_tagjump.vim, src/vim.h, src/buffer.c,
            src/ex_cmds.c, src/search.c,

Patch 8.0.0622
Problem: Using a text object to select quoted text fails when 'selection'
            is set to "exclusive". (Guraga)
Solution: Swap cursor and visual start position. (Christian Brabandt,
            closes #1687)
Files: src/search.c, src/testdir/test_textobjects.vim

Patch 8.0.0623
Problem: The message "Invalid range" is used for multiple errors.
Solution: Add two more specific error messages. (Itchyny, Ken Hamada)
Files: src/regexp.c, src/regexp_nfa.c, src/testdir/test_regexp_utf8.vim

Patch 8.0.0624 (after 8.0.0623)
Problem: Warning for unused variable in tiny build. (Tony Mechelynck)
Solution: Add an #ifdef.
Files: src/regexp.c

Patch 8.0.0625
Problem: shellescape() always escapes a newline, which does not work with
            some shells. (Harm te Hennepe)
Solution: Only escape a newline when the "special" argument is non-zero.
            (Christian Brabandt, closes #1590)
Files: src/evalfunc.c, src/testdir/test_functions.vim

Patch 8.0.0626
Problem: In the GUI the cursor may flicker.
Solution: Check the cmd_silent flag before updating the cursor shape.
            (Hirohito Higashi, closes #1637)
Files: src/getchar.c

Patch 8.0.0627
Problem: When 'wrapscan' is off "gn" does not select the whole pattern when

            it's the last one in the text. (KeyboardFire)
Solution: Check if the search fails. (Christian Brabandt, closes #1683)
Files: src/search.c, src/testdir/test_gn.vim

Patch 8.0.0628 (after 8.0.0626
Problem: Cursor disappears after silent mapping. (Ramel Eshed)
Solution: Do restore the cursor when it was changed, but don't change it in
            the first place for a silent mapping.
Files: src/getchar.c

Patch 8.0.0629 (after 8.0.0611)
Problem: Checking for ambiguous width is not working. (Hirohito Higashi)
Solution: Reset "starting" earlier.
Files: src/main.c

Patch 8.0.0630
Problem: The :global command does not work recursively, which makes it
            difficult to execute a command on a line where one pattern matches
            and another does not match. (Miles Cranmer)
Solution: Allow for recursion if it is for only one line. (closes #1760)
Files: src/ex_cmds.c, src/testdir/test_global.vim, runtime/doc/repeat.txt

Patch 8.0.0631
Problem: Perl 5.26 also needs S_TOPMARK and S_POPMARK defined.
Solution: Define the functions when needed. (Jesin, closes #1748)
Files: src/if_perl.xs

Patch 8.0.0632
Problem: The quotestar test is still a bit flaky.
Solution: Kill any existing server to make the retry work. Wait for the
            register to be filled.
Files: src/testdir/test_quotestar.vim

Patch 8.0.0633
Problem: The client-server test is still a bit flaky.
Solution: Wait a bit for the GUI to start. Check that the version number
            can be obtained.
Files: src/testdir/test_clientserver.vim

Patch 8.0.0634
Problem: Cannot easily get to the last quickfix list.
Solution: Add "$" as a value for the "nr" argument of getqflist() and
            setqflist(). (Yegappan Lakshmanan)
Files: runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0635
Problem: When 'ignorecase' is set script detection is inaccurate.
Solution: Enforce matching case for text. (closes #1753)
Files: runtime/scripts.vim

Patch 8.0.0636
Problem: When reading the undo file fails may use uninitialized data.

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Solution:   Always clear the buffer on failure.
Files:      src/undo.c

Patch 8.0.0637
Problem:    Crash when using some version of GTK 3.
Solution:   Add #ifdefs around incrementing the menu index. (Kazunobu
            Kuriyama)
Files:      src/gui_gtk.c

Patch 8.0.0638
Problem:    Cannot build with new MSVC version VS2017.
Solution:   Change the compiler arguments. (Leonardo Valeri Manera,
            closes #1731, closes #1747)
Files:      src/GvimExt/Makefile, src/Make_mvc.mak

Patch 8.0.0639
Problem:    The cursor position is set to the last position in a new commit
            message.
Solution:   Don't set the position if the filetype matches "commit".
            (Christian Brabandt)
Files:      runtime/defaults.vim

Patch 8.0.0640
Problem:    Mismatch between help and actual message for ":syn conceal".
Solution:   Change the message to match the help. (Ken Takata)
Files:      src/syntax.c

Patch 8.0.0641
Problem:    Cannot set a separate highlighting for the current line in the
            quickfix window.
Solution:   Add QuickFixLine. (anishsane, closes #1755)
Files:      src/option.c, src/quickfix.c, src/screen.c, src/syntax.c,
            src/vim.h, runtime/doc/options.txt, runtime/doc/quickfix.txt

Patch 8.0.0642
Problem:    writefile() continues after detecting an error.
Solution:   Bail out as soon as an error is detected. (suggestions by Nikolai
            Pavlov, closes #1476)
Files:      src/evalfunc.c, src/testdir/test_writefile.vim

Patch 8.0.0643
Problem:    When 'hlsearch' is set and matching with the last search pattern
            is very slow, Vim becomes unusable.  Cannot quit search by
            pressing CTRL-C.
Solution:   When the search times out set a flag and don't try again.  Check
            for timeout and CTRL-C in NFA loop that adds states.
Files:      src/screen.c, src/ex_cmds.c, src/quickfix.c, src/regexp.c,
            src/proto/regexp.pro, src/regexp.h, src/search.c,
            src/proto/search.pro, src/syntax.c, src/regexp_nfa.c, src/spell.c,
            src/tag.c, src/gui.c, src/edit.c, src/evalfunc.c, src/ex_docmd.c,
            src/ex_getln.c, src/normal.c

Patch 8.0.0644
Problem:    There is no test for 'hlsearch' timing out.
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Solution:   Add a test.
Files:      src/testdir/test_hlsearch.vim

Patch 8.0.0645
Problem:    The new regexp engine does not give an error for using a back
            reference where it is not allowed. (Dominique Pelle)
Solution:   Check the back reference like the old engine. (closes #1774)
Files:      src/regexp.c, src/regexp_nfa.c, src/testdir/test_hlsearch.vim,
            src/testdir/test_statusline.vim,
            src/testdir/test_regexp_latin1.vim

Patch 8.0.0646
Problem:    The hlsearch test fails on fast systems.
Solution:   Make the search pattern slower.  Fix that the old regexp engine
            doesn't timeout properly.
Files:      src/regexp.c, src/testdir/test_hlsearch.vim

Patch 8.0.0647
Problem:    Syntax highlighting can cause a freeze.
Solution:   Apply 'redrawtime' to syntax highlighting, per window.
Files:      src/structs.h, src/screen.c, src/syntax.c, src/normal.c,
            src/regexp.c, src/proto/syntax.pro, src/testdir/test_syntax.vim,
            runtime/doc/options.txt

Patch 8.0.0648
Problem:    Possible use of NULL pointer if buflist_new() returns NULL.
            (Coverity)
Solution:   Check for NULL pointer in set_bufref().
Files:      src/buffer.c

Patch 8.0.0649
Problem:    When opening a help file the filetype is set several times.
Solution:   When setting the filetype to the same value from a modeline, don't
            trigger FileType autocommands.  Don't set the filetype to "help"
            when it's already set correctly.
Files:      src/ex_cmds.c, src/option.c, runtime/filetype.vim

Patch 8.0.0650
Problem:    For extra help files the filetype is set more than once.
Solution:   In *.txt files check that there is no help file modline.
Files:      runtime/filetype.vim

Patch 8.0.0651 (after 8.0.0649)
Problem:    Build failure without the auto command feature.
Solution:   Add #ifdef. (closes #1782)
Files:      src/ex_cmds.c

Patch 8.0.0652
Problem:    Unicode information is outdated.
Solution:   Update to Unicode 10. (Christian Brabandt)
Files:      runtime/tools/unicode.vim, src/mbyte.c

Patch 8.0.0653
Problem:    The default highlight for QuickFixLine does not work for several
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            color schemes. (Manas Thakur)
Solution:   Make the default use the old color. (closes #1780)
Files:      src/syntax.c

Patch 8.0.0654
Problem:    Text found after :endfunction is silently ignored.
Solution:   Give a warning if 'verbose' is set.  When | or \n are used,
            execute the text as a command.
Files:      src/testdir/test_vimscript.vim, src/userfunc.c,
            runtime/doc/eval.txt

Patch 8.0.0655
Problem:    Not easy to make sure a function does not exist.
Solution:   Add ! as an optional argument to :delfunc.
Files:      src/userfunc.c, src/ex_cmds.h, src/testdir/test_vimscript.vim

Patch 8.0.0656
Problem:    Cannot use ! after some user commands.
Solution:   Properly check for existing command. (Hirohito Higashi)
Files:      src/ex_docmd.c, src/testdir/test_vimscript.vim

Patch 8.0.0657
Problem:    Cannot get and set quickfix list items.
Solution:   Add the "items" argument to getqflist() and setqflist(). (Yegappan
            Lakshmanan)
Files:      runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0658
Problem:    Spell test is old style.
Solution:   Turn the spell test into a new style test (pschuh, closes #1778)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/test58.in, src/testdir/test58.ok,
            src/testdir/test_spell.vim

Patch 8.0.0659
Problem:    No test for conceal mode.
Solution:   Add a conceal mode test. (Dominique Pelle, closes #1783)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/testdir/test_syntax.vim

Patch 8.0.0660
Problem:    Silent install on MS-Windows does show a dialog.
Solution:   Add /SD to the default choice. (allburov, closes #1772)
Files:      nsis/gvim.nsi

Patch 8.0.0661
Problem:    Recognizing urxvt mouse codes does not work well.
Solution:   Recognize "Esc[*M" and "Esc[*m". (Maurice Bos, closes #1486)
Files:      src/keymap.h, src/misc2.c, src/os_unix.c, src/term.c

Patch 8.0.0662 (after 8.0.0659)
Problem:    Stray FIXME for fixed problem.
Solution:   Remove the comment. (Dominique Pelle)
Files:      src/testdir/test_syntax.vim
```

Patch 8.0.0663
Problem: Giving an error message only when 'verbose' set is unexpected.
Solution: Give a warning message instead.
Files: src/message.c, src/proto/message.pro, src/userfunc.c,
            src/testdir/test_vimscript.vim, runtime/doc/eval.txt

Patch 8.0.0664 (after 8.0.0661)
Problem: Mouse does not work in tmux. (lilydjwg)
Solution: Add flag for SGR release being present.
Files: src/term.c

Patch 8.0.0665 (after 8.0.0661)
Problem: Warning for uninitialized variable. (Tony Mechelynck)
Solution: Initialize it.
Files: src/term.c

Patch 8.0.0666
Problem: Dead for loop. (Coverity)
Solution: Remove the for loop.
Files: src/term.c

Patch 8.0.0667
Problem: Memory access error when command follows :endfunction. (Nikolai
            Pavlov)
Solution: Make memory handling in :function straightforward. (closes #1793)
Files: src/userfunc.c, src/testdir/test_vimscript.vim

Patch 8.0.0668 (after 8.0.0660)
Problem: Nsis installer script does not work. (Christian Brabandt)
Solution: Fix the syntax of /SD.
Files: nsis/gvim.nsi

Patch 8.0.0669
Problem: In Insert mode, CTRL-N at start of the buffer does not work
            correctly. (zuloloxi)
Solution: Wrap around the start of the buffer. (Christian Brabandt)
Files: src/edit.c, src/testdir/test_popup.vim

Patch 8.0.0670
Problem: Can't use input() in a timer callback. (Cosmin Popescu)
Solution: Reset vgetc_busy and set timer_busy. (Ozaki Kiichi, closes #1790,
            closes #1129)
Files: src/evalfunc.c, src/ex_cmds2.c, src/globals.h,
            src/testdir/test_timers.vim

Patch 8.0.0671
Problem: When a function invoked from a timer calls confirm() and the user
            types CTRL-C then Vim hangs.
Solution: Reset typebuf_was_filled. (Ozaki Kiichi, closes #1791)
Files: src/getchar.c

Patch 8.0.0672
Problem: Third item of synconcealed() changes too often. (Dominique Pelle)

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Solution:   Reset the sequence number at the start of each line.
Files:      src/syntax.c, src/testdir/test_syntax.vim, runtime/doc/eval.txt

Patch 8.0.0673 (after 8.0.0673)
Problem:    Build failure without conceal feature.
Solution:   Add #ifdef.
Files:      src/syntax.c

Patch 8.0.0674 (after 8.0.0670)
Problem:    Cannot build with eval but without timers.
Solution:   Add #ifdef (John Marriott)
Files:      src/evalfunc.c

Patch 8.0.0675
Problem:    'colorcolumn' has a higher priority than 'hlsearch', it should be
            the other way around. (Nazri Ramliy)
Solution:   Change the priorities. (LemonBoy, closes #1794)
Files:      src/screen.c, src/testdir/test_listlbr_utf8.vim

Patch 8.0.0676
Problem:    Crash when closing the quickfix window in a FileType autocommand
            that triggers when the quickfix window is opened.
Solution:   Save the new value before triggering the OptionSet autocommand.
            Add the "starting" flag to test_override() to make the text work.
Files:      src/evalfunc.c, src/option.c, runtime/doc/eval.txt

Patch 8.0.0677
Problem:    Setting 'filetype' internally may cause the current buffer and
            window to change unexpectedly.
Solution:   Set curbuf_lock. (closes #1734)
Files:      src/quickfix.c, src/ex_cmds.c, src/ex_getln.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0678
Problem:    When 'equalalways' is set and closing a window in a separate
            frame, not all window sizes are adjusted. (Glacambre)
Solution:   Resize all windows if the new current window is not in the same
            frame as the closed window. (closes #1707)
Files:      src/window.c, src/testdir/test_window_cmd.vim

Patch 8.0.0679 (after 8.0.0678)
Problem:    Using freed memory.
Solution:   Get the parent frame pointer earlier.
Files:      src/window.c

Patch 8.0.0680 (after 8.0.0612)
Problem:    Plugins in start packages are sourced twice. (mseplowitz)
Solution:   Use the unmodified runtime path when loading plugins (test by Ingo
            Karkat, closes #1801)
Files:      src/testdir/test_startup.vim, src/main.c, src/ex_cmds2.c,
            src/proto/ex_cmds2.pro

Patch 8.0.0681
Problem:    Unnamed register only contains the last deleted text when
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            appending deleted text to a register. (Wolfgang Jeltsch)
Solution: Only set y_previous when not using y_append. (Christian Brabandt)
Files: src/ops.c, src/testdir/test_put.vim

Patch 8.0.0682
Problem: No test for synIDtrans().
Solution: Add a test. (Dominique Pelle, closes #1796)
Files: src/testdir/test_syntax.vim

Patch 8.0.0683
Problem: When using a visual bell there is no delay, causing the flash to
            be very short, possibly unnoticeable. Also, the flash and the
            beep can lockup the UI when repeated often.
Solution: Do the delay in Vim or flush the output before the delay. Limit the
            bell to once per half a second. (Ozaki Kiichi, closes #1789)
Files: src/misc1.c, src/proto/term.pro, src/term.c

Patch 8.0.0684
Problem: Old style tests are not nice.
Solution: Turn two tests into new style. (pschuh, closes #1797)
Files: src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/test82.in, src/testdir/test82.ok,
            src/testdir/test90.in, src/testdir/test90.ok,
            src/testdir/test_sha256.vim, src/testdir/test_utf8_comparisons.vim

Patch 8.0.0685
Problem: When making backups is disabled and conversion with iconv fails
            the written file is truncated. (Luo Chen)
Solution: First try converting the file and write the file only when it did
            not fail. (partly by Christian Brabandt)
Files: src/fileio.c, src/testdir/test_writefile.vim

Patch 8.0.0686
Problem: When typing CTRL-L in a window that's not the first one, another
            redraw will happen later. (Christian Brabandt)
Solution: Reset must_redraw after calling screenclear().
Files: src/screen.c

Patch 8.0.0687
Problem: Minor issues related to quickfix.
Solution: Set the proper return status for all cases in setqflist() and at
            test cases for this. Move the "adding" flag outside of
            FEAT_WINDOWS. Minor update to the setqflist() help text. (Yegappan
            Lakshmanan)
Files: runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0688
Problem: Cannot resize the window in a FileType autocommand. (Ingo Karkat)
Solution: Add the CMDWIN flag to :resize. (test by Ingo Karkat,
            closes #1804)
Files: src/ex_cmds.h, src/testdir/test_quickfix.vim

Patch 8.0.0689

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Problem:    The ~ character is not escaped when adding to the search pattern
            with CTRL-L. (Ramel Eshed)
Solution:   Escape the character. (Christian Brabandt)
Files:      src/ex_getln.c, src/testdir/test_search.vim

Patch 8.0.0690
Problem:    Compiler warning on non-Unix system.
Solution:   Add #ifdef. (John Marriott)
Files:      src/term.c

Patch 8.0.0691
Problem:    Compiler warning without the linebreak feature.
Solution:   Add #ifdef. (John Marriott)
Files:      src/edit.c

Patch 8.0.0692
Problem:    Using CTRL-G with 'incsearch' and ? goes in the wrong direction.
            (Ramel Eshed)
Solution:   Adjust search_start. (Christian Brabandt)
Files:      src/ex_getln.c, src/testdir/test_search.vim

Patch 8.0.0693
Problem:    No terminal emulator support.  Cannot properly run commands in the
            GUI.  Cannot run a job interactively with an ssh connection.
Solution:   Very early implementation of the :terminal command.  Includes
            libvterm converted to ANSI C.  Many parts still missing.
Files:      src/feature.h, src/Makefile, src/configure.ac, src/auto/configure,
            src/config.mk.in, src/config.h.in, src/terminal.c, src/structs.h,
            src/ex_cmdidxs.h, src/ex_docmd.c,  src/option.c, src/option.h,
            src/evalfunc.c, src/proto/terminal.pro, src/proto.h,
            runtime/doc/terminal.txt, runtime/doc/Makefile, Filelist,
            src/libvterm/.bzrignore, src/libvterm/.gitignore,
            src/libvterm/LICENSE, src/libvterm/README, src/libvterm/Makefile,
            src/libvterm/tbl2inc_c.pl, src/libvterm/vterm.pc.in,
            src/libvterm/bin/unterm.c, src/libvterm/bin/vterm-ctrl.c,
            src/libvterm/bin/vterm-dump.c, src/libvterm/doc/URLs,
            src/libvterm/doc/seqs.txt, src/libvterm/include/vterm.h,
            src/libvterm/include/vterm_keycodes.h,
            src/libvterm/src/encoding.c,
            src/libvterm/src/encoding/DECdrawing.inc,
            src/libvterm/src/encoding/DECdrawing.tbl,
            src/libvterm/src/encoding/uk.inc,
            src/libvterm/src/encoding/uk.tbl, src/libvterm/src/keyboard.c,
            src/libvterm/src/mouse.c, src/libvterm/src/parser.c,
            src/libvterm/src/pen.c, src/libvterm/src/rect.h,
            src/libvterm/src/screen.c, src/libvterm/src/state.c,
            src/libvterm/src/unicode.c, src/libvterm/src/utf8.h,
            src/libvterm/src/vterm.c, src/libvterm/src/vterm_internal.h,
            src/libvterm/t/02parser.test, src/libvterm/t/03encoding_utf8.test,
            src/libvterm/t/10state_putglyph.test,
            src/libvterm/t/11state_movecursor.test,
            src/libvterm/t/12state_scroll.test,
            src/libvterm/t/13state_edit.test,
            src/libvterm/t/14state_encoding.test,
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            src/libvterm/t/15state_mode.test,
            src/libvterm/t/16state_resize.test,
            src/libvterm/t/17state_mouse.test,
            src/libvterm/t/18state_termprops.test,
            src/libvterm/t/20state_wrapping.test,
            src/libvterm/t/21state_tabstops.test,
            src/libvterm/t/22state_save.test,
            src/libvterm/t/25state_input.test,
            src/libvterm/t/26state_query.test,
            src/libvterm/t/27state_reset.test,
            src/libvterm/t/28state_dbl_wh.test,
            src/libvterm/t/29state_fallback.test, src/libvterm/t/30pen.test,
            src/libvterm/t/40screen_ascii.test,
            src/libvterm/t/41screen_unicode.test,
            src/libvterm/t/42screen_damage.test,
            src/libvterm/t/43screen_resize.test,
            src/libvterm/t/44screen_pen.test,
            src/libvterm/t/45screen_protect.test,
            src/libvterm/t/46screen_extent.test,
            src/libvterm/t/47screen_dbl_wh.test,
            src/libvterm/t/48screen_termprops.test,
            src/libvterm/t/90vttest_01-movement-1.test,
            src/libvterm/t/90vttest_01-movement-2.test,
            src/libvterm/t/90vttest_01-movement-3.test,
            src/libvterm/t/90vttest_01-movement-4.test,
            src/libvterm/t/90vttest_02-screen-1.test,
            src/libvterm/t/90vttest_02-screen-2.test,
            src/libvterm/t/90vttest_02-screen-3.test,
            src/libvterm/t/90vttest_02-screen-4.test,
            src/libvterm/t/92lp1640917.test, src/libvterm/t/harness.c,
            src/libvterm/t/run-test.pl

Patch 8.0.0694
Problem:    Building in shadow directory does not work.  Running Vim fails.
Solution:   Add the new libvterm directory.  Add missing change in command
            list.
Files:      src/Makefile, src/ex_cmds.h

Patch 8.0.0695
Problem:    Missing dependencies breaks parallel make.
Solution:   Add dependencies for terminal.o.
Files:      src/Makefile

Patch 8.0.0696
Problem:    The .inc files are missing in git. (Nazri Ramliy)
Solution:   Remove the .inc line from .gitignore.
Files:      src/libvterm/.gitignore

Patch 8.0.0697
Problem:    Recorded key sequences may become invalid.
Solution:   Add back KE_SNIFF removed in 7.4.1433. Use fixed numbers for the
            key_extra enum.
Files:      src/keymap.h
```

```
Patch 8.0.0698
Problem:    When a timer uses ":pyeval" or another Python command and it
            happens to be triggered while exiting a Crash may happen.
            (Ricky Zhou)
Solution:   Avoid running a Python command after python_end() was called.
            Do not trigger timers while exiting.  (closes #1824)
Files:      src/if_python.c, src/if_python3.c, src/ex_cmds2.c

Patch 8.0.0699
Problem:    Checksum tests are not actually run.
Solution:   Add the tests to the list. (Dominique Pelle, closes #1819)
Files:      src/testdir/test_alot.vim, src/testdir/test_alot_utf8.vim

Patch 8.0.0700
Problem:    Segfault with QuitPre autocommand closes the window. (Marek)
Solution:   Check that the window pointer is still valid. (Christian Brabandt,
            closes #1817)
Files:      src/testdir/test_tabpage.vim, src/ex_docmd.c

Patch 8.0.0701
Problem:    System test failing when using X11 forwarding.
Solution:   Set $XAUTHORITY before changing $HOME. (closes #1812)
            Also use a better check for the exit value.
Files:      src/testdir/setup.vim, src/testdir/test_system.vim

Patch 8.0.0702
Problem:    An error in a timer can make Vim unusable.
Solution:   Don't set the error flag or exception from a timer.  Stop a timer
            if it causes an error 3 out of 3 times.  Discard an exception
            caused inside a timer.
Files:      src/ex_cmds2.c, src/structs.h, src/testdir/test_timers.vim,
            runtime/doc/eval.txt

Patch 8.0.0703
Problem:    Illegal memory access with empty :doau command.
Solution:   Check the event for being out of range. (James McCoy)
Files:      src/testdir/test_autocmd.vim, src/fileio.c

Patch 8.0.0704
Problem:    Problems with autocommands when opening help.
Solution:   Avoid using invalid "varp" value.  Allow using :wincmd if buffer
            is locked. (closes #1806, closes #1804)
Files:      src/option.c, src/ex_cmds.h

Patch 8.0.0705 (after 8.0.0702)
Problem:    Crash when there is an error in a timer callback. (Aron Griffis,
            Ozaki Kiichi)
Solution:   Check did_throw before discarding an exception.  NULLify
            current_exception when no longer valid.
Files:      src/ex_eval.c, src/ex_cmds2.c

Patch 8.0.0706
Problem:    Crash when cancelling the cmdline window in Ex mode. (James McCoy)
Solution:   Do not set cmdbuff to NULL, make it empty.
```

```
Files:      src/ex_getln.c

Patch 8.0.0707
Problem:    Freeing wrong memory when manipulating buffers in autocommands.
            (James McCoy)
Solution:   Also set the w_s pointer if w_buffer was NULL.
Files:      src/ex_cmds.c

Patch 8.0.0708
Problem:    Some tests are old style.
Solution:   Change a few tests from old style to new style. (pschuh,
            closes #1813)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_vms.mms, src/testdir/main.aap,
            src/testdir/test23.in, src/testdir/test23.ok,
            src/testdir/test24.in, src/testdir/test24.ok,
            src/testdir/test26.in, src/testdir/test26.ok,
            src/testdir/test67.in, src/testdir/test67.ok,
            src/testdir/test75.in, src/testdir/test75.ok,
            src/testdir/test97.in, src/testdir/test97.ok,
            src/testdir/test_comparators.in, src/testdir/test_comparators.ok,
            src/testdir/test_comparators.vim,
            src/testdir/test_escaped_glob.vim,
            src/testdir/test_exec_while_if.vim,
            src/testdir/test_exists_autocmd.vim, src/testdir/test_getcwd.in,
            src/testdir/test_getcwd.ok, src/testdir/test_getcwd.vim,
            src/testdir/test_maparg.vim, src/testdir/test_plus_arg_edit.vim,
            src/testdir/test_regex_char_classes.vim

Patch 8.0.0709
Problem:    Libvterm cannot use vsnprintf(), it does not exist in C90.
Solution:   Use vim_vsnprintf() instead.
Files:      src/message.c, src/Makefile, src/proto.h, src/evalfunc.c,
            src/netbeans.c, src/libvterm/src/vterm.c

Patch 8.0.0710
Problem:    A job that writes to a buffer clears command line completion.
            (Ramel Eshed)
Solution:   Do not redraw while showing the completion menu.
Files:      src/screen.c

Patch 8.0.0711 (after 8.0.0710)
Problem:    Cannot build without the wildmenu feature.
Solution:   Add #ifdef
Files:      src/screen.c

Patch 8.0.0712
Problem:    The terminal implementation is incomplete.
Solution:   Add the 'termkey' option.
Files:      src/option.c, src/option.h, src/structs.h

Patch 8.0.0713 (after 8.0.0712)
Problem:    'termkey' option not fully implemented.
Solution:   Add initialisation.
```

```
Files:      src/option.c

Patch 8.0.0714
Problem:    When a timer causes a command line redraw the " that is displayed
            for CTRL-R goes missing.
Solution:   Remember an extra character to display.
Files:      src/ex_getln.c

Patch 8.0.0715
Problem:    Writing to the wrong buffer if the buffer that a channel writes to
            was closed.
Solution:   Do not write to a buffer that was unloaded.
Files:      src/channel.c, src/testdir/test_channel.vim,
            src/testdir/test_channel_write.py

Patch 8.0.0716
Problem:    Not easy to start Vim cleanly without changing the viminfo file.
            Not possible to know whether the -i command line flag was used.
Solution:   Add the --clean command line argument.  Add the 'viminfofile'
            option.  Add "-u DEFAULTS".
Files:      src/main.c, runtime/doc/starting.txt, src/option.c, src/option.h,
            src/ex_cmds.c, src/globals.h, runtime/doc/options.txt

Patch 8.0.0717
Problem:    Terminal feature not included in :version output.
Solution:   Add +terminal or -terminal.
Files:      src/version.c, src/terminal.c

Patch 8.0.0718
Problem:    Output of job in terminal is not displayed.
Solution:   Connect the job output to the terminal.
Files:      src/channel.c, src/proto/channel.pro, src/terminal.c,
            src/proto/terminal.pro, src/channel.c, src/proto/channel.pro,
            src/evalfunc.c, src/screen.c, src/proto/screen.pro

Patch 8.0.0719
Problem:    Build failure without +terminal feature.
Solution:   Add #ifdefs.
Files:      src/screen.c, src/channel.c

Patch 8.0.0720
Problem:    Unfinished mapping not displayed when running timer.
Solution:   Also use the extra_char while waiting for a mapping and digraph.
            (closes #1844)
Files:      src/ex_getln.c

Patch 8.0.0721
Problem:    :argedit can only have one argument.
Solution:   Allow for multiple arguments. (Christian Brabandt)
Files:      runtime/doc/editing.txt, src/ex_cmds.h, src/ex_cmds2.c,
            src/testdir/test_arglist.vim

Patch 8.0.0722
Problem:    Screen is messed by timer up at inputlist() prompt.
```

```
Solution:   Set state to ASKMORE. (closes #1843)
Files:      src/misc1.c

Patch 8.0.0723 (after 8.0.0721)
Problem:    Arglist test fails if file name case is ignored.
Solution:   Wipe existing buffers, check for fname_case property.
Files:      src/testdir/test_arglist.vim

Patch 8.0.0724
Problem:    The message for yanking doesn't indicate the register.
Solution:   Show the register name in the "N lines yanked" message. (LemonBoy,
            closes #1803, closes #1809)
Files:      src/ops.c, src/Makefile, src/testdir/test_registers.vim,
            src/testdir/Make_all.mak

Patch 8.0.0725
Problem:    A terminal window does not handle keyboard input.
Solution:   Add terminal_loop().  ":term bash -i" sort of works now.
Files:      src/main.c, src/terminal.c, src/proto/terminal.pro, src/normal.c

Patch 8.0.0726
Problem:    Translations cleanup script is too conservative.
Solution:   Also delete untranslated messages.
Files:      src/po/cleanup.vim

Patch 8.0.0727
Problem:    Message about what register to yank into is not translated.
            (LemonBoy)
Solution:   Add _().
Files:      src/ops.c

Patch 8.0.0728
Problem:    The terminal structure is never freed.
Solution:   Free the structure and unreference what it contains.
Files:      src/terminal.c, src/buffer.c, src/proto/terminal.pro,
            src/channel.c, src/proto/channel.pro, src/evalfunc.c

Patch 8.0.0729
Problem:    The help for the terminal configure option is wrong.
Solution:   Change "Disable" to "Enable". (E Kawashima, closes #1849)
            Improve alignment.
Files:      src/configure.ac, src/auto/configure

Patch 8.0.0730
Problem:    Terminal feature only supports Unix-like systems.
Solution:   Prepare for adding an MS-Windows implementation.
Files:      src/terminal.c

Patch 8.0.0731
Problem:    Cannot build the terminal feature on MS-Windows.
Solution:   Add the Makefile changes. (Yasuhiro Matsumoto, closes #1851)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 8.0.0732
```

```
Problem:    When updating a buffer for a callback the modeless selection is
            lost.
Solution:   Do not insert or delete screen lines when redrawing for a callback
            and there is a modeless selection.
Files:      src/screen.c

Patch 8.0.0733
Problem:    Can only add entries to one list in the quickfix stack.
Solution:   Move state variables from qf_list_T to qf_list_T. (Yegappan
            Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.0734
Problem:    The script to check translations can be improved.
Solution:   Restore the view when no errors are found.  Check for matching
            line break at the end of the message. (Christian Brabandt)
Files:      src/po/check.vim

Patch 8.0.0735
Problem:    There is no way to notice that the quickfix window contents has
            changed.
Solution:   Increment b:changedtick when updating the quickfix window.
            (Yegappan Lakshmanan)
Files:      runtime/doc/quickfix.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0736
Problem:    The OptionSet autocommand event is not triggered when entering
            diff mode.
Solution:   use set_option_value() instead of setting the option directly.
            Change the tests from old to new style. (Christian Brabandt)
Files:      src/diff.c, src/testdir/Make_all.mak, src/Makefile,
            src/testdir/test_autocmd.vim, src/testdir/test_autocmd_option.in,
            src/testdir/test_autocmd_option.ok

Patch 8.0.0737
Problem:    Crash when X11 selection is very big.
Solution:   Use static items instead of allocating them.  Add callbacks.
            (Ozaki Kiichi)
Files:      src/testdir/shared.vim, src/testdir/test_quotestar.vim,
            src/ui.c

Patch 8.0.0738
Problem:    Cannot use the mouse to resize window while the focus is in a
            terminal window.
Solution:   Recognize nice mouse events in the terminal window.  A few more
            fixes for the terminal window.
Files:      src/terminal.c

Patch 8.0.0739
Problem:    Terminal resizing doesn't work well.
Solution:   Resize the terminal to the Vim window and the other way around.
            Avoid mapping typed keys.  Set the environment properly.
Files:      src/terminal.c, src/os_unix.c, src/structs.h
```

Patch 8.0.0740
Problem: Cannot resize a terminal window by the command running in it.
Solution: Add support for the window size escape sequence. Make BS work.
Files: src/terminal.c, src/libvterm/src/state.c

Patch 8.0.0741
Problem: Cannot build with HPUX.
Solution: Rename envbuf_TERM to envbuf_Term. (John Marriott)
Files: src/os_unix.c

Patch 8.0.0742
Problem: Terminal feature does not work on MS-Windows.
Solution: Use libvterm and libwinpty on MS-Windows. (Yasuhiro Matsumoto)
Files: src/INSTALLpc.txt, src/Make_cyg_ming.mak, src/channel.c,
            src/proto/channel.pro, src/terminal.c

Patch 8.0.0743
Problem: The 'termsize' option can be set to an invalid value.
Solution: Check the 'termsize' option to be valid.
Files: src/option.c, src/testdir/gen_opt_test.vim

Patch 8.0.0744
Problem: A terminal window uses pipes instead of a pty.
Solution: Add pty support.
Files: src/structs.h, src/os_unix.c, src/terminal.c, src/channel.c,
            src/proto/os_unix.pro, src/os_win32.c, src/proto/os_win32.pro

Patch 8.0.0745
Problem: multi-byte characters in a terminal window are not displayed
            properly.
Solution: Set the unused screen characters. (Yasuhiro Matsumoto, closes
            #1857)
Files: src/terminal.c

Patch 8.0.0746
Problem: When :term fails the job is not properly cleaned up.
Solution: Free the terminal. Handle a job that failed to start. (closes
            #1858)
Files: src/os_unix.c, src/channel.c, src/terminal.c

Patch 8.0.0747
Problem: :terminal without an argument doesn't work.
Solution: Use the 'shell' option. (Yasuhiro Matsumoto, closes #1860)
Files: src/terminal.c

Patch 8.0.0748
Problem: When running Vim in a terminal window it does not detect the right
            number of colors available.
Solution: Detect the version string that libvterm returns. Pass the number
            of colors in $COLORS.
Files: src/term.c, src/os_unix.c

Patch 8.0.0749

```
Problem:    Some unicode digraphs are hard to remember.
Solution:   Add alternatives with a backtick. (Chris Harding, closes #1861)
Files:      src/digraph.c

Patch 8.0.0750
Problem:    OpenPTY missing in non-GUI build.
Solution:   Always include pty.c, add an #ifdef to skip over the contents.
Files:      src/pty.c, src/Makefile

Patch 8.0.0751 (after 8.0.0750)
Problem:    OpenPTY missing with some combination of features. (Kazunobu
            Kuriyama)
Solution:   Adjust #ifdef.  Also include pty.pro when needed.
Files:      src/pty.c, src/misc2.c, src/proto.h

Patch 8.0.0752
Problem:    Build fails on MS-Windows.
Solution:   Change #ifdef for set_color_count().
Files:      src/term.c

Patch 8.0.0753
Problem:    A job running in a terminal does not get notified of changes in
            the terminal size.
Solution:   Use ioctl() and SIGWINCH to report the terminal size.
Files:      src/terminal.c, src/os_unix.c, src/proto/os_unix.pro

Patch 8.0.0754
Problem:    Terminal window does not support colors.
Solution:   Lookup the color attribute.
Files:      src/terminal.c, src/syntax.c, src/proto/syntax.pro

Patch 8.0.0755
Problem:    Terminal window does not have colors in the GUI.
Solution:   Lookup the GUI color.
Files:      src/terminal.c, src/syntax.c, src/proto/syntax.pro, src/term.c,
            src/proto/term.pro, src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro,
            src/gui_x11.c, src/proto/gui_x11.pro, src/gui_mac.c,
            src/proto/gui_mac.pro, src/gui_photon.c, src/proto/gui_photon.pro,
            src/gui_w32.c, src/proto/gui_w32.pro,

Patch 8.0.0756
Problem:    Cannot build libvterm with MSVC.
Solution:   Add an MSVC Makefile to libvterm. (Yasuhiro Matsumoto, closes
            #1865)
Files:      src/INSTALLpc.txt, src/Make_mvc.mak, src/libvterm/Makefile.msc

Patch 8.0.0757
Problem:    Libvterm MSVC Makefile not included in the distribution.
Solution:   Add the file to the list.
Files:      Filelist

Patch 8.0.0758
Problem:    Possible crash when using a terminal window.
Solution:   Check for NULL pointers. (Yasuhiro Matsumoto, closes #1864)
```

```
Files:      src/terminal.c

Patch 8.0.0759
Problem:    MS-Windows: terminal does not adjust size to the Vim window size.
Solution:   Add a call to winpty_set_size(). (Yasuhiro Matsumoto, closes #1863)
Files:      src/terminal.c

Patch 8.0.0760
Problem:    Terminal window colors wrong with 'termguicolors'.
Solution:   Add 'termguicolors' support.
Files:      src/terminal.c, src/syntax.c, src/proto/syntax.pro

Patch 8.0.0761
Problem:    Options of a buffer for a terminal window are not set properly.
Solution:   Add "terminal" value for 'buftype'.  Make 'buftype' and
            'bufhidden' not depend on the quickfix feature.
            Also set the buffer name and show "running" or "finished" in the
            window title.
Files:      src/option.c, src/terminal.c, src/proto/terminal.pro,
            runtime/doc/options.txt, src/quickfix.c, src/proto/quickfix.pro,
            src/structs.h, src/buffer.c, src/ex_docmd.c, src/fileio.c,
            src/channel.c

Patch 8.0.0762
Problem:    ml_get error with :psearch in buffer without a name. (Dominique
            Pelle)
Solution:   Use the buffer number instead of the file name.  Check the cursor
            position.
Files:      src/search.c, src/testdir/test_preview.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.0763
Problem:    Libvterm can be improved.
Solution:   Various small improvements, more comments.
Files:      src/libvterm/README, src/libvterm/include/vterm.h,
            src/libvterm/include/vterm_keycodes.h,
            src/libvterm/src/keyboard.c, src/libvterm/src/parser.c,
            src/libvterm/src/screen.c, src/libvterm/src/state.c

Patch 8.0.0764
Problem:    'termkey' does not work yet.
Solution:   Implement 'termkey'.
Files:      src/terminal.c, src/option.c, src/proto/option.pro

Patch 8.0.0765
Problem:    Build fails with tiny features.
Solution:   Adjust #ifdef. (John Marriott)
Files:      src/option.c, src/option.h

Patch 8.0.0766
Problem:    Option test fails with +terminal feature.
Solution:   Fix using the right option when checking the value.
Files:      src/option.c
```

```
Patch 8.0.0767
Problem:    Build failure with Athena and Motif.
Solution:   Move local variable declarations. (Kazunobu Kuriyama)
Files:      src/gui_x11.c

Patch 8.0.0768
Problem:    Terminal window status shows "[Scratch]".
Solution:   Show "[Terminal]" when no title was set. (Yasuhiro Matsumoto)
            Store the terminal title that vterm sends and use it.  Update the
            special buffer name.  (closes #1869)
Files:      src/terminal.c, src/proto/terminal.pro, src/buffer.c

Patch 8.0.0769
Problem:    Build problems with terminal on MS-Windows using MSVC.
Solution:   Remove stdbool.h dependency. Only use ScreenLinesUC when it was
            allocated. Fix typos. (Ken Takata)
Files:      src/libvterm/bin/vterm-ctrl.c, runtime/doc/terminal.txt,
            src/INSTALLpc.txt, src/Make_cyg_ming.mak, src/Make_mvc.mak,
            src/libvterm/Makefile.msc, src/terminal.c

Patch 8.0.0770
Problem:    Compiler warning for missing field initializer.
Solution:   Add two more values. (Yegappan Lakshmanan)
Files:      src/libvterm/src/encoding.c

Patch 8.0.0771
Problem:    Cursor in a terminal window not always updated in the GUI.
Solution:   Call gui_update_cursor(). (Yasuhiro Matsumoto, closes #1868)
Files:      src/terminal.c

Patch 8.0.0772
Problem:    Other stdbool.h dependencies in libvterm.
Solution:   Remove the dependency and use TRUE/FALSE/int. (Ken Takata)
Files:      src/libvterm/include/vterm.h, src/libvterm/src/mouse.c,
            src/libvterm/src/pen.c, src/libvterm/t/harness.c,
            src/libvterm/bin/unterm.c

Patch 8.0.0773
Problem:    Mixing 32 and 64 bit libvterm builds fails.
Solution:   Use OUTDIR. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak, src/libvterm/Makefile.msc

Patch 8.0.0774
Problem:    Build failure without the multi-byte feature on HPUX.
Solution:   Move #ifdefs. (John Marriott)
Files:      src/term.c

Patch 8.0.0775
Problem:    In a terminal the cursor is updated too often.
Solution:   Only flush when needed. (Yasuhiro Matsumoto).  Remember whether the
            cursor is visible. (closes #1873)
Files:      src/terminal.c

Patch 8.0.0776
```

```
Problem:    Function prototypes missing without the quickfix feature. (Tony
            Mechelynck)
Solution:   Move non-quickfix functions to buffer.c.
Files:      src/buffer.c, src/proto/buffer.pro, src/quickfix.c,
            src/proto/quickfix.pro

Patch 8.0.0777
Problem:    Compiler warnings with 64 bit compiler.
Solution:   Add type casts. (Mike Williams)
Files:      src/libvterm/src/pen.c, src/libvterm/src/state.c, src/terminal.c

Patch 8.0.0778
Problem:    In a terminal the cursor may be hidden and screen updating lags
            behind. (Nazri Ramliy)
Solution:   Switch the cursor on and flush output when needed. (Ozaki Kiichi)
Files:      src/terminal.c

Patch 8.0.0779
Problem:    :term without an argument uses empty buffer name but runs the
            shell.
Solution:   Change the command to the shell earlier.
Files:      src/terminal.c

Patch 8.0.0780
Problem:    Build failure on Travis.
Solution:   Set distribution explicitly. Use Lua and Ruby dev. (Ken Takata,
            closes #1884)
Files:      .travis.yml

Patch 8.0.0781
Problem:    MS-Windows: Memory leak when using :terminal.
Solution:   Handle failures properly. (Ken Takata)
Files:      src/terminal.c

Patch 8.0.0782
Problem:    Using freed memory in quickfix code. (Dominique Pelle)
Solution:   Handle a help window differently. (Yegappan Lakshmanan)
Files:      src/buffer.c, src/proto/buffer.pro, src/quickfix.c,
            src/testdir/test_quickfix.vim, src/ex_cmds.c, src/window.c

Patch 8.0.0783
Problem:    Job of terminal may be freed too early.
Solution:   Increment job refcount. (Yasuhiro Matsumoto)
Files:      src/terminal.c

Patch 8.0.0784
Problem:    Job of terminal may be garbage collected.
Solution:   Set copyID on job in terminal. (Ozaki Kiichi)
Files:      src/terminal.c, src/eval.c, src/proto/terminal.pro

Patch 8.0.0785
Problem:    Wildcards are not expanded for :terminal.
Solution:   Add FILES to the command flags. (Yasuhiro Matsumoto, closes #1883)
            Also complete commands.
```

```
Files:      src/ex_cmds.h, src/ex_docmd.c

Patch 8.0.0786
Problem:    Build failures on Travis.
Solution:   Go back to precise temporarily.  Disable coverage with clang.
Files:      .travis.yml

Patch 8.0.0787
Problem:    Cannot send CTRL-W command to terminal job.
Solution:   Make CTRL-W . a prefix for sending a key to the job.
Files:      src/terminal.c, runtime/doc/terminal.txt, src/option.c

Patch 8.0.0788
Problem:    MS-Windows: cannot build with terminal feature.
Solution:   Move set_ref_in_term(). (Ozaki Kiichi)
Files:      src/terminal.c

Patch 8.0.0789
Problem:    When splitting a terminal window where the terminal follows the
            size of the window doesn't work.
Solution:   Use the size of the smallest window. (Yasuhiro Matsumoto, closes
            #1885)
Files:      src/terminal.c

Patch 8.0.0790
Problem:    MSVC compiler warning for strncpy in libvterm.
Solution:   Add a define to stop the warnings. (Mike Williams)
Files:      src/Make_mvc.mak

Patch 8.0.0791
Problem:    Terminal colors depend on the system.
Solution:   Use the highlight color lookup tables.
Files:      src/syntax.c, src/proto/syntax.pro, src/terminal.c

Patch 8.0.0792
Problem:    Spell test leaves files behind.
Solution:   Delete the files.
Files:      src/testdir/test_spell.vim

Patch 8.0.0793
Problem:    Using wrong terminal name for terminal window.
Solution:   When 'term' starts with "xterm" use it for $TERM in a terminal
            window.
Files:      src/os_unix.c

Patch 8.0.0794
Problem:    The script to check translations fails if there is more than one
            NL in one line.
Solution:   Count the number of NL characters.  Make count() accept a string.
Files:      src/po/check.vim, src/evalfunc.c, runtime/doc/eval.txt,
            src/testdir/test_functions.vim

Patch 8.0.0795
Problem:    Terminal feature does not build with older MSVC.
```

```
Solution:   Do not use stdint.h.
Files:      src/libvterm/include/vterm.h

Patch 8.0.0796
Problem:    No coverage on Travis with clang.
Solution:   Use a specific coveralls version. (Ozaki Kiichi, closes #1888)
Files:      .travis.yml

Patch 8.0.0797
Problem:    Finished job in terminal window is not handled.
Solution:   Add the scrollback buffer.  Use it to fill the buffer when the job
            has ended.
Files:      src/terminal.c, src/screen.c, src/proto/terminal.pro,
            src/channel.c, src/os_unix.c, src/buffer.c

Patch 8.0.0798
Problem:    No highlighting in a terminal window with a finished job.
Solution:   Highlight the text.
Files:      src/terminal.c, src/proto/terminal.pro, src/screen.c, src/undo.c

Patch 8.0.0799
Problem:    Missing semicolon.
Solution:   Add it.
Files:      src/terminal.c

Patch 8.0.0800
Problem:    Terminal window scrollback contents is wrong.
Solution:   Fix handling of multi-byte characters (Yasuhiro Matsumoto) Handle
            empty lines correctly. (closes #1891)
Files:      src/terminal.c

Patch 8.0.0801
Problem:    The terminal window title sometimes still says "running" even
            though the job has finished.
Solution:   Also consider the job finished when the channel has been closed.
Files:      src/terminal.c

Patch 8.0.0802
Problem:    After a job exits the last line in the terminal window does not
            get color attributes.
Solution:   Fix off-by-one error.
Files:      src/terminal.c

Patch 8.0.0803
Problem:    Terminal window functions not yet implemented.
Solution:   Implement several functions. Add a first test. (Yasuhiro
            Matsumoto, closes #1871)
Files:      runtime/doc/eval.txt, src/Makefile, src/evalfunc.c,
            src/proto/evalfunc.pro, src/proto/terminal.pro, src/terminal.c,
            src/testdir/Make_all.mak, src/testdir/test_terminal.vim

Patch 8.0.0804
Problem:    Running tests fails when stdin is /dev/null. (James McCoy)
Solution:   Do not bail out from getting input if the --not-a-term argument
```

```
            was given. (closes #1460)
Files:      src/eval.c, src/evalfunc.c

Patch 8.0.0805
Problem:    GUI test fails with gnome2.
Solution:   Set $HOME to an existing directory.
Files:      src/testdir/setup.vim, src/testdir/runtest.vim

Patch 8.0.0806
Problem:    Tests may try to create XfakeHOME twice.
Solution:   Avoid loading setup.vim twice.
Files:      src/testdir/setup.vim

Patch 8.0.0807
Problem:    Terminal window can't handle mouse buttons. (Hirohito Higashi)
Solution:   Implement mouse buttons and many other keys.  Ignore the ones that
            are not implemented.
Files:      src/terminal.c

Patch 8.0.0808
Problem:    Cannot build with terminal feature and DEBUG defined. (Christian
            Brabandt)
Solution:   Use DEBUG_LOG3().
Files:      src/libvterm/src/pen.c

Patch 8.0.0809
Problem:    MS-Windows: tests hang.
Solution:   Delete the XfakeHOME directory.
Files:      src/testdir/Make_dos.mak, src/testdir/Make_ming.mak

Patch 8.0.0810
Problem:    MS-Windows: tests still hang.
Solution:   Only create the XfakeHOME directory if it does not exist yet.
Files:      src/testdir/setup.vim

Patch 8.0.0811
Problem:    MS-Windows: test_expand_dllpath fails.
Solution:   Change backslashes to forward slashes
Files:      src/testdir/test_expand_dllpath.vim

Patch 8.0.0812
Problem:    Terminal window colors shift when 'number' is set. (Nazri Ramliy)
Solution:   Use vcol instead of col.
Files:      src/screen.c

Patch 8.0.0813
Problem:    Cannot use Vim commands in a terminal window while the job is
            running.
Solution:   Implement Terminal Normal mode.
Files:      src/terminal.c, src/proto/terminal.pro, src/main.c, src/screen.c,
            src/normal.c, src/option.c, runtime/doc/terminal.txt

Patch 8.0.0814 (after 8.0.0757)
Problem:    File in Filelist does not exist.
```

```
Solution:   Remove the line.
Files:      Filelist

Patch 8.0.0815
Problem:    Terminal window not correctly updated when 'statusline' invokes
            ":sleep". (NIkolay Pavlov)
Solution:   Clear got_int.  Repeat redrawing when needed.
Files:      src/terminal.c

Patch 8.0.0816
Problem:    Crash when using invalid buffer number.
Solution:   Check for NULL buffer. (Yasuhiro Matsumoto, closes #1899)
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.0817
Problem:    Cannot get the line of a terminal window at the cursor.
Solution:   Make the row argument optional. (Yasuhiro Matsumoto, closes #1898)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/terminal.c

Patch 8.0.0818
Problem:    Cannot get the cursor position of a terminal.
Solution:   Add term_getcursor().
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/terminal.c,
            src/proto/terminal.pro

Patch 8.0.0819
Problem:    After changing current window the cursor position in the terminal
            window is not updated.
Solution:   Set w_wrow, w_wcol and w_valid.
Files:      src/terminal.c

Patch 8.0.0820
Problem:    GUI: cursor in terminal window lags behind.
Solution:   call gui_update_cursor() under different conditions. (Ozaki
            Kiichi, closes #1893)
Files:      src/terminal.c

Patch 8.0.0821
Problem:    Cannot get the title and status of a terminal window.
Solution:   Implement term_gettitle() and term_getstatus().
Files:      src/evalfunc.c, src/terminal.c, src/proto/terminal.pro,
            runtime/doc/eval.txt

Patch 8.0.0822
Problem:    Test_with_partial_callback is a tiny bit flaky.
Solution:   Add it to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.0823
Problem:    Cannot paste text into a terminal window.
Solution:   Make CTRL-W " work.
Files:      src/terminal.c

Patch 8.0.0824
```

```
Problem:    In Terminal mode the cursor and screen gets redrawn when the job
            produces output.
Solution:   Check for tl_terminal_mode. (partly by Yasuhiro Matsumoto, closes
            #1904)
Files:      src/terminal.c

Patch 8.0.0825
Problem:    Not easy to see that a window is a terminal window.
Solution:   Add StatusLineTerm highlighting.
Files:      src/option.c, src/vim.h, src/screen.c, src/syntax.c

Patch 8.0.0826
Problem:    Cannot use text objects in Terminal mode.
Solution:   Check for pending operator and Visual mode first. (Yasuhiro
            Matsumoto, closes #1906)
Files:      src/normal.c

Patch 8.0.0827
Problem:    Coverity: could leak pty file descriptor, theoretically.
Solution:   If channel is NULL, free the file descriptors.
Files:      src/os_unix.c

Patch 8.0.0828
Problem:    Coverity: may dereference NULL pointer.
Solution:   Bail out if calloc_state() returns NULL.
Files:      src/regexp_nfa.c

Patch 8.0.0829
Problem:    A job running in a terminal window cannot easily communicate with
            the Vim it is running in.
Solution:   Pass v:servername in an environment variable. (closes #1908)
Files:      src/os_unix.c

Patch 8.0.0830
Problem:    Translating messages is not ideal.
Solution:   Add a remark about obsolete messages.  Use msgfmt in the check
            script. (Christian Brabandt)
Files:      src/po/README.txt, src/po/check.vim

Patch 8.0.0831 (after 8.0.0791)
Problem:    With 8 colors the bold attribute is not set properly.
Solution:   Move setting HL_TABLE() out of lookup_color. (closes #1901)
Files:      src/syntax.c, src/proto/syntax.pro, src/terminal.c

Patch 8.0.0832
Problem:    Terminal function arguments are not consistent.
Solution:   Use one-based instead of zero-based rows and cols.  Use "." for
            the current row.
Files:      src/terminal.c, runtime/doc/eval.txt

Patch 8.0.0833
Problem:    Terminal test fails.
Solution:   Update the row argument to one based.
Files:      src/testdir/test_terminal.vim
```

```
Patch 8.0.0834
Problem:    Can't build without the client-server feature.
Solution:   Add #ifdef.
Files:      src/os_unix.c

Patch 8.0.0835
Problem:    Translations check with msgfmt does not work.
Solution:   Add a space before the file name.
Files:      src/po/check.vim

Patch 8.0.0836
Problem:    When a terminal buffer is changed it can still be accidentally
            abandoned.
Solution:   When making a change reset the 'buftype' option.
Files:      src/terminal.c, src/testdir/test_terminal.vim, src/option.c

Patch 8.0.0837
Problem:    Signs can be drawn on top of console messages.
Solution:   don't redraw at a prompt or when scrolled up. (Christian Brabandt,
            closes #1907)
Files:      src/screen.c

Patch 8.0.0838
Problem:    Buffer hangs around when terminal window is closed.
Solution:   When the job has ended wipe out a terminal buffer when the window
            is closed.
Files:      src/buffer.c, src/terminal.c, src/proto/terminal.pro,
            src/testdir/test_terminal.vim

Patch 8.0.0839
Problem:    Cannot kill a job in a terminal with CTRL-C.
Solution:   Set the controlling tty and send SIGINT. (closes #1910)
Files:      src/os_unix.c, src/terminal.c, src/proto/os_unix.pro

Patch 8.0.0840
Problem:    MS-Windows: fopen() and open() prototypes do not match the ones in
            the system header file.  Can't build without FEAT_MBYTE.
Solution:   Add "const".  Move macro to after including protoo.h.
Files:      src/os_win32.c, src/proto/os_win32.pro, src/macros.h, src/vim.h

Patch 8.0.0841
Problem:    term_getline() may cause a crash.
Solution:   Check that the row is valid. (Hirohito Higashi)
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.0842
Problem:    Using slave pty after closing it.
Solution:   Do the ioctl() before dup'ing it.
Files:      src/os_unix.c

Patch 8.0.0843
Problem:    MS-Windows: compiler warning for signed/unsigned.
Solution:   Add type cast. (Yasuhiro Matsumoto, closes #1912)
```

```
Files:      src/terminal.c

Patch 8.0.0844
Problem:    Wrong function prototype because of missing static.
Solution:   Add "static".
Files:      src/os_win32.c, src/proto/os_win32.pro

Patch 8.0.0845
Problem:    MS-Windows: missing semicolon in terminal code.
Solution:   Add it. (Naruhiko Nishino, closes #1923)
Files:      src/terminal.c

Patch 8.0.0846
Problem:    Cannot get the name of the pty of a job.
Solution:   Add the "tty" entry to the job info. (Ozaki Kiichi, closes #1920)
            Add the term_gettty() function.
Files:      runtime/doc/eval.txt, src/channel.c, src/os_unix.c, src/structs.h,
            src/terminal.c, src/proto/terminal.pro, src/evalfunc.c,
            src/testdir/test_terminal.vim

Patch 8.0.0847
Problem:    :argadd without argument can't handle space in file name. (Harm te
            Hennepe)
Solution:   Escape the space. (Yasuhiro Matsumoto, closes #1917)
Files:      src/ex_cmds2.c, src/proto/ex_cmds2.pro,
            src/testdir/test_arglist.vim

Patch 8.0.0848
Problem:    Using multiple ch_log functions is clumsy.
Solution:   Use variable arguments. (Ozaki Kiichi, closes #1919)
Files:      src/channel.c, src/message.c, src/proto/channel.pro,
            src/terminal.c

Patch 8.0.0849
Problem:    Crash when job exit callback wipes the terminal.
Solution:   Check for b_term to be NULL.  (Yasuhiro Matsumoto, closes #1922)
            Implement options for term_start() to be able to test.
            Make term_wait() more reliable.
Files:      src/terminal.c, src/testdir/test_terminal.vim, src/channel.c

Patch 8.0.0850
Problem:    MS-Windows: Depending on the console encoding, an error message
            that is given during startup may be broken.
Solution:   Convert the message to the console codepage. (Yasuhiro Matsumoto,
            closes #1927)
Files:      src/message.c

Patch 8.0.0851
Problem:    'smartindent' is used even when 'indentexpr' is set.
Solution:   Ignore 'smartindent' when 'indentexpr' is set. (Hirohito Higashi)
Files:      src/misc1.c, src/testdir/test_smartindent.vim

Patch 8.0.0852 (after 8.0.0850)
Problem:    MS-Windows: possible crash when giving a message on startup.
```

```
Solution:   Initialize length. (Yasuhiro Matsumoto, closes #1931)
Files:      src/message.c

Patch 8.0.0853
Problem:    Crash when running terminal with unknown command.
Solution:   Check "term" not to be NULL. (Yasuhiro Matsumoto, closes #1932)
Files:      src/terminal.c

Patch 8.0.0854
Problem:    No redraw after terminal was closed.
Solution:   Set typebuf_was_filled. (Yasuhiro Matsumoto, closes #1925, closes
            #1924)  Add function to check for messages even when input is
            available.
Files:      src/terminal.c, src/os_unix.c, src/proto/os_unix.pro,
            src/os_win32.c, src/proto/os_win32.pro, src/os_mswin.c

Patch 8.0.0855
Problem:    MS-Windows: can't get tty name of terminal.
Solution:   Use the winpty process number. (Yasuhiro Matsumoto, closes #1929)
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.0856
Problem:    MS-Windows: terminal job doesn't take options.
Solution:   Call job_set_options(). (Yasuhiro Matsumoto)
Files:      src/terminal.c

Patch 8.0.0857
Problem:    Terminal test fails on MS-Windows.
Solution:   Sleep a fraction of a second.
Files:      src/testdir/test_terminal.vim

Patch 8.0.0858
Problem:    Can exit while a terminal is still running a job.
Solution:   Consider a buffer with a running job like a changed file.
Files:      src/undo.c, src/terminal.c, src/option.h, src/buffer.c,
            src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c, src/normal.c,
            src/window.c, src/testdir/test_terminal.vim

Patch 8.0.0859
Problem:    NULL pointer access when term_free_vterm called twice.
Solution:   Return when tl_vterm is NULL. (Yasuhiro Matsumoto, closes #1934)
Files:      src/terminal.c

Patch 8.0.0860
Problem:    There may be side effects when a channel appends to a buffer that
            is not the current buffer.
Solution:   Properly switch to another buffer before appending. (Yasuhiro
            Matsumoto, closes #1926, closes #1937)
Files:      src/channel.c, src/buffer.c, src/proto/buffer.pro,
            src/if_py_both.h

Patch 8.0.0861
Problem:    Still many old style tests.
Solution:   Convert several tests to new style. (Yegappan Lakshmanan)
```

```
Files:      src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/main.aap, src/testdir/test104.in,
            src/testdir/test104.ok, src/testdir/test22.in,
            src/testdir/test22.ok, src/testdir/test77.in,
            src/testdir/test77.ok, src/testdir/test84.in,
            src/testdir/test84.ok, src/testdir/test9.in, src/testdir/test9.ok,
            src/testdir/test98.in, src/testdir/test98.ok,
            src/testdir/test_autocmd.vim, src/testdir/test_curswant.vim,
            src/testdir/test_file_size.vim, src/testdir/test_let.vim,
            src/testdir/test_lineending.vim, src/testdir/test_scrollbind.vim,
            src/Makefile

Patch 8.0.0862 (after 8.0.0862)
Problem:    File size test fails on MS-Windows.
Solution:   Set fileformat after opening new buffer.  Strip CR.
Files:      src/testdir/test_file_size.vim

Patch 8.0.0863
Problem:    A remote command starting with CTRL-\ CTRL-N does not work in the
            terminal window. (Christian J. Robinson)
Solution:   Use CTRL-\ CTRL-N as a prefix or a Normal mode command.
Files:      src/terminal.c, runtime/doc/terminal.txt

Patch 8.0.0864
Problem:    Cannot specify the name of a terminal.
Solution:   Add the "term_name" option. (Yasuhiro Matsumoto, closes #1936)
Files:      src/channel.c, src/structs.h, src/terminal.c, runtime/doc/eval.txt

Patch 8.0.0865
Problem:    Cannot build with channel but without terminal feature.
Solution:   Add #ifdef
Files:      src/channel.c

Patch 8.0.0866
Problem:    Solaris also doesn't have MIN and MAX.
Solution:   Define MIN and MAX whenever they are not defined. (Ozaki Kiichi,
            closes #1939)
Files:      src/terminal.c

Patch 8.0.0867
Problem:    When using a job or channel value as a dict value, when turning it
            into a string the quotes are missing.
Solution:   Add quotes to the job and channel values. (Yasuhiro Matsumoto,
            closes #1930)
Files:      src/list.c, src/eval.c, src/testdir/test_terminal.vim

Patch 8.0.0868
Problem:    Cannot specify the terminal size on the command line.
Solution:   Use the address range for the terminal size. (Yasuhiro Matsumoto,
            closes #1941)
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.0869
Problem:    Job output is sometimes not displayed in a terminal.
```

```
Solution:   Flush output before closing the channel.
Files:      src/channel.c, src/terminal.c

Patch 8.0.0870
Problem:    Mouse escape codes sent to terminal unintentionally.
Solution:   Fix libvterm to send mouse codes only when enabled.
Files:      src/terminal.c, src/libvterm/src/mouse.c

Patch 8.0.0871
Problem:    The status line for a terminal window always has "[+]".
Solution:   Do make the status line include "[+]" for a terminal window.
Files:      src/screen.c

Patch 8.0.0872
Problem:    Using mouse scroll while a terminal window has focus and the mouse
            pointer is on another window does not work.  Same for focus in a
            non-terminal window and the mouse pointer is over a terminal
            window.
Solution:   Send the scroll action to the right window.
Files:      src/terminal.c, src/normal.c, src/proto/terminal.pro

Patch 8.0.0873
Problem:    In a terminal window cannot use CTRL-\ CTRL-N to start Visual
            mode.
Solution:   After CTRL-\ CTRL-N enter Terminal-Normal mode for one command.
Files:      src/main.c, src/terminal.c, src/proto/terminal.pro

Patch 8.0.0874 (after 8.0.0873)
Problem:    Can't build with terminal feature.
Solution:   Include change to term_use_loop(). (Dominique Pelle)
Files:      src/normal.c

Patch 8.0.0875
Problem:    Crash with weird command sequence. (Dominique Pelle)
Solution:   Use vim_snprintf() instead of STRCPY().
Files:      src/misc1.c

Patch 8.0.0876
Problem:    MS-Windows: Backslashes and wildcards in backticks don't work.
Solution:   Do not handle backslashes inside backticks in the wrong place.
            (Yasuhiro Matsumoto, closes #1942)
Files:      src/os_mswin.c, src/os_win32.c

Patch 8.0.0877
Problem:    Using CTRL-\ CTRL-N in terminal is inconsistent.
Solution:   Stay in Normal mode.
Files:      src/terminal.c, src/proto/terminal.pro, src/main.c, src/normal.c,
            src/option.c

Patch 8.0.0878
Problem:    No completion for :mapclear.
Solution:   Add completion (Nobuhiro Takasaki et al. closes #1943)
Files:      runtime/doc/eval.txt, runtime/doc/map.txt, src/ex_docmd.c,
            src/ex_getln.c, src/proto/ex_docmd.pro,
```

```
            src/testdir/test_cmdline.vim, src/vim.h

Patch 8.0.0879
Problem:    Crash when shifting with huge number.
Solution:   Check for overflow. (Dominique Pelle, closes #1945)
Files:      src/ops.c, src/testdir/test_visual.vim

Patch 8.0.0880
Problem:    Travis uses an old Ubuntu version.
Solution:   Switch from precise to trusty. (Ken Takata, closes #1897)
Files:      .travis.yml, Filelist, src/testdir/if_ver-1.vim,
            src/testdir/if_ver-2.vim, src/testdir/lsan-suppress.txt

Patch 8.0.0881
Problem:    win32.mak no longer included in Windows SDK.
Solution:   Do not include win32.mak. (Ken Takata)
Files:      src/GvimExt/Makefile, src/Make_mvc.mak

Patch 8.0.0882
Problem:    term_scrape() and term_getline() require two arguments but it is
            not enforced.
Solution:   Correct minimal number of arguments. (Hirohito Higashi)  Update
            documentation. (Ken Takata)
Files:      src/evalfunc.c, runtime/doc/eval.txt

Patch 8.0.0883
Problem:    Invalid memory access with nonsensical script.
Solution:   Check "dstlen" being positive. (Dominique Pelle)
Files:      src/misc1.c

Patch 8.0.0884
Problem:    Can't specify the wait time for term_wait().
Solution:   Add an optional second argument.
Files:      src/evalfunc.c, src/terminal.c, runtime/doc/eval.txt

Patch 8.0.0885
Problem:    Terminal window scrollback is stored inefficiently.
Solution:   Store the text in the Vim buffer.
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.0886
Problem:    Crash when using ":term ls".
Solution:   Fix line number computation.  Add a test for this.
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.0887
Problem:    Can create a logfile in the sandbox.
Solution:   Disable ch_logfile() in the sandbox. (Yasuhiro Matsumoto)
Files:      src/evalfunc.c

Patch 8.0.0888
Problem:    Compiler warnings with 64 bit build.
Solution:   Add type cast of change the type. (Mike Williams)
Files:      src/message.c, src/os_mswin.c, src/os_win32.c
```

Patch 8.0.0889
Problem: Gcc gives warnings for uninitialized variables. (Tony Mechelynck)
Solution: Initialize variables even though they are not used.
Files: src/terminal.c

Patch 8.0.0890
Problem: Still many old style tests.
Solution: Convert several tests to new style. (Yegappan Lakshmanan)
Files: src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/test103.in, src/testdir/test103.ok,
            src/testdir/test107.in, src/testdir/test107.ok,
            src/testdir/test51.in, src/testdir/test51.ok,
            src/testdir/test91.in, src/testdir/test91.ok,
            src/testdir/test_getvar.vim, src/testdir/test_highlight.vim,
            src/testdir/test_visual.vim, src/testdir/test_window_cmd.vim,
            src/Makefile

Patch 8.0.0891
Problem: Uninitialized memory use with empty line in terminal.
Solution: Initialize growarray earlier. (Yasuhiro Matsumoto, closes #1949)
Files: src/terminal.c

Patch 8.0.0892
Problem: When opening a terminal the pty size doesn't always match.
Solution: Update the pty size after opening the terminal. (Ken Takata)
Files: src/terminal.c

Patch 8.0.0893
Problem: Cannot get the scroll count of a terminal window.
Solution: Add term_getscrolled().
Files: src/terminal.c, src/proto/terminal.pro, src/evalfunc.c,
            runtime/doc/eval.txt, src/testdir/test_terminal.vim

Patch 8.0.0894
Problem: There is no test for runtime filetype detection.
Solution: Test a list of filetypes from patterns.
Files: src/testdir/test_filetype.vim, runtime/filetype.vim

Patch 8.0.0895 (after 8.0.0894)
Problem: Filetype test fails on MS-Windows.
Solution: Fix file names.
Files: src/testdir/test_filetype.vim

Patch 8.0.0896
Problem: Cannot automatically close a terminal window when the job ends.
Solution: Add the ++close argument to :term. Add the term_finish option to
            term_start(). (Yasuhiro Matsumoto, closes #1950) Also add
            ++open.
Files: runtime/doc/eval.txt, runtime/doc/terminal.txt, src/channel.c,
            src/structs.h, src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.0897 (after 8.0.0896)
Problem: Wrong error message for invalid term_finish value

```
Solution:   Pass the right argument to emsg().
Files:      src/channel.c

Patch 8.0.0898
Problem:    Can't use the alternate screen in a terminal window.
Solution:   Initialize the alternate screen. (Yasuhiro Matsumoto, closes
            #1957)  Add term_getaltscreen().
Files:      src/libvterm/include/vterm.h, src/terminal.c,
            src/proto/terminal.pro, src/evalfunc.c, runtime/doc/eval.txt

Patch 8.0.0899
Problem:    Function name mch_stop_job() is confusing.
Solution:   Rename to mch_signal_job().
Files:      src/channel.c, src/os_unix.c, src/proto/os_unix.pro,
            src/os_win32.c, src/proto/os_win32.pro, src/terminal.c

Patch 8.0.0900
Problem:    :tab options doesn't open a new tab page. (Aviany)
Solution:   Support the :tab modifier. (closes #1960)
Files:      src/ex_cmds2.c, runtime/optwin.vim

Patch 8.0.0901
Problem:    Asan suppress file missing from distribution.
Solution:   Add the file.
Files:      Filelist

Patch 8.0.0902
Problem:    Cannot specify directory or environment for a job.
Solution:   Add the "cwd" and "env" arguments to job options. (Yasuhiro
            Matsumoto, closes #1160)
Files:      runtime/doc/channel.txt, src/channel.c, src/terminal.c,
            src/os_unix.c, src/os_win32.c, src/structs.h,
            src/testdir/test_channel.vim, src/testdir/test_terminal.vim

Patch 8.0.0903 (after 8.0.0902)
Problem:    Early return from test function.
Solution:   Remove the return.
Files:      src/testdir/test_terminal.vim

Patch 8.0.0904
Problem:    Cannot set a location list from text.
Solution:   Add the "text" argument to setqflist(). (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0905
Problem:    MS-Windows: broken multi-byte characters in the console.
Solution:   Restore all regions of the console buffer. (Ken Takata)
Files:      src/os_win32.c

Patch 8.0.0906
Problem:    Don't recognize Couchbase files.
Solution:   Add filetype detection. (Eugene Ciurana, closes #1951)
Files:      runtime/filetype.vim, src/testdir/test_filetype.vim
```

```
Patch 8.0.0907
Problem:    With cp932 font names might be misinterpreted.
Solution:   Do not see "_" as a space when it is the second byte of a double
            byte character. (Ken Takata)
Files:      src/os_win32.c

Patch 8.0.0908
Problem:    Cannot set terminal size with options.
Solution:   Add "term_rows", "term_cols" and "vertical".
Files:      src/terminal.c, runtime/doc/eval.txt, src/channel.c,
            src/proto/channel.pro, src/structs.h, src/evalfunc.c,
            src/testdir/test_terminal.vim

Patch 8.0.0909
Problem:    Channel test fails.
Solution:   Allow for "cwd" and "env" arguments.
Files:      src/channel.c

Patch 8.0.0910
Problem:    Cannot create a terminal in the current window.
Solution:   Add option "curwin" and ++curwin.
Files:      src/terminal.c, runtime/doc/eval.txt, src/channel.c,
            src/structs.h, src/ex_cmds.h, src/testdir/test_terminal.vim

Patch 8.0.0911
Problem:    Terminal test takes too long.
Solution:   Instead of "sleep 1" use a Python program to briefly sleep.
Files:      src/testdir/test_terminal.vim, src/testdir/test_short_sleep.py

Patch 8.0.0912
Problem:    Cannot run a job in a hidden terminal.
Solution:   Add option "hidden" and ++hidden.
Files:      src/terminal.c, src/structs.h, src/channel.c, src/fileio.c,
            runtime/doc/terminal.txt, src/testdir/test_terminal.vim

Patch 8.0.0913
Problem:    MS-Windows: CTRL-C kills shell in terminal window instead of the
            command running in the shell.
Solution:   Make CTRL-C only send a CTRL_C_EVENT and have CTRL-BREAK kill the
            job. (partly by Yasuhiro Matsumoto, closes #1962)
Files:      src/os_win32.c, src/gui_w32.c, src/terminal.c, src/globals.h

Patch 8.0.0914
Problem:    Highlight attributes are always combined.
Solution:   Add the 'nocombine' value to replace attributes instead of
            combining them. (scauligi, closes #1963)
Files:      runtime/doc/syntax.txt, src/syntax.c, src/vim.h

Patch 8.0.0915
Problem:    Wrong initialisation of global.
Solution:   Use INIT().
Files:      src/globals.h
```

```
Patch 8.0.0916
Problem:    Cannot specify properties of window for when opening a window for
            a finished terminal job.
Solution:   Add "term_opencmd".
Files:      src/channel.c, src/structs.h, src/terminal.c,
            runtime/doc/eval.txt, src/testdir/test_terminal.vim

Patch 8.0.0917
Problem:    MS-Windows:CTRL-C handling in terminal window is wrong
Solution:   Pass CTRL-C as a key. Turn CTRL-BREAK into a key stroke. (Yasuhiro
            Matsumoto, closes #1965)
Files:      src/os_win32.c, src/terminal.c

Patch 8.0.0918
Problem:    Cannot get terminal window cursor shape or attributes.
Solution:   Support cursor shape, attributes and color.
Files:      src/terminal.c, runtime/doc/eval.txt,
            src/libvterm/include/vterm.h, src/libvterm/src/state.c,
            src/libvterm/src/vterm.c, src/feature.h, src/ui.c,
            src/proto/ui.pro, src/term.c, src/proto/term.pro,
            src/option.c, src/term.h

Patch 8.0.0919
Problem:    Cursor color isn't set on startup.
Solution:   Initialize showing_mode to invalid value.
Files:      src/term.c

Patch 8.0.0920
Problem:    The cursor shape is wrong after switch back from an alternate
            screen in a terminal window. (Marius Gedminas)
Solution:   Change bitfield to unsigned.  Set flag that cursor shape was set.
Files:      src/terminal.c, src/libvterm/src/vterm_internal.h

Patch 8.0.0921
Problem:    Terminal window cursor shape not supported in the GUI.
Solution:   Use the terminal window cursor shape in the GUI.
Files:      src/terminal.c, src/proto/terminal.pro, src/gui.c, src/syntax.c,
            src/proto/syntax.pro

Patch 8.0.0922
Problem:    Quickfix list always added after current one.
Solution:   Make it possible to add a quickfix list after the last one.
            (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.0923
Problem:    Crash in GUI when terminal job exits. (Kazunobu Kuriyama)
Solution:   reset in_terminal_loop when a terminal is freed.
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.0924
Problem:    Terminal window not updated after using term_sendkeys().
Solution:   Call redraw_after_callback().
```

```
Files:      src/terminal.c

Patch 8.0.0925
Problem:    MS-Windows GUI: channel I/O not handled right away.
Solution:   Don't call process_message() unless a message is available.
            (Yasuhiro Matsumoto, closes #1969)
Files:      src/gui_w32.c

Patch 8.0.0926
Problem:    When job in terminal window ends topline may be wrong.
Solution:   When the job ends adjust topline so that the active part of the
            terminal is displayed.
Files:      src/terminal.c

Patch 8.0.0927
Problem:    If a terminal job sends a blank title "running" is not shown.
Solution:   When the title is blank make it empty.
Files:      src/terminal.c

Patch 8.0.0928
Problem:    MS-Windows: passing arglist to job has escaping problems.
Solution:   Improve escaping. (Yasuhiro Matsumoto, closes #1954)
Files:      src/testdir/test_channel.vim, src/testdir/test_terminal.vim,
            src/channel.c, src/proto/channel.pro, src/terminal.c

Patch 8.0.0929
Problem:    :term without argument does not work.
Solution:   Use shell for empty command. (Yasuhiro Matsumoto, closes #1970)
Files:      src/terminal.c

Patch 8.0.0930
Problem:    Terminal buffers are stored in the viminfo file while they can't
            be useful.
Solution:   Skip terminal buffers for file marks and buffer list
Files:      src/buffer.c, src/mark.c

Patch 8.0.0931
Problem:    getwininfo() does not indicate a terminal window.
Solution:   Add "terminal" to the dictionary.
Files:      runtime/doc/eval.txt, src/evalfunc.c

Patch 8.0.0932
Problem:    Terminal may not use right characters for BS and Enter.
Solution:   Get the characters from the tty.
Files:      src/os_unix.c, src/proto/os_unix.pro, src/terminal.c

Patch 8.0.0933
Problem:    Terminal test tries to start GUI when it's not possible.
Solution:   Check if the GUI can run. (James McCoy, closes #1971)
Files:      src/testdir/shared.vim, src/testdir/test_terminal.vim,
            src/testdir/test_gui.vim, src/testdir/test_gui_init.vim

Patch 8.0.0934 (after 8.0.0932)
Problem:    Change to struts.h missing in patch.
```

```
Solution:   Include adding ttyinfo_T.
Files:      src/structs.h

Patch 8.0.0935
Problem:    Cannot recognize a terminal buffer in :ls output.
Solution:   Use R for a running job and F for a finished job.
Files:      src/buffer.c

Patch 8.0.0936
Problem:    Mode() returns wrong value for a terminal window.
Solution:   Return 't' when typed keys go to a job.
Files:      src/evalfunc.c, src/testdir/test_terminal.vim

Patch 8.0.0937
Problem:    User highlight groups are not adjusted for StatusLineTerm.
Solution:   Combine attributes like for StatusLineNC.
Files:      src/syntax.c, src/globals.h, src/screen.c

Patch 8.0.0938
Problem:    Scrolling in terminal window is inefficient.
Solution:   Use win_del_lines().
Files:      src/terminal.c

Patch 8.0.0939
Problem:    Test_terminal_env is flaky. (James McCoy)
Solution:   Use WaitFor() instead of term_wait().
Files:      src/testdir/test_terminal.vim

Patch 8.0.0940
Problem:    Test_terminal_scrape_multibyte is flaky. (James McCoy)
Solution:   Use WaitFor() instead of term_wait().
Files:      src/testdir/test_terminal.vim

Patch 8.0.0941
Problem:    Existing color schemes don't work well with StatusLineTerm.
Solution:   Don't use "reverse", use fg and bg colors.  Also add
            StatusLineTermNC.
Files:      src/syntax.c, src/vim.h, src/screen.c, src/globals.h, src/option.c

Patch 8.0.0942
Problem:    Using freed memory with ":terminal" if an autocommand changes
            'shell' when splitting the window. (Marius Gedminas)
Solution:   Make a copy of 'shell'. (closes #1974)
Files:      src/terminal.c

Patch 8.0.0943
Problem:    Test_terminal_scrape_multibyte fails if the codepage is not utf-8.
Solution:   Start "cmd" with the utf-8 codepage. (micbou, closes #1975)
Files:      src/testdir/test_terminal.vim

Patch 8.0.0944
Problem:    Test_profile is a little bit flaky.
Solution:   Accept a match when self and total time are the same. (James
            McCoy, closes #1972)
```

```
Files:      src/testdir/test_profile.vim

Patch 8.0.0945
Problem:    64-bit compiler warnings.
Solution:   Use "size_t" instead of "int". (Mike Williams)
Files:      src/os_win32.c

Patch 8.0.0946
Problem:    Using PATH_MAX does not work well on some systems.
Solution:   use MAXPATHL instead. (James McCoy, closes #1973)
Files:      src/main.c

Patch 8.0.0947
Problem:    When in Insert mode and using CTRL-O CTRL-W CTRL-W to move to a
            terminal window, get in a weird Insert mode.
Solution:   Don't go to Insert mode in a terminal window. (closes #1977)
Files:      src/normal.c

Patch 8.0.0948
Problem:    Crash if timer closes window while dragging status line.
Solution:   Check if the window still exists. (Yasuhiro Matsumoto, closes
            #1979)
Files:      src/edit.c, src/evalfunc.c, src/gui.c, src/normal.c, src/ui.c

Patch 8.0.0949
Problem:    winpty.dll name is fixed.
Solution:   Add the 'winptydll' option. Make the default name depend on
            whether it is a 32-bit or 64-bit build. (idea by Yasuhiro
            Matsumoto, closes #1978)
Files:      src/option.c, src/option.h, src/terminal.c,
            runtime/doc/options.txt

Patch 8.0.0950
Problem:    MS-Windows: wrong #ifdef, compiler warnings for signed/unsigned.
Solution:   Change variable type. Change TERMINAL to FEAT_TERMINAL.
Files:      src/os_win32.c, src/option.h

Patch 8.0.0951
Problem:    Another wrong #ifdef.
Solution:   Change TERMINAL to FEAT_TERMINAL. (closes #1981)
Files:      src/option.c

Patch 8.0.0952
Problem:    MS-Windows: has('terminal') does not check existence of dll file.
Solution:   Check if the winpty dll file can be loaded. (Ken Takata)
Files:      src/evalfunc.c, src/proto/terminal.pro, src/terminal.c

Patch 8.0.0953
Problem:    Get "no write since last change" error in terminal window.
Solution:   Use another message when closing a terminal window. Make ":quit!"
            also end the job.
Files:      src/globals.h, src/buffer.c, src/proto/buffer.pro, src/ex_cmds.c,
            src/ex_cmds2.c, src/ex_docmd.c, src/quickfix.c, src/terminal.c
```

```
Patch 8.0.0954
Problem:    /proc/self/exe might be a relative path.
Solution:   Make the path a full path. (James McCoy, closes #1983)
Files:      src/main.c

Patch 8.0.0955
Problem:    Test_existent_file() fails on some file systems.
Solution:   Run the test again with a sleep when the test fails without a
            sleep. (James McCoy, closes #1984)
Files:      src/testdir/test_stat.vim

Patch 8.0.0956
Problem:    Scrolling in a terminal hwindow as flicker when the Normal
            background differs from the terminal window background.
Solution:   Set the attribute to clear with.
Files:      src/terminal.c, src/screen.c, src/proto/screen.pro, src/message.c,
            src/move.c

Patch 8.0.0957
Problem:    When term_sendkeys() sends many keys it may get stuck in writing
            to the job.
Solution:   Make the write non-blocking, buffer keys to be sent.
Files:      src/terminal.c, src/channel.c, src/proto/channel.pro,
            src/structs.h src/testdir/test_terminal.vim

Patch 8.0.0958
Problem:    The terminal test fails on MS-Windows when compiled with the
            terminal feature but the winpty DLL is missing.
Solution:   Check if the terminal feature works. (Ken Takata)
Files:      src/testdir/test_terminal.vim

Patch 8.0.0959
Problem:    Build failure on MS-Windows.
Solution:   Use ioctlsocket() instead of fcntl().
Files:      src/channel.c

Patch 8.0.0960
Problem:    Job in terminal does not get CTRL-C, we send a SIGINT instead.
Solution:   Don't call may_send_sigint() on CTRL-C.  Make CTRL-W CTRL-C end
            the job.
Files:      src/terminal.c, runtime/doc/terminal.txt

Patch 8.0.0961
Problem:    The script to build the installer does not include winpty.
Solution:   Add winpty32.dll and winpty-agent.exe like diff.exe
Files:      nsis/gvim.nsi

Patch 8.0.0962
Problem:    Crash with virtualedit and joining lines. (Joshua T Corbin, Neovim
            #6726)
Solution:   When using a mark check that coladd is valid.
Files:      src/normal.c, src/misc2.c, src/Makefile,
            src/testdir/test_virtualedit.vim, src/testdir/test_alot.vim
```

```
Patch 8.0.0963
Problem:    Terminal test fails on MacOS. (chdiza)
Solution:   Wait for the shell to echo the characters. (closes #1991)
Files:      src/testdir/test_terminal.vim

Patch 8.0.0964
Problem:    Channel write buffer does not work with poll().
Solution:   Use the same mechanism as with select().
Files:      src/channel.c

Patch 8.0.0965
Problem:    The cursor shape is not reset after it was changed in a terminal.
Solution:   Request the original cursor shape and restore it.  Add t_RS.
            Do not add t_SH for now, it does not work properly.
Files:      src/term.c, src/term.h, src/option.c, src/terminal.c

Patch 8.0.0966 (after 8.0.0965)
Problem:    Build failure without terminal feature.
Solution:   Move #endif.
Files:      src/term.c

Patch 8.0.0967
Problem:    Using a terminal may cause the cursor to blink.
Solution:   Do not set t_vs, since we cannot restore the old blink state.
Files:      src/term.c

Patch 8.0.0968
Problem:    Crash when switching terminal modes. (Nikolai Pavlov)
Solution:   Check that there are scrollback lines.
Files:      src/terminal.c

Patch 8.0.0969
Problem:    Coverity warning for unused return value.
Solution:   Add (void) to avoid the warning.
Files:      src/channel.c

Patch 8.0.0970
Problem:    if there is no StatusLine highlighting and there is StatusLineNC
            or StatusLineTermNC highlighting then an invalid highlight id is
            passed to combine_stl_hlt(). (Coverity)
Solution:   Check id_S to be -1 instead of zero.
Files:      src/syntax.c

Patch 8.0.0971
Problem:    'winptydll' missing from :options.
Solution:   Add the entry.
Files:      runtime/optwin.vim

Patch 8.0.0972
Problem:    Compiler warnings for unused variables. (Tony Mechelynck)
Solution:   Add #ifdefs.
Files:      src/term.c

Patch 8.0.0973
```

```
Problem:    initial info about blinking cursor is wrong
Solution:   Invert the blink flag.  Add t_VS to stop a blinking cursor.
Files:      src/term.c, src/proto/term.pro, src/term.h, src/option.c,
            src/terminal.c

Patch 8.0.0974
Problem:    Resetting a string option does not trigger OptionSet. (Rick Howe)
Solution:   Set the origval.
Files:      src/option.c, src/testdir/test_autocmd.vim

Patch 8.0.0975
Problem:    Using freed memory when setting 'backspace'.
Solution:   When changing oldval also change origval.
Files:      src/option.c

Patch 8.0.0976
Problem:    Cannot send lines to a terminal job.
Solution:   Make [range]terminal send selected lines to the job.
            Use ++rows and ++cols for the terminal size.
Files:      src/ex_cmds.h, src/terminal.c, src/os_unix.c,
            src/testdir/test_terminal.vim

Patch 8.0.0977
Problem:    Cannot send lines to a terminal job on MS-Windows.
Solution:   Set jv_in_buf.  Command doesn't get EOF yet though.
Files:      src/terminal.c

Patch 8.0.0978
Problem:    Writing to terminal job is not tested.
Solution:   Add a test.
Files:      src/testdir/test_terminal.vim

Patch 8.0.0979
Problem:    Terminal noblock test fails on MS-Windows. (Christian Brabandt)
Solution:   Ignore empty line below "done".
Files:      src/testdir/test_terminal.vim

Patch 8.0.0980
Problem:    Coverity warning for failing to open /dev/null.
Solution:   When /dev/null can't be opened exit the child.
Files:      src/os_unix.c

Patch 8.0.0981
Problem:    Cursor in terminal window blinks by default, while in a real xterm
            it does not blink, unless the -bc argument is used.
Solution:   Do not use a blinking cursor by default.
Files:      src/terminal.c

Patch 8.0.0982
Problem:    When 'encoding' is set to a multi-byte encoding other than utf-8
            the characters from their terminal are messed up.
Solution:   Convert displayed text from utf-8 to 'encoding' for MS-Windows.
            (Yasuhiro Matsumoto, close #2000)
Files:      src/terminal.c
```

```
Patch 8.0.0983
Problem:    Unnecessary check for NULL pointer.
Solution:   Remove the NULL check in dialog_changed(), it already happens in
            dialog_msg(). (Ken Takata)
Files:      src/ex_cmds2.c

Patch 8.0.0984
Problem:    Terminal blinking cursor not correct in the GUI.
Solution:   Set blinkoff correctly.  Also make the cursor blink on MS-Windows
            by default. (Ken Takata)
Files:      src/terminal.c

Patch 8.0.0985
Problem:    Libvterm has its own idea of character width.
Solution:   Use the Vim functions for character width and composing to avoid a
            mismatch. (idea by Yasuhiro Matsumoto)
Files:      src/Makefile, src/libvterm/src/unicode.c, src/mbyte.c,
            src/proto/mbyte.pro, src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 8.0.0986
Problem:    Terminal feature always requires multi-byte feature.
Solution:   Remove #ifdef FEAT_MBYTE, disable terminal without multi-byte.
Files:      src/terminal.c, src/feature.h

Patch 8.0.0987
Problem:    terminal: second byte of double-byte char wrong
Solution:   Set the second byte to NUL only for utf-8 and non-multibyte.
Files:      src/terminal.c

Patch 8.0.0988
Problem:    Warning from Covscan about using NULL pointer.
Solution:   Add extra check for NULL. (zdohnal)
Files:      src/fileio.c, src/undo.c

Patch 8.0.0989
Problem:    ActiveTcl dll name has changed in 8.6.6.
Solution:   Adjust the makefile. (Ken Takata)
Files:      src/INSTALLpc.txt, src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 8.0.0990
Problem:    When 'encoding' is a double-byte encoding, pasting a register into
            a terminal ends up with the wrong characters.
Solution:   Convert from 'encoding' to utf-8. (Yasuhiro Matsumoto, closes
            #2007)
Files:      src/terminal.c

Patch 8.0.0991
Problem:    Using wrong character conversion for DBCS.
Solution:   Use utf_char2bytes instead of mb_char2bytes. (Yasuhiro Matsumoto,
            closes #2012)
Files:      src/terminal.c

Patch 8.0.0992
```

```
Problem:    Terminal title is wrong when 'encoding' is DBCS.
Solution:   Convert the title from DBCS to utf-8. (Yasuhiro Matsumoto, closes
            #2009)
Files:      src/terminal.c

Patch 8.0.0993
Problem:    Sometimes an xterm sends an extra CTRL-X after the response for
            the background color.  Related to t_RS.
Solution:   Check for the CTRL-X after the terminating 0x7.
Files:      src/term.c

Patch 8.0.0994
Problem:    MS-Windows: cursor in terminal blinks even though the blinking
            cursor was disabled on the system.
Solution:   Use GetCaretBlinkTime(). (Ken Takata)
Files:      src/terminal.c

Patch 8.0.0995
Problem:    Terminal tests fail on Mac.
Solution:   Add workaround: sleep a moment in between sending keys.
Files:      src/testdir/test_terminal.vim

Patch 8.0.0996
Problem:    Mac: t_RS is echoed on the screen in Terminal.app.  Even though
            $TERM is set to "xterm-256colors" it cannot handle this xterm
            escape sequence.
Solution:   Recognize Terminal.app from the termresponse and skip sending t_RS
            if it looks like Terminal.app.
Files:      src/term.c

Patch 8.0.0997 (after 8.0.0996)
Problem:    Libvterm and Terminal.app not recognized from termresponse.
Solution:   Adjust string compare.
Files:      src/term.c

Patch 8.0.0998
Problem:    Strange error when using K while only spaces are selected.
            (Christian J. Robinson)
Solution:   Check for blank argument.
Files:      src/normal.c, src/testdir/test_help.vim

Patch 8.0.0999
Problem:    Indenting raw C++ strings is wrong.
Solution:   Add special handling of raw strings. (Christian Brabandt)
Files:      src/misc1.c, src/testdir/test_cindent.vim

Patch 8.0.1000
Problem:    Cannot open a terminal without running a job in it.
Solution:   Make ":terminal NONE" open a terminal with a pty.
Files:      src/terminal.c, src/os_unix.c, src/proto/os_unix.pro,
            src/channel.c, src/proto/channel.pro, src/structs.h,
            src/testdir/test_terminal.c, src/misc2.c, src/gui_gtk_x11.c

Patch 8.0.1001
```

```
Problem:    Setting 'encoding' makes 'printheader' invalid.
Solution:   Do not translate the default value of 'printheader'. (Yasuhiro
            Matsumoto, closes #2026)
Files:      src/option.c

Patch 8.0.1002
Problem:    Unnecessarily updating screen after timer callback.
Solution:   Check if calling the timer sets must_redraw.
Files:      src/ex_cmds2.c, src/channel.c, src/screen.c, src/proto/screen.pro,
            src/terminal.c

Patch 8.0.1003
Problem:    64 bit compiler warning
Solution:   Add type cast. (Mike Williams)
Files:      src/channel.c

Patch 8.0.1004
Problem:    Matchstrpos() without a match returns too many items.
Solution:   Also remove the second item when the position is beyond the end of
            the string. (Hirohito Higashi)  Use an enum for the type.
Files:      src/evalfunc.c, src/testdir/test_match.vim

Patch 8.0.1005
Problem:    Terminal without job updates slowly in GUI.
Solution:   Poll for input when a channel has the keep_open flag.
Files:      src/channel.c, src/proto/channel.pro, src/gui_gtk_x11.c

Patch 8.0.1006
Problem:    Cannot parse text with 'errorformat' without changing a quickfix
            list.
Solution:   Add the "text" argument to getqflist(). (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/proto/quickfix.pro,
            src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1007
Problem:    No test for filetype detection for scripts.
Solution:   Add a first test file script filetype detection.
Files:      src/testdir/test_filetype.vim, runtime/scripts.vim

Patch 8.0.1008
Problem:    Slow updating of terminal window in Motif.
Solution:   Add a timeout to the wait-for-character loop.
Files:      src/gui_x11.c

Patch 8.0.1009
Problem:    Xterm cursor blinking status may be inverted.
Solution:   Use another request to get the blink status and compare with the
            cursor style report
Files:      src/term.c, src/proto/term.pro, src/term.h, src/option.c,
            src/terminal.c

Patch 8.0.1010 (after 8.0.1009)
Problem:    Build failure without termresponse feature.
Solution:   Add #ifdef.
```

```
Files:      src/term.c

Patch 8.0.1011
Problem:    Terminal test fails with Athena and Motif.
Solution:   Ignore the error for the input context. (Kazunobu Kuriyama)
Files:      src/testdir/test_terminal.vim

Patch 8.0.1012
Problem:    MS-Windows: Problem with $HOME when it was set internally.
Solution:   Only use the $HOME default internally. (Yasuhiro Matsumoto, closes
            #2013)
Files:      src/misc1.c, src/testdir/Make_all.mak, src/Makefile,
            src/testdir/test_windows_home.vim

Patch 8.0.1013
Problem:    A terminal window with a running job behaves different from a
            window containing a changed buffer.
Solution:   Do not set 'bufhidden' to "hide".  Fix that a buffer where a
            terminal used to run is listed as "[Scratch]".
Files:      src/terminal.c, runtime/doc/terminal.txt, src/buffer.c

Patch 8.0.1014
Problem:    Old compiler doesn't know uint32_t. Warning for using NULL instead
            of NUL.
Solution:   Use UINT32_T.  Use NUL instead of NULL.
Files:      src/mbyte.c, src/proto/mbyte.pro, src/misc1.c

Patch 8.0.1015 (after 8.0.1013)
Problem:    Missing update to terminal test.
Solution:   Add the changes to the test.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1016
Problem:    Gnome terminal echoes t_RC.
Solution:   Detect Gnome terminal by the version string.  Add v: variables for
            all the term responses.
Files:      src/term.c, src/eval.c, src/vim.h, runtime/doc/eval.txt

Patch 8.0.1017
Problem:    Test for MS-Windows $HOME always passes.
Solution:   Rename the test function.  Make the test pass.
Files:      src/testdir/test_windows_home.vim

Patch 8.0.1018
Problem:    Warnings from 64-bit compiler. (Christian Brabandt)
Solution:   Add type casts.
Files:      src/terminal.c

Patch 8.0.1019
Problem:    Pasting in virtual edit happens in the wrong place.
Solution:   Do not adjust coladd when after the end of the line (closes #2015)
Files:      src/testdir/test_virtualedit.vim, src/misc2.c

Patch 8.0.1020
```

```
Problem:    When a timer calls getchar(1) input is overwritten.
Solution:   Increment tb_change_cnt in inchar(). (closes #1940)
Files:      src/getchar.c

Patch 8.0.1021
Problem:    Older Gnome terminal still echoes t_RC. (François Ingelrest)
Solution:   Check for version > 3000 instead of 4000.
Files:      src/term.c

Patch 8.0.1022
Problem:    Test 80 is old style.
Solution:   Turn it into a new style test. (Yegappan Lakshmanan)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/test80.in, src/testdir/test80.ok,
            src/testdir/test_substitute.vim

Patch 8.0.1023
Problem:    It is not easy to identify a quickfix list.
Solution:   Add the "id" field. (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, runtime/doc/quickfix.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.1024
Problem:    Manual folds are lost when a session file has the same buffer in
            two windows. (Jeansen)
Solution:   Use ":edit" only once. (Christian Brabandt, closes #1958)
Files:      src/ex_docmd.c, src/testdir/test_mksession.vim

Patch 8.0.1025
Problem:    Stray copy command in test.
Solution:   Remove the copy command.
Files:      src/testdir/test_mksession.vim

Patch 8.0.1026
Problem:    GTK on-the-spot input has problems. (Gerd Wachsmuth)
Solution:   Support over-the-spot. (Yukihiro Nakadaira, Ken Takata, closes
            #1215)
Files:      runtime/doc/mbyte.txt, runtime/doc/options.txt, src/edit.c,
            src/ex_getln.c, src/mbyte.c, src/misc1.c, src/option.c,
            src/option.h, src/screen.c, src/undo.c,
            src/testdir/gen_opt_test.vim

Patch 8.0.1027
Problem:    More terminals can't handle requesting cursor mode.
Solution:   Recognize Putty. (Hirohito Higashi)  Also include Xfce in the
            version check. (Dominique Pelle)  Recognize Konsole.
Files:      src/term.c

Patch 8.0.1028
Problem:    MS-Windows: viminfo uses $VIM/_viminfo if $HOME not set. (Yongwei
            Wu)
Solution:   Use vim_getenv() but check it's returning the default "C:/".
Files:      src/ex_cmds.c
```

```
Patch 8.0.1029
Problem:    Return value of getqflist() is inconsistent.  (Lcd47)
Solution:   Always return an "items" entry.
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1030
Problem:    MS-Windows: wrong size computation in is_cygpty().
Solution:   Compute the size properly. (Ken Takata)
Files:      src/iscygpty.c, src/iscygpty.h

Patch 8.0.1031
Problem:    "text" argument for getqflist() is confusing. (Lcd47)
Solution:   Use "lines" instead. (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.1032
Problem:    "make tags" doesn't work well on MS-Windows.
Solution:   Add or fix tags target. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 8.0.1033
Problem:    Detecting background color does not work in screen, even when it
            is working like an xterm.
Solution:   Make "screen.xterm" use termcap entries like an xterm. (Lubomir
            Rintel, closes #2048)  When termresponse version is huge also
            recognize as not being an xterm.
Files:      src/os_unix.c, src/term.c

Patch 8.0.1034
Problem:    Sending buffer lines to terminal doesn't work on MS-Windows.
Solution:   Send CTRL-D to mark the end of the text. (Yasuhiro Matsumoto,
            closes #2043) Add the "eof_chars" option.
Files:      src/channel.c, src/proto/terminal.pro, src/terminal.c,
            src/testdir/test_terminal.vim, src/structs.h

Patch 8.0.1035
Problem:    Sending buffer lines to terminal doesn't work on MS-Windows.
Solution:   Use CR instead of NL after every line.  Make the EOF text work
            properly.  Add the ++eof argument to :terminal.
Files:      src/structs.h, src/channel.c, src/terminal.c,
            runtime/doc/terminal.txt, runtime/doc/eval.txt

Patch 8.0.1036
Problem:    ++eof argument for terminal only available on MS-Windows.
Solution:   Also support ++eof on Unix.  Add a test.
Files:      src/channel.c, src/terminal.c, src/structs.h,
            src/testdir/test_terminal.vim

Patch 8.0.1037
Problem:    "icase" of 'diffopt' is not used for highlighting differences.
Solution:   Also use "icase". (Rick Howe)
Files:      src/diff.c, src/testdir/test_diffmode.vim
```

```
Patch 8.0.1038
Problem:    Strike-through text not supported.
Solution:   Add support for the "strikethrough" attribute. (Christian
            Brabandt, Ken Takata)
Files:      runtime/doc/eval.txt, runtime/doc/options.txt,
            runtime/doc/syntax.txt, runtime/doc/term.txt, src/evalfunc.c,
            src/gui.c, src/gui.h, src/gui_gtk_x11.c, src/gui_mac.c,
            src/gui_w32.c, src/gui_x11.c, src/option.c, src/screen.c,
            src/syntax.c, src/term.c, src/term.h, src/terminal.c, src/vim.h

Patch 8.0.1039
Problem:    Cannot change a line in a buffer other than the current one.
Solution:   Add setbufline(). (Yasuhiro Matsumoto, Ozaki Kiichi, closes #1953)
Files:      src/evalfunc.c, runtime/doc/eval.txt, src/Makefile,
            src/testdir/test_bufline.vim, src/testdir/test_alot.vim


Patch 8.0.1040
Problem:    Cannot use another error format in getqflist().
Solution:   Add the "efm" argument to getqflist(). (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.1041
Problem:    Bogus characters appear when indenting kicks in while doing a
            visual-block append.
Solution:   Recompute when indenting is done. (Christian Brabandt)
Files:      runtime/doc/visual.txt, src/charset.c, src/edit.c, src/misc1.c,
            src/ops.c, src/proto/charset.pro, src/proto/misc1.pro,
            src/screen.c, src/spell.c, src/testdir/test_cindent.vim

Patch 8.0.1042 (after 8.0.1038)
Problem:    Without the syntax feature highlighting doesn't work.
Solution:   Always use unsigned short to store attributes.
Files:      src/vim.h

Patch 8.0.1043
Problem:    Warning for uninitialized variable. (John Marriott)
Solution:   Move code to check indent inside "if".
Files:      src/ops.c

Patch 8.0.1044
Problem:    Warning for uninitialized variable. (John Marriott)
Solution:   Initialize ind_pre.
Files:      src/ops.c

Patch 8.0.1045
Problem:    Running tests may pollute shell history. (Manuel Ortega)
Solution:   Make $HISTFILE empty.
Files:      src/testdir/setup.vim

Patch 8.0.1046
Problem:    Code duplication in diff mode.
Solution:   Use diff_equal_char() also in diff_cmp(). (Rick Howe)
```

```
Files:      src/diff.c

Patch 8.0.1047
Problem:    Buffer overflow in Ruby.
Solution:   Allocate one more byte. (Dominique Pelle)
Files:      src/if_ruby.c

Patch 8.0.1048
Problem:    No test for what 8.0.1020 fixes.
Solution:   Add test_feedinput().  Add a test. (Ozaki Kiichi, closes #2046)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/testdir/test_timers.vim,
            src/ui.c

Patch 8.0.1049
Problem:    Shell on Mac can't handle long text, making terminal test fail.
Solution:   Only write 1000 characters instead of 5000.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1050
Problem:    Terminal window feature not included by default.
Solution:   Include the terminal feature for the "huge" build.
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1051
Problem:    Cannot run terminal with spaces in argument.
Solution:   Accept backslash to escape space and other characters. (closes
            #1999)
Files:      src/os_unix.c, src/testdir/test_terminal.vim

Patch 8.0.1052
Problem:    term_start() does not allow in_io, out_io and err_io options.
Solution:   Add JO_OUT_IO to get_job_options().
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1053
Problem:    setline() does not work on startup. (Manuel Ortega)
Solution:   Do not check for ml_mfp to be set for the current buffer.
            (Christian Brabandt)
Files:      src/testdir/shared.vim, src/testdir/test_alot.vim,
            src/testdir/test_bufline.vim, src/testdir/test_timers.vim,
            src/evalfunc.c

Patch 8.0.1054
Problem:    Terminal test fails on MS-Windows.
Solution:   Disable the redirection test for now.  Improve scrape test to make
            it less flaky.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1055
Problem:    Bufline test hangs on MS-Windows.
Solution:   Avoid message for writing file.  Source shared.vim when running
            test individually.
Files:      src/testdir/test_bufline.vim, src/testdir/test_timers.vim
```

```
Patch 8.0.1056
Problem:    Cannot build with the diff feature but without the multi-byte
            feature.
Solution:   Remove #ifdefs. (John Marriott)
Files:      src/diff.c

Patch 8.0.1057
Problem:    Terminal scrape test waits too long, it checks for one instead of
            three.
Solution:   Check there are three characters. (micbou)
Files:      src/testdir/test_terminal.vim

Patch 8.0.1058
Problem:    Terminal redirection test is flaky.
Solution:   Wait for job to finish.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1059
Problem:    older Gnome terminal returns smaller version number. (antarestrue)
Solution:   Lower version limit from 2800 to 2500. (#2032)
Files:      src/term.c

Patch 8.0.1060
Problem:    When imstyle is zero, mapping <Left> breaks preediting.
Solution:   Pass though preediting key-events. (Yasuhiro Matsumoto, closes
            #2064, closes #2063)
Files:      src/getchar.c, src/mbyte.c

Patch 8.0.1061
Problem:    Coverity: no check for NULL command.
Solution:   Check for NULL list item.
Files:      src/terminal.c

Patch 8.0.1062
Problem:    Coverity warnings in libvterm.
Solution:   Add (void) to avoid warning for not checking return value.
            Add "break" before "case".
Files:      src/libvterm/src/screen.c, src/libvterm/src/state.c

Patch 8.0.1063
Problem:    Coverity warns for NULL check and using variable pointer as an
            array.
Solution:   Remove the NULL check.  Make "argvar" an array.
Files:      src/terminal.c

Patch 8.0.1064
Problem:    Coverity warns for leaking resource.
Solution:   Free pty_master_fd on failure.
Files:      src/os_unix.c

Patch 8.0.1065
Problem:    Not all macro examples are included in the self-installing
            executable. (lkintact)
Solution:   Add the directories to the NSIS script. (closes #2065)
```

```
Files:      nsis/gvim.nsi

Patch 8.0.1066
Problem:    Some terminals can't handle requesting cursor mode. (Steven
            Hartland)
Solution:   Recognize vandyke SecureCRT. (closes #2008)
Files:      src/term.c

Patch 8.0.1067
Problem:    Using try/catch in timer does not prevent it from being stopped.
Solution:   Reset the exception context and use did_emsg instead of
            called_emsg.
Files:      src/ex_cmds2.c, src/testdir/test_timers.vim, src/globals.h,
            src/message.c

Patch 8.0.1068 (after 8.0.1066)
Problem:    Vandyke SecureCRT terminal can't handle cursor mode request.
            (Steven Hartland)
Solution:   Fix pointer computation. (closes #2008)
Files:      src/term.c

Patch 8.0.1069
Problem:    Still get CTRL-X sometimes for t_RS request.
Solution:   Also skip 0x18 after a key code response.
Files:      src/term.c

Patch 8.0.1070
Problem:    Terminal test is flaky on Mac.
Solution:   Add Test_terminal_noblock() to list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.1071
Problem:    $TERM names starting with "putty" and "cygwin" are likely to have
            a dark background, but are not recognized.
Solution:   Only check the first few characters of $TERM to match "putty" or
            "cygwin". (Christian Brabandt)
Files:      src/option.c

Patch 8.0.1072
Problem:    The :highlight command causes a redraw even when nothing changed.
Solution:   Only set "need_highlight_changed" when an attribute changed.
Files:      src/syntax.c

Patch 8.0.1073
Problem:    May get an endless loop if 'statusline' changes a highlight.
Solution:   Do not let evaluating 'statusline' trigger a redraw.
Files:      src/buffer.c

Patch 8.0.1074
Problem:    ":term NONE" does not work on MS-Windows.
Solution:   Make it work.  Split "pty" into "pty_in" and "pty_out". (Yasuhiro
            Matsumoto, closes #2058, closes #2045)
Files:      runtime/doc/eval.txt,
            runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
```

```
            src/channel.c, src/evalfunc.c, src/os_unix.c, src/structs.h,
            src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1075
Problem:    MS-Windows: mouse does not work in terminal.
Solution:   Force the winpty mouse on. (Yasuhiro Matsumoto, closes #2072)
Files:      src/terminal.c

Patch 8.0.1076
Problem:    term_start() does not take callbacks. When using two terminals
            without a job only one is read from.  A terminal without a window
            returns the wrong pty.
Solution:   Support "callback", "out_cb" and "err_cb".  Fix terminal without a
            window. Fix reading from multiple channels.
Files:      src/terminal.c, src/proto/terminal.pro, src/channel.c,

Patch 8.0.1077
Problem:    No debugger making use of the terminal window.
Solution:   Add the term debugger plugin.  So far only displays the current
            line when stopped.
Files:      Filelist, runtime/pack/dist/opt/termdebug/plugin/termdebug.vim

Patch 8.0.1078
Problem:    Using freed memory with ":hi Normal".
Solution:   Get "item" again after updating the table.
Files:      src/syntax.c

Patch 8.0.1079
Problem:    Memory leak when remote_foreground() fails.
Solution:   Free the error message.
Files:      src/evalfunc.c, src/if_xcmdsrv.c

Patch 8.0.1080
Problem:    Memory leak for eof_chars terminal option and buffer name.
Solution:   Free job options. Free the buffer name
Files:      src/terminal.c

Patch 8.0.1081
Problem:    Memory leak for the channel write queue.
Solution:   Free the write queue when clearing a channel.
Files:      src/channel.c

Patch 8.0.1082
Problem:    Tests fail when run under valgrind.
Solution:   Increase waiting times.
Files:      src/testdir/test_clientserver.vim, src/testdir/test_terminal.vim

Patch 8.0.1083
Problem:    Leaking memory in input part of channel.
Solution:   Clear the input part of channel.  Free the entry. Move failing
            command test to a separate file to avoid bogus leak reports
            clouding tests that should not leak.
Files:      src/channel.c, src/testdir/test_terminal.vim, src/Makefile,
            src/testdir/test_terminal_fail.vim, src/testdir/Make_all.mak
```

```
Patch 8.0.1084
Problem:    GTK build has compiler warnings. (Christian Brabandt)
Solution:   Get screen size with a different function. (Ken Takata, Yasuhiro
            Matsumoto)
Files:      src/mbyte.c, src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro,
            src/gui_beval.c

Patch 8.0.1085
Problem:    The terminal debugger can't set breakpoints.
Solution:   Add :Break and :Delete commands.  Also commands for stepping
            through code.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/terminal.txt

Patch 8.0.1086 (after 8.0.1084)
Problem:    Can't build with GTK 3.
Solution:   Rename function argument. (Kazunobu Kuriyama)
Files:      src/gui_gtk_x11.c

Patch 8.0.1087
Problem:    Test_terminal_cwd is flaky. MS-Windows: term_start() "cwd"
            argument does not work.
Solution:   Wait for the condition to be true instead of using a sleep.
            Pass the directory to winpty.
Files:      src/testdir/test_terminal.vim, src/terminal.c

Patch 8.0.1088
Problem:    Occasional memory use after free.
Solution:   Use the highlight table directly, don't keep a pointer.
Files:      src/syntax.c

Patch 8.0.1089
Problem:    Cannot get range count in user command.
Solution:   Add <range> argument.
Files:      src/ex_docmd.c, runtime/doc/map.txt

Patch 8.0.1090
Problem:    cannot get the text under the cursor like v:beval_text
Solution:   Add <cexpr>.
Files:      src/ex_docmd.c, src/testdir/test_normal.vim,
            runtime/doc/cmdline.txt

Patch 8.0.1091 (after 8.0.1090)
Problem:    Test for <cexpr> fails without +balloon_eval feature.
Solution:   Remove #ifdefs.
Files:      src/normal.c

Patch 8.0.1092
Problem:    Terminal debugger can't evaluate expressions.
Solution:   Add :Evaluate and K.  Various other improvements.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/terminal.txt
```

```
Patch 8.0.1093
Problem:    Various small quickfix issues.
Solution:   Remove ":" prefix from title set by a user. Add the qf_id2nr().
            function. Add a couple more tests.  Update documentation.
            (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, runtime/doc/quickfix.txt, src/evalfunc.c,
            src/proto/quickfix.pro, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.1094
Problem:    Using ssh from Terminal.app runs into xterm incompatibility.
Solution:   Also detect Terminal.app on non-Mac systems.
Files:      src/term.c

Patch 8.0.1095
Problem:    Terminal multibyte scrape test is flaky.
Solution:   Add another condition to wait for.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1096
Problem:    Terminal window in Normal mode has wrong background.
Solution:   Store the default background and use it for clearing until the
            end of the line.  Not for below the last line, since there is no
            text there.
Files:      src/screen.c, src/terminal.c

Patch 8.0.1097 (after 8.0.1096)
Problem:    Background color wrong if job changes background color.
Solution:   Get the background color from vterm.
Files:      src/terminal.c, src/screen.c

Patch 8.0.1098
Problem:    Build failure if libvterm installed on the system. (Oleh
            Hushchenkov)
Solution:   Change the CCCTERM argument order. (Ken Takata, closes #2080)
Files:      src/Makefile

Patch 8.0.1099
Problem:    Warnings for GDK calls.
Solution:   Use other calls for GTK 3 and fix a few problems. (Kazunobu
            Kuriyama)
Files:      src/mbyte.c

Patch 8.0.1100
Problem:    Stuck in redraw loop when 'lazyredraw' is set.
Solution:   Don't loop on update_screen() when not redrawing. (Yasuhiro
            Matsumoto, closes #2082)
Files:      src/terminal.c, src/screen.c, src/proto/screen.pro

Patch 8.0.1101
Problem:    Channel write fails if writing to log fails.
Solution:   Ignore return value of fwrite(). (Ozaki Kiichi, closes #2081)
Files:      src/channel.c
```

```
Patch 8.0.1102
Problem:    Terminal window does not use Normal colors.
Solution:   For the GUI and when 'termguicolors' is enabled, use the actual
            foreground and background colors for the terminal.  (Yasuhiro
            Matsumoto, closes #2067)
            Use the "Terminal" highlight group if defined.
Files:      src/terminal.c, src/syntax.c, src/proto/syntax.pro

Patch 8.0.1103 (after 8.0.1102)
Problem:    Converting cterm color fails for grey ramp.
Solution:   Use index instead of number.
Files:      src/terminal.c

Patch 8.0.1104
Problem:    The qf_jump() function is too long.
Solution:   Split of parts to separate functions. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.1105
Problem:    match() and matchend() are not tested.
Solution:   Add tests. (Ozaki Kiichi, closes #2088)
Files:      src/testdir/test_functions.vim, src/testdir/test_match.vim

Patch 8.0.1106
Problem:    Terminal colors on an MS-Windows console are not matching the
            normal colors.
Solution:   Use the normal colors for the terminal. (Yasuhiro Matsumoto,
            closes #2087)
Files:      src/terminal.c

Patch 8.0.1107
Problem:    Terminal debugger jumps to non-existing file.
Solution:   Check that the file exists.  Add an option to make the Vim width
            wide. Fix removing highlight groups.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/terminal.txt

Patch 8.0.1108
Problem:    Cannot specify mappings for the terminal window.
Solution:   Add the :tmap command and associated code.  (Jacob Askeland,
            closes #2073)
Files:      runtime/doc/map.txt, runtime/doc/terminal.txt, src/ex_cmdidxs.h,
            src/ex_cmds.h, src/ex_docmd.c, src/getchar.c, src/gui.c,
            src/terminal.c, src/testdir/test_terminal.vim, src/vim.h,
            src/proto/terminal.pro, src/main.c, src/evalfunc.c

Patch 8.0.1109
Problem:    Timer causes error on exit from Ex mode. (xtal8)
Solution:   save and restore the ex_pressedreturn flag. (Christian Brabandt,
            closes #2079)
Files:      src/ex_docmd.c, src/proto/ex_docmd.pro, src/ex_cmds2.c,
            src/testdir/test_timers.vim

Patch 8.0.1110
```

```
Problem:    FORTIFY_SOURCE from Perl causes problems. (Scott Baker)
Solution:   Filter out the flag. (Christian Brabandt, closes #2068)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1111
Problem:    Syntax error in configure when using Perl.
Solution:   Add missing quote
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1112
Problem:    Can't get size or current index from quickfix list.
Solution:   Add "idx" and "size" options. (Yegappan Lakshmanan)
Files:      runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.1113
Problem:    Can go to Insert mode from Terminal-Normal mode.
Solution:   Prevent :startinsert and "VA" to enter Insert mode. (Yasuhiro
            Matsumoto, closes #2092)
Files:      src/normal.c

Patch 8.0.1114
Problem:    Default for 'iminsert' is annoying.
Solution:   Make the default always zero. (Yasuhiro Matsumoto, closes #2071)
Files:      src/option.c, runtime/doc/options.txt

Patch 8.0.1115
Problem:    Crash when using foldtextresult() recursively.
Solution:   Avoid recursive calls. (Yasuhiro Matsumoto, closes #2098)
Files:      src/evalfunc.c, src/testdir/test_fold.vim

Patch 8.0.1116
Problem:    Terminal test fails on MS-Windows.
Solution:   Wait for the text to appear. (micbou, closes #2097)
Files:      src/testdir/test_terminal.vim

Patch 8.0.1117
Problem:    Test_terminal_no_cmd hangs on MS-Windows with GUI. (Christian
            Brabandt)
Solution:   Run the command with "start" and wait for the text to appear.
            (micbou, closes #2096)
Files:      src/testdir/test_terminal.vim

Patch 8.0.1118
Problem:    FEAT_WINDOWS adds a lot of #ifdefs while it is nearly always
            enabled and only adds 7% to the binary size of the tiny build.
Solution:   Graduate FEAT_WINDOWS.
Files:      src/feature.h, src/window.c, src/vim.h, src/structs.h,
            src/globals.h, src/gui.h, src/if_py_both.h, src/option.h,
            src/term.h, src/buffer.c, src/charset.c, src/digraph.c,
            src/edit.c, src/eval.c, src/evalfunc.c, src/ex_cmds.c,
            src/ex_cmds2.c, src/ex_docmd.c, src/ex_getln.c, src/fileio.c,
            src/fold.c, src/getchar.c, src/gui.c, src/gui_athena.c,
            src/gui_beval.c, src/gui_gtk.c, src/gui_motif.c, src/gui_w32.c,
```

```
            src/if_cscope.c, src/if_lua.c, src/if_mzsch.c, src/if_python.c,
            src/if_python3.c, src/if_ruby.c, src/if_tcl.c, src/main.c,
            src/mark.c, src/memline.c, src/misc1.c, src/misc2.c, src/move.c,
            src/netbeans.c, src/normal.c, src/option.c, src/popupmnu.c,
            src/quickfix.c, src/screen.c, src/search.c, src/spell.c,
            src/syntax.c, src/tag.c, src/term.c, src/ui.c, src/version.c,
            src/workshop.c, src/if_perl.xs, src/testdir/test_normal.vim

Patch 8.0.1119
Problem:    Quitting a split terminal window kills the job. (Yasuhiro
            Matsumoto)
Solution:   Only stop terminal job if it is the last window.
Files:      src/buffer.c, src/testdir/test_terminal.vim

Patch 8.0.1120 (after 8.0.1108)
Problem:    :tm means :tmap instead of :tmenu. (Taro Muraoka)
Solution:   Move the new entry below the old entry. (closes #2102)
Files:      src/ex_cmds.h, runtime/doc/map.txt

Patch 8.0.1121
Problem:    Can uncheck executables in MS-Windows installer.
Solution:   Make the choice read-only. (Ken Takata, closes #2106)
Files:      nsis/gvim.nsi

Patch 8.0.1122
Problem:    vimtutor.bat doesn't work well with vim.bat.
Solution:   Use "call vim". (Ken Takata, closes #2105)
Files:      vimtutor.bat

Patch 8.0.1123
Problem:    Cannot define a toolbar for a window.
Solution:   Add a window-local toolbar.
Files:      src/syntax.c, src/proto/syntax.pro, src/structs.h, src/menu.c,
            src/proto/menu.pro, src/testdir/test_winbar.vim, src/Makefile,
            src/normal.c, src/testdir/Make_all.mak, src/if_perl.xs,
            src/eval.c, src/evalfunc.c, src/window.c, src/ui.c,
            src/terminal.c, src/screen.c,
            runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/gui.txt, runtime/doc/terminal.txt

Patch 8.0.1124
Problem:    Use of MZSCHEME_VER is unclear.
Solution:   Add a comment. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 8.0.1125
Problem:    Wrong window height when splitting window with window toolbar.
Solution:   Add or subtract the window toolbar height.
Files:      src/window.c

Patch 8.0.1126
Problem:    Endless resize when terminal showing in two buffers. (Hirohito
            Higashi)
Solution:   Set a flag to prevent resizing the window.
```

```
Files:      src/terminal.c

Patch 8.0.1127
Problem:    Test_peek_and_get_char fails on 32 bit system. (Elimar
            Riesebieter)
Solution:   Avoid an integer overflow. (James McCoy, closes #2116)
Files:      src/ex_cmds2.c

Patch 8.0.1128
Problem:    Old xterm sends CTRL-X in response to t_RS.
Solution:   Only send t_RS for xterm 279 and later.  Remove the workaround to
            ignore CTRL-X.
Files:      src/term.c

Patch 8.0.1129
Problem:    Window toolbar missing a part of the patch.
Solution:   Add change in vim.h.
Files:      src/vim.h

Patch 8.0.1130
Problem:    The qf_jump() function is still too long.
Solution:   Split of parts to separate functions. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.1131
Problem:    It is not easy to trigger an autocommand for new terminal window.
            (Marco Restelli)
Solution:   Trigger BufWinEnter after setting 'buftype'.
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1132
Problem:    #if condition is not portable.
Solution:   Add defined(). (Zuloloxi, closes #2136)
Files:      src/libvterm/src/vterm.c

Patch 8.0.1133
Problem:    Syntax timeout not used correctly.
Solution:   Do not pass the timeout to syntax_start() but set it explicitly.
            (Yasuhiro Matsumoto, closes #2139)
Files:      src/proto/syntax.pro, src/screen.c, src/syntax.c

Patch 8.0.1134
Problem:    Superfluous call to syn_get_final_id().
Solution:   Remove it. (Ken Takata)
Files:      src/syntax.c

Patch 8.0.1135
Problem:    W_WINCOL() is always the same.
Solution:   Expand the macro.
Files:      src/edit.c, src/ex_docmd.c, src/gui_gtk.c, src/gui_w32.c,
            src/netbeans.c, src/popupmnu.c, src/screen.c, src/term.c,
            src/terminal.c, src/ui.c, src/window.c, src/if_py_both.h,
            src/structs.h, src/vim.h
```

Patch 8.0.1136
Problem: W_WIDTH() is always the same.
Solution: Expand the macro.
Files: src/charset.c, src/edit.c, src/evalfunc.c, src/ex_cmds.c,
            src/ex_docmd.c, src/getchar.c, src/gui.c, src/gui_beval.c,
            src/gui_mac.c, src/if_lua.c, src/if_mzsch.c, src/if_py_both.h,
            src/if_ruby.c, src/misc1.c, src/misc2.c, src/move.c, src/normal.c,
            src/popupmnu.c, src/quickfix.c, src/screen.c, src/search.c,
            src/structs.h, src/ui.c, src/vim.h, src/window.c

Patch 8.0.1137 (after 8.0.1136)
Problem: Cannot build with Ruby.
Solution: Fix misplaced brace.
Files: src/if_ruby.c

Patch 8.0.1138
Problem: Click in window toolbar starts Visual mode.
Solution: Add the MOUSE_WINBAR flag.
Files: src/ui.c, src/vim.h, src/normal.c

Patch 8.0.1139
Problem: Using window toolbar changes state.
Solution: Always execute window toolbar actions in Normal mode.
Files: runtime/doc/gui.txt, src/structs.h, src/ex_docmd.c,
            src/proto/ex_docmd.pro, src/menu.c

Patch 8.0.1140
Problem: Still old style tests.
Solution: Convert two tests to new style. (Yegappan Lakshmanan)
Files: src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/test56.in, src/testdir/test56.ok,
            src/testdir/test57.in, src/testdir/test57.ok,
            src/testdir/test_sort.vim, src/testdir/test_vimscript.vim

Patch 8.0.1141
Problem: MS-Windows build dependencies are incomplete.
Solution: Fix the dependencies. (Ken Takata)
Files: src/Make_cyg.mak, src/Make_cyg_ming.mak, src/Make_ming.mak,
            src/Make_mvc.mak

Patch 8.0.1142
Problem: Window toolbar menu gets a tear-off item.
Solution: Recognize the window toolbar.
Files: src/menu.c

Patch 8.0.1143
Problem: Macros always expand to the same thing.
Solution: Remove W_VSEP_WIDTH() and W_STATUS_HEIGHT().
Files: src/vim.h, src/structs.h, src/gui.c, src/ex_getln.c, src/screen.c

Patch 8.0.1144
Problem: Using wrong #ifdef for computing length.
Solution: use BACKSLASH_IN_FILENAME instead of COLON_IN_FILENAME. (Yasuhiro
            Matsumoto, closes #2153)

```
Files:      src/quickfix.c

Patch 8.0.1145
Problem:    Warning when compiling with Perl.
Solution:   Remove unused variable. (Ken Takata)
Files:      src/if_perl.xs

Patch 8.0.1146
Problem:    Redraw when highlight is set with same names. (Ozaki Kiichi)
Solution:   Only free and save a name when it changed. (closes #2120)
Files:      src/syntax.c

Patch 8.0.1147
Problem:    Fail to build with tiny features. (Tony Mechelynck)
Solution:   Move #ifdefs.
Files:      src/syntax.c

Patch 8.0.1148
Problem:    "gN" doesn't work on last match with 'wrapscan' off. (fcpg)
Solution:   Adjust for searching backward. (Christian Brabandt)
Files:      src/search.c, src/testdir/test_gn.vim

Patch 8.0.1149
Problem:    libvterm colors differ from xterm.
Solution:   Use the xterm colors for libvterm.
Files:      src/terminal.c, src/libvterm/src/pen.c,
            src/testdir/xterm_ramp.vim, Filelist

Patch 8.0.1150
Problem:    MS-Windows GUI: dialog font size is incorrect.
Solution:   Pass flag to indicate 'encoding' or active codepage. (Yasuhiro
            Matsumoto, closes #2160)
Files:      src/gui_w32.c

Patch 8.0.1151
Problem:    "vim -c startinsert!" doesn't append.
Solution:   Correct line number on startup. (Christian Brabandt, closes #2117)
Files:      src/ex_docmd.c, src/testdir/test_startup.vim

Patch 8.0.1152
Problem:    Encoding of error message wrong in Cygwin terminal.
Solution:   Get locale from environment variables. (Ken Takata)
Files:      src/main.c, src/mbyte.c, src/proto/mbyte.pro

Patch 8.0.1153
Problem:    No tests for diff_hlID() and diff_filler().
Solution:   Add tests. (Dominique Pelle, closes #2156)
Files:      src/testdir/test_diffmode.vim

Patch 8.0.1154
Problem:    'indentkeys' does not work properly. (Gary Johnson)
Solution:   Get the cursor line again. (Christian Brabandt, closes #2151)
Files:      src/edit.c, src/testdir/test_edit.vim
```

```
Patch 8.0.1155
Problem:    Ruby command triggers a warning when RUBYOPT is set to "-w".
Solution:   use "-e_=0" instead of "-e0". (Masataka Pocke Kuwabara, closes
            #2143)
Files:      src/if_ruby.c

Patch 8.0.1156
Problem:    Removing one -W argument from Perl CFLAGS may cause trouble.
Solution:   Remove all -W flags. (Christian Brabandt)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1157
Problem:    Compiler warning on MS-Windows.
Solution:   Add type cast. (Yasuhiro Matsumoto)
Files:      src/main.c

Patch 8.0.1158
Problem:    Still old style tests.
Solution:   Convert several tests to new style. (Yegappan Lakshmanan)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/main.aap, src/testdir/test33.in,
            src/testdir/test33.ok, src/testdir/test41.in,
            src/testdir/test41.ok, src/testdir/test43.in,
            src/testdir/test43.ok, src/testdir/test53.in,
            src/testdir/test53.ok, src/testdir/test_file_size.vim,
            src/testdir/test_lispwords.vim, src/testdir/test_search.vim,
            src/testdir/test_textobjects.vim

Patch 8.0.1159
Problem:    Typo in #ifdef.
Solution:   Change "PROT" to "PROTO". (Nobuhiro Takasaki, closes #2165)
Files:      src/syntax.c

Patch 8.0.1160
Problem:    Getting tab-local variable fails after closing window.
Solution:   set tp_firstwin and tp_lastwin. (Jason Franklin, closes #2170)
Files:      src/window.c, src/evalfunc.c, src/testdir/test_getvar.vim

Patch 8.0.1161
Problem:    Popup menu drawing problem when resizing terminal.
Solution:   Redraw after resizing also when a popup menu is visible. (Ozaki
            Kiichi, closes #2110)
Files:      src/popupmnu.c, src/term.c, src/testdir/shared.vim,
            src/testdir/test_popup.vim

Patch 8.0.1162
Problem:    Shared script for tests cannot be included twice.
Solution:   Include it where needed, it will "finish" if loaded again.
Files:      src/testdir/test_alot.vim, src/testdir/test_bufline.vim,
            src/testdir/test_timers.vim

Patch 8.0.1163
Problem:    Popup test is flaky.
Solution:   Add a WaitFor() and fix another.
```

```
Files:      src/testdir/test_popup.vim

Patch 8.0.1164
Problem:    Changing StatusLine highlight while evaluating 'statusline' may
            not change the status line color.
Solution:   When changing highlighting while redrawing don't cause another
            redraw. (suggested by Ozaki Kiichi, closes #2171, closes #2120)
Files:      src/buffer.c, src/syntax.c

Patch 8.0.1165
Problem:    Popup test is still flaky.
Solution:   Add a term_wait() call. (Ozaki Kiichi)
Files:      src/testdir/test_popup.vim

Patch 8.0.1166
Problem:    :terminal doesn't work on Mac High Sierra.
Solution:   Change #ifdef for OpenPTY(). (Ozaki Kiichi, Kazunobu Kuriyama,
            closes #2162)
Files:      src/pty.c

Patch 8.0.1167
Problem:    Motif: typing in terminal window is slow.
Solution:   Do not redraw the whole terminal window but only what was changed.
Files:      src/terminal.c

Patch 8.0.1168
Problem:    wrong highlighting with combination of match and 'cursorline'.
Solution:   Use "line_attr" when appropriate. (Ozaki Kiichi, closes #2111)
            But don't highlight more than one character.
Files:      src/screen.c, src/testdir/test_highlight.vim,
            src/testdir/view_util.vim

Patch 8.0.1169
Problem:    Highlighting one char too many with 'list' and 'cul'.
Solution:   Check for 'list' being active. (Ozaki Kiichi, closes #2177)
Files:      src/screen.c, src/testdir/test_highlight.vim

Patch 8.0.1170
Problem:    Using termdebug results in 100% CPU time. (tomleb)
Solution:   Use polling instead of select().
Files:      src/os_unix.c, src/channel.c, src/proto/channel.pro

Patch 8.0.1171
Problem:    Popup test is still a bit flaky.
Solution:   Change term_wait() calls. (Ozaki Kiichi)
Files:      src/testdir/test_popup.vim

Patch 8.0.1172
Problem:    When E734 is given option is still set.
Solution:   Assign NULL to "s". (Christian Brabandt)
Files:      src/eval.c, src/testdir/test_assign.vim

Patch 8.0.1173
Problem:    Terminal window is not redrawn after CTRL-L. (Marcin Szamotulski)
```

```
Solution:   Redraw the whole terminal when w_redr_type is NOT_VALID.
Files:      src/terminal.c

Patch 8.0.1174
Problem:    Mac Terminal.app has wrong color for white.
Solution:   Use white from the color cube.
Files:      src/globals.h, src/term.c, src/syntax.c

Patch 8.0.1175 (after  8.0.1174)
Problem:    Build failure without +termresponse.
Solution:   Add #ifdef.
Files:      src/syntax.c

Patch 8.0.1176
Problem:    Job_start() does not handle quote and backslash correctly.
Solution:   Remove quotes, recognize and remove backslashes.
Files:      src/testdir/test_channel.vim, src/os_unix.c

Patch 8.0.1177
Problem:    In a terminal window the popup menu is not cleared. (Gerry
            Agbobada)
Solution:   Redraw when SOME_VALID is used instead of NOT_VALID. (closes
            #2194)
Files:      src/terminal.c

Patch 8.0.1178
Problem:    Using old compiler on MS-Windows.
Solution:   Switch default build on MS-Windows to use MSVC 2015. (Ken Takata)
Files:      src/msvc2015.bat, src/INSTALLpc.txt, src/GvimExt/Makefile,
            src/Make_mvc.mak, src/tee/Make_mvc.mak, src/xxd/Make_mvc.mak

Patch 8.0.1179
Problem:    Test_popup_and_window_resize() does not always pass.
Solution:   Do not use $VIMPROG, pass the Vim executable in the vimcmd file.
            (Ozaki Kiichi, closes #2186)
Files:      src/testdir/Makefile, src/testdir/shared.vim,
            src/testdir/test_popup.vim

Patch 8.0.1180
Problem:    MS-Windows testclean target deletes the color script.
Solution:   Rename the script file.
Files:      src/testdir/xterm_ramp.vim, src/testdir/color_ramp.vim

Patch 8.0.1181
Problem:    Tests using Vim command fail on MS-Windows.
Solution:   Do not add quotes around the Vim command.
Files:      src/testdir/Make_dos.mak, src/testdir/Make_ming.mak

Patch 8.0.1182
Problem:    Cannot see or change mzscheme dll name.
Solution:   Add 'mzschemedll' and 'mzschemegcdll'.
Files:      src/if_mzsch.c, src/option.h, src/option.c,
            runtime/doc/if_mzsch.txt
```

```
Patch 8.0.1183
Problem:    MS-Windows build instructions are outdated.
Solution:   Update instructions for MSVC 2015.  Update the build script.
Files:      Filelist, Makefile, src/INSTALLpc.txt, src/bigvim.bat

Patch 8.0.1184
Problem:    The :marks command is not tested.
Solution:   Add a test. (Dominique Pelle, closes #2197)
Files:      src/testdir/test_marks.vim

Patch 8.0.1185
Problem:    Ruby library includes minor version number.
Solution:   Only use the API version number. (Ben Boeckel, closes #2199)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1186
Problem:    Still quite a few old style tests.
Solution:   Convert old to new style tests. (Yegappan Lakshmanan)
            Avoid ringing the bell while running tests.
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_vms.mms, src/testdir/main.aap,
            src/testdir/test31.in, src/testdir/test31.ok,
            src/testdir/test4.in, src/testdir/test4.ok, src/testdir/test5.in,
            src/testdir/test5.ok, src/testdir/test60.in,
            src/testdir/test60.ok, src/testdir/test60.vim,
            src/testdir/test7.in, src/testdir/test7.ok, src/testdir/test78.in,
            src/testdir/test78.ok, src/testdir/test_autocmd.vim,
            src/testdir/test_exists.vim, src/testdir/test_recover.vim,
            src/testdir/test_winbuf_close.vim, src/testdir/runtest.vim

Patch 8.0.1187
Problem:    Building with lua fails for OSX on Travis.
Solution:   Separate brew-update and brew-install. (Ozaki Kiichi, closes #2203)
Files:      .travis.yml

Patch 8.0.1188
Problem:    Autocmd test fails on MS-Windows.
Solution:   Give the buffer a name and find the buffer to be wiped out by
            name.
Files:      src/testdir/test_autocmd.vim

Patch 8.0.1189
Problem:    E172 is not actually useful, it's only on Unix anyway.
Solution:   Remove the check and the error.
Files:      src/ex_docmd.c, runtime/doc/message.txt

Patch 8.0.1190
Problem:    Vim becomes unusable after opening new window in BufWritePre
            event.
Solution:   Call not_exiting(). (Martin Tournoij, closes #2205)
            Also for "2q" when a help window is open.  Add a test.
Files:      src/ex_docmd.c, src/testdir/test_writefile.vim

Patch 8.0.1191
```

```
Problem:    MS-Windows: missing 32 and 64 bit files in installer.
Solution:   Include both 32 and 64 bit GvimExt and related dll files. Remove
            old Windows code from the installer. (Ken Takata, closes #2144)
Files:      nsis/README.txt, nsis/gvim.nsi, src/GvimExt/gvimext.cpp,
            src/dosinst.c, src/dosinst.h, src/uninstal.c, Makefile

Patch 8.0.1192
Problem:    MS-Windows: terminal feature not enabled by default.
Solution:   Enable it. (Ken Takata)
Files:      src/Make_cyg_ming.mak, src/Make_mvc.mak

Patch 8.0.1193
Problem:    Crash when wiping out a buffer after using getbufinfo().
            (Yegappan Lakshmanan)
Solution:   Remove b:changedtick from the buffer variables.
Files:      src/buffer.c, src/testdir/test_autocmd.vim

Patch 8.0.1194
Problem:    Actual fg and bg colors of terminal are unknown.
Solution:   Add t_RF.  Store response to t_RB and t_RF, use for terminal.
Files:      src/term.c, src/term.h, src/proto/term.pro, src/terminal.c,
            src/vim.h, src/eval.c, runtime/doc/eval.txt

Patch 8.0.1195 (after 8.0.1194)
Problem:    Can't build on MS-Windows.
Solution:   Adjust #ifdef and add #ifdefs.
Files:      src/term.c, src/terminal.c

Patch 8.0.1196 (after 8.0.1194)
Problem:    Crash when t_RF is not set. (Brian Pina)
Solution:   Add t_RF to the list of terminal options. (Hirohito Higashi)
Files:      src/option.c

Patch 8.0.1197
Problem:    MS-Windows build instructions are not up to date.
Solution:   Adjust the instructions.  Fix the nsis script.
Files:      Makefile, nsis/gvim.nsi

Patch 8.0.1198
Problem:    Older compilers don't know uint8_t.
Solution:   Use char_u instead.
Files:      src/term.c, src/proto/term.pro

Patch 8.0.1199
Problem:    When 'clipboard' is "autoselectplus" the star register is also
            set. (Gilles Moris)
Solution:   Don't set the star register in this situation.
Files:      src/ops.c

Patch 8.0.1200
Problem:    Tests switch the bell off twice.
Solution:   Don't set 'belloff' in individual tests. (Christian Brabandt)
Files:      src/testdir/test_alot.vim, src/testdir/test_alot_utf8.vim,
            src/testdir/test_autocmd.vim, src/testdir/test_cmdline.vim,
```

```
            src/testdir/test_diffmode.vim, src/testdir/test_digraph.vim,
            src/testdir/test_edit.vim, src/testdir/test_file_size.vim,
            src/testdir/test_gn.vim, src/testdir/test_normal.vim,
            src/testdir/test_packadd.vim, src/testdir/test_popup.vim,
            src/testdir/test_recover.vim, src/testdir/test_search.vim,
            src/testdir/test_textobjects.vim, src/testdir/test_undo.vim,
            src/testdir/test_usercommands.vim, src/testdir/test_visual.vim

Patch 8.0.1201
Problem:    "yL" is affected by 'scrolloff'. (Eli the Bearded)
Solution:   Don't use 'scrolloff' when an operator is pending.
Files:      src/normal.c, runtime/doc/motion.txt

Patch 8.0.1202
Problem:    :wall gives an error for a terminal window. (Marius Gedminas)
Solution:   Don't try writing a buffer that can't be written. (Yasuhiro
            Matsumoto, closes #2190)
Files:      src/ex_cmds.c, src/testdir/test_terminal.vim

Patch 8.0.1203
Problem:    Terminal window mistreats composing characters.
Solution:   Count composing characters with the base character. (Ozaki Kiichi,
            closes #2195)
Files:      src/mbyte.c, src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1204
Problem:    A QuitPre autocommand may get the wrong file name.
Solution:   Pass the buffer being closed to apply_autocmds(). (Rich Howe)
Files:      src/ex_docmd.c, src/testdir/test_autocmd.vim

Patch 8.0.1205
Problem:    Using "1q" it is possible to unload a changed buffer. (Rick Howe)
Solution:   Check the right window for changes.
Files:      src/testdir/test_edit.vim, src/ex_docmd.c

Patch 8.0.1206
Problem:    No autocmd for entering or leaving the command line.
Solution:   Add CmdlineEnter and CmdlineLeave.
Files:      runtime/doc/autocmd.txt, src/ex_getln.c, src/fileio.c, src/vim.h,
            src/testdir/test_autocmd.vim

Patch 8.0.1207
Problem:    Profiling skips the first and last script line.
Solution:   Check for BOM after setting script ID. (LemonBoy, closes #2103,
            closes #2112) Add a test. List the trailing script lines.
Files:      src/testdir/test_profile.vim, src/ex_cmds2.c

Patch 8.0.1208
Problem:    'statusline' drops empty group with highlight change.
Solution:   Do not drop an empty group if it changes highlighting. (Marius
            Gedminas, closes #2228)
Files:      src/buffer.c, src/testdir/test_statusline.vim

Patch 8.0.1209
```

```
Problem:    Still too many old style tests.
Solution:   Convert a few more tests to new style. (Yegappan Lakshmanan,
            closes #2230)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Makefile, src/testdir/Make_vms.mms,
            src/testdir/main.aap, src/testdir/test34.in,
            src/testdir/test34.ok, src/testdir/test54.in,
            src/testdir/test54.ok, src/testdir/test8.in, src/testdir/test8.ok,
            src/testdir/test_autocmd.vim, src/testdir/test_autoformat_join.in,
            src/testdir/test_autoformat_join.ok, src/testdir/test_join.vim,
            src/testdir/test_user_func.vim

Patch 8.0.1210
Problem:    When typing a search pattern CTRL-G and CTRL-T are ignored when
            there is typeahead.
Solution:   Don't pass SEARCH_PEEK and don't call char_avail(). (haya14busa,
            closes #2233)
Files:      src/ex_getln.c, src/testdir/test_search.vim

Patch 8.0.1211
Problem:    Cannot reorder tab pages with drag & drop.
Solution:   Support drag & drop for GTK and MS-Windows. (Ken Takata, Masamichi
            Abe)
Files:      src/gui_gtk_x11.c, src/gui_w32.c

Patch 8.0.1212
Problem:    MS-Windows: tear-off menu does not work on 64 bit. (shaggyaxe)
Solution:   Change how the menu handle is looked up. (Ken Takata, closes
            #1205)
Files:      src/gui_w32.c

Patch 8.0.1213
Problem:    Setting 'mzschemedll' has no effect.
Solution:   Move loading .vimrc to before call to mzscheme_main().
Files:      src/main.c

Patch 8.0.1214
Problem:    Accessing freed memory when EXITFREE is set and there is more than
            one tab and window. (Dominique Pelle)
Solution:   Free options later.  Skip redraw when exiting.
Files:      src/screen.c, src/misc2.c

Patch 8.0.1215
Problem:    Newer gcc warns for implicit fallthrough.
Solution:   Consistently use a FALLTHROUGH comment. (Christian Brabandt)
Files:      src/buffer.c, src/edit.c, src/eval.c, src/ex_docmd.c,
            src/ex_getln.c, src/main.c, src/message.c, src/normal.c,
            src/regexp.c, src/regexp_nfa.c, src/spell.c, src/window.c,
            src/if_perl.xs

Patch 8.0.1216
Problem:    Tabline is not always updated for :file command. (Norio Takagi)
Solution:   Set redraw_tabline. (Hirohito Higashi)
```

```
Files:      src/ex_cmds.c

Patch 8.0.1217
Problem:    Can't use remote eval to inspect vars in debug mode.
Solution:   Don't discard the call stack in debug mode. (closes #2237, #2247)
Files:      src/globals.h, src/ex_cmds2.c, src/main.c

Patch 8.0.1218
Problem:    Writing to freed memory in autocmd.
Solution:   Make a copy of the tag line. (Dominique Pelle, closes #2245)
Files:      src/tag.c, src/testdir/test_autocmd.vim

Patch 8.0.1219
Problem:    Terminal test is flaky.
Solution:   Add test function to list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.1220
Problem:    Skipping empty statusline groups is not correct.
Solution:   Also set group_end_userhl. (itchyny)
Files:      src/buffer.c, src/testdir/test_statusline.vim

Patch 8.0.1221
Problem:    Still too many old style tests.
Solution:   Convert a few more tests to new style. (Yegappan Lakshmanan,
            closes #2256)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_vms.mms,
            src/testdir/main.aap, src/testdir/test19.in,
            src/testdir/test19.ok, src/testdir/test20.in,
            src/testdir/test20.ok, src/testdir/test25.in,
            src/testdir/test25.ok, src/testdir/test28.in,
            src/testdir/test28.ok, src/testdir/test32.in,
            src/testdir/test32.ok, src/testdir/test38.in,
            src/testdir/test38.ok, src/testdir/test66.in,
            src/testdir/test66.ok, src/testdir/test79.in,
            src/testdir/test79.ok, src/testdir/test_ins_complete.vim,
            src/testdir/test_source_utf8.vim, src/testdir/test_substitute.vim,
            src/testdir/test_tab.vim, src/testdir/test_tagjump.vim,
            src/testdir/test_undo.vim, src/testdir/test_visual.vim,
            src/testdir/test79.ok, src/testdir/test79.in,
            src/testdir/test28.in

Patch 8.0.1222
Problem:    Test functions interfere with each other.
Solution:   Cleanup tab pages, windows and buffers.  Reset option.
Files:      src/testdir/runtest.vim, src/testdir/test_filetype.vim,
            src/testdir/test_tabpage.vim, src/testdir/test_lispwords.vim

Patch 8.0.1223
Problem:    Crash when using autocomplete and tab pages.
Solution:   Check if the current tab changed. (Christian Brabandt, closes
            #2239)
```

```
Files:      src/popupmnu.c, src/testdir/test_popup.vim, src/misc1.c,

Patch 8.0.1224
Problem:    Still interference between test functions.
Solution:   Clear autocommands. Wipe all buffers.  Fix tests that depend on a
            specific start context.
Files:      src/testdir/runtest.vim, src/testdir/test_autocmd.vim,
            src/testdir/test_arglist.vim, src/testdir/test_bufwintabinfo.vim,
            src/testdir/test_command_count.vim, src/testdir/test_quickfix.vim,
            src/testdir/test_hardcopy.vim, src/testdir/test_ins_complete.vim,
            src/testdir/test_packadd.vim, src/testdir/test_signs.vim,
            src/testdir/test_autochdir.vim

Patch 8.0.1225
Problem:    No check for spell region being zero. (geeknik)
Solution:   Check for zero. (closes #2252)
Files:      src/spellfile.c, src/testdir/test_spell.vim

Patch 8.0.1226
Problem:    Edit and popup tests failing.
Solution:   Make the tests pass.
Files:      src/testdir/test_edit.vim, src/testdir/test_popup.vim

Patch 8.0.1227
Problem:    Undefined left shift in readfile(). (Brian 'geeknik' Carpenter)
Solution:   Add cast to unsigned. (Dominique Pelle, closes #2253)
Files:      src/fileio.c

Patch 8.0.1228
Problem:    Invalid memory access in GUI test.
Solution:   Check that the row is not outside of the screen.
Files:      src/screen.c

Patch 8.0.1229
Problem:    Condition in vim_str2nr() is always true. (Nikolai Pavlov)
Solution:   Remove the condition. (Closes #2259)
Files:      src/charset.c

Patch 8.0.1230
Problem:    CTRL-A in Visual mode uses character after selection. (Nikolai
            Pavlov)
Solution:   Check the length before using a character.
Files:      src/charset.c

Patch 8.0.1231
Problem:    Expanding file name drops dash. (stucki)
Solution:   Use the right position. (Christian Brabandt, closes #2184)
Files:      src/ex_docmd.c, src/testdir/test_cmdline.vim

Patch 8.0.1232
Problem:    MS-Windows users are confused about default mappings.
Solution:   Don't map keys in the console where they don't work.  Add a choice
            in the installer to use MS-Windows key bindings or not. (Christian
            Brabandt, Ken Takata, closes #2093)
```

```
Files:      Filelist, nsis/gvim.nsi, nsis/vimrc.ini, src/dosinst.c,
            runtime/mswin.vim

Patch 8.0.1233
Problem:    Typo in dos installer.
Solution:   Remove comma.
Files:      src/dosinst.c

Patch 8.0.1234
Problem:    MS-Windows: composing characters are not shown properly.
Solution:   Pass base character and composing characters to the renderer at
            once. (Ken Takata, closes #2206)
Files:      src/gui.c, src/gui_w32.c

Patch 8.0.1235
Problem:    Cannot disable the terminal feature in a huge build. (lindhobe)
Solution:   Adjust the autoconf check. (Kazunobu Kuriyama, closes #2242)
Files:      src/configure.ac, src/auto/configure, src/Makefile

Patch 8.0.1236
Problem:    Mac features are confusing.
Solution:   Make feature names more consistent, add "osxdarwin". Rename
            feature flags, cleanup Mac code. (Kazunobu Kuriyama, closes #2178)
            Also includes a fix for when Ruby throws an exception inside
            :rubyfile. (ujihisa)
Files:      runtime/doc/eval.txt, runtime/doc/os_mac.txt, src/auto/configure,
            src/config.h.in, src/configure.ac, src/digraph.c, src/edit.c,
            src/evalfunc.c, src/feature.h, src/fileio.c, src/getchar.c,
            src/globals.h, src/gui.c, src/gui_mac.c, src/if_python.c,
            src/if_python3.c, src/if_ruby.c, src/keymap.h, src/macros.h,
            src/main.c, src/mbyte.c, src/message.c, src/misc1.c, src/misc2.c,
            src/option.c, src/os_mac.h, src/os_macosx.m, src/os_unix.c,
            src/proto.h, src/pty.c, src/structs.h, src/term.c, src/termlib.c,
            src/ui.c, src/undo.c, src/version.c, src/vim.h, src/window.c

Patch 8.0.1237
Problem:    ":set scroll&" often gives an error.
Solution:   Don't use a fixed default value, use half the window height. Add a
            test. (Ozaki Kiichi, closes #2104)
Files:      src/Makefile, src/option.c, src/testdir/test_alot.vim,
            src/testdir/test_scroll_opt.vim

Patch 8.0.1238
Problem:    Incremental search only shows one match.
Solution:   When 'incsearch' and 'hlsearch' are both set highlight all
            matches. (haya14busa, itchyny, closes #2198)
Files:      runtime/doc/options.txt, src/ex_getln.c, src/proto/search.pro,
            src/search.c, src/testdir/test_search.vim

Patch 8.0.1239
Problem:    Cannot use a lambda for the skip argument to searchpair().
Solution:   Evaluate a partial, funcref and lambda. (LemonBoy, closes #1454,
            closes #2265)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/proto/evalfunc.pro,
```

```
            src/eval.c, src/proto/eval.pro, src/search.c,
            src/testdir/test_search.vim

Patch 8.0.1240
Problem:    MS-Windows: term_start() does not support environment.
Solution:   Implement the environment argument. (Yasuhiro Matsumoto, closes
            #2264)
Files:      src/os_win32.c, src/proto/os_win32.pro, src/terminal.c,
            src/testdir/test_terminal.vim

Patch 8.0.1241
Problem:    Popup test is flaky. (James McCoy)
Solution:   Increase the wait time. (Dominique Pelle)
Files:      src/testdir/test_popup.vim

Patch 8.0.1242
Problem:    Function argument with only dash is seen as number zero. (Wang
            Shidong)
Solution:   See a dash as a string. (Christian Brabandt)
Files:      src/testdir/test_ins_complete.vim, src/Makefile, src/eval.c

Patch 8.0.1243
Problem:    No test for what 8.0.1227 fixes.
Solution:   Add a test that triggers the problem. (Christian Brabandt)
Files:      src/testdir/test_normal.vim, src/testdir/test_search.vim

Patch 8.0.1244
Problem:    Search test does not work correctly on MS-Windows.
Solution:   Put text in a file instead of sending it to the terminal.
            (Christian Brabandt)
Files:      src/testdir/test_search.vim

Patch 8.0.1245
Problem:    When WaitFor() has a wrong expression it just waits a second,
            which goes unnoticed. (James McCoy)
Solution:   When WaitFor() times out throw an exception.  Fix places where the
            expression was wrong.
Files:      src/testdir/shared.vim, src/testdir/test_channel.vim,
            src/testdir/test_netbeans.vim, src/testdir/test_terminal.vim

Patch 8.0.1246
Problem:    Popup test has an arbitrary delay.
Solution:   Wait for the ruler to show. (James McCoy)
Files:      src/testdir/test_popup.vim

Patch 8.0.1247
Problem:    Not easy to find Debian build info.
Solution:   Add a badge in the README file. (Dominique Pelle)
Files:      README.md

Patch 8.0.1248 (after 8.0.1247)
Problem:    Stray + in README file.
Solution:   Remove the +.  Add a line break.
Files:      README.md
```

```
Patch 8.0.1249
Problem:    No error when WaitFor() gets an invalid wrong expression.
Solution:   Do not ignore errors in evaluation of the expression.  Fix places
            where the expression was wrong.
Files:      src/testdir/shared.vim, src/testdir/test_netbeans.vim

Patch 8.0.1250
Problem:    'hlsearch' highlighting not removed after incsearch (lacygoill)
Solution:   Redraw all windows. Start search at the end of the match.  Improve
            how CTRL-G works with incremental search. Add tests. (Christian
            Brabandt, Hirohito Higashi, haya14busa, closes #2267)
Files:      runtime/doc/options.txt, src/ex_getln.c,
            src/testdir/test_search.vim

Patch 8.0.1251 (after 8.0.1249)
Problem:    Invalid expression passed to WaitFor().
Solution:   Check if the variable exists.
Files:      src/testdir/test_clientserver.vim

Patch 8.0.1252
Problem:    Incomplete translations makefile for MinGW/Cygwin.
Solution:   Add missing source files.  Make it work with msys2's bash. (Ken
            Takata)
Files:      src/po/Make_cyg.mak, src/po/Make_ming.mak, src/po/Make_mvc.mak

Patch 8.0.1253
Problem:    Still too many old style tests.
Solution:   Convert a few more tests to new style. (Yegappan Lakshmanan,
            closes #2272)
Files:      src/Makefile, src/testdir/Make_all.mak,
            src/testdir/Make_amiga.mak, src/testdir/Make_dos.mak,
            src/testdir/Make_ming.mak, src/testdir/Make_vms.mms,
            src/testdir/main.aap, src/testdir/test12.in,
            src/testdir/test12.ok, src/testdir/test40.in,
            src/testdir/test40.ok, src/testdir/test45.in,
            src/testdir/test45.ok, src/testdir/test83.in,
            src/testdir/test83.ok, src/testdir/test_autocmd.vim,
            src/testdir/test_fold.vim, src/testdir/test_swap.vim,
            src/testdir/test_tagjump.vim

Patch 8.0.1254
Problem:    Undefined left shift in gethexchrs(). (geeknik)
Solution:   Use unsigned long. (idea by Christian Brabandt, closes #2255)
Files:      src/regexp.c, src/regexp_nfa.c


Patch 8.0.1255 (after 8.0.1248)
Problem:    duplicate badge README file.
Solution:   Remove one. (Dominique Pelle)
Files:      README.md

Patch 8.0.1256
Problem:    Typo in configure variable vim_cv_tgent. (Matthieu Guillard)
```

```
Solution:   Rename the variable. (closes #2281)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1257 (after 8.0.1254)
Problem:    No test for fix of undefined behavior.
Solution:   Add a test. (closes #2255)
Files:      src/testdir/test_search.vim

Patch 8.0.1258
Problem:    'ttymouse' is set to "sgr" even though it's not supported. (Gary
            Johnson)
Solution:   Adjust #ifdef
Files:      src/term.c

Patch 8.0.1259
Problem:    Search test can be flaky.
Solution:   Use WaitFor() instead of a delay.  Make it possible to pass a
            funcref to WaitFor() to avoid the need for global variables.
            (James McCoy, closes #2282)
Files:      src/testdir/shared.vim, src/testdir/test_search.vim

Patch 8.0.1260 (after 8.0.1259)
Problem:    Using global variables for WaitFor().
Solution:   Use a lambda function instead.  Don't check a condition if
            WaitFor() already checked it.
Files:      src/testdir/test_popup.vim, src/testdir/test_terminal.vim,
            src/testdir/test_channel.vim, src/testdir/test_clientserver.vim,
            src/testdir/test_job_fails.vim, src/testdir/test_quotestar.vim

Patch 8.0.1261
Problem:    Program in terminal window gets NL instead of CR. (Lifepillar)
Solution:   Check the tty setup more often. (closes #1998)
Files:      src/terminal.c

Patch 8.0.1262
Problem:    Terminal redir test is flaky.
Solution:   Add it to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.1263
Problem:    Others can read the swap file if a user is careless with his
            primary group.
Solution:   If the group permission allows for reading but the world
            permissions doesn't, make sure the group is right.
Files:      src/fileio.c, src/testdir/test_swap.vim, src/Makefile

Patch 8.0.1264
Problem:    Terminal debugger gets stuck in small window.
Solution:   Add "-quiet" to the gdb command. (Christian Brabandt, closes #2154)
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim

Patch 8.0.1265 (after 8.0.1263)
Problem:    Swap test not skipped when there is one group.
Solution:   Convert list to string for the message.
```

```
Files:      src/testdir/test_swap.vim

Patch 8.0.1266 (after 8.0.1263)
Problem:    Test_swap_directory was accidentally commented out.
Solution:   Uncomment the test.
Files:      src/testdir/test_swap.vim

Patch 8.0.1267 (after 8.0.1263)
Problem:    Test_swap_group may leave file behind.
Solution:   Add a try/finally.
Files:      src/testdir/test_swap.vim, src/testdir/test_undo.vim

Patch 8.0.1268
Problem:    PC install instructions are incomplete.
Solution:   Update the instructions. (Ken Takata)
Files:      src/INSTALLpc.txt

Patch 8.0.1269
Problem:    Effect of autocommands on marks is not tested.
Solution:   Add a couple of tests. (James McCoy, closes #2271)
Files:      src/testdir/test_autocmd.vim

Patch 8.0.1270
Problem:    Mismatching file name with Filelist.
Solution:   Rename color_ramp.vim to xterm_ramp.vim
Files:      src/testdir/color_ramp.vim, src/testdir/xterm_ramp.vim

Patch 8.0.1271
Problem:    Still too many old style tests.
Solution:   Convert a few more tests to new style. (Yegappan Lakshmanan,
            closes #2290)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/sautest/autoload/footest.vim, src/testdir/test55.in,
            src/testdir/test55.ok, src/testdir/test_changelist.in,
            src/testdir/test_changelist.ok, src/testdir/test_fold.vim,
            src/testdir/test_ins_complete.vim,
            src/testdir/test_insertcount.in, src/testdir/test_insertcount.ok,
            src/testdir/test_listdict.vim, src/testdir/test_normal.vim,
            src/testdir/test_search.vim, src/testdir/test_search_mbyte.in

Patch 8.0.1272
Problem:    Warnings for unused variables in tiny build.
Solution:   Add #ifdef. (Dominique Pelle, closes #2288)
Files:      src/term.c

Patch 8.0.1273 (after 8.0.1271)
Problem:    Old test file remaining.
Solution:   Delete it.
Files:      src/testdir/test_search_mbyte.ok

Patch 8.0.1274
Problem:    setbufline() fails when using folding.
Solution:   Set "curwin" if needed. (Ozaki Kiichi, closes #2293)
Files:      src/evalfunc.c, src/testdir/test_bufline.vim
```

Patch 8.0.1275
Problem: CmdlineLeave autocmd prevents fold from opening. (Waivek)
Solution: Save and restore KeyTyped. (closes #2305)
Files: src/fileio.c

Patch 8.0.1276
Problem: Typed key is lost when the terminal window is closed in exit
            callback. (Gabriel Barta)
Solution: When the current window changes bail out of the wait loop. (closes
            #2302)
Files: src/misc2.c, src/terminal.c

Patch 8.0.1277
Problem: Terminal window CR-NL conversions may cause problems.
Solution: Avoid most conversions, only fetch the current backspace key value
            from the tty. (mostly by Ozaki Kiichi, closes #2278)
Files: src/terminal.c

Patch 8.0.1278
Problem: GUI window always resizes when adding/removing a scrollbar,
            toolbar, etc.
Solution: Add the 'k' flag in 'guioptions' to keep the GUI window size and
            change the number of lines/columns instead. (Ychin, closes #703)
Files: runtime/doc/options.txt, src/gui.c, src/gui_gtk_x11.c,
            src/gui_w32.c, src/option.h

Patch 8.0.1279
Problem: Initializing menus can be slow, especially when there are many
            keymaps, color schemes, etc.
Solution: Do the globbing for runtime files lazily. (Ken Takata)
Files: runtime/doc/gui.txt, runtime/menu.vim

Patch 8.0.1280
Problem: Python None cannot be converted to a Vim type.
Solution: Convert it to v:none. (Ken Takata)
Files: src/if_py_both.h, src/testdir/test86.ok, src/testdir/test87.ok,
            runtime/doc/if_pyth.txt

Patch 8.0.1281
Problem: Loading file type detection slows down startup.
Solution: Move functions to an autoload script.
Files: runtime/filetype.vim, runtime/autoload/filetype.vim,
            runtime/scripts.vim

Patch 8.0.1282 (after 8.0.1281)
Problem: script-local variable defined in the wrong script
Solution: Move variable to autoload/filetype.vim.
Files: runtime/filetype.vim, runtime/autoload/filetype.vim

Patch 8.0.1283
Problem: Test 86 fails under ASAN.
Solution: Fix that an item was added to a dictionary twice.
Files: src/if_py_both.h

```
Patch 8.0.1284
Problem:    Loading file type detection slows down startup.
Solution:   Store the last pattern of an autocommand event to make appending
            quicker.
Files:      src/fileio.c

Patch 8.0.1285
Problem:    Distributed autoload files may clash with user files. (Andy
            Wokula)
Solution:   Use the "autoload/dist" directory.
Files:      runtime/filetype.vim, runtime/autoload/filetype.vim,
            runtime/autoload/dist/ft.vim, runtime/scripts.vim, Filelist,
            src/Makefile, nsis/gvim.nsi

Patch 8.0.1286
Problem:    Occasional crash when using a channel. (Marek)
Solution:   Decrement reference count later. (closes #2315)
Files:      src/channel.c

Patch 8.0.1287
Problem:    The temp file used when updating the viminfo file may have the
            wrong permissions if setting the group fails.
Solution:   Check if the group matches and reduce permissions if not.
Files:      src/ex_cmds.c

Patch 8.0.1288
Problem:    GUI: cannot drag the statusline of a terminal window.
Solution:   Handle the TERMINAL state. (Hirohito Higashi)
Files:      src/gui.c

Patch 8.0.1289
Problem:    Mkview always includes the local directory.
Solution:   Add the "curdir" value in 'viewoptions'. (Eric Roberts, closes
            #2316)
Files:      runtime/doc/options.txt, runtime/doc/starting.txt, src/ex_docmd.c,
            src/option.c

Patch 8.0.1290
Problem:    seq_cur of undotree() wrong after undo.
Solution:   Get the actual sequence number instead of decrementing the current
            one. (Ozaki Kiichi, closes #2319)
Files:      src/undo.c, src/testdir/test_undo.vim

Patch 8.0.1291
Problem:    C indent wrong when * immediately follows comment. (John Bowler)
Solution:   Do not see "/*" after "*" as a comment start. (closes #2321)
Files:      src/search.c, src/testdir/test3.in, src/testdir/test3.ok

Patch 8.0.1292
Problem:    Quick clicks in the WinBar start Visual mode.
Solution:   Use a double click in the WinBar like a normal click.
Files:      src/ui.c
```

```
Patch 8.0.1293
Problem:    Setting a breakpoint in the terminal debugger sometimes fails.
Solution:   Interrupt the program if needed.  Set the interface to async.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/terminal.txt

Patch 8.0.1294
Problem:    GUI: get stuck when splitting a terminal window.
Solution:   Stop blinking when values become zero. (Hirohito Higashi)
Files:      src/gui.c

Patch 8.0.1295
Problem:    Cannot automatically get a server name in a terminal.
Solution:   Add the --enable-autoservername flag to configure. (Cimbali,
            closes #2317)
Files:      runtime/doc/eval.txt, runtime/doc/various.txt, src/config.h.in,
            src/configure.ac, src/auto/configure, src/evalfunc.c,
            src/feature.h, src/main.c, src/version.c, src/Makefile

Patch 8.0.1296 (after 8.0.1294)
Problem:    Checking the same condition twice. (John Marriott)
Solution:   Check blinkwait.
Files:      src/gui.c

Patch 8.0.1297
Problem:    +autoservername does not show enabled on MS-Windows.
Solution:   Always define the flag on MS-Windows. (Ken Takata)
Files:      src/feature.h

Patch 8.0.1298
Problem:    Missing test file.
Solution:   Add samples/test000. (Christian Brabandt)
Files:      src/testdir/samples/test000, Filelist

Patch 8.0.1299
Problem:    Bracketed paste does not work well in terminal window.
Solution:   Send translated string to job right away. (Ozaki Kiichi, closes
            #2341)
Files:      src/terminal.c

Patch 8.0.1300
Problem:    File permissions may end up wrong when writing.
Solution:   Use fchmod() instead of chmod() when possible.  Don't truncate
            until we know we can change the file.
Files:      src/os_unix.c, src/proto/os_unix.pro, src/configure.ac,
            src/auto/configure, src/config.h.in, src/fileio.c

Patch 8.0.1301
Problem:    Generated license file for NSIS has a modeline.
Solution:   Adjust the pattern for sed. (Ken Takata)
Files:      runtime/doc/Makefile

Patch 8.0.1302
Problem:    Still too many old style tests.
```

```
Solution:   Convert a few more tests to new style. (Yegappan Lakshmanan,
            closes #2326)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_vms.mms, src/testdir/runtest.vim,
            src/testdir/test68.in, src/testdir/test68.ok,
            src/testdir/test73.in, src/testdir/test73.ok,
            src/testdir/test_close_count.in, src/testdir/test_close_count.ok,
            src/testdir/test_close_count.vim,
            src/testdir/test_erasebackword.in,
            src/testdir/test_erasebackword.ok,
            src/testdir/test_erasebackword.vim,
            src/testdir/test_find_complete.vim, src/testdir/test_fixeol.in,
            src/testdir/test_fixeol.ok, src/testdir/test_fixeol.vim,
            src/testdir/test_listchars.in, src/testdir/test_listchars.ok,
            src/testdir/test_listchars.vim, src/testdir/test_textformat.vim

Patch 8.0.1303
Problem:    'ttymouse' is not set to "sgr" for Terminal.app and Iterm2.
Solution:   Recognize Iterm2 by the termresponse.
Files:      src/term.c

Patch 8.0.1304
Problem:    CTRL-G/CTRL-T don't work with incsearch and empty pattern.
Solution:   Use the last search pattern. (Christian Brabandt, closes #2292)
Files:      src/ex_getln.c, src/proto/search.pro, src/search.c,
            src/testdir/test_search.vim

Patch 8.0.1305
Problem:    Writefile() never calls fsync().
Solution:   Follow the 'fsync' option with override to enable or disable.
Files:      src/fileio.c, src/evalfunc.c, runtime/doc/eval.txt, src/globals.h,
            src/testdir/test_writefile.vim

Patch 8.0.1306
Problem:    ASAN error stack trace is not useful.
Solution:   Add "asan_symbolize". (James McCoy, closes #2344)
Files:      .travis.yml

Patch 8.0.1307 (after 8.0.1300)
Problem:    Compiler warning for ignoring return value of ftruncate(). (Tony
            Mechelynck)
Solution:   Assign returned value to "ignore".
Files:      src/fileio.c

Patch 8.0.1308
Problem:    The "Reading from stdin" message may be undesired and there is no
            easy way to skip it.
Solution:   Don't show the message with --not-a-term was used.
Files:      src/fileio.c

Patch 8.0.1309
Problem:    Cannot use 'balloonexpr' in a terminal.
Solution:   Add 'balloonevalterm' and add code to handle mouse movements in a
            terminal. Initial implementation for Unix with GUI.
```

```
Files:      src/option.c, src/option.h, src/os_unix.c, src/proto/os_unix.pro,
            src/feature.h, src/misc2.c, src/keymap.h, src/edit.c,
            src/ex_getln.c, src/message.c, src/misc1.c, src/normal.c,
            src/terminal.c, src/getchar.c, src/ex_cmds2.c, src/gui_beval.c,
            src/proto/gui_beval.pro, src/evalfunc.c, src/popupmnu.c,
            src/proto/popupmnu.pro, src/version.c, src/globals.h, src/gui.c,
            runtime/doc/options.txt, src/term.c,
            runtime/pack/dist/opt/termdebug/plugin/termdebug.vim

Patch 8.0.1310
Problem:    Cproto generates errors because of missing type.
Solution:   Define _Float128 when generating prototypes.
Files:      src/vim.h

Patch 8.0.1311
Problem:    No test for strpart().
Solution:   Add a test. (Dominique Pelle, closes #2347)
Files:      src/testdir/test_functions.vim

Patch 8.0.1312 (after 8.0.1309)
Problem:    balloon_show() only works in terminal when compiled with the GUI.
Solution:   Add FEAT_BEVAL_GUI and refactor to move common code out of the GUI
            specific file.
Files:      src/feature.h, src/evalfunc.c, src/gui.c, src/gui_athena.c,
            src/gui_beval.c, src/proto/gui_beval.pro, src/beval.c,
            src/proto/beval.pro, src/gui_motif.c, src/gui_w32.c,
            src/gui_x11.c, src/integration.c, src/workshop.c, src/menu.c,
            src/netbeans.c, src/option.c, src/os_unix.c, src/os_win32.c,
            src/syntax.c, src/version.c, src/gui.h, src/gui_beval.h,
            src/vim.h, src/beval.h, src/option.h, src/ex_cmds2.c, src/ui.c,
            src/getchar.c, src/normal.c, src/popupmnu.c, src/globals.h,
            src/Makefile, src/Make_cyg_ming.mak, src/Make_mvc.mak,
            src/Make_vms.mms, Filelist

Patch 8.0.1313 (after 8.0.1312)
Problem:    Missing dependencies cause parallel make to fail.
Solution:   Update dependencies.
Files:      src/Makefile

Patch 8.0.1314 (after 8.0.1312)
Problem:    Build fails on Mac. (chdiza)
Solution:   Add #ifdef around GUI fields.
Files:      src/beval.h

Patch 8.0.1315 (after 8.0.1312)
Problem:    Build still fails on Mac. (chdiza)
Solution:   Remove bogus typedef.
Files:      src/os_macosx.m

Patch 8.0.1316 (after 8.0.1312)
Problem:    Build still still fails on Mac. (chdiza)
Solution:   Remove another bogus typedef.
Files:      src/os_mac_conv.c
```

Patch 8.0.1317
Problem: Accessing freed memory in term_wait(). (Dominique Pelle)
Solution: Check that the buffer still exists.
Files: src/terminal.c

Patch 8.0.1318
Problem: Terminal balloon only shows one line.
Solution: Split into several lines in a clever way. Add balloon_split().
            Make balloon_show() accept a list in the terminal.
Files: src/popupmnu.c, src/proto/popupmnu.pro, src/evalfunc.c,
            src/beval.c, src/proto/beval.pro, src/testdir/test_popup.vim,
            runtime/doc/eval.txt,
            runtime/pack/dist/opt/termdebug/plugin/termdebug.vim

Patch 8.0.1319
Problem: Can't build GUI on MS-Windows.
Solution: Don't define the balloon_split() function in a GUI-only build.
Files: src/evalfunc.c, runtime/doc/eval.txt

Patch 8.0.1320
Problem: Popup test fails on GUI-only build.
Solution: Don't test balloon_split() when it's not available.
Files: src/testdir/test_popup.vim

Patch 8.0.1321
Problem: Can't build huge version with Athena. (Mark Kelly)
Solution: Move including beval.h to before structs.h. Include beval.pro like
            other proto files.
Files: src/vim.h, src/beval.h, src/proto.h

Patch 8.0.1322
Problem: Textformat test isn't run. (Yegappan Lakshmanan)
Solution: Add target to the list of tests.
Files: src/testdir/Make_all.mak

Patch 8.0.1323
Problem: Mouse events in a terminal window may cause endless loop.
Solution: Adjust position computation. Don't stuff a mouse event when
            coming from normal_cmd().
Files: src/normal.c, src/terminal.c

Patch 8.0.1324
Problem: Some xterm sends different mouse move codes.
Solution: Also accept 0x80 as a move event.
Files: src/term.c

Patch 8.0.1325
Problem: More tests are not run.
Solution: Add targets to the list of tests. (Yegappan Lakshmanan)
Files: src/testdir/Make_all.mak

Patch 8.0.1326
Problem: Largefile test fails on CI, glob test on MS-Windows.
Solution: Remove largefile test from list of all tests. Don't run

```
            Test_glob() on non-unix systems.  More cleanup. (Yegappan
            Lakshmanan, closes #2354)
Files:      src/testdir/Make_all.mak, src/testdir/test_escaped_glob.vim,
            src/testdir/test_plus_arg_edit.vim

Patch 8.0.1327
Problem:    New proto file missing from distribution.
Solution:   Add it. (closes #2355)
Files:      Filelist

Patch 8.0.1328
Problem:    Trouble when using ":term ++close" with autocmd. (Gabriel Barta)
Solution:   Use aucmd_prepbuf() and aucmd_restbuf() instead of setting curbuf.
            (closes #2339)
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1329
Problem:    When a flaky test fails it also often fails the second time.
Solution:   Sleep a couple of seconds before the second try.
Files:      src/testdir/runtest.vim

Patch 8.0.1330
Problem:    MS-Windows: job in terminal can't get back to Vim.
Solution:   set VIM_SERVERNAME in the environment. (Yasuhiro Matsumoto, closes
            #2360)
Files:      runtime/doc/terminal.txt, src/os_win32.c, src/proto/os_win32.pro,
            src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1331
Problem:    Possible crash when window can be zero lines high. (Joseph
            Dornisch)
Solution:   Only set w_fraction if the window is at least two lines high.
Files:      src/window.c

Patch 8.0.1332
Problem:    Highlighting in quickfix window could be better. (Axel Bender)
Solution:   Use the qfSeparator highlight item. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.1333
Problem:    Some tests are run twice.
Solution:   Invoked most utf8 tests only from test_alot_utf8. (Yegappan
            Lakshmanan, closes #2369)
Files:      src/testdir/Make_all.mak, src/testdir/test_alot_utf8.vim,
            src/testdir/test_mksession_utf8.vim

Patch 8.0.1334
Problem:    Splitting a window with a WinBar damages window layout.
            (Lifepillar)
Solution:   Take the winbar into account when computing the new window
            position.  Add WINBAR_HEIGHT().
Files:      src/vim.h, src/window.c

Patch 8.0.1335
```

```
Problem:    Writefile() using fsync() may give an error for a device.
            (Yasuhiro Matsumoto)
Solution:   Ignore fsync() failing. (closes #2373)
Files:      src/evalfunc.c

Patch 8.0.1336
Problem:    Cannot use imactivatefunc() unless compiled with +xim.
Solution:   Allow using imactivatefunc() when not compiled with +xim.
            (Yasuhiro Matsumoto, closes #2349)
Files:      runtime/doc/options.txt, runtime/doc/mbyte.txt, src/mbyte.c,
            src/option.c, src/option.h, src/structs.h,
            src/testdir/test_iminsert.vim, src/Makefile,
            src/testdir/Make_all.mak, src/vim.h

Patch 8.0.1337 (after 8.0.1336)
Problem:    Typo in #ifdef.
Solution:   Fix the #if line.
Files:      src/mbyte.c

Patch 8.0.1338 (after 8.0.1337)
Problem:    USE_IM_CONTROL is confusing and incomplete.
Solution:   Just use FEAT_MBYTE.  Call 'imactivatefunc' also without GUI.
Files:      src/vim.h, src/edit.c, src/ex_getln.c, src/getchar.c, src/gui.c,
            src/gui_mac.c, src/gui_w32.c, src/mbyte.c, src/normal.c,
            src/option.c, src/ui.c, src/globals.h, src/option.h

Patch 8.0.1339
Problem:    No test for what 8.0.1335 fixes.
Solution:   Add a test. (Yasuhiro Matsumoto, closes #2373)
Files:      src/testdir/test_writefile.vim

Patch 8.0.1340
Problem:    MS-Windows: cannot build GUI without IME.
Solution:   Define im_get_status() and im_set_active() when IME is not used.
Files:      src/mbyte.c

Patch 8.0.1341
Problem:    'imactivatefunc' test fails on MS-Windows.
Solution:   Skip the text.
Files:      src/testdir/test_iminsert.vim, runtime/doc/options.txt

Patch 8.0.1342
Problem:    Cannot build with Motif and multi-byte. (Mohamed Boughaba)
Solution:   Use the right input method status flag. (closes #2374)
Files:      src/mbyte.c

Patch 8.0.1343
Problem:    MS-Windows: does not show colored emojis.
Solution:   Implement colored emojis. Improve drawing speed. Make 'taamode'
            work. (Taro Muraoka, Yasuhiro Matsumoto, Ken Takata, close #2375)
Files:      appveyor.yml, runtime/doc/options.txt, src/gui_dwrite.cpp,
            src/gui_dwrite.h, src/gui_w32.c, src/proto/gui_w32.pro

Patch 8.0.1344
```

```
Problem:    Using 'imactivatefunc' in the GUI does not work.
Solution:   Do not use 'imactivatefunc' and 'imstatusfunc' in the GUI.
Files:      runtime/doc/options.txt, src/mbyte.c,
            src/testdir/test_iminsert.vim

Patch 8.0.1345
Problem:    Race condition between stat() and open() for the viminfo temp
            file. (Simon Ruderich)
Solution:   use open() with O_EXCL to atomically check if the file exists.
            Don't try using a temp file, renaming it will fail anyway.
Files:      src/ex_cmds.c

Patch 8.0.1346
Problem:    Crash when passing 50 char string to balloon_split().
Solution:   Fix off-by-one error.
Files:      src/testdir/test_popup.vim, src/popupmnu.c

Patch 8.0.1347
Problem:    MS-Windows: build broken by misplaced curly.
Solution:   Move curly after #endif.
Files:      src/ex_cmds.c

Patch 8.0.1348
Problem:    Make testclean deletes script file on MS-Windows.
Solution:   Rename file to avoid it starting with an "x".
Files:      src/testdir/xterm_ramp.vim, src/testdir/color_ramp.vim, Filelist

Patch 8.0.1349
Problem:    Options test fails when using Motif or GTK GUI.
Solution:   Use "fixed" instead of "fixedsys" for Unix. Don't try "xxx" for
            guifonteset.  Don't set 'termencoding' to anything but "utf-8" for
            GTK.  Give an error if 'termencoding' can't be converted.
Files:      src/testdir/gen_opt_test.vim, src/option.c

Patch 8.0.1350
Problem:    Cannot build with +eval and -multi_byte.
Solution:   Adjust #ifdefs. (John Marriott)  Always include the multi_byte
            feature when an input method feature is enabled.
Files:      src/mbyte.c, src/feature.h

Patch 8.0.1351
Problem:    Warning for unused variables building with MinGW.
Solution:   Change a few #ifdefs (suggested by John Marriott). Remove
            superfluous checks of FEAT_MBYTE.
Files:      src/gui_w32.c

Patch 8.0.1352
Problem:    Dead URLs in the help go unnoticed.
Solution:   Add a script to check URLs in the help files. (Christian Brabandt)
Files:      runtime/doc/Makefile, runtime/doc/test_urls.vim, Filelist

Patch 8.0.1353
Problem:    QuickFixCmdPost is not used consistently.
Solution:   Invoke QuickFixCmdPost consistently after QuickFixCmdPre.
```

```
            (Yegappan Lakshmanan, closes #2377)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1354
Problem:    Shift-Insert doesn't always work in MS-Windows console.
Solution:   Handle K_NUL differently. (Yasuhiro Matsumoto, closes #2381)
Files:      src/os_win32.c

Patch 8.0.1355 (after 8.0.1354)
Problem:    Cursor keys don't work in MS-Windows console.
Solution:   Revert the previous patch.  Also delete dead code.
Files:      src/os_win32.c

Patch 8.0.1356
Problem:    Using simalt in a GUIEnter autocommand inserts strange characters.
            (Chih-Long Chang)
Solution:   Ignore K_NOP in Insert mode. (closes #2379)
Files:      src/edit.c, src/ex_getln.c

Patch 8.0.1357
Problem:    Startup test fails on OpenBSD. (Edd Barrett)
Solution:   Check for "BSD" instead of "FreeBSD" being defined. (James McCoy,
            closes #2376, closes #2378)
Files:      src/vim.h

Patch 8.0.1358
Problem:    Undercurl is not used in the terminal. (Kovid Goyal)
Solution:   Only fall back to underline when undercurl highlighting is not
            defined. (closes #1306)
Files:      src/screen.c

Patch 8.0.1359
Problem:    Libvterm ANSI colors can not always be recognized from the RGB
            values. The default color is wrong when t_RB is empty.
Solution:   Add the ANSI color index to VTermColor.
Files:      src/libvterm/include/vterm.h, src/libvterm/src/pen.c,
            src/terminal.c

Patch 8.0.1360
Problem:    The Terminal highlighting doesn't work in a terminal. (Ozaki
            Kiichi)
Solution:   Use the Terminal highlighting when the cterm index is zero.
Files:      src/terminal.c

Patch 8.0.1361
Problem:    Some users don't want to diff with hidden buffers.
Solution:   Add the "hiddenoff" item to 'diffopt'. (Alisue, closes #2394)
Files:      runtime/doc/options.txt, src/buffer.c, src/diff.c,
            src/proto/diff.pro, src/testdir/test_diffmode.vim

Patch 8.0.1362
Problem:    Terminal window colors wrong when using Terminal highlighting.
Solution:   Set ansi_index when setting the default color.  Also cache the
            color index for Terminal. (Ozaki Kiichi, closes #2393)
```

```
Files:      src/libvterm/src/pen.c, src/proto/terminal.pro, src/syntax.c,
            src/terminal.c

Patch 8.0.1363
Problem:    Recovering does not work when swap file ends in .stz.
Solution:   Check for all possible swap file names. (Elfling, closes #2395,
            closes #2396)
Files:      src/memline.c

Patch 8.0.1364
Problem:    There is no easy way to get the window position.
Solution:   Add win_screenpos().
Files:      src/evalfunc.c, src/testdir/test_window_cmd.vim,
            runtime/doc/eval.txt

Patch 8.0.1365
Problem:    When one channel test fails others fail as well.
Solution:   Stop the job after a failure.  Also add a couple of tests to the
            list of flaky tests.
Files:      src/testdir/test_channel.vim, src/testdir/runtest.vim

Patch 8.0.1366
Problem:    Balloon shows when cursor is in WinBar.
Solution:   Don't show the balloon when row is negative.
Files:      src/beval.c

Patch 8.0.1367
Problem:    terminal test hangs, executing abcde. (Stucki)
Solution:   Rename abcde to abxde.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1368
Problem:    Cannot drag status line or vertical separator of new terminal
            window. (UncleBill)
Solution:   Adjust mouse row and column computation. (Yasuhiro Matsumoto,
            closes #2410)
Files:      src/terminal.c

Patch 8.0.1369
Problem:    MS-Windows: drawing underline, curl and strikethrough is slow,
            mFallbackDC not properly updated.
Solution:   Several performance improvements. (Ken Takata, Taro Muraoka,
            Yasuhiro Matsumoto, closes #2401)
Files:      runtime/doc/options.txt, src/gui_dwrite.cpp, src/gui_dwrite.h,
            src/gui_w32.c

Patch 8.0.1370
Problem:    Channel test for callback is flaky.
Solution:   Add the test to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.1371
Problem:    Shift-Insert doesn't always work in MS-Windows console.
Solution:   Handle K_NUL differently if the second character is more than one
```

```
            byte. (Yasuhiro Matsumoto, closes #2381)
Files:      src/os_win32.c

Patch 8.0.1372
Problem:    Profile log may be truncated halfway a character.
Solution:   Find the start of the character. (Ozaki Kiichi, closes #2385)
Files:      src/ex_cmds2.c, src/testdir/test_profile.vim

Patch 8.0.1373
Problem:    No error when setting 'renderoptions' to an invalid value before
            starting the GUI.
Solution:   Always check the value. (Ken Takata, closes #2413)
Files:      src/gui_w32.c, src/option.c

Patch 8.0.1374
Problem:    CTRL-A does not work with an empty line. (Alex)
Solution:   Decrement the end only once. (Hirohito Higashi, closes #2387)
Files:      src/ops.c, src/testdir/test_increment.vim

Patch 8.0.1375
Problem:    Window size wrong after maximizing with WinBar. (Lifepillar)
Solution:   Fix height computations. Redraw window when it is zero height but
            has a WinBar. (closes #2356)
Files:      src/window.c, src/screen.c, src/vim.h

Patch 8.0.1376
Problem:    Cursor in terminal not always updated.
Solution:   Call gui_mch_flush(). (Ken Takata)
Files:      src/terminal.c

Patch 8.0.1377
Problem:    Cannot call a dict function in autoloaded dict.
Solution:   Call get_lval() passing the read-only flag.
Files:      src/userfunc.c, src/eval.c, src/testdir/sautest/autoload/foo.vim,
            src/testdir/sautest/autoload/globone.vim,
            src/testdir/sautest/autoload/globtwo.vim,
            src/testdir/test_escaped_glob.vim, src/Makefile,
            src/testdir/test_autoload.vim, src/Makefile,
            src/testdir/Make_all.mak

Patch 8.0.1378
Problem:    Autoload script sources itself when defining function.
Solution:   Pass TFN_NO_AUTOLOAD to trans_function_name(). (Yasuhiro
            Matsumoto, closes #2423)
Files:      src/userfunc.c, src/testdir/test_autoload.vim,
            src/testdir/sautest/autoload/sourced.vim

Patch 8.0.1379
Problem:    Configure check for selinux does not check for header file.
Solution:   Add an AC_CHECK_HEADER(). (Benny Siegert)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1380
Problem:    When recovering a file with "vim -r swapfile" the hit-enter prompt
```

```
            is at the top of the window.
Solution:   Invalidate the cursor position.
Files:      src/term.c

Patch 8.0.1381
Problem:    ch_readraw() waits for NL if channel mode is NL.
Solution:   Pass a "raw" flag to channel_read_block(). (Yasuhiro Matsumoto)
Files:      src/channel.c, src/proto/channel.pro,
            src/testdir/test_channel.vim, src/testdir/test_channel_pipe.py

Patch 8.0.1382
Problem:    Get "no write since last change" message if a terminal is open.
            (Fritz mehner)
Solution:   Don't consider a buffer changed if it's a terminal window.
Files:      src/ex_cmds.c, src/undo.c, src/proto/undo.pro

Patch 8.0.1383
Problem:    Local additions in help skips some files. (joshklod)
Solution:   Check the base file name length equals.
Files:      src/ex_cmds.c, src/testdir/test_help.vim

Patch 8.0.1384
Problem:    Not enough quickfix help; confusing winid.
Solution:   Add more examples in the help. When the quickfix window is not
            present, return zero for getqflist() with 'winid'. Add more tests
            for jumping to quickfix list entries. (Yegappan Lakshmanan, closes
            #2427)
Files:      runtime/doc/eval.txt, runtime/doc/quickfix.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.1385
Problem:    Python 3.5 is getting old.
Solution:   Make Python 3.6 the default. (Ken Takata, closes #2429)
Files:      runtime/doc/if_pyth.txt, src/INSTALLpc.txt, src/Make_cyg_ming.mak,
            src/Make_mvc.mak, src/bigvim.bat

Patch 8.0.1386
Problem:    Cannot select modified buffers with getbufinfo().
Solution:   Add the "bufmodified" flag. (Yegappan Lakshmanan, closes #2431)
Files:      runtime/doc/eval.txt, src/evalfunc.c,
            src/testdir/test_bufwintabinfo.vim

Patch 8.0.1387
Problem:    Wordcount test is old style.
Solution:   Change into a new style test. (Yegappan Lakshmanan, closes #2434)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_ming.mak,
            src/testdir/Make_vms.mms, src/testdir/test_wordcount.in,
            src/testdir/test_wordcount.ok, src/testdir/test_wordcount.vim

Patch 8.0.1388
Problem:    Char not overwritten with ambiguous width char, if the ambiguous
            char is single width but we reserve double-width space.
Solution:   First clear the screen cells. (Ozaki Kiichi, closes #2436)
Files:      src/screen.c
```

```
Patch 8.0.1389
Problem:    getqflist() items are missing if not set, that makes it more
            difficult to handle the values.
Solution:   When a value is not available return zero or another invalid
            value. (Yegappan Lakshmanan, closes #2430)
Files:      runtime/doc/eval.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.1390
Problem:    DirectX scrolling can be slow, vertical positioning is off.
Solution:   Make scroll slightly faster when using "scrlines:1". Fix y
            position of displayed text. Fix DirectX with non-utf8 encoding.
            (Ken Takata, closes #2440)
Files:      src/INSTALLpc.txt, src/Make_cyg_ming.mak, src/Make_mvc.mak,
            src/gui_dwrite.cpp, src/gui_w32.c

Patch 8.0.1391
Problem:    Encoding empty string to JSON sometimes gives "null".
Solution:   Handle NULL string as empty string. (closes #2446)
Files:      src/testdir/test_json.vim, src/json.c

Patch 8.0.1392
Problem:    Build fails with --with-features=huge --disable-channel.
Solution:   Don't enable the terminal feature when the channel feature is
            missing. (Dominique Pelle, closes #2453)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1393
Problem:    Too much highlighting with 'hlsearch' and 'incsearch' set.
Solution:   Do not highlight matches when the pattern matches everything.
Files:      src/ex_getln.c

Patch 8.0.1394
Problem:    Cannot intercept a yank command.
Solution:   Add the TextYankPost autocommand event. (Philippe Vaucher et al.,
            closes #2333)
Files:      runtime/doc/autocmd.txt, runtime/doc/eval.txt, src/dict.c,
            src/eval.c, src/fileio.c, src/ops.c, src/proto/dict.pro,
            src/proto/eval.pro, src/proto/fileio.pro,
            src/testdir/test_autocmd.vim, src/vim.h

Patch 8.0.1395
Problem:    It is not easy to see if a colorscheme is well written.
Solution:   Add a script that checks for common mistakes. (Christian Brabandt)
Files:      runtime/colors/check_colors.vim, runtime/colors/README.txt

Patch 8.0.1396
Problem:    Memory leak when CTRL-G in search command line fails.
Solution:   Move restore_last_search_pattern to after "if".
Files:      src/ex_getln.c

Patch 8.0.1397
Problem:    Pattern with \& following nothing gives an error.
```

```
Solution:   Emit an empty node when needed.
Files:      src/regexp_nfa.c, src/testdir/test_search.vim

Patch 8.0.1398
Problem:    :packadd does not load packages from the "start" directory.
            (Alejandro Hernandez)
Solution:   Make :packadd look in the "start" directory if those packages were
            not loaded on startup.
Files:      src/ex_cmds2.c, src/testdir/test_packadd.vim

Patch 8.0.1399
Problem:    Warnings and errors when building tiny version. (Tony Mechelynck)
Solution:   Add #ifdefs.
Files:      src/ex_getln.c, src/ops.c

Patch 8.0.1400
Problem:    Color scheme check script shows up as color scheme.
Solution:   Move it to the "tools" subdirectory. (closes #2457)
Files:      Filelist, runtime/colors/check_colors.vim,
            runtime/colors/tools/check_colors.vim, runtime/colors/README.txt

Patch 8.0.1401
Problem:    Cannot build with GTK but without XIM. (Guido)
Solution:   Adjust #ifdef. (closes #2461)
Files:      src/gui.c

Patch 8.0.1402
Problem:    Crash with nasty autocommand. (gy741, Dominique Pelle)
Solution:   Check that the new current buffer isn't wiped out. (closes #2447)
Files:      src/buffer.c, src/testdir/test_autocmd.vim

Patch 8.0.1403
Problem:    Using freed buffer in grep command. (gy741, Dominique Pelle)
Solution:   Lock the dummy buffer to avoid autocommands wiping it out.
Files:      src/quickfix.c, src/testdir/test_autocmd.vim

Patch 8.0.1404
Problem:    Invalid memory access on exit when autocommands wipe out a buffer.
            (gy741, Dominique Pelle)
Solution:   Check if the buffer is still valid. (closes #2449)
Files:      src/main.c

Patch 8.0.1405
Problem:    Duplicated code for getting a typed character. CursorHold is
            called too often in the GUI. (lilydjwg)
Solution:   Refactor code to move code up from mch_inchar().  Don't fire
            CursorHold if feedkeys() was used. (closes #2451)
Files:      src/gui.c, src/proto/gui.pro, src/main.c, src/ui.c,
            src/proto/ui.pro, src/os_unix.c

Patch 8.0.1406
Problem:    Difficult to track changes to a quickfix list.
Solution:   Add a "changedtick" value. (Yegappan Lakshmanan, closes #2460)
Files:      runtime/doc/eval.txt, runtime/doc/quickfix.txt, src/quickfix.c,
```

```
            src/testdir/test_quickfix.vim

Patch 8.0.1407
Problem:    GUI: CursorHold may trigger before 'updatetime' when using timers.
Solution:   Check that 'updatetime' has passed.
Files:      src/gui.c

Patch 8.0.1408
Problem:    Crash in setqflist().
Solution:   Check for string to be NULL. (Dominique Pelle, closes #2464)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1409
Problem:    Buffer overflow in :tags command.
Solution:   Use vim_snprintf(). (Dominique Pelle, closes #2471, closes #2475)
            Add a test.
Files:      src/testdir/test_taglist.vim, src/tag.c

Patch 8.0.1410
Problem:    Hang when using count() with an empty string.
Solution:   Return zero for an empty string. (Dominique Pelle, closes #2465)
Files:      runtime/doc/eval.txt, src/evalfunc.c,
            src/testdir/test_functions.vim

Patch 8.0.1411
Problem:    Reading invalid memory with CTRL-W :.
Solution:   Correct the command characters. (closes #2469)
Files:      src/normal.c, src/testdir/test_window_cmd.vim, src/ops.c

Patch 8.0.1412
Problem:    Using free memory using setloclist(). (Dominique Pelle)
Solution:   Mark location list context as still in use when needed. (Yegappan
            Lakshmanan, closes #2462)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1413
Problem:    Accessing freed memory in :cbuffer.
Solution:   Get quickfix list after executing autocmds. (closes #2470)
Files:      src/quickfix.c, src/testdir/test_autocmd.vim

Patch 8.0.1414
Problem:    Accessing freed memory in :lfile.
Solution:   Get the current window after executing autocommands. (Yegappan
            Lakshmanan, closes #2473)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1415
Problem:    Warning for unused function without timers feature.
Solution:   Add #ifdef. (John Marriott)
Files:      src/gui.c

Patch 8.0.1416
Problem:    Crash when searching for a sentence.
Solution:   Return NUL when getting character at MAXCOL. (closes #2468)
```

```
Files:      src/misc1.c, src/misc2.c, src/testdir/test_search.vim,
            src/ex_docmd.c

Patch 8.0.1417
Problem:    Test doesn't search for a sentence. Still fails when searching for
            start of sentence. (Dominique Pelle)
Solution:   Add paren. Check for MAXCOL in dec().
Files:      src/testdir/test_search.vim, src/misc2.c

Patch 8.0.1418
Problem:    No test for expanding backticks.
Solution:   Add a test. (Dominique Pelle, closes #2479)
Files:      src/testdir/test_normal.vim

Patch 8.0.1419
Problem:    Cursor column is not updated after ]s. (Gary Johnson)
Solution:   Set the curswant flag.
Files:      src/testdir/test_spell.vim, src/normal.c, src/evalfunc.c

Patch 8.0.1420
Problem:    Accessing freed memory in vimgrep.
Solution:   Check that the quickfix list is still valid. (Yegappan Lakshmanan,
            closes #2474)
Files:      src/quickfix.c, src/testdir/test_autocmd.vim,
            src/testdir/test_quickfix.vim

Patch 8.0.1421
Problem:    Accessing invalid memory with overlong byte sequence.
Solution:   Check for NUL character. (test by Dominique Pelle, closes #2485)
Files:      src/misc2.c, src/testdir/test_functions.vim

Patch 8.0.1422
Problem:    No fallback to underline when undercurl is not set. (Ben Jackson)
Solution:   Check for the value to be empty instead of NULL. (closes #2424)
Files:      src/screen.c

Patch 8.0.1423
Problem:    Error in return not caught by try/catch.
Solution:   Call update_force_abort(). (Yasuhiro Matsumoto, closes #2483)
Files:      src/testdir/test_eval.in, src/testdir/test_eval_stuff.vim,
            src/Makefile, src/testdir/Make_all.mak, src/userfunc.c

Patch 8.0.1424
Problem:    The timer_pause test is flaky on Travis.
Solution:   Accept a longer sleep time on Mac.
Files:      src/testdir/test_timers.vim

Patch 8.0.1425
Problem:    execute() does not work in completion of user command. (thinca)
Solution:   Switch off redir_off and restore it. (Ozaki Kiichi, closes #2492)
Files:      src/evalfunc.c, src/testdir/test_usercommands.vim

Patch 8.0.1426
Problem:    "gf" and <cfile> don't accept ? and & in URL. (Dmitrii Tcyganok)
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Solution:   Check for a URL and allow for extra characters. (closes #2493)
Files:      src/window.c, src/testdir/test_gf.vim

Patch 8.0.1427
Problem:    The :leftabove modifier doesn't work for :copen.
Solution:   Respect the split modifier. (Yegappan Lakshmanan, closes #2496)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1428
Problem:    Compiler warning on 64 bit MS-Windows system.
Solution:   Change type from "int" to "size_t". (Mike Williams)
Files:      src/ex_getln.c

Patch 8.0.1429
Problem:    Crash when calling term_start() with empty argument.
Solution:   Check for invalid argument. (Yasuhiro Matsumoto, closes #2503)
            Fix memory leak.
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1430 (after 8.0.1429)
Problem:    Crash when term_start() fails.
Solution:   Initialize winpty_err.
Files:      src/terminal.c

Patch 8.0.1431
Problem:    MS-Windows: vimtutor fails if %TMP% has special chars.
Solution:   Add quotes. (Tamce, closes #2561)
Files:      vimtutor.bat

Patch 8.0.1432
Problem:    After ":copen" can't get the window-ID of the quickfix window.
            (FalacerSelene)
Solution:   Make it work without a quickfix list.  Add a test. (Yegappan
            Lakshmanan, closes #2541)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1433
Problem:    Illegal memory access after undo. (Dominique Pelle)
Solution:   Avoid the column becomes negative. (Christian Brabandt,
            closes #2533)
Files:      src/mbyte.c, src/testdir/test_undo.vim

Patch 8.0.1434
Problem:    GTK: :promtfind does not put focus on text input. (Adam Novak)
Solution:   When re-opening the dialog put focus on the text input. (Kazunobu
            Kuriyama, closes #2563)
Files:      src/gui_gtk.c

Patch 8.0.1435
Problem:    Memory leak in test_arabic.
Solution:   Free the from and to parts. (Christian Brabandt, closes #2569)
Files:      src/buffer.c, src/digraph.c, src/proto/digraph.pro

Patch 8.0.1436
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```
Problem:    Not enough information about what Python version may work.
Solution:   Add "python_compiled", "python3_compiled", "python_dynamic" and
            "python3_dynamic" values for has().
Files:      src/evalfunc.c, runtime/doc/eval.txt

Patch 8.0.1437
Problem:    Pkg-config doesn't work with cross compiling.
Solution:   Use AC_PATH_TOOL() instead of AC_PATH_PROG(). (James McCoy,
            closes #2513)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1438
Problem:    Filetype detection test not updated for change.
Solution:   Update the test.
Files:      src/testdir/test_filetype.vim

Patch 8.0.1439
Problem:    If cscope fails a search Vim may hang.
Solution:   Bail out when a search error is encountered. (Safouane Baroudi,
            closes #2598)
Files:      src/if_cscope.c

Patch 8.0.1440
Problem:    Terminal window: some vterm responses are delayed.
Solution:   After writing input. check if there is output to read. (Ozaki
            Kiichi, closes #2594)
Files:      src/terminal.c, src/testdir/test_search.vim,
            src/testdir/test_terminal.vim

Patch 8.0.1441
Problem:    Using ":undo 0" leaves undo in wrong state.
Solution:   Instead of searching for state 1 and go above, just use the start.
            (Ozaki Kiichi, closes #2595)
Files:      src/undo.c, src/testdir/test_undo.vim

Patch 8.0.1442 (after 8.0.1439)
Problem:    Using pointer before it is set.
Solution:   Search in whole buffer instead of next token.
Files:      src/if_cscope.c

Patch 8.0.1443 (after 8.0.1441)
Problem:    Compiler complains about uninitialized variable. (Tony Mechelynck)
Solution:   Assign a value to the variable.
Files:      src/undo.c

Patch 8.0.1444
Problem:    Missing -D_FILE_OFFSET_BITS=64 may cause problems if a library is
            compiled with it.
Solution:   Include -D_FILE_OFFSET_BITS if some CFLAGS has it. (James McCoy,
            closes #2600)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1445
Problem:    Cannot act on edits in the command line.
```

```
Solution:   Add the CmdlineChanged autocommand event. (xtal8, closes #2603,
            closes #2524)
Files:      runtime/doc/autocmd.txt, src/ex_getln.c, src/fileio.c,
            src/testdir/test_autocmd.vim, src/vim.h

Patch 8.0.1446
Problem:    Accessing freed memory after window command in auto command.
            (gy741)
Solution:   Adjust the pointer in the parent frame. (Christian Brabandt,
            closes #2467)
Files:      src/window.c, src/testdir/test_window_cmd.vim

Patch 8.0.1447
Problem:    Still too many old style tests.
Solution:   Turn a few tests into new style. (Yegappan Lakshmanan,
            closes #2509)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Make_vms.mms,
            src/testdir/main.aap, src/testdir/test15.in,
            src/testdir/test15.ok, src/testdir/test36.in,
            src/testdir/test36.ok, src/testdir/test50.in,
            src/testdir/test50.ok, src/testdir/test_regex_char_classes.vim,
            src/testdir/test_shortpathname.vim,
            src/testdir/test_textformat.vim

Patch 8.0.1448
Problem:    Segmentation fault when Ruby throws an exception inside :rubyfile
            command.
Solution:   Use rb_protect() instead of rb_load_protect(). (ujihisa,
            closes #2147, greywolf, closes #2512, #2511)
Files:      src/if_ruby.c, src/testdir/test_ruby.vim

Patch 8.0.1449
Problem:    Slow redrawing with DirectX.
Solution:   Avoid calling gui_mch_flush() unnecessarily, especially when
            updating the cursor. (Ken Takata, closes #2560)
Files:      runtime/doc/options.txt, src/channel.c, src/edit.c, src/getchar.c,
            src/gui.c, src/gui_dwrite.cpp, src/gui_dwrite.h, src/gui_w32.c,
            src/macros.h, src/main.c, src/message.c, src/netbeans.c,
            src/proto/gui.pro, src/proto/term.pro, src/screen.c, src/search.c,
            src/term.c, src/ui.c

Patch 8.0.1450
Problem:    Endless loop when gui_mch_stop_blink() is called while blink_state
            is BLINK_OFF. (zdohnal)
Solution:   Avoid calling gui_update_cursor() recursively.
Files:      src/gui.c, src/gui_gtk_x11.c, src/proto/gui_gtk_x11.pro,
            src/gui_mac.c, src/proto/gui_mac.pro, src/gui_photon.c,
            src/proto/gui_photon.pro, src/gui_w32.c, src/proto/gui_w32.pro,
            src/gui_x11.c, src/proto/gui_x11.pro

Patch 8.0.1451
Problem:    It is difficult to set the python home directory properly for
            Python 2.7 and 3.5 since both use $PYTHONHOME.
Solution:   Add the 'pythonhome' and 'pythonthreehome' options. (Kazuki
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            Sakamoto, closes #1266)
Files:      runtime/doc/options.txt, runtime/doc/quickref.txt,
            runtime/optwin.vim, src/if_python.c, src/if_python3.c,
            src/option.c, src/option.h

Patch 8.0.1452
Problem:    Terminal test fails on some systems. (jonathonf)
Solution:   Use "cat" instead of Python to produce the input.  Add a delay.
            (closes #2607)
Files:      src/testdir/test_terminal.vim

Patch 8.0.1453
Problem:    Terminal test fails on some slow terminals.
Solution:   Increase timeout to 10 seconds.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1454
Problem:    When in silent mode too much output is buffered.
Solution:   Use line buffering instead of fully buffered. (Brian M. Carlson,
            closes #2537)
Files:      src/main.c

Patch 8.0.1455
Problem:    If $SHELL contains a space then the default value of 'shell' is
            incorrect. (Matthew Horan)
Solution:   Escape spaces in $SHELL. (Christian Brabandt, closes #459)
Files:      src/option.c, runtime/doc/options.txt,
            src/testdir/test_startup.vim

Patch 8.0.1456
Problem:    Timer test on travis Mac is still flaky.
Solution:   Increase time range a bit more.
Files:      src/testdir/test_timers.vim

Patch 8.0.1457
Problem:    Clojure now supports a shebang line.
Solution:   Detect clojure script from the shebang line. (David Burgin,
            closes #2570)
Files:      runtime/scripts.vim

Patch 8.0.1458
Problem:    Filetype detection test does not check all scripts.
Solution:   Add most scripts to the test
Files:      src/testdir/test_filetype.vim

Patch 8.0.1459
Problem:    Cannot handle change of directory.
Solution:   Add the DirChanged autocommand event. (Andy Massimino,
            closes #888)  Avoid changing directory for 'autochdir' too often.
Files:      runtime/doc/autocmd.txt, src/buffer.c, src/ex_docmd.c,
            src/fileio.c, src/main.c, src/vim.h, src/proto/misc2.pro,
            src/gui_mac.c, src/netbeans.c, src/os_win32.c,
            src/testdir/test_autocmd.vim
```

```
Patch 8.0.1460 (after 8.0.1459)
Problem:    Missing file in patch.
Solution:   Add changes to missing file.
Files:      src/misc2.c

Patch 8.0.1461 (after 8.0.1459)
Problem:    Missing another file in patch.
Solution:   Add changes to missing file.
Files:      src/ex_cmds.c

Patch 8.0.1462 (after 8.0.1459)
Problem:    Missing yet another file in patch.
Solution:   Add changes to missing file.
Files:      src/gui.c

Patch 8.0.1463
Problem:    Test fails without 'autochdir' option.
Solution:   Skip test if 'autochdir' is not supported.
Files:      src/testdir/test_autocmd.vim

Patch 8.0.1464
Problem:    Completing directory after :find does not add slash.
Solution:   Adjust the flags for globpath(). (Genki Sky)
Files:      src/misc1.c, src/testdir/test_find_complete.vim

Patch 8.0.1465
Problem:    Python2 and python3 detection not tested. (Matej Cepl)
Solution:   Add test for detecting python2 and python3.  Also detect a script
            using "js" as javascript.
Files:      runtime/scripts.vim, src/testdir/test_filetype.vim

Patch 8.0.1466
Problem:    Older GTK versions don't have gtk_entry_get_text_length().
Solution:   Add a function with #ifdefs to take care of GTK version
            differences. (Kazunobu Kuriyama, closes #2605)
Files:      src/gui_gtk.c

Patch 8.0.1467
Problem:    Libvterm doesn't handle illegal byte sequence correctly.
Solution:   After the invalid code check if there is space to store another
            character.  Allocate one more character. (zhykzhykzhyk, closes
            #2614, closes #2613)
Files:      src/libvterm/src/encoding.c, src/libvterm/src/state.c

Patch 8.0.1468
Problem:    Illegal memory access in del_bytes().
Solution:   Check for negative byte count. (Christian Brabandt, closes #2466)
Files:      src/message.c, src/misc1.c

Patch 8.0.1469
Problem:    When package path is a symlink adding it to 'runtimepath' happens
            at the end.
Solution:   Do not resolve symlinks before locating the position in
            'runtimepath'. (Ozaki Kiichi, closes #2604)
```

```
Files:      src/ex_cmds2.c, src/testdir/test_packadd.vim

Patch 8.0.1470
Problem:    Integer overflow when using regexp pattern. (geeknik)
Solution:   Use a long instead of int. (Christian Brabandt, closes #2251)
Files:      src/regexp_nfa.c

Patch 8.0.1471 (after 8.0.1401)
Problem:    On MS-Windows CursorIM highlighting no longer works.
Solution:   Adjust #if statements. (Ken Takata)
Files:      src/gui.c

Patch 8.0.1472
Problem:    MS-Windows: nsis installer is a bit slow.
Solution:   Use ReserveFile for vimrc.ini. (Ken Takata, closes #2522)
Files:      nsis/gvim.nsi

Patch 8.0.1473
Problem:    MS-Windows: D&D fails between 32 and 64 bit apps.
Solution:   Add the /HIGHENTROPYVA:NO linker option. (Ken Takata, closes #2504)
Files:      src/Make_mvc.mak

Patch 8.0.1474
Problem:    Visual C 2017 has multiple MSVCVER numbers.
Solution:   Assume the 2017 version if MSVCVER >= 1910. (Leonardo Valeri
            Manera, closes #2619)
Files:      src/Make_mvc.mak

Patch 8.0.1475
Problem:    Invalid memory access in read_redo(). (gy741)
Solution:   Convert the replacement character back from a negative number to
            CR or NL. (hint by Dominique Pelle, closes #2616)
Files:      src/testdir/test_undo.vim, src/normal.c, src/vim.h, src/ops.c

Patch 8.0.1476
Problem:    Screen isn't always updated right away.
Solution:   Adjust #ifdef: Call out_flush() when not running the GUI.
Files:      src/screen.c

Patch 8.0.1477
Problem:    Redraw flicker when moving the mouse outside of terminal window.
Solution:   Instead of updating the cursor color and shape every time leaving
            and entering a terminal window, only update when different from
            the previously used cursor.
Files:      src/terminal.c

Patch 8.0.1478
Problem:    Unnecessary condition for "len" being zero.
Solution:   Remove the condition. (Dominique Pelle)
Files:      src/regexp_nfa.c

Patch 8.0.1479
Problem:    Insert mode completion state is confusing.
Solution:   Move ctrl_x_mode into edit.c.  Add CTRL_X_NORMAL for zero.
```

```
Files:      src/edit.c, src/globals.h, src/proto/edit.pro, src/search.c,
            src/getchar.c

Patch 8.0.1480 (after 8.0.1479)
Problem:    Patch missing change.
Solution:   Add missing change.
Files:      src/evalfunc.c

Patch 8.0.1481
Problem:    Clearing a pointer takes two lines.
Solution:   Add vim_clear() to free and clear the pointer.
Files:      src/misc2.c, src/proto/misc2.pro, src/edit.c

Patch 8.0.1482
Problem:    Using feedkeys() does not work to test Insert mode completion.
            (Lifepillar)
Solution:   Do not check for typed keys when executing :normal or feedkeys().
            Fix thesaurus completion not working when 'complete' is empty.
Files:      src/edit.c, src/testdir/test_ins_complete.vim,
            src/testdir/test_popup.vim, src/testdir/test_edit.vim

Patch 8.0.1483
Problem:    Searchpair() might return an invalid value on timeout.
Solution:   When the second search times out, do not accept a match from the
            first search. (Daniel Hahler, closes #2552)
Files:      src/search.c

Patch 8.0.1484
Problem:    Redundant conditions.
Solution:   Remove them. (Dominique Pelle)
Files:      src/terminal.c

Patch 8.0.1485
Problem:    Weird autocmd may cause arglist to be changed recursively.
Solution:   Prevent recursively changing the argument list. (Christian
            Brabandt, closes #2472)
Files:      src/ex_docmd.c, src/globals.h

Patch 8.0.1486
Problem:    Accessing invalid memory with "it". (Dominique Pelle)
Solution:   Avoid going over the end of the line. (Christian Brabandt,
            closes #2532)
Files:      src/search.c, src/testdir/test_textobjects.vim

Patch 8.0.1487 (after 8.0.1486)
Problem:    Test 14 fails.
Solution:   Fix of-by-one error.
Files:      src/search.c

Patch 8.0.1488 (after 8.0.1218)
Problem:    Emacs tags no longer work. (zdohnal)
Solution:   Do not skip over end of line.
Files:      src/tag.c, src/testdir/test_tagjump.vim
```

```
Patch 8.0.1489
Problem:    There is no easy way to get the global directory, esp. if some
            windows have a local directory.
Solution:   Make getcwd(-1) return the global directory. (Andy Massimino,
            closes #2606)
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/testdir/test_getcwd.vim

Patch 8.0.1490
Problem:    Number of spell regions is spread out through the code.
Solution:   Define MAXREGIONS.
Files:      src/spell.h, src/spellfile.c

Patch 8.0.1491
Problem:    The minimum width of the popup menu is hard coded.
Solution:   Add the 'pumwidth' option. (Christian Brabandt, James McCoy,
            closes #2314)
Files:      runtime/doc/options.txt, src/option.c, src/option.h,
            src/popupmnu.c

Patch 8.0.1492
Problem:    Memory leak in balloon_split().
Solution:   Free the balloon lines. Free the balloon when exiting.
Files:      src/misc2.c, src/evalfunc.c

Patch 8.0.1493
Problem:    Completion items cannot be annotated.
Solution:   Add a "user_data" entry to the completion item. (Ben Jackson,
            closes #2608, closes #2508)
Files:      runtime/doc/insert.txt, src/edit.c, src/structs.h,
            src/testdir/test_ins_complete.vim

Patch 8.0.1494
Problem:    No autocmd triggered in Insert mode with visible popup menu.
Solution:   Add TextChangedP. (Prabir Shrestha, Christian Brabandt,
            closes #2372, closes #1691)
            Fix that the TextChanged autocommands are not always triggered
            when sourcing a script.
Files:      runtime/doc/autocmd.txt, src/edit.c, src/globals.h, src/structs.h,
            src/fileio.c, src/proto/fileio.pro, src/vim.h, src/main.c,
            src/testdir/test_autocmd.vim

Patch 8.0.1495
Problem:    Having 'pumwidth' default to zero has no merit.
Solution:   Make the default 15, as the actual default value.
Files:      src/popupmnu.c, src/option.c

Patch 8.0.1496
Problem:    Clearing a pointer takes two lines.
Solution:   Add VIM_CLEAR() and replace vim_clear(). (Hirohito Higashi,
            closes #2629)
Files:      src/buffer.c, src/channel.c, src/crypt.c, src/edit.c, src/eval.c,
            src/evalfunc.c, src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c,
            src/ex_getln.c, src/fileio.c, src/gui_gtk_x11.c, src/gui_photon.c,
            src/gui_w32.c, src/gui_x11.c, src/hardcopy.c, src/if_cscope.c,
```

```
            src/macros.h, src/main.c, src/mark.c, src/mbyte.c, src/memfile.c,
            src/memline.c, src/menu.c, src/message.c, src/misc1.c,
            src/misc2.c, src/netbeans.c, src/normal.c, src/ops.c,
            src/option.c, src/os_amiga.c, src/os_mac_conv.c, src/os_mswin.c,
            src/os_unix.c, src/os_win32.c, src/popupmnu.c,
            src/proto/misc2.pro, src/quickfix.c, src/regexp.c,
            src/regexp_nfa.c, src/screen.c, src/search.c, src/spell.c,
            src/spellfile.c, src/syntax.c, src/tag.c, src/term.c,
            src/terminal.c, src/ui.c, src/undo.c, src/userfunc.c, src/window.c

Patch 8.0.1497
Problem:    Getting the jump list requires parsing the output of :jumps.
Solution:   Add getjumplist(). (Yegappan Lakshmanan, closes #2609)
Files:      runtime/doc/eval.txt, runtime/doc/usr_41.txt, src/Makefile,
            src/evalfunc.c, src/list.c, src/proto/list.pro,
            src/testdir/Make_all.mak, src/testdir/test_jumplist.vim

Patch 8.0.1498 (after 8.0.1497)
Problem:    Getjumplist() returns duplicate entries. (lacygoill)
Solution:   Call cleanup_jumplist(). (Yegappan Lakshmanan)
Files:      src/evalfunc.c, src/mark.c, src/proto/mark.pro,
            src/testdir/test_jumplist.vim

Patch 8.0.1499
Problem:    Out-of-memory situation not correctly handled. (Coverity)
Solution:   Check for NULL value.
Files:      src/terminal.c

Patch 8.0.1500
Problem:    Possible NULL pointer dereference. (Coverity)
Solution:   Check for the pointer not being NULL.
Files:      src/quickfix.c

Patch 8.0.1501
Problem:    Out-of-memory situation not correctly handled. (Coverity)
Solution:   Check for NULL value.
Files:      src/ops.c

Patch 8.0.1502
Problem:    In out-of-memory situation character is not restored. (Coverity)
Solution:   Restore the character in all situations.
Files:      src/ex_getln.c

Patch 8.0.1503
Problem:    Access memory beyond end of string. (Coverity)
Solution:   Keep allocated memory in separate pointer.  Avoid outputting the
            NUL character.
Files:      src/hardcopy.c

Patch 8.0.1504
Problem:    Win32: the screen may be cleared on startup.
Solution:   Only call shell_resized() when the size actually changed. (Ken
            Takata, closes #2527)
Files:      src/os_win32.c
```

```
Patch 8.0.1505
Problem:    Debugger can't break on a condition. (Charles Campbell)
Solution:   Add ":breakadd expr". (Christian Brabandt, closes #859)
Files:      runtime/doc/repeat.txt, src/eval.c, src/evalfunc.c,
            src/userfunc.c, src/ex_cmds2.c, src/ex_docmd.c,
            src/proto/eval.pro, src/proto/ex_cmds2.pro, src/structs.h

Patch 8.0.1506
Problem:    New version of HP NonStop (Tandem) doesn't like the default header
            for setenv().
Solution:   Put a #ifdef around the setenv() entry. (Joachim Schmitz)
Files:      src/osdef2.h.in

Patch 8.0.1507
Problem:    Timer test is a bit flaky.
Solution:   Add it to the list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.1508
Problem:    The :drop command is not always available.
Solution:   Include :drop in all builds. (Yasuhiro Matsumoto, closes #2639)
Files:      runtime/doc/windows.txt, src/ex_cmds.c, src/ex_cmds2.c,
            src/ex_docmd.c, src/testdir/test_normal.vim,
            src/testdir/test_tabpage.vim

Patch 8.0.1509 (after 8.0.1508)
Problem:    Test for failing drag-n-drop command no longer fails.
Solution:   Check for the "dnd" feature.
Files:      src/testdir/test_normal.vim

Patch 8.0.1510
Problem:    Cannot test if a command causes a beep.
Solution:   Add assert_beeps().
Files:      runtime/doc/eval.txt, src/evalfunc.c, src/eval.c,
            src/proto/eval.pro, src/misc1.c, src/globals.h,
            src/testdir/test_normal.vim, src/testdir/test_assert.vim

Patch 8.0.1511 (after 8.0.1505)
Problem:    Some code for the debugger watch expression is clumsy.
Solution:   Clean up the code.
Files:      src/ex_cmds2.c, src/eval.c, src/proto/eval.pro

Patch 8.0.1512
Problem:    Warning for possibly using NULL pointer. (Coverity)
Solution:   Skip using the pointer if it's NULL.
Files:      src/ex_cmds.c

Patch 8.0.1513
Problem:    The jumplist is not always properly cleaned up.
Solution:   Call fname2fnum() before cleanup_jumplist(). (Yegappan Lakshmanan)
Files:      src/evalfunc.c, src/mark.c, src/proto/mark.pro

Patch 8.0.1514
```

```
Problem:    Getting the list of changes is not easy.
Solution:   Add the getchangelist() function. (Yegappan Lakshmanan,
            closes #2634)
Files:      runtime/doc/eval.txt, runtime/doc/usr_41.txt, src/evalfunc.c,
            src/testdir/Make_all.mak, src/testdir/test_changelist.vim,
            src/Makefile

Patch 8.0.1515
Problem:    BufWinEnter event fired when opening hidden terminal.
Solution:   Do not fire BufWinEnter when the terminal is hidden and does not
            open a window. (Kenta Sato, closes #2636)
Files:      src/terminal.c

Patch 8.0.1516
Problem:    Errors for job options are not very specific.
Solution:   Add more specific error messages.
Files:      src/channel.c, src/globals.h

Patch 8.0.1517
Problem:    Invalid memory access with pattern using look-behind match.
            (Dominique Pelle)
Solution:   Get a pointer to the right line.
Files:      src/regexp.c

Patch 8.0.1518
Problem:    Error messages suppressed after ":silent! try". (Ben Reilly)
Solution:   Restore emsg_silent before executing :try. (closes #2531)
Files:      src/ex_docmd.c, src/testdir/test_eval_stuff.vim

Patch 8.0.1519
Problem:    Getchangelist() does not use argument as bufname().
Solution:   Use get_buf_tv(). (Yegappan Lakshmanan, closes #2641)
Files:      src/evalfunc.c, src/testdir/test_changelist.vim

Patch 8.0.1520
Problem:    Cursor is in the wrong line when using a WinBar in a Terminal
            window.
Solution:   Adjust the row number. (Christian Brabandt, closes #2362)
Files:      src/screen.c, src/terminal.c

Patch 8.0.1521
Problem:    Shift-Tab does not work in a terminal window.
Solution:   Recognize Shift-Tab key press. (Jsees Luehrs, closes #2644)
Files:      src/terminal.c

Patch 8.0.1522 (after 8.0.1491)
Problem:    Popup menu is positioned in the wrong place. (Davit Samvelyan,
            Boris Staletic)
Solution:   Correct computation of the column and the conditions for that.
            (Hirohito Higashi, closes #2640)
Files:      src/popupmnu.c

Patch 8.0.1523
Problem:    Cannot write and read terminal screendumps.
```

```
Solution:   Add term_dumpwrite(), term_dumpread() and term_dumpdiff().
            Also add assert_equalfile().
Files:      src/terminal.c, src/proto/terminal.pro, src/evalfunc.c,
            src/normal.c, src/eval.c, src/proto/eval.pro,
            runtime/doc/eval.txt, src/testdir/test_assert.vim

Patch 8.0.1524 (after 8.0.1523)
Problem:    Compiler warnings for uninitialized variables. (Tony Mechelynck)
Solution:   Initialize variables.
Files:      src/terminal.c

Patch 8.0.1525
Problem:    Using :wqa exits even if a job runs in a terminal window. (Jason
            Felice)
Solution:   Check if a terminal has a running job. (closes #2654)
Files:      src/ex_cmds2.c, src/buffer.c, src/proto/buffer.pro, src/ex_cmds.c,
            src/testdir/test_terminal.vim

Patch 8.0.1526
Problem:    No test using a screen dump yet.
Solution:   Add a test for C syntax highlighting.  Add helper functions.
Files:      src/terminal.c, src/testdir/test_syntax.vim,
            src/testdir/shared.vim, src/testdir/screendump.vim,
            src/testdir/dumps/Test_syntax_c_01.dump, runtime/doc/terminal.txt,
            src/testdir/README.txt

Patch 8.0.1527 (after 8.0.1526)
Problem:    Screen dump test fails on MS-Windows.
Solution:   Skip dump test on MS-Windows for now.
Files:      src/testdir/test_syntax.vim

Patch 8.0.1528
Problem:    Dead code found.
Solution:   Remove the useless lines. (CodeAi, closes #2656)
Files:      src/screen.c, src/spell.c, src/syntax.c, src/window.c

Patch 8.0.1529
Problem:    Assert_equalfile() does not close file descriptors. (Coverity)
Solution:   Close the file descriptors.
Files:      src/eval.c

Patch 8.0.1530
Problem:    Dump test fails when using a shadow directory.
Solution:   Add the directory to the list of symlinks to make (Elimar
            Riesebieter)
Files:      src/Makefile

Patch 8.0.1531
Problem:    Cannot use 24 bit colors in MS-Windows console.
Solution:   Add support for vcon. (Nobuhiro Takasaki, Ken Takata,
            fixes #1270, fixes #2060)
Files:      runtime/doc/options.txt, src/misc1.c, src/option.c,
            src/evalfunc.c, src/os_win32.c, src/proto/os_win32.pro,
            src/feature.h, src/proto/term.pro, src/screen.c, src/syntax.c,
```

```
            src/term.c, src/testdir/gen_opt_test.vim, src/version.c

Patch 8.0.1532
Problem:    Compiler warnings without termguicolors feature.
Solution:   Add #ifdef. (John Marriott)  Cleanup the code a bit.
Files:      src/term.c

Patch 8.0.1533
Problem:    Libterm doesn't support requesting fg and bg color.
Solution:   Implement t_RF and t_RB.
Files:      src/libvterm/src/vterm_internal.h, src/libvterm/src/state.c,
            src/libvterm/src/vterm.c

Patch 8.0.1534
Problem:    C syntax test fails when using gvim
Solution:   Force running in a terminal.  Check that 'background' is correct
            even when $COLORFGBG is set.
Files:      src/testdir/test_syntax.vim, src/testdir/screendump.vim

Patch 8.0.1535 (after 8.0.1534)
Problem:    C syntax test still fails when using gvim.
Solution:   Clear Normal cterm highlighting instead of setting it.
Files:      src/testdir/test_syntax.vim, src/testdir/screendump.vim,
            src/testdir/dumps/Test_syntax_c_01.dump

Patch 8.0.1536
Problem:    Quotestar test is flaky when using the GUI.
Solution:   Add check that the star register arrived at the server.  Increase
            timeouts.
Files:      src/testdir/test_quotestar.vim

Patch 8.0.1537
Problem:    Xxd does not skip NUL lines when using ebcdic.
Solution:   Check for a NUL before converting a character for ebcdic. (Tim
            Sell, closes #2668)
Files:      src/xxd/xxd.c

Patch 8.0.1538
Problem:    Popupmenu is too far left when completion is long. (Linwei)
Solution:   Adjust column computations. (Hirohito Higashi, closes #2661)
Files:      src/popupmnu.c

Patch 8.0.1539
Problem:    No test for the popup menu positioning.
Solution:   Add a screendump test for the popup menu.
Files:      src/terminal.c, src/testdir/test_syntax.vim,
            src/testdir/screendump.vim,
            src/testdir/test_popup.vim,
            src/testdir/dumps/Test_popup_position_01.dump,
            src/testdir/dumps/Test_popup_position_02.dump,
            src/testdir/dumps/Test_popup_position_03.dump,
            runtime/doc/eval.txt

Patch 8.0.1540
```

```
Problem:    Popup menu positioning fails with longer string.
Solution:   Only align with right side of window when width is less than
            'pumwidth' (closes #2661)
Files:      src/popupmnu.c, src/testdir/screendump.vim,
            src/testdir/test_popup.vim,
            src/testdir/dumps/Test_popup_position_04.dump

Patch 8.0.1541
Problem:    synpat_T is taking too much memory.
Solution:   Reorder members to reduce padding. (Dominique Pelle, closes #2671)
Files:      src/syntax.c

Patch 8.0.1542
Problem:    Terminal screen dump does not include cursor position.
Solution:   Mark the cursor position in the dump.
Files:      src/terminal.c,
            src/testdir/dumps/Test_popup_position_01.dump,
            src/testdir/dumps/Test_popup_position_02.dump,
            src/testdir/dumps/Test_popup_position_03.dump,
            src/testdir/dumps/Test_popup_position_04.dump,
            src/testdir/dumps/Test_syntax_c_01.dump

Patch 8.0.1543
Problem:    With 'termguicolors' Normal color doesn't work correctly.
Solution:   Set cterm_normal_bg_gui_color and cterm_normal_fg_color always.
            (Kazunobu Kuriyama, closes #981, closes #2332)
Files:      src/syntax.c

Patch 8.0.1544
Problem:    When using 'termguicolors' SpellBad doesn't show.
Solution:   When the GUI colors are not set fall back to the cterm colors.
Files:      src/syntax.c, src/screen.c, src/gui.h, src/structs.h

Patch 8.0.1545
Problem:    Screen dumps not included in distribution.
Solution:   Add dumps to the list of distributed files.
Files:      Filelist

Patch 8.0.1546
Problem:    Using feedkeys() in a terminal window may trigger mappings.
            (Charles Sheridan)
Solution:   Avoid triggering a mapping when peeking for a key.
Files:      src/getchar.c, src/terminal.c

Patch 8.0.1547
Problem:    Undo in the options window makes it empty.
Solution:   Set 'undolevels' while filling the buffer. (Yasuhiro Matsumoto,
            closes #2645)
Files:      runtime/optwin.vim

Patch 8.0.1548
Problem:    Screen dump test script not included in distribution.
Solution:   Add the script to the list of distributed files.
Files:      Filelist
```

```
Patch 8.0.1549
Problem:    Various small problems in test files.
Solution:   Include small changes.
Files:      src/testdir/test_channel.py, src/testdir/shared.vim,
            src/testdir/test_gui.vim, src/testdir/test_gui_init.vim

Patch 8.0.1550
Problem:    Various small problems in source files.
Solution:   Fix the problems.
Files:      src/README.txt, src/beval.c, src/json_test.c, src/mbyte.c,
            src/libvterm/include/vterm_keycodes.h, src/Makefile,
            src/gui_gtk.c, src/if_xcmdsrv.c, src/pty.c, src/if_python.c,
            src/if_py_both.h, uninstal.txt, src/dosinst.c, src/iscygpty.c,
            src/vimrun.c, src/os_vms.c

Patch 8.0.1551
Problem:    On Mac 'maxmemtot' is set to a weird value.
Solution:   For Mac use total memory and subtract system memory. For other
            systems accept both a 32 bit and 64 bit result. (Ozaki Kiichi,
            closes #2646)
Files:      src/os_unix.c

Patch 8.0.1552
Problem:    May leak file descriptors when executing job.
Solution:   Close more file descriptors. (Ozaki Kiichi, closes #2651)
Files:      src/os_unix.c, src/testdir/test_channel.vim

Patch 8.0.1553
Problem:    Cannot see what digraph is used to insert a character.
Solution:   Show the digraph with the "ga" command. (Christian Brabandt)
Files:      runtime/doc/various.txt, src/digraph.c, src/ex_cmds.c,
            src/proto/digraph.pro, src/testdir/shared.vim,
            src/testdir/test_matchadd_conceal.vim,
            src/testdir/test_digraph.vim, src/testdir/test_ga.vim,
            src/testdir/test_arabic.vim

Patch 8.0.1554
Problem:    Custom plugins loaded with --clean.
Solution:   Do not include the home directory in 'runtimepath'.
Files:      src/option.c, src/main.c, src/proto/option.pro, src/structs.h,
            src/os_unix.h, src/os_amiga.h, src/os_dos.h, src/os_mac.h,
            runtime/doc/starting.txt

Patch 8.0.1555
Problem:    Build error for some combination of features.
Solution:   Declare variable in more situations.
Files:      src/main.c

Patch 8.0.1556
Problem:    May not parse the t_RS response correctly, resulting in wrong
            characters in the input stream.
Solution:   When the t_RS response is partly received wait for more
            characters.
```

```
Files:      src/term.c

Patch 8.0.1557
Problem:    printf() does not work with only one argument. (Daniel Hahler)
Solution:   Allow using just the format. (Ken Takata, closes #2687)
Files:      src/evalfunc.c, src/testdir/test_expr.vim

Patch 8.0.1558
Problem:    No right-click menu in a terminal.
Solution:   Implement the right click menu for the terminal.
Files:      src/popupmnu.c, src/proto/popupmnu.pro, src/normal.c, src/menu.c,
            src/proto/menu.pro, src/feature.h

Patch 8.0.1559
Problem:    Build failure without GUI.
Solution:   Adjust #ifdef for get_fpos_of_mouse().
Files:      src/ui.c

Patch 8.0.1560
Problem:    Build failure without GUI on MS-Windows.
Solution:   Adjust #ifdef for vcol2col().
Files:      src/ui.c

Patch 8.0.1561
Problem:    Crash with rust syntax highlighting. (Edd Barrett)
Solution:   Avoid going past the end of an empty line.
Files:      src/syntax.c

Patch 8.0.1562
Problem:    The terminal debugger can't set a breakpoint with the mouse.
Solution:   Add popup menu entries.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/terminal.txt

Patch 8.0.1563
Problem:    Timeout of getwinposx() can be too short. (lilydjwg)
Solution:   Add getwinpos(). (closes #2689)
Files:      src/evalfunc.c, src/term.c, src/proto/term.pro, runtime/doc/eval.txt

Patch 8.0.1564
Problem:    Too many #ifdefs.
Solution:   Graduate the +autocmd feature. Takes away 450 #ifdefs and
            increases code size of tiny Vim by only 40 Kbyte.
Files:      src/buffer.c, src/diff.c, src/edit.c, src/eval.c, src/evalfunc.c,
            src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c, src/ex_getln.c,
            src/fileio.c, src/getchar.c, src/globals.h, src/gui.c,
            src/if_cscope.c, src/if_xcmdsrv.c, src/main.c, src/mbyte.c,
            src/memline.c, src/menu.c, src/misc1.c, src/gui_mac.c,
            src/misc2.c, src/move.c, src/netbeans.c, src/normal.c, src/ops.c,
            src/option.c, src/option.h, src/feature.h, src/vim.h,
            src/os_amiga.c, src/os_mswin.c, src/os_unix.c, src/os_win32.c,
            src/quickfix.c, src/screen.c, src/search.c, src/spell.c,
            src/structs.h, src/syntax.c, src/tag.c, src/term.c,
            src/terminal.c, src/ui.c, src/undo.c, src/userfunc.c,
```

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            src/version.c, src/window.c

Patch 8.0.1565
Problem:    Can't build Mac version without GUI.
Solution:   Adjust when IME_WITHOUT_XIM is defined.
Files:      src/vim.h

Patch 8.0.1566
Problem:    Too many #ifdefs.
Solution:   Graduate FEAT_SCROLLBIND and FEAT_CURSORBIND.
Files:      src/buffer.c, src/diff.c, src/edit.c, src/evalfunc.c,
            src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c, src/gui.c,
            src/main.c, src/move.c, src/normal.c, src/option.c, src/term.c,
            src/version.c, src/window.c, src/globals.h, src/macros.h,
            src/option.h, src/structs.h

Patch 8.0.1567
Problem:    Cannot build Win32 GUI without IME. (John Marriott)
Solution:   Adjust when IME_WITHOUT_XIM and HAVE_INPUT_METHOD are defined and
            use it in a few more places.
Files:      src/vim.h, src/gui.c

Patch 8.0.1568
Problem:    Can't build on older Mac, header file is missing.
Solution:   Remove the header file. (Ozaki Kiichi, closes #2691)
Files:      src/os_unix.c

Patch 8.0.1569
Problem:    Warning for uninitialized variable from gcc.
Solution:   Initialize the variable.
Files:      src/quickfix.c

Patch 8.0.1570
Problem:    Can't use :popup for a menu in the terminal. (Wei Zhang)
Solution:   Make :popup work in the terminal.  Also fix that entries were
            included that don't work in the current state.
Files:      src/ex_docmd.c, src/popupmnu.c, src/proto/popupmnu.pro,
            src/menu.c, src/proto/menu.pro

Patch 8.0.1571 (after 8.0.1571)
Problem:    Can't build without GUI.
Solution:   Adjust #ifdef for gui_find_menu().
Files:      src/menu.c

Patch 8.0.1572
Problem:    Mac: getting memory size doesn't work everywhere.
Solution:   Use MACOS_X instead of MACOS_X_DARWIN. (Kazunobu Kuriyama)
Files:      src/os_unix.c

Patch 8.0.1573
Problem:    getwinpos(1) may cause response to be handled as command.
Solution:   Handle any cursor position report once one was requested. (partly
            by Hirohito Higashi)
Files:      src/term.c
```

```
Patch 8.0.1574
Problem:    Show cursor in wrong place when using popup menu. (Wei Zhang)
Solution:   Force updating the cursor position.  Fix skipping over unused
            entries.
Files:      src/screen.c, src/proto/screen.pro, src/popupmnu.c

Patch 8.0.1575
Problem:    Crash when using virtual replace.
Solution:   Adjust orig_line_count.  Add more tests. (Christian Brabandt)
Files:      src/edit.c, src/testdir/test_visual.vim

Patch 8.0.1576
Problem:    Perl VIM::Buffers() does not find every buffer.
Solution:   Also find unlisted buffer by number or name. (Chris Weyl,
            closes #2692)
Files:      src/if_perl.xs

Patch 8.0.1577
Problem:    Virtual replace test fails on MS-Windows.
Solution:   Make adding a termcap entry work for a builtin terminal.
            Restore terminal keys in a better way.
Files:      src/term.c, src/testdir/test_visual.vim

Patch 8.0.1578
Problem:    No test for :popup in terminal.
Solution:   Add a screen dump test.
Files:      src/testdir/test_popup.vim,
            src/testdir/dumps/Test_popup_command_01.dump,
            src/testdir/dumps/Test_popup_command_02.dump,
            src/testdir/dumps/Test_popup_command_03.dump

Patch 8.0.1579
Problem:    Virtual replace test fails in GUI.
Solution:   Don't save key options if they were not set.
Files:      src/testdir/test_visual.vim

Patch 8.0.1580
Problem:    FEAT_CURSORBIND and FEAT_SCROLLBIND are unused.
Solution:   Delete them.
Files:      src/feature.h

Patch 8.0.1581
Problem:    Cannot build Win32 GUI without +eval.
Solution:   Define HAVE_INPUT_METHOD without +eval. (Ken Takata)
Files:      src/vim.h

Patch 8.0.1582
Problem:    In the MS-Windows console mouse movement is not used.
Solution:   Pass mouse movement events when useful.
Files:      src/os_win32.c, src/proto/os_win32.pro, src/feature.h

Patch 8.0.1583
Problem:    Using C99 comment.
```

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Solution:   Use old style comment. (Kazunobu Kuriyama)
Files:      src/quickfix.c

Patch 8.0.1584
Problem:    Using C99 in Mac file gives compiler warning messages.
Solution:   Add #pragmas to avoid the warnings. (Kazunobu Kuriyama)
Files:      src/os_macosx.m

Patch 8.0.1585
Problem:    Enabling beval_term feature in Win32 GUI.
Solution:   Only enable beval_term in Win32 console.
Files:      src/feature.h

Patch 8.0.1586
Problem:    Imactivatefunc does not work on non-GUI Mac.
Solution:   Fix logic in #ifdef.
Files:      src/vim.h

Patch 8.0.1587
Problem:    inserting from the clipboard doesn't work literally
Solution:   When pasting from the * or + register always assume literally.
Files:      src/ops.c, src/proto/ops.pro, src/testdir/test_paste.vim

Patch 8.0.1588
Problem:    Popup menu hangs after typing CTRL-C.
Solution:   Make CTRL-C exit the loop. (Ozaki Kiichi, closes #2697)
Files:      src/popupmnu.c

Patch 8.0.1589
Problem:    Error for setting 'modifiable' when resetting it.
Solution:   Check if 'modifiable' was actually set.
Files:      src/option.c

Patch 8.0.1590
Problem:    Padding in list type wastes memory.
Solution:   Reorder struct members to optimize padding. (Dominique Pelle,
            closes #2704)
Files:      src/structs.h

Patch 8.0.1591
Problem:    MS-Windows: when reparsing the arguments 'wildignore' matters.
Solution:   Save and reset 'wildignore'. (Yasuhiro Matsumoto, closes #2702)
Files:      src/os_win32.c

Patch 8.0.1592
Problem:    Terminal windows in a session are not properly restored.
Solution:   Add "terminal" in 'sessionoptions'.  When possible restore the
            command running in a terminal.
Files:      src/option.c, src/option.h, src/ex_docmd.c, src/terminal.c,
            src/proto/terminal.pro, src/evalfunc.c, src/structs.h,
            src/channel.c, src/testdir/test_terminal.vim,
            src/testdir/shared.vim, src/testdir/test_mksession.vim

Patch 8.0.1593
```

```
Problem:    :qall never exits with an active terminal window.
Solution:   Add a way to kill a job in a terminal window.
Files:      src/ex_cmds2.c, src/terminal.c, src/proto/terminal.pro,
            src/structs.h, src/channel.c, src/evalfunc.c,
            src/testdir/test_terminal.vim, runtime/doc/terminal.txt,
            runtime/doc/eval.txt

Patch 8.0.1594
Problem:    :confirm qall not tested with active terminal window.
Solution:   Add a test.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1595
Problem:    No autocommand triggered before exiting.
Solution:   Add the ExitPre autocommand event.
Files:      src/ex_docmd.c, src/fileio.c, src/vim.h,
            src/testdir/test_exit.vim, src/Makefile, src/testdir/Make_all.mak,
            runtime/doc/autocmd.txt

Patch 8.0.1596
Problem:    No autocommand specifically for opening a terminal window.
Solution:   Add TerminalOpen. (Yasuhiro Matsumoto, closes #2484)
Files:      runtime/doc/autocmd.txt, src/fileio.c, src/terminal.c,
            src/testdir/test_terminal.vim, src/vim.h

Patch 8.0.1597
Problem:    Autocommand events are not sorted.
Solution:   Sort the autocommand events.
Files:      src/vim.h

Patch 8.0.1598
Problem:    Cannot select text in a terminal with the mouse.
Solution:   When a job in a terminal is not consuming mouse events, use them
            for modeless selection.  Also stop Insert mode when clicking in a
            terminal window.
Files:      src/libvterm/include/vterm.h, src/libvterm/src/state.c,
            src/libvterm/src/vterm_internal.h, src/terminal.c,
            src/proto/terminal.pro, src/ui.c

Patch 8.0.1599
Problem:    No error message when gdb does not support the terminal debugger.
Solution:   Check for the response to open the Machine Interface.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim

Patch 8.0.1600
Problem:    Crash when setting t_Co to zero when 'termguicolors' is set.
Solution:   Use IS_CTERM instead of checking the number of colors.
            (closes #2710)
Files:      src/screen.c, src/testdir/test_highlight.vim

Patch 8.0.1601
Problem:    Highlight test fails on Win32.
Solution:   Check for vtp and vcon support.
Files:      src/evalfunc.c, src/testdir/test_highlight.vim
```

```
Patch 8.0.1602
Problem:    Crash in parsing JSON.
Solution:   Fail when using array or dict as dict key. (Damien)
Files:      src/json.c, src/testdir/test_json.vim

Patch 8.0.1603
Problem:    Cannot build with +terminal but without +menu.
Solution:   Add #ifdef. (Damien)
Files:      src/terminal.c

Patch 8.0.1604
Problem:    Paste test may fail if $DISPLAY is not set.
Solution:   Add WorkingClipboard() and use it in the paste test.
Files:      src/testdir/shared.vim, src/testdir/test_paste.vim

Patch 8.0.1605
Problem:    Terminal test is a bit flaky.
Solution:   Check for the shell prompt.  Use more lambda functions.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1606
Problem:    Singular/plural variants not translated.
Solution:   Add NGETTEXT argument to xgettext. (Sergey Alyoshin)
Files:      src/po/Make_cyg.mak, src/po/Make_ming.mak, src/po/Make_mvc.mak,
            src/po/Makefile

Patch 8.0.1607
Problem:    --clean loads user settings from .gvimrc.
Solution:   Behave like "-U NONE" was used. (Ken Takata)
Files:      src/main.c, runtime/doc/starting.txt

Patch 8.0.1608
Problem:    Win32: directx not enabled by default.
Solution:   Change Makefile to enable directx by default. (Ken Takata)
Files:      runtime/doc/various.txt, src/Make_cyg_ming.mak,
            src/Make_mvc.mak

Patch 8.0.1609
Problem:    Shell commands in the GUI use a dumb terminal.
Solution:   Add the "!" flag to 'guioptions' to execute system commands in a
            special terminal window.  Only for Unix now.
Files:      src/os_unix.c, src/option.h, src/evalfunc.c, src/terminal.c,
            src/proto/terminal.pro, src/channel.c, src/proto/channel.pro,
            src/vim.h, runtime/doc/options.txt

Patch 8.0.1610 (after 8.0.1609)
Problem:    Cannot build without GUI.
Solution:   Add #ifdef.
Files:      src/terminal.c

Patch 8.0.1611
Problem:    CTRL-W in system terminal does not go to job.
Solution:   Do not use CTRL-W as a terminal command in a system terminal.
```

```
Files:      src/terminal.c

Patch 8.0.1612
Problem:    Need to close terminal after shell stopped.
Solution:   Make :terminal without argument close the window by default.
Files:      src/terminal.c, src/testdir/test_terminal.vim,
            runtime/doc/terminal.txt

Patch 8.0.1613
Problem:    Warning for unused variable in tiny build. (Tony Mechelynck)
Solution:   Move declaration to inner block.
Files:      src/os_unix.c

Patch 8.0.1614
Problem:    "make tags" doesn't include libvterm.
Solution:   Add the libvterm sources to the tags command.
Files:      src/Makefile

Patch 8.0.1615
Problem:    term_dumpload() does not use the right colors.
Solution:   Initialize colors when not using create_vterm().
Files:      src/terminal.c

Patch 8.0.1616
Problem:    Win32: shell commands in the GUI open a new console.
Solution:   Use a terminal window for interactive use when 'guioptions'
            contains "!".
Files:      src/os_win32.c

Patch 8.0.1617 (after 8.0.1616)
Problem:    Win32: :shell command in the GUI crashes.
Solution:   Handle the situation that "cmd" is NULL. (Yasuhiro Matsumoto,
            closes #2721)
Files:      src/os_win32.c

Patch 8.0.1618
Problem:    Color Grey50, used for ToolbarLine, is missing in the compiled-in
            table.
Solution:   Add the color to the list. (Kazunobu Kuriyama)
Files:      src/term.c

Patch 8.0.1619
Problem:    Win32 GUI: crash when winpty is not installed and trying to use
            :shell in a terminal window.
Solution:   Check for NULL return form term_start(). (Yasuhiro Matsumoto,
            closes #2727)
Files:      src/os_win32.c

Patch 8.0.1620
Problem:    Reading spell file has no good EOF detection.
Solution:   Check for EOF at every character read for a length field.
Files:      src/misc2.c

Patch 8.0.1621
```

Problem: Using invalid default value for highlight attribute.
Solution: Use zero instead of -1.
Files: src/syntax.c

Patch 8.0.1622
Problem: Possible NULL pointer dereferencey. (Coverity)
Solution: Reverse the check for a NULL pointer.
Files: src/quickfix.c

Patch 8.0.1623
Problem: Terminal kill tests are flaky.
Solution: Instead of running Vim in a terminal, run it as a normal command.
Files: src/testdir/test_terminal.vim

Patch 8.0.1624
Problem: Options for term_dumpdiff() and term_dumpload() not implemented
            yet.
Solution: Implement the relevant options.
Files: src/terminal.c, runtime/doc/eval.txt

Patch 8.0.1625
Problem: Test_quotestar is flaky when run in GTK GUI.
Solution: Do not call lose_selection when invoked from
            selection_clear_event().
Files: src/gui_gtk_x11.c

Patch 8.0.1626
Problem: Compiler warning for possible loss of data.
Solution: Use size_t instead of int. (Christian Brabandt)
Files: src/terminal.c

Patch 8.0.1627
Problem: Compiler warning for visibility attribute not supported on MinGW
            builds.
Solution: Don't add the attribute when we don't expect it to work.
            (Christian Brabandt)
Files: src/libvterm/src/vterm_internal.h

Patch 8.0.1628
Problem: Channel log doesn't mention exiting.
Solution: Add a ch_log() call in getout().
Files: src/main.c

Patch 8.0.1629
Problem: Mac: getpagesize() is deprecated.
Solution: Use sysconf() instead. (Ozaki Kiichi, closes #2741)
Files: src/os_unix.c

Patch 8.0.1630
Problem: Trimming white space is not that easy.
Solution: Add the trim() function. (Bukn, Yasuhiro Matsumoto, closes #1280)
Files: src/evalfunc.c, runtime/doc/eval.txt,
            src/testdir/test_functions.vim

```
Patch 8.0.1631
Problem:    Testing with Vim running in terminal is a bit flaky.
Solution:   Delete any .swp file so that later tests don't fail.
Files:      src/testdir/screendump.vim

Patch 8.0.1632
Problem:    In a terminal dump NUL and space considered are different,
            although they are displayed the same.
Solution:   When encountering NUL handle it like space.
Files:      src/terminal.c

Patch 8.0.1633
Problem:    A TextChanged autocmd triggers when it is defined after creating a
            buffer.
Solution:   Set b_last_changedtick when opening a buffer. (Hirohito Higashi,
            closes #2742)
Files:      src/buffer.c, src/testdir/test_autocmd.vim

Patch 8.0.1634
Problem:    The ex_vimgrep() function is too long.
Solution:   Split it in smaller functions. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.1635
Problem:    Undefining _POSIX_THREADS causes problems with Python 3. (Micah
            Bucy, closes #2748)
Solution:   Remove the lines.
Files:      src/if_python3.c

Patch 8.0.1636
Problem:    No test for term_dumpload() and term_dumpdiff().
Solution:   Add tests.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1637
Problem:    No test for term_dumpdiff() options argument.
Solution:   Add a test.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1638
Problem:    Popup test fails depending on environment variable.
Solution:   Reset $COLORFGBG when running Vim in a terminal. (closes #2693)
Files:      src/testdir/screendump.vim

Patch 8.0.1639
Problem:    Libvterm code lags behind master.
Solution:   Sync to head, solve merge problems.
Files:      src/libvterm/README, src/libvterm/bin/unterm.c,
            src/libvterm/bin/vterm-ctrl.c, src/libvterm/bin/vterm-dump.c,
            src/libvterm/doc/URLs, src/libvterm/doc/seqs.txt,
            src/libvterm/include/vterm.h,
            src/libvterm/include/vterm_keycodes.h, src/libvterm/src/mouse.c,
            src/libvterm/src/parser.c, src/libvterm/src/pen.c,
            src/libvterm/src/screen.c, src/libvterm/src/state.c,
```

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            src/libvterm/src/vterm.c, src/libvterm/src/vterm_internal.h,
            src/libvterm/t/10state_putglyph.test,
            src/libvterm/t/25state_input.test, src/libvterm/t/harness.c,
            src/libvterm/t/26state_query.test

Patch 8.0.1640
Problem:    Test_cwd() is flaky.
Solution:   Add to list of flaky tests.
Files:      src/testdir/runtest.vim

Patch 8.0.1641
Problem:    Job in terminal can't communicate with Vim.
Solution:   Add the terminal API.
Files:      src/terminal.c, src/buffer.c, src/testdir/test_terminal.vim,
            src/testdir/screendump.vim, runtime/doc/terminal.txt

Patch 8.0.1642
Problem:    Running Vim in terminal fails with two windows.
Solution:   Pass the number of rows to RunVimInTerminal().
Files:      src/testdir/screendump.vim, src/testdir/test_terminal.vim

Patch 8.0.1643
Problem:    Terminal API tests fail.
Solution:   Explicitly set 'title'.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1644
Problem:    Terminal API tests still fail.
Solution:   Explicitly set 'title' in the terminal job. (Ozaki Kiichi,
            closes #2750)
Files:      src/testdir/test_terminal.vim, src/testdir/screendump.vim

Patch 8.0.1645
Problem:    Test for terminal response to escape sequence fails for some
            people. (toothpik)
Solution:   Run "cat" and let it echo the characters.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1646
Problem:    MS-Windows: executable contains unreferenced functions and data.
Solution:   Add /opt:ref to the compiler command. (Ken Takata)
Files:      src/Make_mvc.mak

Patch 8.0.1647
Problem:    Terminal API may call a function not meant to be called by this
            API.
Solution:   Require the function to start with Tapi_.
Files:      runtime/doc/terminal.txt, src/terminal.c,
            src/testdir/test_terminal.vim

Patch 8.0.1648
Problem:    Resource fork tool doesn't work on Python 3.
Solution:   Use "print()" instead of "print". (Marius Gedminas)
Files:      src/dehqx.py
```

```
Patch 8.0.1649
Problem:    No completion for argument list commands.
Solution:   Add arglist completion. (Yegappan Lakshmanan, closes #2706)
Files:      runtime/doc/eval.txt, runtime/doc/map.txt, src/ex_cmds2.c,
            src/ex_docmd.c, src/ex_getln.c, src/proto/ex_cmds2.pro,
            src/testdir/test_cmdline.vim, src/vim.h

Patch 8.0.1650
Problem:    Too many #ifdefs.
Solution:   Graduate FEAT_LISTCMDS, no reason to leave out buffer commands.
Files:      runtime/doc/various.txt, src/buffer.c, src/charset.c,
            src/evalfunc.c, src/ex_cmds.c, src/ex_cmds2.c, src/ex_docmd.c,
            src/version.c, src/feature.h

Patch 8.0.1651
Problem:    Cannot filter :ls output for terminal buffers.
Solution:   Add flags for terminal buffers. (Marcin Szamotulski, closes #2751)
Files:      runtime/doc/windows.txt, src/buffer.c,
            src/testdir/test_terminal.vim

Patch 8.0.1652
Problem:    term_dumpwrite() does not output composing characters.
Solution:   Use the cell index.
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1653
Problem:    Screen dump is made too soon.
Solution:   Wait until the ruler is displayed. (Ozaki Kiichi, closes #2755)
Files:      src/testdir/dumps/Test_popup_command_01.dump,
            src/testdir/dumps/Test_popup_command_02.dump,
            src/testdir/screendump.vim, src/testdir/test_autocmd.vim,
            src/testdir/test_terminal.vim

Patch 8.0.1654
Problem:    Warnings for conversion of void to function pointer.
Solution:   Use a temp variable that is a function pointer.
Files:      src/if_python.c, src/if_python3.c

Patch 8.0.1655
Problem:    Outdated gdb message in terminal debugger unclear.
Solution:   Specifically mention the required gdb version.  Avoid getting
            stuck on pagination.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim

Patch 8.0.1656
Problem:    No option to have xxd produce upper case variable names.
Solution:   Add the -C argument. (Matt Panaro, closes #2772)
Files:      src/xxd/xxd.c

Patch 8.0.1657
Problem:    Crash when reading a channel.
Solution:   Clear the write flag before writing. (idea by Shinya Ohyanagi,
            closes #2769).
```

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Files:      src/channel.c

Patch 8.0.1658
Problem:    Capitalize argument not available in long form.
Solution:   Recognize -capitalize.  Update man page.
Files:      src/xxd/xxd.c, runtime/doc/xxd.1, runtime/doc/xxd.man

Patch 8.0.1659
Problem:    Scroll events not recognized for some xterm emulators.
Solution:   Recognize mouse codes 0x40 and 0x41 as scroll events.
Files:      src/term.c

Patch 8.0.1660
Problem:    The terminal API "drop" command doesn't support options.
Solution:   Implement the options.
Files:      src/terminal.c, src/ex_docmd.c, src/proto/ex_docmd.pro,
            src/ex_cmds.h, src/eval.c, src/misc2.c, src/fileio.c,
            src/testdir/test_terminal.vim, runtime/doc/terminal.txt

Patch 8.0.1661
Problem:    Warnings from 64 bit compiler.
Solution:   Add type casts. (Mike Williams)
Files:      src/terminal.c

Patch 8.0.1662
Problem:    Showing dump diff doesn't mention both file names.
Solution:   Add the file name in the separator line.
Files:      src/terminal.c

Patch 8.0.1663 (after 8.0.1660)
Problem:    Cannot build without multi-byte feature.
Solution:   Add #ifdef.
Files:      src/ex_docmd.c

Patch 8.0.1664
Problem:    Test failure because of not allocating enough space.
Solution:   Allocate more bytes.
Files:      src/terminal.c

Patch 8.0.1665
Problem:    When running a terminal from the GUI 'term' is not useful.
Solution:   Use $TERM in the GUI if it starts with "xterm". (closes #2776)
Files:      src/os_unix.c, runtime/doc/terminal.txt

Patch 8.0.1666
Problem:    % argument in ch_log() causes trouble.
Solution:   Use string as third argument in internal ch_log(). (Dominique
            Pelle, closes #2784)
Files:      src/evalfunc.c, src/testdir/test_channel.vim

Patch 8.0.1667
Problem:    Terminal window tests are flaky.
Solution:   Increase the waiting time for Vim to start.
Files:      src/testdir/screendump.vim
```

```
Patch 8.0.1668
Problem:    Terminal debugger: can't re-open source code window.
Solution:   Add the :Source command.  Also create the window if needed when
            gdb stops at a source line.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/terminal.txt

Patch 8.0.1669
Problem:    :vimgrep may add entries to the wrong quickfix list.
Solution:   Use the list identifier. (Yegappan Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1670
Problem:    Terminal window tests are still a bit flaky.
Solution:   Increase the waiting time for the buffer to be created.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1671
Problem:    Crash when passing non-dict argument as env to job_start().
Solution:   Check for valid argument. (Ozaki Kiichi, closes #2765)
Files:      src/channel.c, src/testdir/test_channel.vim

Patch 8.0.1672
Problem:    Error during completion causes command to be cancelled.
Solution:   Reset did_emsg before waiting for another character. (Tom M.)
Files:      src/ex_getln.c, src/testdir/test_cmdline.vim

Patch 8.0.1673
Problem:    Terminal window tests are still a bit flaky.
Solution:   Increase the waiting time even more. (Elimar Riesebieter)
Files:      src/testdir/test_terminal.vim

Patch 8.0.1674
Problem:    Libvterm can't handle a long OSC string that is split.
Solution:   When an incomplete OSC string is received copy it to the parser
            buffer. Increase the size of the parser buffer to be able to
            handle longer strings.
Files:      src/libvterm/src/parser.c, src/libvterm/src/vterm.c

Patch 8.0.1675
Problem:    Unused macro argument in libvterm. (Randall W. Morris)
Solution:   Remove the argument.
Files:      src/libvterm/src/parser.c

Patch 8.0.1676
Problem:    No compiler warning for wrong printf format.
Solution:   Add a printf attribute for gcc. Fix reported problems. (Dominique
            Pelle, closes #2789)
Files:      src/channel.c, src/vim.h, src/proto/channel.pro

Patch 8.0.1677
Problem:    No compiler warning for wrong format in vim_snprintf().
Solution:   Add printf attribute for gcc.  Fix reported problems.
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Files:      src/vim.h, src/proto.h, src/eval.c, src/fileio.c, src/mbyte.c,
            src/ops.c, src/spellfile.c, src/undo.c, src/json.c

Patch 8.0.1678
Problem:    Errorformat "%r" implies "%>". (Jan Gosmann)
Solution:   Jump to before setting fmt_ptr. (Yegappan Lakshmanan,
            closes #2785)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1679
Problem:    Compiler warning for printf format. (Chdiza)
Solution:   Change type to "long long". (closes #2791)
Files:      src/ops.c

Patch 8.0.1680
Problem:    Memory allocated by libvterm does not show up in profile.
Solution:   Pass allocator functions to vterm_new().
Files:      src/terminal.c

Patch 8.0.1681
Problem:    The format attribute fails with MinGW. (John Marriott)
Solution:   Don't use the format attribute with MinGW.
Files:      src/vim.h, src/proto.h, src/channel.c

Patch 8.0.1682
Problem:    Auto indenting breaks inserting a block.
Solution:   Do not check for cursor movement if indent was changed. (Christian
            Brabandt, closes #2778)
Files:      src/testdir/test_blockedit.vim, src/testdir/Make_all.mak,
            src/Makefile, src/ops.c

Patch 8.0.1683
Problem:    Python upgrade breaks Vim when defining PYTHON_HOME.
Solution:   Do not define PYTHON_HOME and PYTHON3_HOME in configure. (Naoki
            Inada, closes #2787)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1684
Problem:    ml_get errors when using terminal window for shell command.
            (Blay263)
Solution:   Do not change the size of the current window.
Files:      src/terminal.c

Patch 8.0.1685
Problem:    Can't set ANSI colors of a terminal window.
Solution:   Add term_setansicolors(), term_getansicolors() and
            g:term_ansi_colors. (Andy Massimino, closes #2747)
Files:      runtime/doc/eval.txt, runtime/doc/terminal.txt, src/channel.c,
            src/evalfunc.c, src/proto/terminal.pro, src/structs.h,
            src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1686 (after 8.0.1683)
Problem:    Python does not work when configuring with specific dir. (Rajdeep)
Solution:   Do define PYTHON_HOME and PYTHON3_HOME in configure if the Python
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            config dir was specified.
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1687
Problem:    64 bit compiler warnings.
Solution:   change type, add type cast. (Mike Williams)
Files:      src/terminal.c

Patch 8.0.1688
Problem:    Some macros are used without a semicolon, causing auto-indent to be
            wrong.
Solution:   Use the do-while(0) trick. (Ozaki Kiichi, closes #2729)
Files:      src/buffer.c, src/dosinst.c, src/ex_cmds.c, src/gui_at_sb.c,
            src/macros.h, src/main.c, src/memline.c, src/option.c,
            src/os_vms.c, src/screen.c, src/window.c

Patch 8.0.1689
Problem:    No tests for xxd.
Solution:   Add a test. (Christian Brabandt)
Files:      src/Makefile, src/testdir/Make_all.mak, src/testdir/Makefile,
            src/testdir/test_xxd.vim, src/testdir/runtest.vim

Patch 8.0.1690
Problem:    Not easy to run one test with gvim instead of vim.
Solution:   Add VIMTESTTARGET in Makefile.
Files:      src/Makefile

Patch 8.0.1691
Problem:    Xxd test sometimes fails.
Solution:   Wipe out the XXDfile buffer.
Files:      src/testdir/test_xxd.vim

Patch 8.0.1692 (after 8.0.1686)
Problem:    Python may not work when using statically linked library.
Solution:   Do not define PYTHON_HOME and PYTHON3_HOME in configure if the
            Python library is linked statically.
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1693
Problem:    Xxd is excluded from coverage statistics.
Solution:   Don't skip the xxd directory. (Christian Brabandt)
Files:      .travis.yml

Patch 8.0.1694
Problem:    Terminal API test is a bit flaky.
Solution:   Wait longer for Vim to stop.
Files:      src/testdir/screendump.vim

Patch 8.0.1695
Problem:    Xxd test not run on MS-Windows.
Solution:   Use xxd.exe if it exists.
Files:      src/testdir/test_xxd.vim

Patch 8.0.1696
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Problem:    Coverage statistics don't work.
Solution:   Include the xxd directory. (Christian Brabandt)
Files:      .travis.yml

Patch 8.0.1697
Problem:    Various tests are still a bit flaky.
Solution:   Increase the default wait time to five seconds.
Files:      src/testdir/shared.vim, src/testdir/screendump.vim,
            src/testdir/test_channel.vim, src/testdir/test_clientserver.vim,
            src/testdir/test_quotestar.vim, src/testdir/test_terminal.vim

Patch 8.0.1698
Problem:    Coverage statistics don't work on coveralls.
Solution:   Use curly braces for $SRCDIR.
Files:      .travis.yml

Patch 8.0.1699
Problem:    Leftover stuff for Python 1.4.
Solution:   Remove outdated Python 1.4 stuff. (Naoki Inada, closes #2794)
Files:      src/Makefile, src/config.aap.in, src/config.mk.in,
            src/configure.ac, src/auto/configure

Patch 8.0.1700
Problem:    Coverage statistics still don't work on coveralls.
Solution:   Exclude the xxd directory again.
Files:      .travis.yml

Patch 8.0.1701
Problem:    Can disable COLOR_EMOJI with MSVC but not MinGW.
Solution:   Add COLOR_EMOJI flag.  Also add some empty lines for readability.
Files:      src/Make_cyg_ming.mak

Patch 8.0.1702
Problem:    Leaking memory when autocommands make a quickfix list invalid.
Solution:   Call FreeWild(). (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.1703
Problem:    In the tutor 'showcmd' is not set.
Solution:   Set 'showcmd' in the vimtutor script. (Ken Takata, closes #2792)
Files:      src/vimtutor

Patch 8.0.1704
Problem:    'backupskip' default doesn't work for Mac.
Solution:   Use "/private/tmp". (Rainer Müller, closes #2793)
Files:      src/option.c, src/testdir/test_options.vim,
            runtime/doc/options.txt

Patch 8.0.1705
Problem:    When making a vertical split the mode message isn't always
            updated, "VISUAL" remains. (Alexei Averchenko)
Solution:   Only reset clear_cmdline when filling all columns of the last
            screen line. (Tom M. closes #2611)
Files:      src/screen.c, src/testdir/test_window_cmd.vim
```

```
Patch 8.0.1706
Problem:    Cannot send CTRL-\ to a terminal window.
Solution:   Make CTRL-W CTRL-\ send CTRL-\ to a terminal window.
Files:      src/terminal.c, runtime/doc/terminal.txt

Patch 8.0.1707
Problem:    When 'wfh' is set ":bel 10new" scrolls window. (Andrew Pyatkov)
Solution:   Set the fraction before changing the window height. (closes #2798)
Files:      src/window.c

Patch 8.0.1708
Problem:    Mkdir with 'p' flag fails on existing directory, which is
            different from the mkdir shell command.
Solution:   Don't fail if the directory already exists. (James McCoy,
            closes #2775)
Files:      src/evalfunc.c, src/testdir/test_eval_stuff.vim,
            runtime/doc/eval.txt

Patch 8.0.1709
Problem:    Some non-C89 code may slip through.
Solution:   Enforce C89 in configure. Fix detected problems. (James McCoy,
            closes #2735)
Files:      src/channel.c, src/configure.ac, src/auto/configure,
            src/gui_gtk_x11.c, src/if_python3.c

Patch 8.0.1710
Problem:    Building with Ruby fails.
Solution:   Don't add -ansi when building with Ruby.
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1711
Problem:    Term_setsize() is not implemented yet.
Solution:   Implement it.
Files:      src/evalfunc.c, src/terminal.c, src/proto/terminal.pro,
            src/testdir/test_terminal.vim, runtime/doc/eval.txt

Patch 8.0.1712
Problem:    Terminal scrollback is not limited.
Solution:   Add the 'terminalscroll' option.
Files:      src/terminal.c, src/option.h, src/option.c,
            runtime/doc/options.txt, runtime/doc/terminal.txt

Patch 8.0.1713
Problem:    Terminal debugger doesn't handle arguments.
Solution:   Use <f-args> and pass all the arguments to gdb, e.g. the core file
            or process number. (suggested by Christian Brabandt) Disallow
            starting the debugger twice.
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/terminal.txt

Patch 8.0.1714
Problem:    Term_setsize() does not give an error in a normal buffer.
Solution:   Add an error message.
```

```
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1715
Problem:    Terminal buffer can be 1 more than 'terminalscroll' lines.
Solution:   Change > to >=.
Files:      src/terminal.c

Patch 8.0.1716
Problem:    Test for term_setsize() does not give a good error message.
Solution:   use assert_inrange().
Files:      src/testdir/test_terminal.vim

Patch 8.0.1717
Problem:    C89 check causes too much trouble.
Solution:   Remove enforcing C89 for now.
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1718
Problem:    Terminal scrollback test fails on MS-Windows.
Solution:   Check for the last line of output anticipating there might be an
            empty line below it.
Files:      src/testdir/test_terminal.vim

Patch 8.0.1719
Problem:    Cannot specify which Python executable configure should use.
Solution:   Add --with-python-command and --with-python3-command.
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1720
Problem:    When a timer is running a terminal window may not close after a
            shell has exited.
Solution:   Call job_status() more often.
Files:      src/terminal.c

Patch 8.0.1721
Problem:    No test for using the 'termsize' option.
Solution:   Add a test.
Files:      src/testdir/screendump.vim, src/testdir/test_terminal.vim

Patch 8.0.1722
Problem:    Cannot specify a minimal size for a terminal window.
Solution:   Support the "rows*cols" format for 'winsize'.
Files:      src/terminal.c, src/testdir/test_terminal.vim, src/option.c,
            runtime/doc/options.txt

Patch 8.0.1723
Problem:    Using one item array size declaration is misleading.
Solution:   Instead of using "[1]" and actually using a larger array, use
            "[]".  This is to verify that this C99 feature works for all
            compilers.
Files:      src/structs.h, src/getchar.c

Patch 8.0.1724
Problem:    Declarations cannot be halfway a block.
```

```
Solution:   Move one declaration to check if this works for all compilers.
Files:      src/main.c

Patch 8.0.1725
Problem:    Terminal debugger doesn't handle command arguments.
Solution:   Add the :TermdebugCommand command.  Use a ! to execute right away.
            (Christian Brabandt)
Files:      runtime/pack/dist/opt/termdebug/plugin/termdebug.vim,
            runtime/doc/terminal.txt

Patch 8.0.1726 (after 8.0.1724)
Problem:    Older MSVC doesn't support declarations halfway a block.
Solution:   Move the declaration back to the start of the block.
Files:      src/main.c

Patch 8.0.1727
Problem:    qf_get_properties() function is too long.
Solution:   Refactor the code. (Yegappan Lakshmanan, closes #2807)
Files:      src/quickfix.c

Patch 8.0.1728
Problem:    Condition always false, useless code.
Solution:   Remove the code. (Nikolai Pavlov, closes #2808)
Files:      src/message.c

Patch 8.0.1729
Problem:    No comma after last enum item.
Solution:   Add a few commas to check if this works for all compilers.  Also
            add a few // comments.
Files:      src/structs.h

Patch 8.0.1730
Problem:    No configure check for the used C99 features.
Solution:   Add a compilation check.  Tentatively document C99 features.
Files:      src/configure.ac, src/auto/configure, runtime/doc/develop.txt

Patch 8.0.1731
Problem:    Characters deleted on completion. (Adrià Farrés)
Solution:   Also check the last item for the ORIGINAL_TEXT flag. (Christian
            Brabandt, closes #1645)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.1732
Problem:    Crash when terminal API call deletes the buffer.
Solution:   Lock the buffer while calling a function. (closes #2813)
Files:      src/buffer.c, src/terminal.c, src/testdir/test_terminal.vim,
            src/testdir/test_autocmd.vim

Patch 8.0.1733
Problem:    Incomplete testing for completion fix. (Lifepillar)
Solution:   Add a test with CTRL-P.
Files:      src/testdir/test_popup.vim

Patch 8.0.1734
```

Problem: Package directory not added to 'rtp' if prefix matches.
Solution: Check the match is a full match. (Ozaki Kiichi, closes #2817)
            Also handle different ways of spelling a path.
Files: src/testdir/test_packadd.vim, src/ex_cmds2.c

Patch 8.0.1735 (after 8.0.1723 and 8.0.1730)
Problem: Flexible array member feature not supported by HP-UX. (John
            Marriott)
Solution: Do not use the flexible array member feature of C99.
Files: src/configure.ac, src/auto/configure, src/structs.h,
            src/getchar.c, runtime/doc/develop.txt

Patch 8.0.1736
Problem: Check for C99 features is incomplete.
Solution: Use AC_PROG_CC_C99 and when C99 isn't fully supported check the
            features we need. (James McCoy, closes #2820)
Files: src/configure.ac, src/auto/configure

Patch 8.0.1737
Problem: fchown() used when it is not supported.
Solution: Add #ifdef.
Files: src/fileio.c

Patch 8.0.1738
Problem: ":args" output is hard to read.
Solution: Make columns with the names if the output is more than one line.
Files: src/ex_cmds2.c, src/version.c, src/proto/version.pro,
            src/testdir/test_arglist.vim

Patch 8.0.1739
Problem: MS-Windows with msys2 cannot build Ruby statically.
Solution: Define RUBY_VERSION. (Gray Wolf, closes #2826)
Files: src/Make_cyg_ming.mak

Patch 8.0.1740
Problem: Warning for signed-unsigned incompatibility.
Solution: Change type from "char *" to "char_u *". (John Marriott)
Files: src/ex_cmds2.c

Patch 8.0.1741
Problem: MS-Windows with msys2 cannot build Ruby statically.
Solution: Add RUBY_VERSION to CFLAGS later. (Gray Wolf, closes #2833)
Files: src/Make_cyg_ming.mak

Patch 8.0.1742
Problem: Cannot get a list of all the jobs. Cannot get the command of
            the job.
Solution: When job_info() is called without an argument return a list of
            jobs. Otherwise, include the command that the job is running.
            (Yegappan Lakshmanan)
Files: runtime/doc/eval.txt, src/channel.c, src/evalfunc.c,
            src/proto/channel.pro, src/structs.h, src/testdir/test_channel.vim

Patch 8.0.1743

```
Problem:    Terminal window options are named inconsistently.
Solution:   prefix terminal window options with "termwin".  Keep the old names
            for now as an alias.
Files:      src/option.c, src/option.h, src/structs.h, src/terminal.c,
            src/testdir/test_terminal.vim, src/testdir/gen_opt_test.vim,
            runtime/doc/options.txt, runtime/doc/quickref.txt,
            runtime/doc/terminal.txt, runtime/optwin.vim

Patch 8.0.1744
Problem:    On some systems /dev/stdout isn't writable.
Solution:   Skip test if writing is not possible. (James McCoy, closes #2830)
Files:      src/testdir/test_writefile.vim

Patch 8.0.1745
Problem:    Build failure on MS-Windows.
Solution:   Build job arguments for MS-Windows. Fix allocating job twice.
Files:      src/structs.h, src/channel.c, src/os_unix.c, src/misc2.c,
            src/terminal.c, src/proto/misc2.pro

Patch 8.0.1746
Problem:    MS-Windows: channel tests fail.
Solution:   Make a copy of the command before splitting it.
Files:      src/channel.c

Patch 8.0.1747
Problem:    MS-Windows: term_start() does not set job_info() cmd.
Solution:   Share the code from job_start() to set jv_argv.
Files:      src/testdir/test_terminal.vim, src/channel.c, src/misc2.c,
            src/proto/misc2.pro, src/terminal.c

Patch 8.0.1748
Problem:    CmdlineEnter command uses backslash instead of slash.
Solution:   Don't treat the character as a file name. (closes #2837)
Files:      src/fileio.c, src/testdir/test_autocmd.vim

Patch 8.0.1749
Problem:    VMS: 100% CPU use, redefining mch_open() and mch_fopen() fails.
Solution:   Do not wait indefinitely in RealWaitForChar(). (Neil Rieck)
            Do not redefine mch_open() and mch_fopen() on VMS. (Zoltan
            Arpadffy)
Files:      src/os_vms.c, src/vim.h

Patch 8.0.1750
Problem:    Crash when clearing location list in autocommand.
Solution:   Check if "qi" equals "ql_info". (Yegappan Lakshmanan)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1751
Problem:    #ifdef causes bad highlighting.
Solution:   Move code around. (Ozaki Kiichi, closes #2731)
Files:      src/ui.c

Patch 8.0.1752
Problem:    qf_set_properties() is to long.
```

```
Solution:   Refactor the function.  Define INVALID_QFIDX. (Yegappan
            Lakshmanan, closes #2812)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1753
Problem:    Various warnings from a static analyser
Solution:   Add type casts, remove unneeded conditions. (Christian Brabandt,
            closes #2770)
Files:      src/evalfunc.c, src/ex_cmds2.c, src/fileio.c, src/getchar.c,
            src/normal.c, src/os_unix.c, src/search.c, src/term.c

Patch 8.0.1754
Problem:    ex_helpgrep() is too long.
Solution:   Refactor the function. (Yegappan Lakshmanan, closes #2766)
Files:      src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1755
Problem:    MS-Windows GUI: high unicode char received as two utf-16 words.
Solution:   Keep the first word until the second word is received. (Chris
            Morgan, closes #2800)
Files:      src/gui_w32.c

Patch 8.0.1756
Problem:    GUI: after prompting for a number the mouse shape is sometimes
            wrong.
Solution:   Call setmouse() after setting "State". (Hirohito Higashi,
            closes #2709)
Files:      src/misc1.c

Patch 8.0.1757
Problem:    Unnecessary changes in libvterm.
Solution:   Bring back // comments and trailing comma in enums.
Files:      src/libvterm/bin/unterm.c, src/libvterm/bin/vterm-ctrl.c,
            src/libvterm/bin/vterm-dump.c, src/libvterm/include/vterm.h,
            src/libvterm/include/vterm_keycodes.h,
            src/libvterm/src/encoding.c, src/libvterm/src/keyboard.c,
            src/libvterm/src/parser.c, src/libvterm/src/pen.c,
            src/libvterm/src/screen.c, src/libvterm/src/state.c,
            src/libvterm/src/unicode.c, src/libvterm/src/utf8.h,
            src/libvterm/src/vterm.c, src/libvterm/src/vterm_internal.h

Patch 8.0.1758
Problem:    open_line() returns TRUE/FALSE for success/failure.
Solution:   Return OK or FAIL.
Files:      src/misc1.c, src/normal.c, src/edit.c

Patch 8.0.1759
Problem:    Memory leak from duplicate options. (Yegappan Lakshmanan)
Solution:   Don't set the default value twice.
Files:      src/option.c

Patch 8.0.1760
Problem:    Wrong number of arguments to vms_read().
Solution:   Drop the first argument. (Ozaki Kiichi)
```

```
Files:      src/ui.c

Patch 8.0.1761
Problem:    Job in terminal window with no output channel is killed.
Solution:   Keep the job running when the input is a tty. (Ozaki Kiichi,
            closes #2734)
Files:      src/channel.c, src/os_unix.c, src/testdir/test_channel.vim

Patch 8.0.1762
Problem:    Terminal debug logging is a bit complicated.
Solution:   Make log_tr() use variable arguments (Ozaki Kiichi, closes #2730)
Files:      src/term.c

Patch 8.0.1763
Problem:    :argedit does not reuse an empty unnamed buffer.
Solution:   Add the BLN_CURBUF flag and fix all the side effects. (Christian
            Brabandt, closes #2713)
Files:      src/buffer.c, src/ex_cmds2.c, src/proto/buffer.pro,
            src/testdir/test_arglist.vim, src/testdir/test_command_count.vim

Patch 8.0.1764
Problem:    Lgtm considers tutor.es to be EcmaScript.
Solution:   Add a config file for lgtm. (Bas van Schaik, closes #2844)
Files:      .lgtm.yml, Filelist

Patch 8.0.1765
Problem:    CTRL-G j in Insert mode is incorrect when 'virtualedit' is set.
Solution:   Take coladd into account. (Christian Brabandt, closes #2743)
Files:      src/charset.c, src/testdir/test_virtualedit.vim

Patch 8.0.1766 (after 8.0.1758)
Problem:    Expanding abbreviation doesn't work. (Tooth Pik)
Solution:   Return OK instead of FALSE and FAIL instead of TRUE. (Christian
            Brabandt)
Files:      src/edit.c, src/testdir/test_mapping.vim

Patch 8.0.1767
Problem:    With 'incsearch' text may jump up and down. ()
Solution:   Besides w_botline also save and restore w_empty_rows.
            (closes #2530)
Files:      src/ex_getln.c, src/testdir/test_search.vim,
            src/testdir/dumps/Test_incsearch_scrolling_01.dump

Patch 8.0.1768
Problem:    SET_NO_HLSEARCH() used in a wrong way.
Solution:   Make it a function. (suggested by Dominique Pelle,
            closes #2850)
Files:      src/vim.h, src/ex_docmd.c, src/proto/ex_docmd.pro, src/search.c,
            src/ex_getln.c, src/option.c, src/screen.c, src/tag.c

Patch 8.0.1769
Problem:    Repeated saving and restoring viewstate for 'incsearch'.
Solution:   Use a structure.
Files:      src/ex_getln.c
```

```
Patch 8.0.1770
Problem:    Assert functions don't return anything.
Solution:   Return non-zero when the assertion fails.
Files:      src/evalfunc.c, src/eval.c, src/proto/eval.pro,
            src/testdir/test_assert.vim, runtime/doc/eval.txt

Patch 8.0.1771
Problem:    In tests, when WaitFor() fails it doesn't say why. (James McCoy)
Solution:   Add WaitForAssert(), which produces an assert error when it fails.
Files:      src/testdir/shared.vim, src/testdir/test_terminal.vim,
            src/testdir/screendump.vim, src/testdir/test_autocmd.vim,
            src/testdir/test_channel.vim, src/testdir/test_clientserver.vim,
            src/testdir/test_job_fails.vim

Patch 8.0.1772
Problem:    Quickfix: mixup of FALSE and FAIL, returning -1.
Solution:   Use FAIL and INVALID_QFIDX. (Yegappan Lakshmanan)
Files:      src/quickfix.c

Patch 8.0.1773
Problem:    Dialog messages are not translated.
Solution:   Add N_() and _() where needed. (Sergey Alyoshin)
Files:      src/diff.c, src/ex_cmds2.c, src/ex_docmd.c, src/message.c,
            src/po/Make_cyg.mak, src/po/Make_ming.mak, src/po/Make_mvc.mak,
            src/po/Makefile, src/quickfix.c, src/vim.h

Patch 8.0.1774
Problem:    Reading very long lines can be slow.
Solution:   Read up to 1 Mbyte at a time to avoid a lot of copying.  Add a
            check for going over the column limit.
Files:      src/fileio.c

Patch 8.0.1775
Problem:    MS-Windows: warning for unused variable.
Solution:   Move declaration inside #ifdef. (Mike Williams)
Files:      src/channel.c

Patch 8.0.1776
Problem:    In tests, when WaitFor() fails it doesn't say why.
Solution:   Turn a few more WaitFor() into WaitForAssert().
Files:      src/testdir/test_popup.vim, src/testdir/test_quotestar.vim,
            src/testdir/test_search.vim, src/testdir/test_terminal.vim,
            src/testdir/test_timers.vim

Patch 8.0.1777
Problem:    Cannot cleanup before loading another colorscheme.
Solution:   Add the ColorSchemePre autocommand event.
Files:      src/fileio.c, src/syntax.c, src/vim.h, src/testdir/test_gui.vim,
            runtime/colors/README.txt

Patch 8.0.1778
Problem:    Script to check translations does not always work.
Solution:   Go to first line before searching for MIME.
```

```
Files:      src/po/check.vim

Patch 8.0.1779
Problem:    Deleting in a block selection causes problems.
Solution:   Check the length of the line before adding bd.textcol and
            bd.textlen. (Christian Brabandt, closes #2825)
Files:      src/ops.c, src/testdir/test_blockedit.vim

Patch 8.0.1780
Problem:    Test fails because Vim in a terminal uses wrong 'encoding'.
Solution:   Set encoding in the test where it matters. (James McCoy,
            closes #2847)
Files:      src/testdir/test_terminal.vim

Patch 8.0.1781
Problem:    File names in quickfix window are not always shortened.
Solution:   Shorten the file name when opening the quickfix window. (Yegappan
            Lakshmanan, closes #2851, closes #2846)
Files:      src/testdir/test_quickfix.vim, src/fileio.c, src/proto/fileio.pro,
            src/quickfix.c

Patch 8.0.1782
Problem:    No simple way to label quickfix entries.
Solution:   Add the "module" item, to be used instead of the file name for
            display purposes. (Marcin Szamotulski, closes #1757)
Files:      runtime/doc/eval.txt, runtime/doc/quickfix.txt, src/alloc.h,
            src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1783
Problem:    Cannot use 256 colors in a MS-Windows console.
Solution:   Add 256 color support. (Nobuhiro Takasaki, closes #2821)
Files:      src/misc1.c, src/option.c, src/os_win32.c, src/proto/os_win32.pro,
            src/term.c, src/proto/term.pro, src/terminal.c

Patch 8.0.1784 (after 8.0.1782)
Problem:    Gvim test gets stuck in dialog.
Solution:   Rename the file used.
Files:      src/testdir/test_quickfix.vim

Patch 8.0.1785 (after 8.0.1783)
Problem:    Missing symbol in Win32 small build.
Solution:   Define VTERM_ANSI_INDEX_NONE without the terminal feature. Also
            fix unused function with #ifdef.
Files:      src/term.c, src/os_win32.c

Patch 8.0.1786
Problem:    No test for 'termwinkey'.
Solution:   Add a test.  Make feedkeys() handle terminal_loop() returning
            before characters are consumed.
Files:      src/testdir/test_terminal.vim, src/terminal.c, src/evalfunc.c,
            src/ex_docmd.c, src/getchar.c, src/keymap.h

Patch 8.0.1787
Problem:    Cannot insert the whole cursor line.
```

```
Solution:   Make CTRL-R CTRL-L work. (Andy Massimino, closes #2857)
Files:      runtime/doc/cmdline.txt, src/ex_getln.c, src/ops.c,
            src/testdir/test_cmdline.vim

Patch 8.0.1788
Problem:    Tool to check a color scheme is not installed.
Solution:   Update the install rule. (Christian Brabandt)
Files:      src/Makefile

Patch 8.0.1789
Problem:    BufWinEnter does not work well for a terminal window.
Solution:   Do not trigger BufWinEnter when opening a terminal window.
Files:      src/terminal.c, runtime/doc/autocmd.txt,
            src/testdir/test_terminal.vim

Patch 8.0.1790
Problem:    'winfixwidth' is not always respected by :close.
Solution:   Prefer a frame without 'winfixwidth' or 'winfixheight'. (Jason
            Franklin)
Files:      src/window.c, src/testdir/test_winbuf_close.vim

Patch 8.0.1791
Problem:    Using uint8_t does not work everywhere.
Solution:   Use char_u instead.
Files:      src/term.c, src/proto/term.pro, src/os_win32.c

Patch 8.0.1792
Problem:    MS-Windows users expect -? to work like --help.
Solution:   Add -?. (Christian Brabandt, closes #2867)
Files:      src/main.c

Patch 8.0.1793
Problem:    No test for "vim -g".
Solution:   Add a test for "-g" and "-y".
Files:      src/testdir/shared.vim, src/testdir/test_gui.vim

Patch 8.0.1794
Problem:    Duplicate term options after renaming.
Solution:   Remove the old names 'termkey', 'termsize' and 'terminalscroll'.
Files:      src/option.c, src/terminal.c, src/option.h,
            src/testdir/gen_opt_test.vim, src/testdir/screendump.vim

Patch 8.0.1795
Problem:    Lose contact with jobs when :gui forks.
Solution:   Don't fork when there is a running job. Make log message for a
            died job clearer.  Also close the terminal when stderr and stdout
            are the same FD.
Files:      src/gui.h, src/gui.c, src/channel.c, src/proto/channel.pro,
            src/os_unix.c, src/terminal.c

Patch 8.0.1796
Problem:    GUI: click on tab fails when the focus is in a terminal window.
Solution:   Handle K_TABLINE.
Files:      src/terminal.c
```

```
Patch 8.0.1797
Problem:    Terminal window is redrawn too often and scrolling is repeated.
Solution:   Don't scroll immediately but only when redrawing.  Avoid redrawing
            the whole terminal window on every change.
Files:      src/terminal.c, src/screen.c, src/proto/terminal.pro

Patch 8.0.1798
Problem:    MS-Windows: file considered read-only when another program has
            opened it.
Solution:   Pass file sharing flag to CreateFile(). (Linwei, closes #2860)
Files:      src/os_win32.c

Patch 8.0.1799
Problem:    No test for :registers command.
Solution:   Add a test. (Dominique Pelle, closes #2880)
Files:      src/testdir/test_registers.vim

Patch 8.0.1800
Problem:    X11: getting color is slow.
Solution:   Avoid using sprintf() and XParseColor(), put the RGB values in
            XColor directly.
Files:      src/gui_x11.c

Patch 8.0.1801
Problem:    MS-Windows: redirecting terminal output does not work.
Solution:   Intercept the text written to the terminal and write it to the
            file.
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1802 (after 8.0.1802)
Problem:    MS-Windows: terminal test fails.
Solution:   Close redirected output file earlier.
Files:      src/terminal.c

Patch 8.0.1803
Problem:    Warning for uninitialized variable. (Tony Mechelynck)
Solution:   Initialize it.
Files:      src/terminal.c

Patch 8.0.1804
Problem:    Using :normal in terminal window causes problems. (Dominique
            Pelle)
Solution:   Don't call terminal_loop() for :normal. (closes #2886)
Files:      src/ex_docmd.c, src/proto/ex_docmd.pro, src/evalfunc.c

Patch 8.0.1805
Problem:    qf_parse_line() is too long.
Solution:   Split it in parts.  Properly handle vim_realloc() failing.
            (Yegappan Lakshmanan, closes #2881)
Files:      src/quickfix.c

Patch 8.0.1806
Problem:    InsertCharPre causes problems for autocomplete. (Lifepillar)
```

```
Solution:   Check for InsertCharPre before calling vpeekc(). (Christian
            Brabandt, closes #2876)
Files:      src/edit.c, src/testdir/test_popup.vim

Patch 8.0.1807
Problem:    Function to set terminal name is too long.
Solution:   Refactor the function.  Fix typo in test.
Files:      src/term.c, src/testdir/test_options.vim

Patch 8.0.1808 (after 8.0.1807)
Problem:    Can't build without TGETENT.
Solution:   Add #ifdef
Files:      src/term.c

Patch 8.0.1809
Problem:    Various typos.
Solution:   Correct the mistakes, change "cursur" to "cursor". (closes #2887)
Files:      src/edit.c, src/normal.c, src/screen.c, src/proto/screen.pro,
            src/ui.c

Patch 8.0.1810
Problem:    Buffer of a terminal only updated in Terminal-Normal mode.
Solution:   Copy the terminal window content to the buffer when in
            Terminal-Job mode.
Files:      src/terminal.c, src/proto/terminal.pro, src/ex_cmds2.c,
            src/proto/ex_cmds2.pro

Patch 8.0.1811
Problem:    No test for winrestcmd().
Solution:   Add a test. (Dominique Pelle, closes #2894)
Files:      src/testdir/test_window_cmd.vim

Patch 8.0.1812
Problem:    The qf_jump_to_usable_window() function is too long.
Solution:   Split it in parts. (Yegappan Lakshmanan, closes #2891)
Files:      src/quickfix.c

Patch 8.0.1813
Problem:    Windows installer doesn't install terminal debugger.
Solution:   Add the package to the list of files to install.
Files:      nsis/gvim.nsi

Patch 8.0.1814
Problem:    Crash with terminal window and with 'lazyredraw' set. (Antoine)
Solution:   Check the terminal still exists after update_screen().
Files:      src/terminal.c

Patch 8.0.1815 (after 8.0.1814)
Problem:    Still a crash with terminal window and with 'lazyredraw' set.
            (Antoine)
Solution:   Do not wipe out the buffer when updating the screen.
Files:      src/terminal.c, src/proto/terminal.pro, src/screen.c,
            src/proto/screen.pro, src/ui.c
```

Patch 8.0.1816
Problem: No test for setcmdpos().
Solution: Add a test. (Dominique Pelle, closes #2901)
Files: src/testdir/test_cmdline.vim

Patch 8.0.1817
Problem: A timer may change v:count unexpectedly.
Solution: Save and restore v:count and similar variables when a timer
            callback is invoked. (closes #2897)
Files: src/eval.c, src/proto/eval.pro, src/ex_cmds2.c, src/structs.h,
            src/testdir/test_timers.vim

Patch 8.0.1818 (after 8.0.1810)
Problem: Lines remove from wrong buffer when using terminal window.
Solution: Make sure to use tl_buffer.
Files: src/terminal.c

Patch 8.0.1819
Problem: Swap file warning for a file in a non-existing directory, if there
            is another with the same file name. (Juergen Weigert)
Solution: When expanding the file name fails compare the file names.
Files: src/testdir/test_swap.vim, src/memline.c

Patch 8.0.1820
Problem: Terminal window redirecting stdout does not show stderr. (Matéo
            Zanibelli)
Solution: When stdout is not connected to pty_master_fd then use it for
            stderr. (closes #2903)
Files: src/os_unix.c, src/testdir/test_terminal.vim

Patch 8.0.1821
Problem: Cursor in terminal window moves when pressing CTRL-W. (Dominique
            Pelle)
Solution: Do not more the cursor or redraw when not in Terminal-Normal mode.
            (closes #2904)
Files: src/terminal.c

Patch 8.0.1822
Problem: Make uninstall does not remove colors/tools.
Solution: Add a line to delete the tools directory. (Kazunobu Kuriyama)
Files: src/Makefile

Patch 8.0.1823
Problem: Test for terminal stdout redirection is flaky.
Solution: Wait for the job to finish.
Files: src/testdir/test_terminal.vim

Patch 8.0.1824
Problem: Coverity warns for variable that may be uninitialized.
Solution: Initialize the variable.
Files: src/terminal.c

Patch 8.0.1825
Problem: Might use NULL pointer when out of memory. (Coverity)

```
Solution:   Handle NULL pointer better.
Files:      src/getchar.c

Patch 8.0.1826
Problem:    Configure uses old compiler flag.
Solution:   Remove _DARWIN_C_SOURCE. (Kazunobu Kuriyama)
Files:      src/configure.ac, src/auto/configure

Patch 8.0.1827
Problem:    Compiler warning for signed/unsigned char pointers. (Cesar Romani)
Solution:   Change the type of jv_argv.
Files:      src/channel.c, src/structs.h

Patch 8.0.1828
Problem:    Get no clue why :gui does not fork.
Solution:   Add a channel log message.
Files:      src/channel.c

Patch 8.0.1829
Problem:    MS-Windows: script for vimdiff can't handle ! chars.
Solution:   Escape the ! chars. (Hans Ginzel, closes #2896)
Files:      src/dosinst.c

Patch 8.0.1830
Problem:    Switching to Terminal-Normal mode does not redraw. (Dominique
            Pelle)
Solution:   Also redraw when not updating the snapshot. (closes #2904)
Files:      src/terminal.c

Patch 8.0.1831
Problem:    Sometimes the quickfix title is incorrectly prefixed with ':'.
Solution:   Prepend the colon in another way. (Yegappan Lakshmanan, closes
            #2905)
Files:      src/evalfunc.c, src/quickfix.c, src/testdir/test_quickfix.vim

Patch 8.0.1832
Problem:    Cannot use :unlet for an environment variable.
Solution:   Make it work.  Use unsetenv() if available. (Yasuhiro Matsumoto,
            closes #2855)
Files:      runtime/doc/eval.txt, src/config.h.in, src/configure.ac,
            src/auto/configure, src/eval.c, src/misc1.c, src/proto/misc1.pro,
            src/testdir/test_unlet.vim

Patch 8.0.1833
Problem:    X11: ":echo 3.14" gives E806.
Solution:   set LC_NUMERIC to "C". (Dominique Pelle, closes #2368)
Files:      src/gui_x11.c

Patch 8.0.1834
Problem:    GUI: find/replace dialog does not handle some chars properly.
Solution:   Escape '?' when needed.  Always escape backslash. (closes #2418,
            closes #2435)
Files:      src/gui.c
```

```
Patch 8.0.1835
Problem:    Print document name does not support multi-byte.
Solution:   Use StartDocW() if needed. (Yasuhiro Matsumoto, closes #2478)
Files:      src/os_mswin.c

Patch 8.0.1836
Problem:    Buffer-local window options may not be recent if the buffer is
            still open in another window.
Solution:   Copy the options from the window instead of the outdated window
            options. (Bjorn Linse, closes #2336)
Files:      src/buffer.c, src/testdir/test_options.vim

Patch 8.0.1837
Problem:    One character cmdline abbreviation not triggered after '<,'>.
Solution:   Skip over the special range. (Christian Brabandt, closes #2320)
Files:      src/ex_getln.c, src/testdir/test_mapping.vim

Patch 8.0.1838
Problem:    Cursor in wrong position when switching to Terminal-Normal mode.
            (Dominique Pelle)
Solution:   Move to the end of the line if coladvance() fails.  Do not take a
            snapshot a second time.
Files:      src/terminal.c

Patch 8.0.1839
Problem:    Script to check .po file doesn't check for plural header.
Solution:   Add a check that the plural header is present when needed.
Files:      src/po/check.vim

Patch 8.0.1840
Problem:    getwinpos() is not tested.
Solution:   Add a test. (Dominique Pelle, closes #2911)
Files:      src/testdir/test_gui.vim

Patch 8.0.1841
Problem:    HP-UX does not have setenv().
Solution:   Use vim_setenv(). (John Marriott)
Files:      src/misc1.c

Patch 8.0.1842
Problem:    Popup menu inside terminal window isn't cleared.
Solution:   Use NOT_VALID in pum_undisplay(). (suggested by Christian
            Brabandt, closes #2908)
Files:      src/popupmnu.c

Patch 8.0.1843
Problem:    Entry for 'wrap' in options window is wrong. (John Little)
Solution:   Make the change apply locally.
Files:      runtime/optwin.vim

Patch 8.0.1844
Problem:    Superfluous quickfix code, missing examples.
Solution:   Remove unneeded code.  Add a few examples.  Add a bit more
            testing. (Yegappan Lakshmanan, closes #2916)
```

```
Files:      runtime/doc/quickfix.txt, src/quickfix.c,
            src/testdir/test_quickfix.vim

Patch 8.0.1845
Problem:    Various comment updates needed, missing white space.
Solution:   Update comments, add white space.
Files:      src/getchar.c, src/testdir/test_cscope.vim, src/gui_mac.c

Patch 8.0.1846
Problem:    Python interface is incompatible with lldb.
Solution:   For OutputType set the base to be PyFile_Type. (Boxu Zhang)
            Partly disabled to avoid a crash.
Files:      src/if_py_both.h, src/if_python.c, src/if_python3.c

Patch 8.0.1847
Problem:    Some build options don't have an example.
Solution:   Add a couple more examples and compiler flags.
Files:      src/Makefile

Patch 8.0.1848
Problem:    'termwinscroll' does not work properly. (Dominique Pelle)
Solution:   Subtract removed scrollback from the scrollback count.  Add a test
            for 'termwinscroll'. (closes #2909)
Files:      src/terminal.c, src/testdir/test_terminal.vim

Patch 8.0.1849
Problem:    Compiler warning for unused arguments and missing prototype.
Solution:   Add UNUSED.  Add static.
Files:      src/mbyte.c, src/if_ruby.c

Patch 8.0.1850
Problem:    Todo items in source code not visible for users.
Solution:   Move the todo items to the help file.
Files:      src/terminal.c


 vim:tw=78:ts=8:ft=help:norl:
```

os_390.txt	For Vim version 8.1. Last change: 2016 Feb 27

VIM REFERENCE MANUAL	by Ralf Schandl

zOS z/OS OS390 os390 MVS

This file contains the particulars for the z/OS UNIX version of Vim.

Contributors:
The port to z/OS UNIX was done by Ralf Schandl for the Redbook mentioned
below.

Changes, bug-reports, or both by:

	David Moore
	Anthony Giorgio
	and others

==
1. ASCII/EBCDIC dependent scripts	OS390-has-ebcdic zOS-has-ebcdic

For the internal script language the feature "ebcdic" was added. With this
you can fix ASCII dependent scripts like this:

```
    if has("ebcdic")
        let space = 64
    else
        let space = 32
    endif
```

==
2. PuTTY and Colors	OS390-PuTTY zOS-PuTTY

If you see problems with syntax highlighting or screen corruptions when you
connect to z/OS using Putty, try the following:

- Configure Putty as "vt220" terminal (Connection->Data)
- Add the following 3 lines to your vimrc:

```
    set t_AB=?[4%p1%dm
    set t_AF=?[3%p1%dm
    set t_CO=8
```

Note: ? is one character use <C-V><Esc> to enter it.

==
3. Motif Problems   OS390-Motif   zOS-Motif

Note: Seen with Vim 6.*, never tested since.

It seems that in porting the Motif library to z/OS, a translation from EBCDIC
to ASCII for the accelerator characters of the pull-down menus was forgotten.
Even after I tried to hand convert the menus, the accelerator keys continued
to only work for the opening of menus (like <Alt-F> to open the file menu).
They still do not work for the menu items themselves (like <Alt-F>O to open
the file browser).

There is no solution for this yet.

==
4. Bugs   OS390-bugs   zOS-Bugs

- Vim will consistently hang when a large amount of text is selected in
  visual block mode. This may be due to a memory corruption issue. Note that
  this occurs in both the terminal and gui versions.

==
5. Limitations   OS390-limitations   zOS-limitations

- No binary search in tag files.
  The program /bin/sort sorts by ASCII value by default. This program is
  normally used by ctags to sort the tags. There might be a version of
  ctags out there, that does it right, but we can't be sure. So this seems to
  be a permanent restriction.

- The cscope interface (cscope) doesn't work for the version of cscope
  that we use on our mainframe. We have a copy of version 15.0b12, and it
  causes Vim to hang when using the "cscope add" command. I'm guessing that
  the binary format of the cscope database isn't quite what Vim is expecting.
  I've tried to port the current version of cscope (15.3) to z/OS, without
  much success. If anyone is interested in trying, drop me a line if you
  make any progress.

- No glib/gtk support. I have not been able to successfully compile glib on
  z/OS UNIX. This means you'll have to live without the pretty gtk toolbar.

Disabled at compile time:
    - Multibyte support   (multibyte)
    - Right-to-left mode   (rileft)
    - Farsi key map   (Farsi)
    - Arabic language support   (Arabic)
    - Spell checking   (spell)

Never tested:
    - Perl interface   (perl)
    - Hangul input   (hangul)
    - Encryption support   (encryption)
    - Langmap   ('langmap')

```
    - Python support            ( Python )
    - Right-to-left mode        ( 'rightleft' )
    - TCL interface             ( tcl )
    ...

==============================================================================
6. Open source on z/OS UNIX              OS390-open-source   zOS-open-source

If you are interested in other Open Source Software on z/OS UNIX, have a
look at the following Redbook:

    Mike MacIsaac et al
    "Open Source Software for z/OS and OS/390 UNIX"
    IBM Form Number: SG24-5944-01
    ISBN: 0738424633
    http://www-03.ibm.com/systems/resources/servers_eserver_zseries_zos_unix_redbook_sg245

Also look at:
    http://www.redbooks.ibm.com
    http://www-03.ibm.com/systems/z/os/zos/features/unix/
    http://www-03.ibm.com/systems/z/os/zos/features/unix/library/IBM+Redbooks/index.html



------------------------------------------------------------------------------
 vim:tw=78:fo=tcq2:ts=8:noet:ft=help:norl:
```

os_amiga.txt For Vim version 8.1. Last change: 2010 Aug 14

VIM REFERENCE MANUAL by Bram Moolenaar

Amiga

This file contains the particularities for the Amiga version of Vim.
There is also a section specifically for MorphOS below.

NOTE: The Amiga code is still included, but has not been maintained or tested.

Installation on the Amiga:
- Assign "VIM:" to the directory where the Vim "doc" directory is. Vim will look for the file "VIM:doc/help.txt" (for the help command).
  Setting the environment variable $VIM also works. And the other way around: when $VIM used and it is not defined, "VIM:" is used.
- With DOS 1.3 or earlier: Put "arp.library" in "libs:". Vim must have been compiled with the +ARP feature enabled. Make sure that newcli and run are in "C:" (for executing external commands).
- Put a shell that accepts a command with "-c" (e.g. "Csh" from Fish disk 624) in "c:" or in any other directory that is in your search path (for executing external commands).

If you have sufficient memory you can avoid startup delays by making Vim and csh resident with the command "rez csh vim". You will have to put "rezlib.library" in your "libs:" directory. Under 2.0 you will need rez version 0.5.

If you do not use digraphs, you can save some memory by recompiling without the +digraphs feature. If you want to use Vim with other terminals you can recompile with the TERMCAP option. Vim compiles with Manx 5.x and SAS 6.x. See the makefiles and feature.h.

If you notice Vim crashes on some files when syntax highlighting is on, or when using a search pattern with nested wildcards, it might be that the stack is too small. Try increasing the stack size. In a shell use the Stack command before launching Vim. On the Workbench, select the Vim icon, use the workbench "Info" menu and change the Stack field in the form.

If you want to use different colors set the termcap codes:
```
        t_mr (for inverted text)
        t_md (for bold text)
        t_me (for normal text after t_mr and t_md)
        t_so (for standout mode)
        t_se (for normal text after t_so)
        t_us (for underlined text)
        t_ue (for normal text after t_us)
        t_ZH (for italic text)
        t_ZR (for normal text after t_ZH)
```

Standard ANSI escape sequences are used. The codes are:
```
30 grey char   40 grey cell   >0 grey background    0 all attributes off
31 black char  41 black cell  >1 black background   1 boldface
```

```
32 white char  42 white cell  >2 white background   2 faint
33 blue char   43 blue cell   >3 blue background    3 italic
34 grey char   44 grey cell   >4 grey background    4 underscore
35 black char  45 black cell  >5 black background   7 reverse video
36 white char  46 white cell  >6 white background   8 invisible
37 blue char   47 blue cell   >7 blue background
```

The codes with '>' must be the last. The cell and background color should be the same. The codes can be combined by separating them with a semicolon. For example to get white text on a blue background:

```
:set t_me=^V<Esc>[0;32;43;>3m
:set t_se=^V<Esc>[0;32;43;>3m
:set t_ue=^V<Esc>[0;32;43;>3m
:set t_ZR=^V<Esc>[0;32;43;>3m
:set t_md=^V<Esc>[1;32;43;>3m
:set t_mr=^V<Esc>[7;32;43;>3m
:set t_so=^V<Esc>[0;31;43;>3m
:set t_us=^V<Esc>[4;32;43;>3m
:set t_ZH=^V<Esc>[3;32;43;>3m
```

When using multiple commands with a filter command, e.g.

```
:r! echo this; echo that
```

Only the output of the last command is used. To fix this you have to group the commands. This depends on the shell you use (that is why it is not done automatically in Vim). Examples:

```
:r! (echo this; echo that)
:r! {echo this; echo that}
```

Commands that accept a single file name allow for embedded spaces in the file name. However, when using commands that accept several file names, embedded spaces need to be escaped with a backslash.

Vim for MorphOS MorphOS

[this section mostly by Ali Akcaagac]

For the latest info about the MorphOS version:
http://www.akcaagac.com/index_vim.html

Problems

There are a couple of problems which are not MorphOS related but more Vim and UN*X related. When starting up Vim in ram: it complains with a nag requester from MorphOS please simply ignore it. Another problem is when running Vim as is some plugins will cause a few problems which you can ignore as well. Hopefully someone will be fixing it over the time.

To pass all these problems for now you can either run:

```
vim <file to be edited>
```

or if you want to run Vim plain and enjoy the motion of Helpfiles etc. it then

would be better to enter:

```
vim --noplugins <of course you can add a file>
```

Installation

1) Please copy the binary 'VIM' file to c:
2) Get the Vim runtime package from:

```
ftp://ftp.vim.org/pub/vim/amiga/vim62rt.tgz
```

   and unpack it in your 'Apps' directory of the MorphOS installation. For me
   this would create following directory hierarchy:

```
MorphOS:Apps/Vim/Vim62/...
```

3) Add the following lines to your s:shell-startup (Important!).

```
;Begin VIM
Set VIM=MorphOS:Apps/Vim/Vim62
Assign HOME: ""
;End VIM
```

4) Copy the '.vimrc' file to s:

5) There is also a file named 'color-sequence' included in this archive. This
   will set the MorphOS Shell to show ANSI colors. Please copy the file to s:
   and change the s:shell-startup to:

```
;Begin VIM
Set VIM=MorphOS:Apps/Vim/Vim62
Assign HOME: ""
Execute S:Color-Sequence
Cls
;End VIM
```

vim:tw=78:ts=8:noet:ft=help:norl:

os_beos.txt For Vim version 8.1. Last change: 2016 Mar 28

VIM REFERENCE MANUAL by Bram Moolenaar

BeOS BeBox

This is a port of Vim 5.1 to the BeOS Preview Release 2 (also known as PR2) or later.

This file contains the particularities for the BeBox/BeOS version of Vim. For matters not discussed in this file, Vim behaves very much like the Unix os_unix.txt version.

1. General beos-general

The default syntax highlighting mostly works with different foreground colors to highlight items. This works best if you set your Terminal window to a darkish background and light letters. Some middle-grey background (for instance (r,g,b)=(168,168,168)) with black letters also works nicely. If you use the default light background and dark letters, it may look better to simply reverse the notion of foreground and background color settings. To do this, add this to your .vimrc file (where <Esc> may need to be replaced with the escape character):

```
:if &term == "beos-ansi"
:    set t_AB=<Esc>[3%dm
:    set t_AF=<Esc>[4%dm
:endif
```

2. Compiling Vim beos-compiling

From the Advanced Access Preview Release (AAPR) on, Vim can be configured with the standard configure script. To get the compiler and its flags right, use the following command-line in the shell (you can cut and paste it in one go):

```
CC=$BE_C_COMPILER CFLAGS="$BE_DEFAULT_C_FLAGS -O7" \
```

```
    ./configure --prefix=/boot/home/config
```

$BE_C_COMPILER is usually "mwcc", $BE_DEFAULT_C_FLAGS is usually "-I- -I."

When configure has run, and you wish to enable GUI support, you must edit the config.mk file so that the lines with GUI_xxx refer to $(BEOSGUI_xxx) instead of $(NONE_xxx).
Alternatively you can make this change in the Makefile; it will have a more permanent effect. Search for "NONE_".

After compilation you need to add the resources to the binary. Add the following few lines near the end (before the line with "exit $exit_value") of the link.sh script to do this automatically.

```
    rmattr BEOS:TYPE vim
    copyres os_beos.rsrc vim
    mimeset vim
```

Also, create a dummy file "strip":

```
    #!/bin/sh
    mimeset $1
    exit 0
```

You will need it when using "make install" to install Vim.

Now type "make" to compile Vim, then "make install" to install it.

If you want to install Vim by hand, you must copy Vim to $HOME/config/bin, and create a bunch of symlinks to it ({g,r,rg}{vim,ex,view}). Furthermore you must copy Vim's configuration files to $HOME/config/share/vim:
vim-5.0s/{*.vim,doc,syntax}. For completeness, you should also copy the nroff manual pages to $HOME/config/man/man1. Don't forget ctags/ctags and xxd/xxd!

Obviously, you need the unlimited linker to actually link Vim. See http://www.metrowerks.com for purchasing the CodeWarrior compiler for BeOS.
There are currently no other linkers that can do the job.

This won't be able to include the Perl or Python interfaces even if you have the appropriate files installed. beos-perl

3. Timeout in the Terminal   beos-timeout

Because some POSIX/UNIX features are still missing[1], there is no direct OS support for read-with-timeout in the Terminal. This would mean that you cannot use :mappings of more than one character, unless you also :set notimeout.
 'timeout'

To circumvent this problem, I added a workaround to provide the necessary input with timeout by using an extra thread which reads ahead one character.
As a side effect, it also makes Vim recognize when the Terminal window resizes.

Function keys are not supported in the Terminal since they produce very indistinctive character sequences.

These problems do not exist in the GUI.

[1]: there is no select() on file descriptors; also the termios VMIN and VTIME settings do not seem to work properly. This has been the case since DR7 at least and still has not been fixed as of PR2.

4. Unicode vs. Latin1 beos-unicode beos-utf8

BeOS uses Unicode and UTF-8 for text strings (16-bit characters encoded to 8-bit characters). Vim assumes ISO-Latin1 or other 8-bit character codes. This does not produce the desired results for non-ASCII characters. Try the command :digraphs to see. If they look messed up, use :set isprint=@ to (slightly) improve the display of ISO-Latin1 characters 128-255. This works better in the GUI, depending on which font you use (below).

You may also use the /boot/bin/xtou command to convert UTF-8 files from (xtou -f iso1 filename) or to (xtou -t iso1 filename) ISO-Latin1 characters.

5. The BeOS GUI beos-gui

The BeOS GUI is no longer included. It was not maintained for a while and most likely didn't work. If you want to work on this: get the Vim 6.x version and merge it back in.

6. The $VIM directory beos-vimdir

$VIM is the symbolic name for the place where Vims support files are stored. The default value for $VIM is set at compile time and can be determined with

```
:version
```

The normal value is /boot/home/config/share/vim. If you don't like it you can set the VIM environment variable to override this, or set 'helpfile' in your .vimrc:

```
:if version >= 500
:    set helpfile=~/vim/vim54/doc/help.txt
:    syntax on
:endif
```

7. Drag & Drop beos-dragndrop

You can drop files and directories on either the Vim icon (starts a new Vim session, unless you use the File Types application to set Vim to be "Single Launch") or on the Vim window (starts editing the files). Dropping a folder sets Vim's current working directory. :cd :pwd If you drop files or folders with either SHIFT key pressed, Vim changes directory to the folder

that contains the first item dropped. When starting Vim, there is no need to press shift: Vim behaves as if you do.

Files dropped set the current argument list. argument-list

8. Single Launch vs. Multiple Launch beos-launch

As distributed Vim's Application Flags (as seen in the FileTypes preference) are set to Multiple Launch. If you prefer, you can set them to Single Launch instead. Attempts to start a second copy of Vim will cause the first Vim to open the files instead. This works from the Tracker but also from the command line. In the latter case, non-file (option) arguments are not supported.

NB: Only the GUI version has a BApplication (and hence Application Flags). This section does not apply to the GUI-less version, should you compile one.

9. Fonts beos-fonts

Set fonts with

```
:set guifont=Courier10_BT/Roman/10
```

where the first part is the font family, the second part the style, and the third part the size. You can use underscores instead of spaces in family and style.

Best results are obtained with monospaced fonts (such as Courier). Vim attempts to use all fonts in B_FIXED_SPACING mode but apparently this does not work for proportional fonts (despite what the BeBook says).

Vim also tries to use the B_ISO8859_1 encoding, also known as ISO Latin 1. This also does not work for all fonts. It does work for Courier, but not for ProFontISOLatin1/Regular (strangely enough). You can verify this by giving the

```
:digraphs
```

command, which lists a bunch of characters with their ISO Latin 1 encoding. If, for instance, there are "box" characters among them, or the last character isn't a dotted-y, then for this font the encoding does not work.

If the font you specify is unavailable, you get the system fixed font.

Standard fixed-width system fonts are:

```
ProFontISOLatin1/Regular
    Courier10_BT/Roman
    Courier10_BT/Italic
    Courier10_BT/Bold
    Courier10_BT/Bold_Italic
```

Standard proportional system fonts are:

```
                    Swis721_BT/Roman
                    Swis721_BT/Italic
                    Swis721_BT/Bold
                    Swis721_BT/Bold_Italic
                Dutch801_Rm_BT/Roman
                Dutch801_Rm_BT/Italic
                Dutch801_Rm_BT/Bold
                Dutch801_Rm_BT/Bold_Italic
                   Baskerville/Roman
                   Baskerville/Italic
                   Baskerville/Bold
                   Baskerville/Bold_Italic
                 SymbolProp_BT/Regular
```

Try some of them, just for fun.

10. The meta key modifier beos-meta

The META key modifier is obtained by the left or right OPTION keys. This is because the ALT (aka COMMAND) keys are not passed to applications.

11. Mouse key mappings beos-mouse

Vim calls the various mouse buttons LeftMouse, MiddleMouse and RightMouse. If you use the default Mouse preference settings these names indeed correspond to reality. Vim uses this mapping:

```
    Button 1 -> LeftMouse,
    Button 2 -> RightMouse,
    Button 3 -> MiddleMouse.
```

If your mouse has fewer than 3 buttons you can provide your own mapping from mouse clicks with modifier(s) to other mouse buttons. See the swapmouse package for an example: gui-mouse-mapping
$VIMRUNTIME/pack/dist/opt/swapmouse/plugin/swapmouse.vim

12. Color names beos-colors

Vim has a number of color names built-in. Additional names are read from the file $VIMRUNTIME/rgb.txt, if present. This file is basically the color database from X. Names used from this file are cached for efficiency.

13. Compiling with Perl beos-perl

Compiling with Perl support enabled is slightly tricky. The Metrowerks compiler has some strange ideas where to search for include files. Since several include files with Perl have the same names as some Vim header files, the wrong ones get included. To fix this, run the following Perl script while in the vim-5.0/src directory:

```
preproc.pl > perl.h

 #!/bin/env perl
 # Simple #include expander, just good enough for the Perl header files.

 use strict;
 use IO::File;
 use Config;

 sub doinclude
 {
     my $filename = $_[0];
     my $fh = new IO::File($filename, "r");
     if (defined $fh) {
         print "/* Start of $filename */\n";

         while (<$fh>) {
             if (/^#include "(.*)"/) {
                 doinclude($1);
                 print "/* Back in $filename */\n";
             } else {
                 print $_;
             }
         }
         print "/* End of $filename */\n";

         undef $fh;
     } else {
         print "/* Cannot open $filename */\n";
         print "#include \"$filename\"\n";
     }
 }

 chdir     $Config{installarchlib}."/CORE";
 doinclude "perl.h";
```

It expands the "perl.h" header file, using only other Perl header files.

Now you can configure & make Vim with the --enable-perlinterp option.
Be warned though that this adds about 616 kilobytes to the size of Vim!
Without Perl, Vim with default features and GUI is about 575K, with Perl
it is about 1191K.

-Olaf Seibert

[Note: these addresses no longer work:]
<rhialto@polder.ubc.kun.nl>
http://polder.ubc.kun.nl/~rhialto/be

vim:tw=78:ts=8:noet:ft=help:norl:

os_dos.txt For Vim version 8.1. Last change: 2006 Mar 30

VIM REFERENCE MANUAL by Bram Moolenaar

dos DOS

This file documents the common particularities of the MS-DOS and Win32 versions of Vim. Also see os_win32.txt and os_msdos.txt .

==

1. File locations dos-locations

If you keep the Vim executable in the directory that contains the help and syntax subdirectories, there is no need to do anything special for Vim to work. No registry entries or environment variables need to be set. Just make sure that the directory is in your search path, or use a shortcut on the desktop.

Your vimrc files ("_vimrc" and "_gvimrc") are normally located one directory up from the runtime files. If you want to put them somewhere else, set the environment variable $VIM to the directory where you keep them. Example:

```
set VIM=C:\user\piet
```

Will find "c:\user\piet_vimrc".
Note: This would only be needed when the computer is used by several people. Otherwise it's simpler to keep your _vimrc file in the default place.

If you move the executable to another location, you also need to set the $VIM environment variable. The runtime files will be found in "$VIM/vim{version}". Example:

```
set VIM=E:\vim
```

Will find the version 5.4 runtime files in "e:\vim\vim54".
Note: This is _not_ recommended. The preferred way is to keep the executable in the runtime directory.

If you move your executable AND want to put your "_vimrc" and "_gvimrc" files somewhere else, you must set $VIM to where you vimrc files are, and set $VIMRUNTIME to the runtime files. Example:

```
set VIM=C:\usr\piet
set VIMRUNTIME=E:\vim\vim54
```

Will find "c:\user\piet_vimrc" and the runtime files in "e:\vim\vim54".

See $VIM and $VIMRUNTIME for more information.

Under Windows 95, you can set $VIM in your C:\autoexec.bat file. For
example:
  set VIM=D:\vim
Under Windows NT, you can set environment variables for each user separately
under "Start/Settings/Control Panel->System", or through the properties in the
menu of "My Computer", under the Environment Tab.

==
2. Using backslashes   dos-backslash

Using backslashes in file names can be a problem. Vi halves the number of
backslashes for some commands. Vim is a bit more tolerant and does not remove
backslashes from a file name, so ":e c:\foo\bar" works as expected. But when
a backslash occurs before a special character (space, comma, backslash, etc.),
Vim removes the backslash. Use slashes to avoid problems: ":e c:/foo/bar"
works fine. Vim replaces the slashes with backslashes internally to avoid
problems with some MS-DOS programs and Win32 programs.

When you prefer to use forward slashes, set the 'shellslash' option. Vim will
then replace backslashes with forward slashes when expanding file names. This
is especially useful when using a Unix-like 'shell'.

==
3. Standard mappings   dos-standard-mappings

The mappings for CTRL-PageUp and CTRL-PageDown have been removed, they now
jump to the next or previous tab page <C-PageUp> <C-PageDown>

If you want them to move to the first and last screen line you can use these
mappings:

key	key code	Normal/Visual mode	Insert mode
CTRL-PageUp	<M-N><M-C-D>	H	<C-O>H
CTRL-PageDown	<M-N>v	L$	<C-O>L<C-O>$

Additionally, these keys are available for copy/cut/paste. In the Win32
and DJGPP versions, they also use the clipboard.

Shift-Insert	paste text (from clipboard)	<S-Insert>
CTRL-Insert	copy Visual text (to clipboard)	<C-Insert>
CTRL-Del	cut Visual text (to clipboard)	<C-Del>
Shift-Del	cut Visual text (to clipboard)	<S-Del>
CTRL-X	cut Visual text (to clipboard)	

These mappings accomplish this (Win32 and DJGPP versions of Vim):

key	key code	Normal	Visual	Insert
Shift-Insert	<M-N><M-T>	"*P	"-d"*P	<C-R><C-O>*
CTRL-Insert	<M-N><M-U>		"*y	
Shift-Del	<M-N><M-W>		"*d	
CTRL-Del	<M-N><M-X>		"*d	
CTRL-X	<C-X>		"*d	

Or these mappings (non-Win32 version of Vim):

key	key code	Normal	Visual	Insert
Shift-Insert	<M-N><M-T>	P	"-dP	<C-R><C-O>"
CTRL-Insert	<M-N><M-U>		y	
Shift-Del	<M-N><M-W>		d	
CTRL-Del	<M-N><M-X>		d	

When the clipboard is supported, the "* register is used.

==
4. Screen output and colors   dos-colors

The default output method for the screen is to use bios calls. This works right away on most systems. You do not need ansi.sys. You can use ":mode" to set the current screen mode. See :mode .

To change the screen colors that Vim uses, you can use the :highlight command. The Normal highlight group specifies the colors Vim uses for normal text. For example, to get grey text on a blue background:

```
:hi Normal ctermbg=Blue ctermfg=grey
```

See highlight-groups for other groups that are available.

A DOS console does not support attributes like bold and underlining. You can set the color used in five modes with nine terminal options. Note that this is not necessary since you can set the color directly with the ":highlight" command; these options are for backward compatibility with older Vim versions. The 'highlight' option specifies which of the five modes is used for which action.

```
:set t_mr=^V^[\|xxm             start of invert mode
:set t_md=^V^[\|xxm             start of bold mode
:set t_me=^V^[\|xxm             back to normal text

:set t_so=^V^[\|xxm             start of standout mode
:set t_se=^V^[\|xxm             back to normal text

:set t_us=^V^[\|xxm             start of underline mode
:set t_ue=^V^[\|xxm             back to normal text

:set t_ZH=^V^[\|xxm             start of italics mode
:set t_ZR=^V^[\|xxm             back to normal text
```

^V is CTRL-V
^[is <Esc>
You must replace xx with a decimal code, which is the foreground color number and background color number added together:

COLOR	FOREGROUND	BACKGROUND
Black	0	0
DarkBlue	1	16
DarkGreen	2	32
DarkCyan	3	48
DarkRed	4	64
DarkMagenta	5	80

```
Brown, DarkYellow           6             96
LightGray                   7            112
DarkGray                    8            128 *
Blue, LightBlue             9            144 *
Green, LightGreen          10            160 *
Cyan, LightCyan            11            176 *
Red, LightRed              12            192 *
Magenta, LightMagenta      13            208 *
Yellow, LightYellow        14            224 *
White                      15            240 *

* Depending on the display mode, the color codes above 128 may not be
  available, and code 128 will make the text blink.

When you use 0, the color is reset to the one used when you started Vim
(usually 7, lightgray on black, but you can override this.  If you have
overridden the default colors in a command prompt, you may need to adjust
some of the highlight colors in your vimrc---see below).
This is the default for t_me.

The defaults for the various highlight modes are:
        t_mr    112      reverse mode: Black text (0) on LightGray (112)
        t_md     15      bold mode: White text (15) on Black (0)
        t_me      0      normal mode (revert to default)

        t_so     31      standout mode: White (15) text on DarkBlue (16)
        t_se      0      standout mode end (revert to default)

        t_czh   225      italic mode: DarkBlue text (1) on Yellow (224)
        t_czr     0      italic mode end (revert to default)

        t_us     67      underline mode: DarkCyan text (3) on DarkRed (64)
        t_ue      0      underline mode end (revert to default)

These colors were chosen because they also look good when using an inverted
display, but you can change them to your liking.

Example:
  :set t_mr=^V^[\|97m   " start of invert mode: DarkBlue (1) on Brown (96)
  :set t_md=^V^[\|67m   " start of bold mode: DarkCyan (3) on DarkRed (64)
  :set t_me=^V^[\|112m  " back to normal mode: Black (0) on LightGray (112)

  :set t_so=^V^[\|37m   " start of standout mode: DarkMagenta (5) on DarkGreen
                                                                        (32)
  :set t_se=^V^[\|112m  " back to normal mode: Black (0) on LightGray (112)

==============================================================================
5. File formats                                          dos-file-formats

If the 'fileformat' option is set to "dos" (which is the default), Vim accepts
a single <NL> or a <CR><NL> pair for end-of-line (<EOL>).  When writing a
file, Vim uses <CR><NL>.  Thus, if you edit a file and write it, Vim replaces
<NL> with <CR><NL>.
```

If the 'fileformat' option is set to "unix", Vim uses a single <NL> for <EOL>
and shows <CR> as ^M.

You can use Vim to replace <NL> with <CR><NL> by reading in any mode and
writing in Dos mode (":se ff=dos").
You can use Vim to replace <CR><NL> with <NL> by reading in Dos mode and
writing in Unix mode (":se ff=unix").

Vim sets 'fileformat' automatically when 'fileformats' is not empty (which is
the default), so you don't really have to worry about what you are doing.
                                        'fileformat'   'fileformats'

If you want to edit a script file or a binary file, you should set the
'binary' option before loading the file. Script files and binary files may
contain single <NL> characters which Vim would replace with <CR><NL>. You can
set 'binary' automatically by starting Vim with the "-b" (binary) option.

==
6. :cd command   dos-:cd

The ":cd" command recognizes the drive specifier and changes the current
drive. Use ":cd c:" to make drive C the active drive. Use ":cd d:\foo" to go
to the directory "foo" in the root of drive D. Vim also recognizes UNC names
if the system supports them; e.g., ":cd \\server\share\dir".   :cd

==
7. Interrupting   dos-CTRL-Break

Use CTRL-Break instead of CTRL-C to interrupt searches. Vim does not detect
the CTRL-C until it tries to read a key.

==
8. Temp files   dos-temp-files

Only for the 16 bit and 32 bit DOS version:
Vim puts temporary files (for filtering) in the first of these directories
that exists and in which Vim can create a file:
        $TMP
        $TEMP
        C:\TMP
        C:\TEMP
        current directory

For the Win32 version (both console and GUI):
Vim uses standard Windows functions to obtain a temporary file name (for
filtering). The first of these directories that exists and in which Vim can
create a file is used:
        $TMP
        $TEMP
        current directory

==
9. Shell option default   dos-shell

The default for the 'sh' ('shell') option is "command.com" on Windows 95 and "cmd.exe" on Windows NT. If SHELL is defined, Vim uses SHELL instead, and if SHELL is not defined but COMSPEC is, Vim uses COMSPEC. Vim starts external commands with "<shell> /c <command_name>". Typing CTRL-Z starts a new command subshell. Return to Vim with "exit".   'shell'   CTRL-Z

If you are running a third-party shell, you may need to set the 'shellcmdflag' ('shcf') and 'shellquote' ('shq') or 'shellxquote' ('sxq') options. Unfortunately, this also depends on the version of Vim used. For example, with the MKS Korn shell or with bash, the values of the options should be:

```
                DOS 16 bit          DOS 32 bit          Win32
'shellcmdflag'      -c                  -c               -c
'shellquote'        "
'shellxquote'                                            "
```

For Dos 16 bit this starts the shell as:
```
        <shell> -c "command name" >file
```
For Win32 as:
```
        <shell> -c "command name >file"
```
For DOS 32 bit, DJGPP does this internally somehow.

When starting up, Vim checks for the presence of "sh" anywhere in the 'shell' option. If it is present, Vim sets the 'shellcmdflag' and 'shellquote' or 'shellxquote' options will be set as described above.

```
 vim:tw=78:ts=8:noet:ft=help:norl:
```

os_mac.txt	For Vim version 8.1. Last change: 2018 Jan 21

# VIM REFERENCE MANUAL	by Bram Moolenaar et al.

mac	Mac	macintosh	Macintosh

This file documents the particularities of the Macintosh version of Vim.

NOTE: This file is a bit outdated. You might find more useful info here:
	http://macvim.org/

There was a Mac port for version 3.0 of Vim. Here are the first few lines
from the old file:

VIM Release Notes
Initial Macintosh release, VIM version 3.0
19 October 1994

Eric Fischer
<enf1@midway.uchicago.edu>, <eric@jcp.uchicago.edu>, <etaoin@uchicago.edu>
5759 N. Guilford Ave
Indianapolis IN 46220 USA

==
## 1. Filename Convention	mac-filename

Starting with Vim version 7 you can just use the unix path separators with
Vim. In order to determine if the specified filename is relative to the
current folder or absolute (i.e. relative to the "Desktop"), the following
algorithm is used:

	If the path start by a "/", the path is absolute
	If the path start by a ":", the path is relative
	If the path doesn't start by neither a "/" nor ":",
	  and a ":" is found before a "/" then the path is absolute

		:e /HD/text
		:e HD:text
	Edit the file "text" of the disk "HD"
		:e :src:main.c
		:e src/main.c
	Edit the file "main.c" in the folder "src" in the current folder
		:e os_mac.c

Edit the file "os_mac.c" in the current folder.

You can use the $VIM and $VIMRUNTIME variable.

```
:so $VIMRUNTIME:syntax:syntax.vim
```

==
2. .vimrc and .vim files mac-vimfile

It is recommended to use Unix style line separators for Vim scripts, thus a single newline character.

When starting up Vim will load the $VIMRUNTIME/macmap.vim script to define default command-key mappings.

On older systems files starting with a dot "." are discouraged, thus the rc files are named "vimrc" or "_vimrc" and "gvimrc" or "_gvimrc". These files can be in any format (mac, dos or unix). Vim can handle any file format when the 'nocompatible' option is set, otherwise it will only handle mac format files.

==
3. Standard mappings mac-standard-mappings

The following mappings are available for cut/copy/paste from/to clipboard.

key	Normal	Visual	Insert	Description	
Command-v	"*P	"-d"*P	<C-R>*	paste text	<D-v>
Command-c		"*y		copy Visual text	<D-c>
Command-x		"*d		cut Visual text	<D-x>
Backspace		"*d		cut Visual text	

==
4. Mac FAQ mac-faq

On the internet: http://macvim.org/OSX/index.php#FAQ

Q: I can't enter non-ASCII character in Apple Terminal.
A: Under Window Settings, Emulation, make sure that "Escape non-ASCII characters" is not checked.

Q: How do I start the GUI from the command line?
A: Assuming that Vim.app is located in /Applications:

```
open /Applications/Vim.app
```

Or:

```
/Applications/Vim.app/Contents/MacOS/Vim -g {arguments}
```

Q: How can I set $PATH to something reasonable when I start Vim.app from the GUI or with open?
A: The following trick works with most shells. Put it in your vimrc file. This is included in the system vimrc file included with the binaries distributed at macvim.org .

```
let s:path = system("echo echo VIMPATH'${PATH}' | $SHELL -l")
let $PATH = matchstr(s:path, 'VIMPATH\zs.\{-}\ze\n')
```

==
5. Mac Lack   mac-lack

In a terminal CTRL-^ needs to be entered as Shift-Control-6. CTRL-@ as
Shift-Control-2.

==
6. Mac Bug Report   mac-bug

When reporting any Mac specific bug or feature change, please use the vim-mac
maillist vim-mac . However, you need to be subscribed. An alternative is to
send a message to the current MacVim maintainers:

        mac@vim.org

==
7. Compiling Vim   mac-compile

See the file "src/INSTALLmac.txt" that comes with the source files.

==
8. The Darwin Feature   mac-darwin-feature

If you have a Mac that isn't very old, you will be running OS X, also called
Darwin. The last pre-Darwin OS was Mac OS 9. The darwin feature makes Vim
use Darwin-specific properties.

What is accomplished with this feature is two-fold:

- Make Vim interoperable with the system clipboard.
- Incorporate into Vim a converter module that bridges the gap between some
  character encodings specific to the platform and those known to Vim.

Needless to say, both are not to be missed for any decent text editor to work
nicely with other applications running on the same desktop environment.

As Vim is not an application dedicated only to macOS, we need an extra feature
to add in order for it to offer the same user experience that our users on
other platforms enjoy to people on macOS.

For brevity, the feature is referred to as "darwin" to signify it one of the
Vim features that are specific to that particular platform.

The feature is a configuration option. Accordingly, whether it is enabled or
not is determined at build time; once it is selected to be enabled, it is
compiled in and hence cannot be disabled at runtime.

The feature is enabled by default. For most macOS users, that should be
sufficient unless they have specific needs mentioned briefly below.

If you want to disable it, pass `--disable-darwin` to the configure script:

    ./configure --disable-darwin <other options>

and then run `make` to build Vim. The order of the options doesn't matter.

To make sure at runtime whether or not the darwin feature is compiled in, you can use `has('osxdarwin')` which returns 1 if the feature is compiled in; 0 otherwise. For backward compatibility, you can still use `macunix` instead of `osxdarwin`.

Notable use cases where `--disable-darwin` is turned out to be useful are:

- When you want to use x11-selection instead of the system clipboard.
- When you want to use x11-clientserver .

Since both have to make use of X11 inter-client communication for them to work properly, and since the communication mechanism can come into conflict with the system clipboard, the darwin feature should be disabled to prevent Vim from hanging at runtime.

 vim:tw=78:ts=8:noet:ft=help:norl:

os_mint.txt For Vim version 8.1. Last change: 2005 Mar 29

VIM REFERENCE MANUAL by Jens M. Felderhoff

MiNT Atari

This file contains the particularities for the Atari MiNT version of Vim.

For compiling Vim on the Atari running MiNT see "INSTALL" and "Makefile"
in the src directory.

Vim for MiNT behaves almost exactly like the Unix version.
The Unix behavior described in the documentation also refers to the
MiNT version of Vim unless explicitly stated otherwise.

For wildcard expansion of <~> (home directory) you need a shell that
expands the tilde. The vanilla Bourne shell doesn't recognize it.
With csh and ksh it should work OK.

The MiNT version of vim needs the termcap file /etc/termcap with the
terminal capabilities of your terminal. Builtin termcaps are
supported for the vt52 terminal. Termcap entries for the TOSWIN window
manager and the virtual console terminals have been appended to the
termcap file that comes with the Vim distribution.

If you should encounter problems with swapped <BS> and <Del> keys, see
:fixdel .

Because terminal updating under MiNT is often slow (e.g. serial line
terminal), the 'showcmd' and 'ruler' options are default off.
If you have a fast terminal, try setting them on. You might
also want to set 'ttyfast'.

Send bug reports to

Jens M. Felderhoff, e-mail: <jmf@infko.uni-koblenz.de>

vim:tw=78:ts=8:noet:ft=help:norl:

os_msdos.txt For Vim version 8.1. Last change: 2016 Feb 26

VIM REFERENCE MANUAL by Bram Moolenaar

msdos ms-dos MSDOS MS-DOS

This file used to contain the particularities for the MS-DOS version of Vim.
MS-DOS support was removed in patch 7.4.1399. If you want to use it you will
need to get a version older than that. Note that the MS-DOS version doesn't
work, there is not enough memory. The DOS32 version (using DJGPP) might still
work on older systems.

vim:tw=78:ts=8:noet:ft=help:norl:

os_os2.txt For Vim version 8.1. Last change: 2015 Dec 31

VIM REFERENCE MANUAL by Paul Slootman

os2 OS2 OS/2

This file used to contain the particularities for the OS/2 version of Vim.

The OS/2 support was removed in patch 7.4.1008.

vim:tw=78:ts=8:noet:ft=help:norl:

os_qnx.txt For Vim version 8.1. Last change: 2005 Mar 29

VIM REFERENCE MANUAL by Julian Kinraid

QNX qnx

==

1. General qnx-general

Vim on QNX behaves much like other unix versions. os_unix.txt

2. Compiling Vim qnx-compiling

Vim can be compiled using the standard configure/make approach. If you want to compile for X11, pass the --with-x option to configure. Otherwise, running ./configure without any arguments or passing --enable-gui=photon, will compile vim with the Photon gui support. Run ./configure --help , to find out other features you can enable/disable.

3. Terminal support qnx-terminal

Vim has support for the mouse and clipboard in a pterm, if those options are compiled in, which they are normally.

The options that affect mouse support are 'mouse' and 'ttymouse' . When using the mouse, only simple left and right mouse clicking/dragging is supported. If you hold down shift, ctrl, or alt while using the mouse, pterm will handle the mouse itself. It will make a selection, separate from what vim's doing.

When the mouse is in use, you can press Alt-RightMouse to open the pterm menu. To turn the mouse off in vim, set the mouse option to nothing, set mouse=

4. Photon GUI photon-gui

To start the gui for vim, you need to run either gvim or vim -g, otherwise the terminal version will run. For more info - gui-x11-start

Supported features:
        :browse command :browse
        :confirm command :confirm

```
        Cursor blinking                                 'guicursor'
        Menus, popup menus and menu priorities          :menu
                                                        popup-menu
                                                        menu-priority
        Toolbar                                         gui-toolbar
                                                        'toolbar'
        Font selector (:set guifont=*)                  photon-fonts
        Mouse focus                                     'mousefocus'
        Mouse hide                                      'mousehide'
        Mouse cursor shapes                             'mouseshape'
        Clipboard                                       gui-clipboard

Unfinished features:
        Various international support, such as Farsi & Hebrew support,
        different encodings, etc.

        This help file

Unsupported features:
        Find & Replace window                           :promptfind
        Tearoff menus

        Other things which I can't think of so I can't list them


5. Fonts                                                photon-fonts

You set fonts in the gui with the guifont option
        :set guifont=Lucida\ Terminal

The font must be a monospace font, and any spaces in the font name must be
escaped with a '\'.  The default font used is PC Terminal, size 8.  Using
'*' as the font name will open a standard Photon font selector where you can
select a font.

Following the name, you can include optional settings to control the size and
style of the font, each setting separated by a ':'.  Not all fonts support the
various styles.

The options are,
    s{size}     Set the size of the font to {size}
    b           Bold style
    a           Use antialiasing
    i           Italic style

Examples:

Set the font to monospace size 10 with antialiasing
        :set guifont=monospace:s10:a

Set the font to Courier size 12, with bold and italics
        :set guifont=Courier:s12:b:i

Select a font with the requester
```

```
        :set guifont=*
```

6. Bugs & things To Do

Known problems:

- Vim hangs sometimes when running an external program. Workaround: put this line in your vimrc file:

```
      set noguipty
```

Bugs:

- Still a slight problem with menu highlighting.
- When using phditto/phinows/etc., if you are using a font that doesn't support the bold attribute, when vim attempts to draw bold text it will be all messed up.
- The cursor can sometimes be hard to see.
- A number of minor problems that can fixed. :)

Todo:

- Improve multi-language support.
- Options for setting the fonts used in the menu and toolbar.
- Find & Replace dialog.
- The clientserver features.
- Maybe tearoff menus.

- Replace usage of fork() with spawn() when launching external programs.

```
 vim:tw=78:sw=4:ts=8:noet:ts=8:ft=help:norl:
```

os_risc.txt For Vim version 8.1. Last change: 2011 May 10

VIM REFERENCE MANUAL by Thomas Leonard

riscos RISCOS RISC-OS

The RISC OS support has been removed from Vim with patch 7.3.187.
If you would like to use Vim on RISC OS get the files from before that patch.

vim:tw=78:ts=8:noet:ft=help:norl:

os_unix.txt For Vim version 8.1. Last change: 2005 Mar 29

VIM REFERENCE MANUAL by Bram Moolenaar

unix Unix

This file contains the particularities for the Unix version of Vim.

For compiling Vim on Unix see "INSTALL" and "Makefile" in the src directory.

The default help file name is "/usr/local/lib/vim/help.txt"
The files "$HOME/.vimrc" and "$HOME/.exrc" are used instead of "s:.vimrc" and
"s:.exrc". Additionally "/usr/local/etc/vimrc" is used first.
If "/usr/local/share" exists it is used instead of "/usr/local/lib".

Temporary files (for filtering) are put in "/tmp". If you want to place them
somewhere else, set the environment variable $TMPDIR to the directory you
prefer.

With wildcard expansion you can use '~' (home directory) and '$'
(environment variable).

fork spoon

For executing external commands fork()/exec() is used when possible, otherwise
system() is used, which is a bit slower. The output of ":version" includes
+fork when fork()/exec() is used, +system() when system() is used. This
can be changed at compile time.
(For forking of the GUI version see gui-fork .)

Because terminal updating under Unix is often slow (e.g. serial line
terminal, shell window in suntools), the 'showcmd' and 'ruler' options
are default off. If you have a fast terminal, try setting them on. You might
also want to set 'ttyfast'.

When using Vim in an xterm the mouse clicks can be used by Vim by setting
'mouse' to "a". If there is access to an X-server gui style copy/paste will
be used and visual feedback will be provided while dragging with the mouse.
If you then still want the xterm copy/paste with the mouse, press the shift
key when using the mouse. See mouse-using . Visual feedback while dragging
can also be achieved via the 'ttymouse' option if your xterm is new enough.

terminal-colors

To use colors in Vim you can use the following example (if your terminal
supports colors, but "T_Co" is empty or zero):

```
   :set t_me=^[[0;1;36m     " normal mode (undoes t_mr and t_md)
   :set t_mr=^[[0;1;33;44m  " reverse (invert) mode
   :set t_md=^[[1;33;41m    " bold mode
   :set t_se=^[[1;36;40m    " standout end
   :set t_so=^[[1;32;45m    " standout mode
   :set t_ue=^[[0;1;36m     " underline end
   :set t_us=^[[1;32m       " underline mode start
```

[the ^[is an <Esc>, type CTRL-V <Esc> to enter it]

For real color terminals the ":highlight" command can be used.

The file "tools/vim132" is a shell script that can be used to put Vim in 132
column mode on a vt100 and lookalikes.

 vim:tw=78:ts=8:noet:ft=help:norl:

os_vms.txt For Vim version 8.1. Last change: 2018 May 06

VIM REFERENCE MANUAL

VMS vms

This file contains the particularities for the VMS version of Vim.
You can reach this information file by typing :help VMS in Vim command
prompt.

==

1. Getting started vms-started

Vim (Vi IMproved) is a Vi-compatible text editor that runs on nearly every
operating system known to humanity. Now use Vim on OpenVMS too, in character
or X/Motif environment. It is fully featured and absolutely compatible with
Vim on other operating systems.

==

2. Download files vms-download

You can download the Vim source code by ftp from the official Vim site:
        ftp://ftp.vim.org/pub/vim/
Or use one of the mirrors:
        ftp://ftp.vim.org/pub/vim/MIRRORS

You can download precompiled executables from:
        http://www.polarhome.com/vim/
        ftp://ftp.polarhome.com/pub/vim/

To use the precompiled binary version, you need one of these archives:

vim-XX-exe-ia64-gui.zip	IA64 GUI/Motif executables
vim-XX-exe-ia64-gtk.zip	IA64 GUI/GTK executables
vim-XX-exe-ia64-term.zip	IA64 console executables
vim-XX-exe-axp-gui.zip	Alpha GUI/Motif executables
vim-XX-exe-axp-gtk.zip	Alpha GUI/GTK executables
vim-XX-exe-axp-term.zip	Alpha console executables
vim-XX-exe-vax-gui.zip	VAX GUI executables
vim-XX-exe-vax-term.zip	VAX console executables

and of course (optional)
  vim-XX-runtime.zip   runtime files

The binary archives contain: vim.exe, ctags.exe, xxd.exe files.

For GTK executables you will need GTKLIB that is available for
Alpha and IA64 platform.

==

3. Compiling   vms-compiling

See the file [.SRC]INSTALLVMS.TXT.

==

4. Problems   vms-problems

The code has been tested under Open VMS 6.2 - 8.2 on Alpha, VAX and IA64
platforms with the DEC C compiler. It should work without big problems.
If your system does not have some include libraries you can tune up in
OS_VMS_CONF.H file.

If you decided to build Vim with +perl, +python, etc. options, first you need
to download OpenVMS distributions of Perl and Python. Build and deploy the
libraries and change adequate lines in MAKE_VMS.MMS file. There should not be
a problem from Vim side.

Also GTK, XPM library paths should be configured in MAKE_VMS.MMS

Note: Under VAX it should work with the DEC C compiler without problems. The
VAX C compiler is not fully ANSI C compatible in pre-processor directives
semantics, therefore you have to use a converter program that will do the lion
part of the job. For detailed instructions read file INSTALLvms.txt

MMS_VIM.EXE is build together with VIM.EXE, but for XXD.EXE you should
change to a subdirectory and build it separately.

CTAGS is not part of the Vim source distribution anymore, however the OpenVMS
specific source might contain CTAGS source files as described above.
You can find more information about CTAGS on VMS at
http://www.polarhome.com/ctags/

Advanced users may try some acrobatics in FEATURE.H file as well.

It is possible to compile with +xfontset +xim options too, but then you have
to set up GUI fonts etc. correctly. See :help xim from Vim command prompt.

You may want to use GUI with GTK icons, then you have to download and install
GTK for OpenVMS or at least runtime shareable images - LIBGTK from
polarhome.com

For more advanced questions, please send your problem to Vim on VMS mailing

list <vim-vms@polarhome.com>
More about the vim-vms list can be found at:
http://www.polarhome.com/mailman/listinfo/vim-vms

==

5. Deploy   vms-deploy

Vim uses a special directory structure to hold the document and runtime files:

```
   vim (or wherever)
    |- tmp
    |- vim57
    |----- doc
    |----- syntax
    |- vim62
    |----- doc
    |----- syntax
    |- vim64
    |----- doc
    |----- syntax
    vimrc    (system rc files)
    gvimrc
```

Use:

```
        define/nolog VIM        device:[path.vim]
        define/nolog VIMRUNTIME device:[path.vim.vim60]
        define/nolog TMP        device:[path.tmp]
```

To get vim.exe to find its document, filetype, and syntax files, and to
specify a directory where temporary files will be located. Copy the "runtime"
subdirectory of the Vim distribution to vimruntime.

Logicals $VIMRUNTIME and $TMP are optional.

If $VIMRUNTIME is not set, Vim will guess and try to set up automatically.
Read more about it at :help runtime

If $TMP is not set, you will not be able to use some functions as CTAGS,
XXD, printing etc. that use temporary directory for normal operation.
The $TMP directory should be readable and writable by the user(s).
The easiest way to set up $TMP is to define a logical:

```
        define/nolog TMP SYS$SCRATCH
```
or as:
```
        define/nolog TMP SYS$LOGIN
```

==

6. Practical usage   vms-usage

Usually, you want to run just one version of Vim on your system, therefore
it is enough to dedicate one directory for Vim.

Copy the whole Vim runtime directory structure to the deployment position.
Add the following lines to your LOGIN.COM (in SYS$LOGIN directory).
Set up the logical $VIM as:

```
$ define VIM device:<path>
```

Set up some symbols:

```
$ ! vi starts Vim in chr. mode.
$ vi*m  :== mcr VIM:VIM.EXE

$ !gvi starts Vim in GUI mode.
$ gv*im :== spawn/nowait mcr VIM:VIM.EXE -g
```

Please, check the notes for customization and configuration of symbols.

You may want to create .vimrc and .gvimrc files in your home directory
(SYS$LOGIN) to overwrite default settings.

The easiest way is just rename example files. You may leave the menu file
(MENU.VIM) and files vimrc and gvimrc in the original $VIM directory. It will
be the default setup for all users, and for users it is enough to just have
their own additions or resetting in their home directory in files .vimrc and
.gvimrc. It should work without problems.

Note: Remember, system rc files (default for all users) don't have a leading
".". So, system rc files are:

```
$VIM:vimrc
$VIM:gvimrc
$VIM:menu.vim
```

and user customized rc files are:

```
sys$login:.vimrc
sys$login:.gvimrc
```

You can check that everything is at the right place with the :version command.

Example LOGIN.COM:

```
$ define/nolog VIM RF10:[UTIL.VIM]
$ vi*m :== mcr VIM:VIM.EXE
$ gv*im:== spawn/nowait/input=NLA0 mcr VIM:VIM.EXE -g -GEOMETRY 80x40
$ set disp/create/node=192.168.5.223/trans=tcpip
```

Note: This set-up should be enough, if you are working on a standalone server or
clustered environment, but if you want to use Vim as an internode editor in
DECNET environment, it will satisfy as well.
You just have to define the "whole" path:

```
$ define VIM "<server_name>[""user password""]::device:<path>"
$ vi*m :== "mcr VIM:VIM.EXE"
```

For example:

```
$ define VIM "PLUTO::RF10:[UTIL.VIM]"
$ define VIM "PLUTO""ZAY mypass"":RF10:[UTIL.VIM]" ! if passwd required
```

You can also use the $VIMRUNTIME logical to point to the proper version of Vim if you have installed more versions at the same time. If $VIMRUNTIME is not defined Vim will borrow its value from the $VIM logical. You can find more information about the $VIMRUNTIME logical by typing :help runtime as a Vim command.

System administrators might want to set up a system wide Vim installation, then add to the SYS$STARTUP:SYLOGICALS.COM

```
$ define/nolog/sys VIM device:<path>
$ define/nolog/sys TMP SYS$SCRATCH
```

And to the SYS$STARTUP:SYLOGIN.COM

```
$ vi*m :== mcr VIM:VIM.EXE
$ gv*im:== spawn/nowait/input=NLA0 mcr VIM:VIM.EXE -g -GEOMETRY 80x40
```

It will set up a normal Vim work environment for every user on the system.

IMPORTANT: Vim on OpenVMS (and on other case insensitive system) command line parameters are assumed to be lowercase. In order to indicate that a command line parameter is uppercase "/" sign must be used.

Examples:

```
vim -R  filename  ! means: -r List swap files and exit
vim -/r filename  ! means: -R Readonly mode (like "view")
vim -u  <vimrc>   ! means: -u Use <vimrc> instead of any .vimrc
vim -/u <gvimrc>  ! means: -U Use <gvimrc> instead of any .gvimrc
```

==========

7. GUI mode questions vms-gui

OpenVMS is a real mainframe OS, therefore even if it has a GUI console, most of the users do not use a native X/Window environment during normal operation. It is not possible to start Vim in GUI mode "just like that". But anyhow it is not too complicated either.

First of all: you will need an executable that is built with the GUI enabled.

Second: you need to have installed DECW/Motif on your VMS server, otherwise you will get errors that some shareable libraries are missing.

Third: If you choose to run Vim with extra features such as GUI/GTK then you need a GTK installation too or at least a GTK runtime environment (LIBGTK can be downloaded from http://www.polarhome.com/vim/).

1) If you are working on the VMS X/Motif console:
   Start Vim with the command:

```
$ mc device:<path>VIM.EXE -g
```

   or type :gui as a command to the Vim command prompt. For more info :help
   gui

2) If you are working on some other X/Window environment like Unix or a remote
   X VMS console. Set up display to your host with:

```
$ set disp/create/node=<your IP address>/trans=<transport-name>
```

   and start Vim as in point 1. You can find more help in VMS documentation or
   type: help set disp in VMS prompt.
   Examples:

```
$ set disp/create/node=192.168.5.159             ! default trans is DECnet
$ set disp/create/node=192.168.5.159/trans=tcpip ! TCP/IP network
$ set disp/create/node=192.168.5.159/trans=local ! display on the same node
```

Note: you should define just one of these.
For more information type $help set disp in VMS prompt.

3) Another elegant solution is XDM if you have installed on OpenVMS box.
   It is possible to work from XDM client as from GUI console.

4) If you are working on MS-Windows or some other non X/Window environment
   you need to set up one X server and run Vim as in point 2.
   For MS-Windows there are available free X servers as MIX, Omni X etc.,
   as well as excellent commercial products as eXcursion or ReflectionX with
   built-in DEC support.

Please note, that executables without GUI are slightly faster during startup
than with enabled GUI in character mode. Therefore, if you do not use GUI
features, it is worth to choose non GUI executables.

==

8. Useful notes vms-notes

8.14 VIMTUTOR for beginners
8.15 Slow start in console mode issue
8.16 Common VIM directory - different architectures

8.1 Backspace/delete

There are backspace/delete key inconsistencies with VMS.
:fixdel doesn't do the trick, but the solution is:

```
:inoremap ^? ^H         " for terminal mode
:inoremap <Del> ^H      " for gui mode
```

Read more in ch: 8.6 (Terminal problems).
(Bruce Hunsaker <BNHunsaker@chq.byu.edu> Vim 5.3)

8.2 Filters

Vim supports filters, i.e., if you have a sort program that can handle
input/output redirection like Unix (<infile >outfile), you could use

```
:map \s 0!'aqsort<CR>
```

(Charles E. Campbell, Jr. <cec@gryphon.gsfc.nasa.gov> Vim 5.4)

8.3 VMS file version numbers

Vim is saving files into a new file with the next higher file version
number, try these settings.

```
:set nobackup        " does not create *.*_ backup files
:set nowritebackup   " does not have any purpose on VMS.  It's the
                     " default.
```

Recovery is working perfectly as well from the default swap file.
Read more with :help swapfile

(Claude Marinier <ClaudeMarinier@xwavesolutions.com> Vim 5.5, Zoltan Arpadffy
Vim 5.6)

8.4 Directory conversion

Vim will internally convert any unix-style paths and even mixed unix/VMS
paths into VMS style paths. Some typical conversions resemble:

```
/abc/def/ghi            -> abc:[def]ghi.
/abc/def/ghi.j          -> abc:[def]ghi.j
/abc/def/ghi.j;2        -> abc:[def]ghi.j;2
/abc/def/ghi/jkl/mno    -> abc:[def.ghi.jkl]mno.
abc:[def.ghi]jkl/mno    -> abc:[def.ghi.jkl]mno.
  ./                    -> current directory
  ../                   -> relative parent directory
```

```
          [.def.ghi]            -> relative child directory
           ./def/ghi            -> relative child directory
```

Note: You may use <,> brackets as well (device:<path>file.ext;version) as rf10:<user.zay.work>test.c;1

(David Elins <delins@foliage.com>, Jerome Lauret <JLAURET@mail.chem.sunysb.edu> Vim 5.6)

8.5 Remote host invocation

It is possible to use Vim as an internode editor.
1. Edit some file from remote node:

```
vi "<server>""username passwd""::<device>:<path><filename>;<version>"
```

Example:

```
vi "pluto""zay passwd""::RF10:<USER.ZAY.WORK>TEST.C;1"
```

Note: syntax is very important, otherwise VMS will recognize more parameters instead of one (resulting with: file not found)

2. Set up Vim as your internode editor. If Vim is not installed on your host, just set up your IP address, the full Vim path including the server name and run the command procedure below:

```
$ if (p1 .eqs. "") .OR. (p2 .eqs. "") then goto usage
$ set disp/create/node=<your_IP_here>/trans=tcpip
$ define "VIM "<vim_server>""''p1' ''p2'""::<device>:<vim_path>"
$  vi*m :== "mcr VIM:VIM.EXE"
$ gv*im :== "spawn/nowait mcr VIM:VIM.EXE -g"
$ goto end
$ usage:
$ write sys$output " Please enter username and password as a parameter."
$ write sys$output " Example: @SETVIM.COM username passwd"
$ end:
```

Note: Never use it in a clustered environment (you do not need it), loading could be very-very slow, but even faster than a local Emacs. :-)

(Zoltan Arpadffy, Vim 5.6)

8.6 Terminal problems

If your terminal name is not known to Vim and it is trying to find the default one you will get the following message during start-up:

```
---
Terminal entry not found in termcap
'unknown-terminal' not known.  Available built-in terminals are:
    builtin_gui
    builtin_riscos
    builtin_amiga
```

```
    builtin_beos-ansi
    builtin_ansi
    builtin_vt320
    builtin_vt52
    builtin_pcansi
    builtin_win32
    builtin_xterm
    builtin_iris-ansi
    builtin_debug
    builtin_dumb
defaulting to 'vt320'
---
```

The solution is to define the default terminal name:

```
        $ ! unknown terminal name.  Let us use vt320 or ansi instead.
        $ ! Note: it's case sensitive
        $ define term "vt320"
```

Terminals from VT100 to VT320 (as V300, VT220, VT200) do not need any extra keyboard mappings. They should work perfectly as they are, including arrows, Ins, Del buttons etc., except Backspace in GUI mode. To solve it, add to .gvimrc:

```
        inoremap <Del> <BS>
```

Vim will also recognize that they are fast terminals.

If you have some annoying line jumping on the screen between windows add to your .vimrc file:

```
        set ttyfast     " set fast terminal
```

Note: if you're using Vim on remote host or through a very slow connection, it's recommended to avoid the fast terminal option with:

```
        set nottyfast   " set terminal to slow mode
```

(Zoltan Arpadffy, Vim 5.6)

8.7 Hex-editing and other external tools

A very important difference between OpenVMS and other systems is that VMS uses special commands to execute executables:

```
        RUN <path>filename
        MCR <path>filename <parameters>
```

OpenVMS users always have to be aware that the Vim command :! "just" drop them to DCL prompt. This feature is possible to use without any problem with all DCL commands, but if we want to execute some programs such as XXD, CTAGS, JTAGS, etc. we're running into trouble if we follow the Vim documentation (see: help xxd).

Solution: Execute with the MC command and add the full path to the executable.
Example: Instead of :%!xxd command use:

```
:%!mc vim:xxd
```

... or in general:

```
:!mc <path>filename <parameters>
```

Note: You can use XXD and CTAGS from GUI menu.

To customize ctags it is possible to define the logical $CTAGS with standard parameters as:

```
define/nolog CTAGS "--totals -o sys$login:tags"
```

For additional information, please read :help tagsearch and CTAGS documentation at http://ctags.sourceforge.net/ctags.html.

(Zoltan Arpadffy, Vim 5.6-70)

8.8 Sourcing vimrc and gvimrc

If you want to use your .vimrc and .gvimrc from other platforms (e.g. Windows) you can get in trouble if you ftp that file(s): VMS has different end-of-line indication.
The symptom is that Vim is not sourcing your .vimrc/.gvimrc, even if you say:

```
:so sys$login:.vimrc
```

One trick is to compress (e.g. zip) the files on the other platform and uncompress it on VMS; if you have the same symptom, try to create the files with copy-paste (for this you need both op. systems reachable from one machine, e.g. an Xterm on Windows or telnet to Windows from VMS).

(Sandor Kopanyi, <sandor.kopanyi@mailbox.hu> Vim 6.0a)

8.9 Printing from Vim

To be able to print from Vim (running in GUI mode) under VMS you have to set up $TMP logical which should point to some temporary directory and logical SYS$PRINT to your default print queue.
Example:

```
$define SYS$PRINT HP5ANSI
```

You can print out the whole buffer or just the marked area.
More info under :help hardcopy

(Zoltan Arpadffy, Vim 6.0c)

8.10 Setting up the symbols

When I use gvim this way and press CTRL-Y in the parent terminal, gvim exits.
I now use a different symbol that seems to work OK and fixes the problem.
I suggest this instead:

```
$ GV*IM:==SPAWN/NOWAIT/INPUT=NLA0: MCR VIM:VIM.EXE -G -GEOMETRY 80X40
```

The /INPUT=NLA0: separates the standard input of the gvim process from the
parent terminal, to block signals from the parent window.
Without the -GEOMETRY, the gvim window size will be minimal and the menu
will be confused after a window-resize.

(Carlo Mekenkamp, Coen Engelbarts, Vim 6.0ac)

8.11 diff and other GNU programs

From 6.0 diff functionality has been implemented, but OpenVMS does not use
GNU/Unix like diff therefore built in diff does not work.
There is a simple solution to solve this anomaly. Install a Unix like diff
and Vim will work perfectly in diff mode too. You just have to redefine your
diff program as:

```
define /nolog diff <GNU_PATH>diff.exe
```

Another, more sophisticated solution is described below (8.12 diff-mode)
There are other programs such as patch, make etc that may cause the same
problems. At www.polarhome.com is possible to download an GNU package for
Alpha and VAX boxes that is meant to solve GNU problems on OpenVMS.
(Zoltan Arpadffy, Vim 6.1)

8.12 diff-mode

Vim 6.0 and higher supports Vim diff-mode (See new-diff-mode , diff-mode
and 08.7). This uses the external program 'diff' and expects a Unix-like
output format from diff. The standard VMS diff has a different output
format. To use Vim on VMS in diff-mode, you need to:

1. Install a Unix-like diff program, e.g. GNU diff
2. Tell Vim to use the Unix-like diff for diff-mode.

You can download GNU diff from the VIM-VMS website, it is one of the GNU
tools in http://www.polarhome.com/vim/files/gnu_tools.zip. I suggest to
unpack it in a separate directory "GNU" and create a logical GNU: that
points to that directory, e.g:

```
DEFINE GNU    <DISK>:[<DIRECTORY>.BIN.GNU]
```

You may also want to define a symbol GDIFF, to use the GNU diff from the DCL
prompt:

```
GDIFF :==     $GNU:DIFF.EXE
```

Now you need to tell Vim to use the new diff program. Take the example

settings from diff-diffexpr and change the call to the external diff
program to the new diff on VMS. Add this to your .vimrc file:

```
" Set up vimdiff options
  if v:version >= 600
   " Use GNU diff on VMS
   set diffexpr=MyDiff()
   function MyDiff()
      let opt = ""
      if &diffopt =~ "icase"
        let opt = opt . "-i "
      endif
      if &diffopt =~ "iwhite"
        let opt = opt . "-b "
      endif
      silent execute "!mc GNU:diff.exe -a " . opt . v:fname_in . " " .  v:fname_new .
           \  " > " . v:fname_out
    endfunction
  endif
```

You can now use Vim in diff-mode, e.g. to compare two files in read-only
mode:

```
$ VIM -D/R <FILE1> <FILE2>
```

You can also define new symbols for vimdiff, e.g.:

```
$ VIMDIFF     :== 'VIM' -D/R
$ GVIMDIFF    :== 'GVIM' -D/R
```

You can now compare files in 4 ways:

```
1. VMS  diff:  $ DIFF     <FILE1> <FILE2>
2. GNU  diff:  $ GDIFF    <FILE1> <FILE2>
3. VIM  diff:  $ VIMDIFF  <FILE1> <FILE2>
4. GVIM diff:  $ GVIMDIFF <FILE1> <FILE2>
```

(Coen Engelbarts, Vim 6.1)

8.13 Allow '$' in C keywords

DEC C uses many identifiers with '$' in them. This is not allowed in ANSI C,
and Vim recognises the '$' as the end of the identifier. You can change this
with the 'iskeyword' option.
Add this command to your .vimrc file:

```
autocmd FileType c,cpp,cs  set iskeyword+=$
```

You can also create the file(s) $VIM/FTPLUGIN/C.VIM (and/or CPP.VIM and
CS.VIM) and add this command:

```
    set iskeyword+=$
```

Now word-based commands, e.g. the '*'-search-command and the CTRL-]
tag-lookup, work on the whole identifier. (Ctags on VMS also supports '$' in
C keywords since ctags version 5.1.)

(Coen Engelbarts, Vim 6.1)

8.14 VIMTUTOR for beginners

The VIMTUTOR.COM DCL script can help Vim beginners to learn/make their first
steps with Vim on OpenVMS. Depending of binary distribution you may start it
with:

```
        @vim:vimtutor
```

(Thomas.R.Wyant III, Vim 6.1)

8.16 Slow start in console mode issue

As GUI/GTK Vim works equally well in console mode, many administrators
deploy those executables system wide.
Unfortunately, on a remote slow connections GUI/GTK executables behave rather
slow when user wants to run Vim just in the console mode - because of X
environment detection timeout.

Luckily, there is a simple solution for that. Administrators need to deploy
both GUI/GTK build and just console build executables, like below:

```
    |- vim73
    |----- doc
    |----- syntax
       vimrc    (system rc files)
       gvimrc
       gvim.exe (the renamed GUI or GTK built vim.exe)
       vim.exe  (the console only executable)
```

Define system symbols like below in for ex in LOGIN.COM or SYLOGIN.COM:

```
        $ define/nolog VIM RF10:[UTIL.VIM73] ! where you VIM directory is
        $ vi*m  :== mcr VIM:VIM.EXE
        $ gvi*m :== mcr VIM:GVIM.EXE
        $ ! or you can try to spawn with
        $ gv*im :== spawn/nowait/input=NLA0 mcr VIM:GVIM.EXE -g -GEOMETRY 80x40
```

Like this, users that do not have X environment and want to use Vim just in
console mode can avoid performance problems.

(Zoltan Arpadffy, Vim 7.2)

8.15 Common VIM directory - different architectures

In a cluster that contains nodes with different architectures like below:

$show cluster

```
View of Cluster from system ID 11655  node: TOR
+---------------------------------+
|        SYSTEMS        | MEMBERS |
+-----------------------+---------|
|  NODE  |   SOFTWARE   |  STATUS |
+--------+--------------+---------|
| TOR    | VMS V7.3-2   | MEMBER  |
| TITAN2 | VMS V8.3     | MEMBER  |
| ODIN   | VMS V7.3-2   | MEMBER  |
+---------------------------------+
```

It is convenient to have a common VIM directory but execute different executables.
There are several solutions for this problem:

Solution 1. All executables in the same directory with different names
This is easily done with the following script that can be added
to the login.com or sylogin.com:

```
$ if f$getsyi("NODE_HWTYPE") .eqs. "VAX"
$ then
$       say "VAX platform"
$       vi*m:== mcr vim:VIM.EXE_VAX
$ endif
$ if f$getsyi("NODE_HWTYPE") .eqs. "ALPH"
$ then
$       say "ALPHA platform"
$       vi*m :== mcr vim:VIM.EXE_AXP
$ endif
$ if f$getsyi("ARCH_NAME") .eqs. "IA64"
$ then
$      say "IA64 platform"
$      vi*m :== mcr vim:VIM.EXE_IA64
$ endif
```

Solution 2. Different directories:

```
$ if f$getsyi("NODE_HWTYPE") .eqs. "VAX"
$ then
$       say "VAX platform"
$       define/nolog VIM RF10:[UTIL.VAX_EXE] ! VAX executables
$ endif
$ if f$getsyi("NODE_HWTYPE") .eqs. "ALPH"
$ then
$       say "ALPHA platform"
$       define/nolog VIM RF10:[UTIL.AXP_EXE] ! AXP executables
$ endif
$ if f$getsyi("ARCH_NAME") .eqs. "IA64"
$ then
$      say "IA64 platform"
$      define/nolog VIM RF10:[UTIL.IA64_EXE] ! IA64 executables
$ endif
$! VIMRUNTIME must be defined in order to find runtime files
$ define/nolog VIMRUNTIME RF10:[UTIL.VIM73]
```

A good example for this approach is the [GNU]gnu_tools.com script from
GNU_TOOLS.ZIP package downloadable from http://www.polarhome.com/vim/

(Zoltan Arpadffy, Vim 7.2)

==

9. VMS related changes   vms-changes

Version 7.4
- Undo: VMS can not handle more than one dot in the filenames use "dir/name" -> "dir/_un_na
  add _un_ at the beginning to keep the extension
- correct swap file name wildcard handling
- handle iconv usage correctly
- do not optimize on vax - otherwise it hangs compiling crypto files
- fileio.c fix the comment
- correct RealWaitForChar
- after 7.4-119 use different functions lib$cvtf_to_internal_time because Alpha and VAX hav
  G_FLOAT but IA64 uses IEEE float otherwise Vim crashes
- guard against crashes that are caused by mixed filenames
- [TESTDIR]make_vms.mms changed to see the output files
- Improve tests, update known issues
- minor compiler warnings fixed
- CTAGS 5.8 +regex included

Version 7.3
- CTAGS 5.8 included
- VMS compile warnings fixed - floating-point overflow warning corrected on VAX
- filepath completion corrected - too many chars were escaped in filename
  and shell commands
- the following plugins are included into VMS runtime:
        genutils 2.4, multiselect 2.2, multvals 3.1, selectbuf 4.3,
        bufexplorer 7.1.7, taglist 4.5
- minor changes in vimrc (just in VMS runtime)
- make_vms.mms - HUGE model is the default
- [TESTDIR]make_vms.mms include as many tests possible
- modify test30 and test54 for VMS
- enable FLOAT feature in VMS port
- os_vms.txt updated

Version 7.2 (2008 Aug 9)
- VCF files write corrected
- CTAGS 5.7 included
- corrected make_vms.mms (on VAX gave syntax error)

Version 7.1 (2007 Jun 15)
- create TAGS file from menu

Version 7 (2006 May 8)
- Improved low level char input (affects just console mode)
- Fixed plugin bug
- CTAGS 5.6 included

Version 6.4 (2005 Oct 15)
- GTKLIB and Vim build on IA64
- colors in terminal mode
- syntax highlighting in terminal mode
- write problem fixed (extra CR)
- ESC and ESC sequence recognition in terminal mode
- make file changed to support new MMS version
- env variable expansion in path corrected
- printing problems corrected
- help text added for case insensitive arguments

Version 6.3 (2004 May 10)
- Improved vms_read function
- CTAGS v5.5.4 included
- Documentation corrected and updated

Version 6.2 (2003 May 7)
- Corrected VMS system call results
- Low level character input is rewritten
- Correction in tag and quickfix handling
- First GTK build
- Make file changes
    - GTK feature added
    - Define for OLD_VMS
    - OpenVMS version 6.2 or older
- Documentation updated with GTK features
- CTAGS v5.5 included
- VMS VIM tutor created

Version 6.1 (2002 Mar 25)
- TCL init_tcl() problem fixed
- CTAGS v5.4 included
- GNU tools binaries for OpenVMS
- Make file changes
    - PERL, PYTHON and TCL support improved
    - InstallVMS.txt has a detailed description HOWTO build
- VMS/Unix file handling rewritten
- Minor casting and bug fixes

Version 6.0 (2001 Sep 28)
- Unix and VMS code has been merged
        - separated "really" VMS related code
        - included all possible Unix functionality
        - simplified or deleted the configuration files
        - makefile MAKE_VMS.MMS reviewed
- menu changes (fixed printing, CTAGS and XXD usage)
- fixed variable RMS record format handling anomaly
- corrected syntax, ftplugin etc files load
- changed expand_wildcards and expandpath functions to work more general
- created OS_VMS_FILTER.COM - DECC->VAXC pre-processor directive convert
  script.
- Improved code's VAXC and new DECC compilers compatibility
- changed quickfix parameters:
        - errormessage format to suite DECC

        - search, make and other commands to suite VMS system
- updated and renamed MMS make files for Vim and CTAGS.
- CTAGS has been removed from source distribution of Vim but it will remain
  in OpenVMS binary distributions.
- simplified build/configuration procedure
- created INSTALLvms.txt - detailed compiling instructions under VMS.
- updated test scripts.

Version 5.8 (2001 Jun 1)
- OS_VMS.TXT updated with new features.
- other minor fixes.
- documentation updated
- this version had been tested much more than any other OpenVMS version
  earlier

Version 5.7 (2000 Jun 24)
- New CTAGS v5.0 in distribution
- Documentation updated

Version 5.6 (2000 Jan 17)
- VMS filename related changes:
        - version handling (open everything, save to new version)
        - correct file extension matching for syntax (version problem)
        - handle <,> characters and passwords in directory definition
        - handle internode/remote invocation and editing with passwords
        - OpenVMS files will be treated case insensitive from now
        - corrected response of expand("%:.") etc path related functions
        (in one word: VMS directory handling internally)
- version command
        - corrected (+,-) information data
        - added compiler and OS version
        - added user and host information
        - resolving $VIM and $VIMRUNTIME logicals
- VMS port is in MAX_FEAT (maximum features) club with Unix, Win32 and OS/2.
        - enabled farsi, rightleft etc. features
        - undo level raised up to 1000
- Updated OS_VMS.MMS file.
        - maximum features ON is default
        - Vim is compilable with +perl, +python and +tcl features.
        - improved MMK compatibility
- Created MAKEFILE_VMS.MMS, makefile for testing Vim during development.
- Defined DEC terminal VT320
        - compatibility for VT3*0, VT2*0 and VT1*0 - ANSI terminals
          backwards, but not VT340 and newer with colour capability.
        - VT320 is default terminal for OpenVMS
        - these new terminals are also fast ttys (default for OpenVMS).
        - allowed dec_mouse ttym
- Updated files vimrc and gvimrc with VMS specific suggestions.
- OS_VMS.TXT updated with new features.

Version 5.5 (1999 Dec 3)
- Popup menu line crash corrected.
- Handle full file names with version numbers.
- Directory handling (CD command etc.)

- Corrected file name conversion VMS to Unix and v.v.
- Correct response of expand wildcards
- Recovery is working from this version under VMS as well.
- Improved terminal and signal handing.
- Improved OS_VMS.TXT

Version 5.4 (1999 Sep 9)
- Cut and paste mismatch corrected.
- Motif directories during open and save are corrected.

Version 5.3 (1998 Oct 12)
- Minor changes in the code
- Standard distribution with +GUI option

Version 5.1 (1998 Apr 21)
- Syntax and DEC C changes in the code
- Fixing problems with the /doc subdirectory
- Improve OS_VMS.MMS

Version 4.5 (1996 Dec 16)
- First VMS port by Henk Elbers <henk@xs4all.nl>

==

10. Authors   vms-authors

OpenVMS documentation and executables are maintained by:
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OpenVMS Vim page: http://www.polarhome.com/vim/

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 vim:tw=78:ts=8:noet:ft=help:norl:

os_win32.txt For Vim version 8.1. Last change: 2017 Mar 21

VIM REFERENCE MANUAL by George Reilly

win32 Win32 MS-Windows

This file documents the idiosyncrasies of the Win32 version of Vim.

The Win32 version of Vim works on Windows XP, Vista, 7, 8 and 10. There are
both console and GUI versions.

The 32 bit version also runs on 64 bit MS-Windows systems.

Credits:
The Win32 version was written by George V. Reilly <george@reilly.org>.
The original Windows NT port was done by Roger Knobbe <RogerK@wonderware.com>.
The GUI version was made by George V. Reilly and Robert Webb.

For compiling see "src/INSTALLpc.txt". win32-compiling

==
1. Known problems win32-problems

When doing file name completion, Vim also finds matches for the short file
name. But Vim will still find and use the corresponding long file name. For
example, if you have the long file name "this_is_a_test" with the short file
name "this_i~1", the command ":e *1" will start editing "this_is_a_test".

==
2. Startup win32-startup

Current directory win32-curdir

If Vim is started with a single file name argument, and it has a full path (starts with "x:\"), Vim assumes it was started from the file explorer and will set the current directory to where that file is. To avoid this when typing a command to start Vim, use a forward slash instead of a backslash. Example:

```
vim c:\text\files\foo.txt
```

Will change to the "C:\text\files" directory.

```
vim c:/text\files\foo.txt
```

Will use the current directory.

Term option win32-term

The only kind of terminal type that the Win32 version of Vim understands is "win32", which is built-in. If you set 'term' to anything else, you will probably get very strange behavior from Vim. Therefore Vim does not obtain the default value of 'term' from the environment variable "TERM".

$PATH win32-PATH

The directory of the Vim executable is appended to $PATH. This is mostly to make "!xxd" work, as it is in the Tools menu. And it also means that when executable() returns 1 the executable can actually be executed.

Command line arguments win32-cmdargs

Analysis of a command line into parameters is not standardised in MS Windows. Vim and gvim used to use different logic to parse it (before 7.4.432), and the logic was also depended on what it was compiled with. Now Vim and gvim both use the CommandLineToArgvW() Win32 API, so they behave in the same way.

The basic rules are: win32-backslashes

a) A parameter is a sequence of graphic characters.
b) Parameters are separated by white space.
c) A parameter can be enclosed in double quotes to include white space.
d) A sequence of zero or more backslashes (\) and a double quote (") is special. The effective number of backslashes is halved, rounded down. An even number of backslashes reverses the acceptability of spaces and tabs, an odd number of backslashes produces a literal double quote.

So:

```
"       is a special double quote
\"      is a literal double quote
\\"     is a literal backslash and a special double quote
\\\"    is a literal backslash and a literal double quote
\\\\"   is 2 literal backslashes and a special double quote
\\\\\"  is 2 literal backslashes and a literal double quote
etc.
```

Example:
	vim "C:\My Music\freude" +"set ignorecase" +/"\"foo\\" +\"bar\\\"

opens "C:\My Music\freude" and executes the line mode commands:
	set ignorecase; /"foo\ and /bar\"

These rules are also described in the reference of the CommandLineToArgvW API:
    https://msdn.microsoft.com/en-us/library/windows/desktop/bb776391.aspx

                                                        win32-quotes
There are additional rules for quotes (which are not well documented).
As described above, quotes inside a file name (or any other command line
argument) can be escaped with a backslash. E.g.
	vim -c "echo 'foo\"bar'"

Alternatively use three quotes to get one:
	vim -c "echo 'foo"""bar'"

The quotation rules are:

1. A `"` starts quotation.
2. Another `"` or `"""` ends quotation. If the quotation ends with `"""`, a `"`
   is produced at the end of the quoted string.

Examples, with [] around an argument:
	"foo" -> [foo]
	"foo"" -> [foo"]
	"foo"bar -> [foobar]
	"foo" bar -> [foo], [bar]
	"foo""bar -> [foo"bar]
	"foo"" bar -> [foo"], [bar]
	"foo"""bar" -> [foo"bar]

==
3. Restore screen contents   win32-restore

When 'restorescreen' is set (which is the default), Vim will restore the
original contents of the console when exiting or when executing external
commands. If you don't want this, use ":set nors".   'restorescreen'

==
4. Using the mouse   win32-mouse

The Win32 version of Vim supports using the mouse. If you have a two-button
mouse, the middle button can be emulated by pressing both left and right
buttons simultaneously - but note that in the Win32 GUI, if you have the right
mouse button pop-up menu enabled (see 'mouse'), you should err on the side of
pressing the left button first.   mouse-using

When the mouse doesn't work, try disabling the "Quick Edit Mode" feature of
the console.

==
5. Running under Windows 95   win32-win95
                                                windows95 windows98 windowsme

Windows 95/98/ME support was removed in patch 8.0.0029 If you want to use it
you will need to get a version older than that.

==
6. Running under Windows 3.1   win32-win3.1

                                        win32s windows-3.1 gui-w32s win16

There was a special version of gvim that runs under Windows 3.1 and 3.11.
Support was removed in patch 7.4.1363.

==
7. Win32 mini FAQ   win32-faq

Q. How do I change the font?
A. In the GUI version, you can use the 'guifont' option. Example:
        :set guifont=Lucida_Console:h15:cDEFAULT
   In the console version, you need to set the font of the console itself.
   You cannot do this from within Vim.

Q. How do I type dead keys on Windows NT?
A. Dead keys work on NT 3.51. Just type them as you would in any other
   application.
   On NT 4.0, you need to make sure that the default locale (set in the
   Keyboard part of the Control Panel) is the same as the currently active
   locale. Otherwise the NT code will get confused and crash! This is a NT
   4.0 problem, not really a Vim problem.

Q. I'm using Vim to edit a symbolically linked file on a Unix NFS file server.
   When I write the file, Vim does not "write through" the symlink. Instead,
   it deletes the symbolic link and creates a new file in its place. Why?
A. On Unix, Vim is prepared for links (symbolic or hard). A backup copy of
   the original file is made and then the original file is overwritten. This
   assures that all properties of the file remain the same. On non-Unix
   systems, the original file is renamed and a new file is written. Only the
   protection bits are set like the original file. However, this doesn't work
   properly when working on an NFS-mounted file system where links and other
   things exist. The only way to fix this in the current version is not
   making a backup file, by ":set nobackup nowritebackup"   'writebackup'

Q. I'm using Vim to edit a file on a Unix file server through Samba. When I
   write the file, the owner of the file is changed. Why?
A. When writing a file Vim renames the original file, this is a backup (in
   case writing the file fails halfway). Then the file is written as a new
   file. Samba then gives it the default owner for the file system, which may
   differ from the original owner.
   To avoid this set the 'backupcopy' option to "yes". Vim will then make a
   copy of the file for the backup, and overwrite the original file. The
   owner isn't changed then.

Q. How do I get to see the output of ":make" while it's running?
A. Basically what you need is to put a tee program that will copy its input

(the output from make) to both stdout and to the errorfile. You can find a copy of tee (and a number of other GNU tools) at http://gnuwin32.sourceforge.net or http://unxutils.sourceforge.net Alternatively, try the more recent Cygnus version of the GNU tools at http://www.cygwin.com Other Unix-style tools for Win32 are listed at http://directory.google.com/Top/Computers/Software/Operating_Systems/Unix/Win32/ When you do get a copy of tee, you'll need to add

```
:set shellpipe=\|\ tee
```

to your _vimrc.

Q. I'm storing files on a remote machine that works with VisionFS, and files disappear!

A. VisionFS can't handle certain dot (.) three letter extension file names. SCO declares this behavior required for backwards compatibility with 16bit DOS/Windows environments. The two commands below demonstrate the behavior:

```
echo Hello > file.bat~
dir > file.bat
```

The result is that the "dir" command updates the "file.bat~" file, instead of creating a new "file.bat" file. This same behavior is exhibited in Vim when editing an existing file named "foo.bat" because the default behavior of Vim is to create a temporary file with a '~' character appended to the name. When the file is written, it winds up being deleted.

Solution: Add this command to your _vimrc file:

```
:set backupext=.temporary
```

Q. How do I change the blink rate of the cursor?

A. You can't! This is a limitation of the NT console. NT 5.0 is reported to be able to set the blink rate for all console windows at the same time.

:!start

Q. How can I asynchronously run an external command or program, or open a document or URL with its default program?

A. When using :! to run an external command, you can run it with "start". For example, to run notepad:

```
:!start notepad
```

To open "image.jpg" with the default image viewer:

```
:!start image.jpg
```

To open the folder of the current file in Windows Explorer:

```
:!start %:h
```

To open the Vim home page with the default browser:

```
:!start http://www.vim.org/
```

Using "start" stops Vim switching to another screen, opening a new console, or waiting for the program to complete; it indicates that you are running a program that does not affect the files you are editing. Programs begun with :!start do not get passed Vim's open file handles, which means they do not have to be closed before Vim.
To avoid this special treatment, use ":! start".
There are two optional arguments (see the next Q):

```
/min  the window will be minimized
/b    no console window will be opened
```

You can use only one of these flags at a time. A second one will be
treated as the start of the command.

Q. How do I avoid getting a window for programs that I run asynchronously?
A. You have two possible solutions depending on what you want:
1) You may use the /min flag in order to run program in a minimized state
with no other changes. It will work equally for console and GUI
applications.
2) You can use the /b flag to run console applications without creating a
console window for them (GUI applications are not affected). But you
should use this flag only if the application you run doesn't require any
input. Otherwise it will get an EOF error because its input stream
(stdin) would be redirected to \\.\NUL (stdout and stderr too).

Example for a console application, run Exuberant ctags:
:!start /min ctags -R .
When it has finished you should see file named "tags" in your current
directory. You should notice the window title blinking on your taskbar.
This is more noticeable for commands that take longer.
Now delete the "tags" file and run this command:
:!start /b ctags -R .
You should have the same "tags" file, but this time there will be no
blinking on the taskbar.
Example for a GUI application:
:!start /min notepad
:!start /b notepad
The first command runs notepad minimized and the second one runs it
normally.

windows-icon

Q. I don't like the Vim icon, can I change it?
A. Yes, place your favorite icon in bitmaps/vim.ico in a directory of
'runtimepath'. For example ~/vimfiles/bitmaps/vim.ico.

vim:tw=78:fo=tcq2:ts=8:noet:ft=help:norl:

pi_getscript.txt For Vim version 8.1. Last change: 2017 Aug 01

GETSCRIPT REFERENCE MANUAL by Charles E. Campbell

Authors: Charles E. Campbell <NdrOchip@ScampbellPfamilyA.Mbiz>
(remove NOSPAM from the email address)

GetLatestVimScripts-copyright

Getscript is a plugin that simplifies retrieval of the latest versions of the scripts that you yourself use! Typing :GLVS will invoke getscript; it will then use the <GetLatestVimScripts.dat> (see GetLatestVimScripts_dat) file to get the latest versions of scripts listed therein from http://vim.sf.net/.

==========

1. Contents glvs-contents glvs getscript GetLatestVimScripts

==========

2. GetLatestVimScripts -- Getting Started getscript-start getlatestvimscripts-install

VERSION FROM VIM DISTRIBUTION glvs-dist-install

Vim 7.0 does not include the GetLatestVimScripts.dist file which serves as an example and a template. So, you'll need to create your own! See GetLatestVimScripts_dat .

VERSION FROM VIM SF NET glvs-install

NOTE: The last step, that of renaming/moving the GetLatestVimScripts.dist file, is for those who have just downloaded GetLatestVimScripts.tar.bz2 for the first time.

The GetLatestVimScripts.dist file serves as an example and a template for your own personal list. Feel free to remove all the scripts mentioned within it; the "important" part of it is the first two lines.

Your computer needs to have wget or curl for GetLatestVimScripts to do its work.

1. if compressed: gunzip getscript.vba.gz
2. Unix:
```
vim getscript.vba
:so %
:q
cd ~/.vim/GetLatest
mv GetLatestVimScripts.dist GetLatestVimScripts.dat
(edit GetLatestVimScripts.dat to install your own personal
list of desired plugins -- see  GetLatestVimScripts_dat )
```
3. Windows:
```
vim getscript.vba
:so %
:q
cd **path-to-vimfiles**/GetLatest
mv GetLatestVimScripts.dist GetLatestVimScripts.dat
(edit GetLatestVimScripts.dat to install your own personal
list of desired plugins -- see  GetLatestVimScripts_dat )
```

==========
3. GetLatestVimScripts Usage glvs-usage :GLVS

Unless it has been defined elsewhere,

```
:GLVS
```

will invoke GetLatestVimScripts(). If some other plugin has defined that command, then you may type

```
:GetLatestVimScripts
```

The script will attempt to update and, if permitted, will automatically install scripts from http://vim.sourceforge.net/. To do so it will peruse a file,

```
.vim/GetLatest/GetLatestVimScripts.dat                    (unix)
```

or

```
..wherever..\vimfiles\GetLatest\GetLatestVimScripts.dat   (windows)
```

(see glvs-data), and examine plugins in your [.vim|vimfiles]/plugin directory (see glvs-plugins).

Scripts which have been downloaded will appear in the ~/.vim/GetLatest (unix) or ..wherever..\vimfiles\GetLatest (windows) subdirectory. GetLatestVimScripts will attempt to automatically install them if you have the following line in your <.vimrc>:

```
        let g:GetLatestVimScripts_allowautoinstall=1
```

The <GetLatestVimScripts.dat> file will be automatically be updated to
reflect the latest version of script(s) so downloaded.
(also see glvs-options)

==
4. GetLatestVimScripts Data File   getscript-data glvs-data
                                                :GetLatestVimScripts_dat
The data file <GetLatestVimScripts.dat> must have for its first two lines
the following text:

```
        ScriptID SourceID Filename
        --------------------------
```

Following those two lines are three columns; the first two are numeric
followed by a text column. The GetLatest/GetLatestVimScripts.dist file
contains an example of such a data file. Anything following a #... is
ignored, so you may embed comments in the file.

The first number on each line gives the script's ScriptID. When you're about
to use a web browser to look at scripts on http://vim.sf.net/, just before you
click on the script's link, you'll see a line resembling

```
        http://vim.sourceforge.net/scripts/script.php?script_id=40
```

The "40" happens to be a ScriptID that GetLatestVimScripts needs to
download the associated page, and is assigned by vim.sf.net itself
during initial uploading of the plugin.

The second number on each line gives the script's SourceID. The SourceID
records the count of uploaded scripts as determined by vim.sf.net; hence it
serves to indicate "when" a script was uploaded. Setting the SourceID to 1
insures that GetLatestVimScripts will assume that the script it has is
out-of-date.

The SourceID is extracted by GetLatestVimScripts from the script's page on
vim.sf.net; whenever it is greater than the one stored in the
GetLatestVimScripts.dat file, the script will be downloaded
(see GetLatestVimScripts_dat).

If your script's author has included a special comment line in his/her plugin,
the plugin itself will be used by GetLatestVimScripts to build your
<GetLatestVimScripts.dat> file, including any dependencies on other scripts it
may have. As an example, consider:

```
        " GetLatestVimScripts: 884  1 :AutoInstall: AutoAlign.vim
```

This comment line tells getscript.vim to check vimscript #884 and that the
script is automatically installable. Getscript will also use this line to
help build the GetLatestVimScripts.dat file, by including a line such as:

```
        884 1 :AutoInstall: AutoAlign.vim
```

assuming that such a line isn't already in GetLatestVimScripts.dat file. See glvs-plugins for more. Thus, GetLatestVimScripts thus provides a comprehensive ability to keep your plugins up-to-date!

In summary:

* Optionally tell getscript that it is allowed to build/append a GetLatestVimScripts.dat file based upon already installed plugins:
  `let g:GetLatestVimScripts_allowautoinstall=1`

* A line such as
  `" GetLatestVimScripts: 884 1 :AutoInstall: AutoAlign.vim`
  in an already-downloaded plugin constitutes the concurrence of the plugin author that getscript may do AutoInstall. Not all plugins may be AutoInstall-able, and the plugin's author is best situated to know whether or not his/her plugin will AutoInstall properly.

* A line such as
  `884 1 :AutoInstall: AutoAlign.vim`
  in your GetLatestVimScripts.dat file constitutes your permission to getscript to do AutoInstall. AutoInstall requires both your and the plugin author's permission. See GetLatestVimScripts_dat .

GetLatestVimScripts_dat

As an example of a <GetLatestVimScripts.dat> file:

```
    ScriptID SourceID Filename
    --------------------------
    294 1 :AutoInstall: Align.vim
    120 2 Decho.vim
     40 3 DrawIt.tar.gz
    451 4 EasyAccents.vim
    195 5 engspchk.vim
    642 6 GetLatestVimScripts.vim
    489 7 Manpageview.vim
```

Note: the first two lines are required, but essentially act as comments.

==

5. GetLatestVimScripts Friendly Plugins getscript-plugins glvs-plugins

(this section is for plugin authors)

If a plugin author includes the following comment anywhere in their plugin, GetLatestVimScripts will find it and use it to automatically build the user's GetLatestVimScripts.dat files:

```
                                src_id
                                  v
        " GetLatestVimScripts: ### ### yourscriptname
```

```
                                ^
                             scriptid
```

As an author, you should include such a line in to refer to your own script
plus any additional lines describing any plugin dependencies it may have.
Same format, of course!

If your command is auto-installable (see glvs-autoinstall), and most scripts
are, then you may include :AutoInstall: just before "yourscriptname":

```
                                src_id
                                  v
        " GetLatestVimScripts: ### ### :AutoInstall: yourscriptname
                                ^
                             scriptid
```

NOTE: The :AutoInstall: feature requires both the plugin author's and
      the user's permission to operate!

GetLatestVimScripts commands for those scripts are then appended, if not
already present, to the user's GetLatest/GetLatestVimScripts.dat file. It is
a relatively painless way to automate the acquisition of any scripts your
plugins depend upon.

Now, as an author, you probably don't want GetLatestVimScripts to download
your own scripts atop your own copy, thereby overwriting your not-yet-released
hard work. GetLatestVimScripts provides a solution for this: put

```
        0 0 yourscriptname
```

into your <GetLatestVimScripts.dat> file and GetLatestVimScripts will skip
examining the "yourscriptname" scripts for those GetLatestVimScripts comment
lines. As a result, those lines won't be inadvertently installed into your
<GetLatestVimScripts.dat> file and subsequently used to download your own
scripts. This is especially important to do if you've included the
:AutoInstall: option.

Be certain to use the same "yourscriptname" in the "0 0 yourscriptname" line
as you've used in your GetLatestVimScripts comment!

==
6. GetLatestVimScripts AutoInstall   getscript-autoinstall
                                                      glvs-autoinstall

GetLatestVimScripts now supports "AutoInstall". Not all scripts are
supportive of auto-install, as they may have special things you need to do to
install them (please refer to the script's "install" directions). On the
other hand, most scripts will be auto-installable.

To let GetLatestVimScripts do an autoinstall, the data file's comment field
should begin with (surrounding blanks are ignored):

```
        :AutoInstall:
```

Both colons are needed, and it should begin the comment (yourscriptname)
field.

One may prevent any autoinstalling by putting the following line in your
<.vimrc>:

```
let g:GetLatestVimScripts_allowautoinstall= 0
```

With :AutoInstall: enabled, as it is by default, files which end with

```
---.tar.bz2  : decompressed & untarred in .vim/ directory
---.vba.bz2  : decompressed in .vim/ directory, then vimball handles it
---.vim.bz2  : decompressed & moved into .vim/plugin directory
---.tar.gz   : decompressed & untarred in .vim/ directory
---.vba.gz   : decompressed in .vim/ directory, then vimball handles it
---.vim.gz   : decompressed & moved into .vim/plugin directory
---.vba      : unzipped in .vim/ directory
---.vim      : moved to .vim/plugin directory
---.zip      : unzipped in .vim/ directory
```

and which merely need to have their components placed by the untar/gunzip or
move-to-plugin-directory process should be auto-installable. Vimballs, of
course, should always be auto-installable.

When is a script not auto-installable? Let me give an example:

```
.vim/after/syntax/blockhl.vim
```

The <blockhl.vim> script provides block highlighting for C/C++ programs; it is
available at:

```
http://vim.sourceforge.net/scripts/script.php?script_id=104
```

Currently, vim's after/syntax only supports by-filetype scripts (in
blockhl.vim's case, that's after/syntax/c.vim). Hence, auto-install would
possibly overwrite the current user's after/syntax/c.vim file.

In my own case, I use <aftersyntax.vim> (renamed to after/syntax/c.vim) to
allow a after/syntax/c/ directory:

```
http://vim.sourceforge.net/scripts/script.php?script_id=1023
```

The script allows multiple syntax files to exist separately in the
after/syntax/c subdirectory. I can't bundle aftersyntax.vim in and build an
appropriate tarball for auto-install because of the potential for the
after/syntax/c.vim contained in it to overwrite a user's c.vim.

==
7. GetLatestVimScripts Options glvs-options

```
g:GetLatestVimScripts_wget
default= "wget"
```

This variable holds the name of the command for obtaining
scripts.

g:GetLatestVimScripts_options
default= "-q -O"
This variable holds the options to be used with the
g:GetLatestVimScripts_wget command.

g:GetLatestVimScripts_allowautoinstall
default= 1
This variable indicates whether GetLatestVimScripts is allowed
to attempt to automatically install scripts. Furthermore, the
plugin author has to have explicitly indicated that his/her
plugin is automatically installable (via the :AutoInstall:
keyword in the GetLatestVimScripts comment line).

g:GetLatestVimScripts_autoinstalldir
default= $HOME/.vim (linux)
default= $HOME/vimfiles (windows)
Override where :AutoInstall: scripts will be installed.
Doesn't override vimball installation.

g:GetLatestVimScripts_scriptaddr
default='http://vim.sourceforge.net/script.php?script_id='
Override this if your system needs
... ='http://vim.sourceforge.net/script/script.php?script_id='

==
8. GetLatestVimScripts Algorithm glvs-algorithm glvs-alg

The Vim sourceforge page dynamically creates a page by keying off of the
so-called script-id. Within the webpage of

http://vim.sourceforge.net/scripts/script.php?script_id=40

is a line specifying the latest source-id (src_id). The source identifier
numbers are always increasing, hence if the src_id is greater than the one
recorded for the script in GetLatestVimScripts then it's time to download a
newer copy of that script.

GetLatestVimScripts will then download the script and update its internal
database of script ids, source ids, and scriptnames.

The AutoInstall process will:

Move the file from GetLatest/ to the following directory
Unix : $HOME/.vim
Windows: $HOME\vimfiles
if the downloaded file ends with ".bz2"
bunzip2 it
else if the downloaded file ends with ".gz"
gunzip it
if the resulting file ends with ".zip"
unzip it

```
        else if the resulting file ends with ".tar"
                tar -oxvf it
        else if the resulting file ends with ".vim"
                move it to the plugin subdirectory


==============================================================================
9. GetLatestVimScripts History          getscript-history   glvs-hist  {{{1

v36 Apr 22, 2013 : * (glts) suggested use of plugin/**/*.vim instead of
                     plugin/*.vim in globpath() call.
                   * (Andy Wokula) got warning message when setting
                     g:loaded_getscriptPlugin
v35 Apr 07, 2012 : * (MengHuan Yu) pointed out that the script URL has
                     changed (somewhat).  However, it doesn't work, and
                     the original one does (under Linux). I'll make it
                     yet-another-option.
v34 Jun 23, 2011 : * handles additional decompression options for tarballs
                     (tgz taz tbz txz)
v33 May 31, 2011 : * using fnameescape() instead of escape()
                   * *.xz support
v32 Jun 19, 2010 : * (Jan Steffens) added support for xz compression
v31 Jun 29, 2008 : * (Bill McCarthy) fixed having hls enabled with getscript
                   * (David Schaefer) the acd option interferes with vimballs
                     Solution: bypass the acd option
v30 Jun 13, 2008 : * GLVS now checks for existence of fnameescape() and will
                     issue an error message if it is not supported
v29 Jan 07, 2008 : * Bram M pointed out that cpo is a global option and that
                     getscriptPlugin.vim was setting it but not restoring it.
v28 Jan 02, 2008 : * improved shell quoting character handling, cygwin
                     interface, register-a bypass
    Oct 29, 2007   * Bill McCarthy suggested a change to getscript that avoids
                     creating pop-up windows
v24 Apr 16, 2007 : * removed save&restore of the fo option during script
                     loading
v23 Nov 03, 2006 : * ignores comments (#...)
                   * handles vimballs
v22 Oct 13, 2006 : * supports automatic use of curl if wget is not
                     available
v21 May 01, 2006 : * now takes advantage of autoloading.
v20 Dec 23, 2005 : * Eric Haarbauer found&fixed a bug with unzip use;
                     unzip needs the -o flag to overwrite.
v19 Nov 28, 2005 : * v18's GetLatestVimScript line accessed the wrong
                     script! Fixed.
v18 Mar 21, 2005 : * bugfix to automatic database construction
                   * bugfix - nowrapscan caused an error
                     (tnx to David Green for the fix)
    Apr 01, 2005   * if shell is bash, "mv" instead of "ren" used in
                     :AutoInstall:s, even though its o/s is windows
    Apr 01, 2005   * when downloading errors occurred, GLVS was
                     terminating early.  It now just goes on to trying
                     the next script (after trying three times to
                     download a script description page)
    Apr 20, 2005   * bugfix - when a failure to download occurred,
```

```
                    GetLatestVimScripts would stop early and claim that
                    everything was current.  Fixed.
v17 Aug 25, 2004 : * g:GetLatestVimScripts_allowautoinstall, which
                    defaults to 1, can be used to prevent all
                    :AutoInstall:
v16 Aug 25, 2004 : * made execution of bunzip2/gunzip/tar/zip silent
                  * fixed bug with :AutoInstall: use of helptags
v15 Aug 24, 2004 : * bugfix: the "0 0 comment" download prevention wasn't
                    always preventing downloads (just usually).  Fixed.
v14 Aug 24, 2004 : * bugfix -- helptags was using dotvim, rather than
                    s:dotvim.  Fixed.
v13 Aug 23, 2004 : * will skip downloading a file if its scriptid or srcid
                    is zero.  Useful for script authors; that way their
                    own GetLatestVimScripts activity won't overwrite
                    their scripts.
v12 Aug 23, 2004 : * bugfix - a "return" got left in the distribution that
                    was intended only for testing.  Removed, now works.
                  * :AutoInstall: implemented
v11 Aug 20, 2004 : * GetLatestVimScripts is now a plugin:
                  * :GetLatestVimScripts command
                  * (runtimepath)/GetLatest/GetLatestVimScripts.dat
                    now holds scripts that need updating
v10 Apr 19, 2004 : * moved history from script to doc
v9  Jan 23, 2004 :   windows (win32/win16/win95) will use
                    double quotes ("") whereas other systems will use
                    single quotes ('') around the urls in calls via wget
v8  Dec 01, 2003 :   makes three tries at downloading
v7  Sep 02, 2003 :   added error messages if "Click on..." or "src_id="
                    not found in downloaded webpage
                    Uses t_ti, t_te, and rs to make progress visible
v6  Aug 06, 2003 :   final status messages now display summary of work
                    ( "Downloaded someqty scripts" or
                      "Everything was current")
                    Now GetLatestVimScripts is careful about downloading
                    GetLatestVimScripts.vim itself!
                    (goes to <NEW_GetLatestVimScripts.vim>)
v5  Aug 04, 2003 :   missing an endif near bottom
v4  Jun 17, 2003 :   redraw! just before each "considering" message
v3  May 27, 2003 :   Protects downloaded files from errant shell
                    expansions with single quotes: '...'
v2  May 14, 2003 :   extracts name of item to be obtained from the
                    script file.  Uses it instead of comment field
                    for output filename; comment is used in the
                    "considering..." line and is now just a comment!
                  * Fixed a bug: a string-of-numbers is not the
                    same as a number, so I added zero to them
                    and they became numbers.  Fixes comparison.

==============================================================================
vim:tw=78:ts=8:noet:ft=help:fdm=marker
```

pi_gzip.txt For Vim version 8.1. Last change: 2016 Nov 06

VIM REFERENCE MANUAL by Bram Moolenaar

Editing compressed files with Vim gzip bzip2 compress

1. Autocommands gzip-autocmd

The functionality mentioned here is a standard-plugin .
This plugin is only available if 'compatible' is not set.
You can avoid loading this plugin by setting the "loaded_gzip" variable:

```
:let loaded_gzip = 1
```

{Vi does not have any of this}

==
1. Autocommands gzip-autocmd

The plugin installs autocommands to intercept reading and writing of files
with these extensions:

extension	compression
*.Z	compress (Lempel-Ziv)
*.gz	gzip
*.bz2	bzip2
*.lzma	lzma
*.xz	xz
*.lz	lzip
*.zst	zstd

That's actually the only thing you need to know. There are no options.

After decompressing a file, the filetype will be detected again. This will
make a file like "foo.c.gz" get the "c" filetype.

If you have 'patchmode' set, it will be appended after the extension for
compression. Thus editing the patchmode file will not give you the automatic
decompression. You have to rename the file if you want this.

==
vim:tw=78:ts=8:noet:ft=help:norl:

Author: Charles E. Campbell <NdrOchip@ScampbellPfamily.AbizM>

==========

1. Contents logiPat logiPat-contents

==========

2. LogiPat Manual logiPat-manual logiPat-man

logiPat-arg logiPat-input logiPat-pattern logiPat-operators

Boolean logic patterns are composed of

```
operators  ! = not
           | = logical-or
           & = logical-and
grouping   ( ... )
patterns   "pattern"
```

:LogiPat {boolean-logic pattern} :LogiPat

:LogiPat is a command which takes a boolean-logic argument (logiPat-arg).

:LP {boolean-logic pattern} :LP

:LP is a shorthand command version of :LogiPat

:LPE {boolean-logic pattern} :LPE

No search is done, but the conversion from the boolean logic pattern to the regular expression is performed and echoed onto the display.

:LogiPatFlags {search flags} LogiPat-flags

:LogiPatFlags {search flags}
LogiPat uses the search() command. The flags passed to that call to search() may be specified by the :LogiPatFlags command.

:LPF {search flags} :LPF

:LPF is a shorthand version of :LogiPatFlags.

:let pat=LogiPat({boolean-logic pattern}) LogiPat()

If one calls LogiPat() directly, no search is done, but the transformation from the boolean

logic pattern into a regular expression pattern
is performed and returned.

To get a " inside a pattern, as opposed to having it delimit
the pattern, double it.

==
3. LogiPat Examples logiPat-examples

LogiPat takes Boolean logic arguments and produces a regular
expression which implements the choices. A series of examples
follows:

:LogiPat "abc"
will search for lines containing the string :abc:

:LogiPat "ab""cd"
will search for lines containing the string :ab"c:

:LogiPat !"abc"
will search for lines which don't contain the string :abc:

:LogiPat "abc"|"def"
will search for lines which contain either the string
:abc: or the string :def:

:LogiPat !("abc"|"def")
will search for lines which don't contain either
of the strings :abc: or :def:

:LogiPat "abc"&"def"
will search for lines which contain both of the strings
:abc: and :def:

:let pat= LogiPat('!"abc"')
will return the regular expression which will match
all lines not containing :abc: . The double quotes
are needed to pass normal patterns to LogiPat, and
differentiate such patterns from boolean logic
operators.

==
4. Caveat logiPat-caveat

The "not" operator may be fragile; ie. it may not always play well
with the & (logical-and) and | (logical-or) operators. Please try out
your patterns, possibly with :set hls, to insure that what is matching
is what you want.

==
3. LogiPat History logiPat-history

```
        v4 Jun 22, 2015 * LogiPat has been picked up by Bram M for standard
                          plugin distribution; hence the name change
        v3 Sep 25, 2006 * LP_Or() fixed; it now encapsulates its output
                          in \%(...\) parentheses
           Dec 12, 2011 *  :LPE  added
                        * "" is mapped to a single " and left inside patterns
        v2 May 31, 2005 * LPF and LogiPatFlags commands weren't working
        v1 May 23, 2005 * initial release


==============================================================================
vim:tw=78:ts=8:noet:ft=help
```

pi_netrw.txt For Vim version 8.1. Last change: 2017 Nov 03

NETRW REFERENCE MANUAL by Charles E. Campbell

Author: Charles E. Campbell <NdrOchip@ScampbellPfamily.AbizM>
(remove NOSPAM from Campbell's email first)

netrw
dav ftp netrw-file rcp scp
davs http netrw.vim rsync sftp
fetch network

==========

1. Contents netrw-contents {{{1

{Vi does not have any of this}

==
2. Starting With Netrw   netrw-start {{{1

Netrw makes reading files, writing files, browsing over a network, and
local browsing easy! First, make sure that you have plugins enabled, so
you'll need to have at least the following in your <.vimrc>:
(or see netrw-activate)

```
        set nocp                    " 'compatible' is not set
        filetype plugin on          " plugins are enabled
```

(see 'cp' and :filetype-plugin-on)

Netrw supports "transparent" editing of files on other machines using urls
(see netrw-transparent). As an example of this, let's assume you have an
account on some other machine; if you can use scp, try:

```
        vim scp://hostname/path/to/file
```

Want to make ssh/scp easier to use? Check out netrw-ssh-hack !

So, what if you have ftp, not ssh/scp? That's easy, too; try

```
        vim ftp://hostname/path/to/file
```

Want to make ftp simpler to use? See if your ftp supports a file called
<.netrc> -- typically it goes in your home directory, has read/write
permissions for only the user to read (ie. not group, world, other, etc),
and has lines resembling

```
        machine HOSTNAME login USERID password "PASSWORD"
        machine HOSTNAME login USERID password "PASSWORD"
        ...
        default          login USERID password "PASSWORD"
```

Windows' ftp doesn't support .netrc; however, one may have in one's .vimrc:

```
   let g:netrw_ftp_cmd= 'c:\Windows\System32\ftp -s:C:\Users\MyUserName\MACHINE'
```

Netrw will substitute the host's machine name for "MACHINE" from the URL it is
attempting to open, and so one may specify

```
        userid
        password
```

for each site in a separate file: c:\Users\MyUserName\MachineName.

Now about browsing -- when you just want to look around before editing a
file. For browsing on your current host, just "edit" a directory:

```
vim .
vim /home/userid/path
```

For browsing on a remote host, "edit" a directory (but make sure that
the directory name is followed by a "/"):

```
vim scp://hostname/
vim ftp://hostname/path/to/dir/
```

See netrw-browse for more!

There are more protocols supported by netrw than just scp and ftp, too: see the
next section, netrw-externapp , on how to use these external applications with
netrw and vim.

PREVENTING LOADING netrw-noload

If you want to use plugins, but for some reason don't wish to use netrw, then
you need to avoid loading both the plugin and the autoload portions of netrw.
You may do so by placing the following two lines in your <.vimrc>:

```
:let g:loaded_netrw       = 1
:let g:loaded_netrwPlugin = 1
```

==========

3. Netrw Reference netrw-ref {{{1

Netrw supports several protocols in addition to scp and ftp as mentioned
in netrw-start . These include dav, fetch, http,... well, just look
at the list in netrw-externapp . Each protocol is associated with a
variable which holds the default command supporting that protocol.

EXTERNAL APPLICATIONS AND PROTOCOLS netrw-externapp {{{2

Protocol	Variable	Default Value	
dav:	g:netrw_dav_cmd	= "cadaver"	if cadaver is executable
dav:	g:netrw_dav_cmd	= "curl -o"	elseif curl is available
fetch:	g:netrw_fetch_cmd	= "fetch -o"	if fetch is available
ftp:	g:netrw_ftp_cmd	= "ftp"	
http:	g:netrw_http_cmd	= "elinks"	if elinks is available
http:	g:netrw_http_cmd	= "links"	elseif links is available
http:	g:netrw_http_cmd	= "curl"	elseif curl is available
http:	g:netrw_http_cmd	= "wget"	elseif wget is available
http:	g:netrw_http_cmd	= "fetch"	elseif fetch is available
http:	g:netrw_http_put_cmd	= "curl -T"	
rcp:	g:netrw_rcp_cmd	= "rcp"	
rsync:	g:netrw_rsync_cmd	= "rsync"	(see g:netrw_rsync_sep)
scp:	g:netrw_scp_cmd	= "scp -q"	

```
  sftp:    g:netrw_sftp_cmd      = "sftp"
  file:    g:netrw_file_cmd      = "elinks" or "links"
```

g:netrw_http_xcmd : the option string for http://... protocols are specified via this variable and may be independently overridden. By default, the option arguments for the http-handling commands are:

```
            elinks : "-source >"
            links  : "-dump >"
            curl   : "-L -o"
            wget   : "-q -O"
            fetch  : "-o"
```

For example, if your system has elinks, and you'd rather see the page using an attempt at rendering the text, you may wish to have

```
        let g:netrw_http_xcmd= "-dump >"
```

in your .vimrc.

g:netrw_http_put_cmd: this option specifies both the executable and any needed options. This command does a PUT operation to the url.

READING netrw-read netrw-nread {{{2

Generally, one may just use the URL notation with a normal editing command, such as

```
        :e ftp://[user@]machine/path
```

Netrw also provides the Nread command:

```
:Nread ?                                        give help
:Nread "machine:path"                           uses rcp
:Nread "machine path"                           uses ftp w/ <.netrc>
:Nread "machine id password path"               uses ftp
:Nread "dav://machine[:port]/path"              uses cadaver
:Nread "fetch://[user@]machine/path"            uses fetch
:Nread "ftp://[user@]machine[[:#]port]/path"    uses ftp w/ <.netrc>
:Nread "http://[user@]machine/path"             uses http  uses wget
:Nread "rcp://[user@]machine/path"              uses rcp
:Nread "rsync://[user@]machine[:port]/path"     uses rsync
:Nread "scp://[user@]machine[[:#]port]/path"    uses scp
:Nread "sftp://[user@]machine/path"             uses sftp
```

WRITING netrw-write netrw-nwrite {{{2

One may just use the URL notation with a normal file writing command, such as

```
        :w ftp://[user@]machine/path
```

Netrw also provides the Nwrite command:

```
:Nwrite ?                                       give help
```

```
:Nwrite "machine:path"                          uses rcp
:Nwrite "machine path"                          uses ftp w/ <.netrc>
:Nwrite "machine id password path"              uses ftp
:Nwrite "dav://machine[:port]/path"             uses cadaver
:Nwrite "ftp://[user@]machine[[:#]port]/path"   uses ftp w/ <.netrc>
:Nwrite "rcp://[user@]machine/path"             uses rcp
:Nwrite "rsync://[user@]machine[:port]/path"    uses rsync
:Nwrite "scp://[user@]machine[[:#]port]/path"   uses scp
:Nwrite "sftp://[user@]machine/path"            uses sftp
http: not supported!
```

SOURCING netrw-source {{{2

One may just use the URL notation with the normal file sourcing command, such as

```
:so ftp://[user@]machine/path
```

Netrw also provides the Nsource command:

```
:Nsource ?                                      give help
:Nsource "dav://machine[:port]/path"            uses cadaver
:Nsource "fetch://[user@]machine/path"          uses fetch
:Nsource "ftp://[user@]machine[[:#]port]/path"  uses ftp w/ <.netrc>
:Nsource "http://[user@]machine/path"           uses http  uses wget
:Nsource "rcp://[user@]machine/path"            uses rcp
:Nsource "rsync://[user@]machine[:port]/path"   uses rsync
:Nsource "scp://[user@]machine[[:#]port]/path"  uses scp
:Nsource "sftp://[user@]machine/path"           uses sftp
```

DIRECTORY LISTING netrw-trailingslash netrw-dirlist {{{2

One may browse a directory to get a listing by simply attempting to edit the directory:

```
:e scp://[user]@hostname/path/
:e ftp://[user]@hostname/path/
```

For remote directory listings (ie. those using scp or ftp), that trailing "/" is necessary (the slash tells netrw to treat the argument as a directory to browse instead of as a file to download).

The Nread command may also be used to accomplish this (again, that trailing slash is necessary):

```
:Nread [protocol]://[user]@hostname/path/
```

CHANGING USERID AND PASSWORD netrw-login netrw-password netrw-chgup netrw-userpass {{{2

Attempts to use ftp will prompt you for a user-id and a password. These will be saved in global variables g:netrw_uid and s:netrw_passwd ; subsequent use of ftp will re-use those two strings, thereby simplifying use of ftp. However, if you need to use a

different user id and/or password, you'll want to call NetUserPass() first. To work around the need to enter passwords, check if your ftp supports a <.netrc> file in your home directory. Also see netrw-passwd (and if you're using ssh/scp hoping to figure out how to not need to use passwords for scp, look at netrw-ssh-hack).

```
:NetUserPass [uid [password]]          -- prompts as needed
:call NetUserPass()                    -- prompts for uid and password
:call NetUserPass("uid")               -- prompts for password
:call NetUserPass("uid","password")    -- sets global uid and password
```

(Related topics: ftp netrw-userpass netrw-start)

NETRW VARIABLES AND SETTINGS netrw-variables {{{2

(Also see:
netrw-browser-var : netrw browser option variables
netrw-protocol : file transfer protocol option variables
netrw-settings : additional file transfer options
netrw-browser-options : these options affect browsing directories
)

Netrw provides a lot of variables which allow you to customize netrw to your preferences. One way to look at them is via the command :NetrwSettings (see netrw-settings) which will display your current netrw settings. Most such settings are described below, in netrw-browser-options , and in netrw-externapp :

b:netrw_lastfile — last file Network-read/written retained on a per-buffer basis (supports plain :Nw)

g:netrw_bufsettings — the settings that netrw buffers have (default) noma nomod nonu nowrap ro nobl

g:netrw_chgwin — specifies a window number where subsequent file edits will take place. (also see netrw-C) (default) -1

g:Netrw_funcref — specifies a function (or functions) to be called when netrw edits a file. The file is first edited, and then the function reference (Funcref) is called. This variable may also hold a List of Funcrefs. (default) not defined. (the capital in g:Netrw... is required by its holding a function reference)

```
Example: place in .vimrc; affects all file opening
fun! MyFuncRef()
endfun
let g:Netrw_funcref= function("MyFuncRef")
```

g:Netrw_UserMaps — specifies a function or List of functions which can be used to set up user-specified maps and functionality. See netrw-usermaps

```
g:netrw_ftp             if it doesn't exist, use default ftp
                      =0 use default ftp                    (uid password)
                      =1 use alternate ftp method      (user uid password)
                         If you're having trouble with ftp, try changing the
                         value of this variable to see if the alternate ftp
                         method works for your setup.

g:netrw_ftp_options       Chosen by default, these options are supposed to
                       turn interactive prompting off and to restrain ftp
                       from attempting auto-login upon initial connection.
                       However, it appears that not all ftp implementations
                       support this (ex. ncftp).
                      ="-i -n"

g:netrw_ftpextracmd   default: doesn't exist
                      If this variable exists, then any string it contains
                      will be placed into the commands set to your ftp
                      client.  As an example:
                         ="passive"

g:netrw_ftpmode       ="binary"                                  (default)
                      ="ascii"

g:netrw_ignorenetrc   =0 (default for linux, cygwin)
                      =1 If you have a <.netrc> file but it doesn't work and
                         you want it ignored, then set this variable as
                         shown. (default for Windows + cmd.exe)

g:netrw_menu          =0 disable netrw's menu
                      =1 (default) netrw's menu enabled

g:netrw_nogx          if this variable exists, then the "gx" map will not
                      be available (see  netrw-gx )

g:netrw_uid           (ftp) user-id,      retained on a per-vim-session basis
s:netrw_passwd        (ftp) password,     retained on a per-vim-session basis

g:netrw_preview       =0 (default) preview window shown in a horizontally
                         split window
                      =1 preview window shown in a vertically split window.
                         Also affects the "previous window" (see  netrw-P )
                         in the same way.
                      The  g:netrw_alto  variable may be used to provide
                      additional splitting control:
                              g:netrw_preview g:netrw_alto result
                                       0             0      :aboveleft
                                       0             1      :belowright
                                       1             0      :topleft
                                       1             1      :botright
                      To control sizing, see  g:netrw_winsize

g:netrw_scpport       = "-P" : option to use to set port for scp
g:netrw_sshport       = "-p" : option to use to set port for ssh
```

```
  g:netrw_sepchr        =\0xff
                        =\0x01 for enc == euc-jp (and perhaps it should be for
                           others, too, please let me know)
                           Separates priority codes from filenames internally.
                           See  netrw-p12 .

   g:netrw_silent       =0 : transfers done normally
                        =1 : transfers done silently

  g:netrw_use_errorwindow  =1 : messages from netrw will use a separate one
                              line window.  This window provides reliable
                              delivery of messages. (default)
                           =0 : messages from netrw will use echoerr ;
                              messages don't always seem to show up this
                              way, but one doesn't have to quit the window.

  g:netrw_win95ftp      =1 if using Win95, will remove four trailing blank
                           lines that o/s's ftp "provides" on transfers
                        =0 force normal ftp behavior (no trailing line removal)

  g:netrw_cygwin        =1 assume scp under windows is from cygwin. Also
                           permits network browsing to use ls with time and
                           size sorting (default if windows)
                        =0 assume Windows' scp accepts windows-style paths
                           Network browsing uses dir instead of ls
                           This option is ignored if you're using unix

  g:netrw_use_nt_rcp    =0 don't use the rcp of WinNT, Win2000 and WinXP
                        =1 use WinNT's rcp in binary mode         (default)
```

PATHS netrw-path {{{2

Paths to files are generally user-directory relative for most protocols.
It is possible that some protocol will make paths relative to some
associated directory, however.

```
        example:  vim scp://user@host/somefile
        example:  vim scp://user@host/subdir1/subdir2/somefile
```

where "somefile" is in the "user"'s home directory. If you wish to get a
file using root-relative paths, use the full path:

```
        example:  vim scp://user@host//somefile
        example:  vim scp://user@host//subdir1/subdir2/somefile
```

==========

4. Network-Oriented File Transfer netrw-xfer {{{1

Network-oriented file transfer under Vim is implemented by a vim script
(<netrw.vim>) using plugin techniques. It currently supports both reading and
writing across networks using rcp, scp, ftp or ftp+<.netrc>, scp, fetch,
dav/cadaver, rsync, or sftp.

http is currently supported read-only via use of wget or fetch.

<netrw.vim> is a standard plugin which acts as glue between Vim and the
various file transfer programs. It uses autocommand events (BufReadCmd,
FileReadCmd, BufWriteCmd) to intercept reads/writes with url-like filenames.

        ex. vim ftp://hostname/path/to/file

The characters preceding the colon specify the protocol to use; in the
example, it's ftp. The <netrw.vim> script then formulates a command or a
series of commands (typically ftp) which it issues to an external program
(ftp, scp, etc) which does the actual file transfer/protocol. Files are read
from/written to a temporary file (under Unix/Linux, /tmp/...) which the
<netrw.vim> script will clean up.

Now, a word about Jan Minář's "FTP User Name and Password Disclosure"; first,
ftp is not a secure protocol. User names and passwords are transmitted "in
the clear" over the internet; any snooper tool can pick these up; this is not
a netrw thing, this is a ftp thing. If you're concerned about this, please
try to use scp or sftp instead.

Netrw re-uses the user id and password during the same vim session and so long
as the remote hostname remains the same.

Jan seems to be a bit confused about how netrw handles ftp; normally multiple
commands are performed in a "ftp session", and he seems to feel that the
uid/password should only be retained over one ftp session. However, netrw
does every ftp operation in a separate "ftp session"; so remembering the
uid/password for just one "ftp session" would be the same as not remembering
the uid/password at all. IMHO this would rapidly grow tiresome as one
browsed remote directories, for example.

On the other hand, thanks go to Jan M. for pointing out the many
vulnerabilities that netrw (and vim itself) had had in handling "crafted"
filenames. The shellescape() and fnameescape() functions were written in
response by Bram Moolenaar to handle these sort of problems, and netrw has
been modified to use them. Still, my advice is, if the "filename" looks like
a vim command that you aren't comfortable with having executed, don't open it.

                                netrw-putty netrw-pscp netrw-psftp
One may modify any protocol's implementing external application by setting a
variable (ex. scp uses the variable g:netrw_scp_cmd, which is defaulted to
"scp -q"). As an example, consider using PuTTY:

        let g:netrw_scp_cmd = '"c:\Program Files\PuTTY\pscp.exe" -q -batch'
        let g:netrw_sftp_cmd= '"c:\Program Files\PuTTY\psftp.exe"'

(note: it has been reported that windows 7 with putty v0.6's "-batch" option
       doesn't work, so its best to leave it off for that system)

See netrw-p8 for more about putty, pscp, psftp, etc.

Ftp, an old protocol, seems to be blessed by numerous implementations.
Unfortunately, some implementations are noisy (ie., add junk to the end of the

file). Thus, concerned users may decide to write a NetReadFixup() function
that will clean up after reading with their ftp. Some Unix systems (ie.,
FreeBSD) provide a utility called "fetch" which uses the ftp protocol but is
not noisy and more convenient, actually, for <netrw.vim> to use.
Consequently, if "fetch" is available (ie. executable), it may be preferable
to use it for ftp://... based transfers.

For rcp, scp, sftp, and http, one may use network-oriented file transfers
transparently; ie.

        vim rcp://[user@]machine/path
        vim scp://[user@]machine/path

If your ftp supports <.netrc>, then it too can be transparently used
if the needed triad of machine name, user id, and password are present in
that file. Your ftp must be able to use the <.netrc> file on its own, however.

        vim ftp://[user@]machine[[:#]portnumber]/path

Windows provides an ftp (typically c:\Windows\System32\ftp.exe) which uses
an option, -s:filename (filename can and probably should be a full path)
which contains ftp commands which will be automatically run whenever ftp
starts. You may use this feature to enter a user and password for one site:
        userid
        password
                                netrw-windows-netrc   netrw-windows-s
If g:netrw_ftp_cmd contains -s:[path/]MACHINE, then (on Windows machines
only) netrw will substitute the current machine name requested for ftp
connections for MACHINE. Hence one can have multiple machine.ftp files
containing login and password for ftp. Example:

    let g:netrw_ftp_cmd= 'c:\Windows\System32\ftp -s:C:\Users\Myself\MACHINE'
    vim ftp://myhost.somewhere.net/

will use a file

        C:\Users\Myself\myhost.ftp

Often, ftp will need to query the user for the userid and password.
The latter will be done "silently"; ie. asterisks will show up instead of
the actually-typed-in password. Netrw will retain the userid and password
for subsequent read/writes from the most recent transfer so subsequent
transfers (read/write) to or from that machine will take place without
additional prompting.

                                                              netrw-urls

Reading	Writing	Uses
DAV:		
dav://host/path		cadaver
:Nread dav://host/path	:Nwrite dav://host/path	cadaver
DAV + SSL:		

```
|  davs://host/path                |                              | cadaver    |
|  :Nread davs://host/path         | :Nwrite davs://host/path     | cadaver    |
+----------------------------------+------------------------------+------------+
| FETCH:                           |                              |            |
|  fetch://[user@]host/path        |                              |            |
|  fetch://[user@]host:http/path   |  Not Available               | fetch      |
|  :Nread fetch://[user@]host/path|                              |            |
+----------------------------------+------------------------------+------------+
| FILE:                            |                              |            |
|  file:///*                       | file:///*                    |            |
|  file://localhost/*              | file://localhost/*           |            |
+----------------------------------+------------------------------+------------+
| FTP:          (*3)               |              (*3)            |            |
|  ftp://[user@]host/path          | ftp://[user@]host/path       | ftp  (*2)  |
|  :Nread ftp://host/path          | :Nwrite ftp://host/path      | ftp+.netrc |
|  :Nread host path                | :Nwrite host path            | ftp+.netrc |
|  :Nread host uid pass path       | :Nwrite host uid pass path   | ftp        |
+----------------------------------+------------------------------+------------+
| HTTP: wget is executable: (*4)   |                              |            |
|  http://[user@]host/path         |        Not Available         | wget       |
+----------------------------------+------------------------------+------------+
| HTTP: fetch is executable (*4)   |                              |            |
|  http://[user@]host/path         |        Not Available         | fetch      |
+----------------------------------+------------------------------+------------+
| RCP:                             |                              |            |
|  rcp://[user@]host/path          | rcp://[user@]host/path       | rcp        |
+----------------------------------+------------------------------+------------+
| RSYNC:                           |                              |            |
|  rsync://[user@]host/path        | rsync://[user@]host/path     | rsync      |
|  :Nread rsync://host/path        | :Nwrite rsync://host/path    | rsync      |
|  :Nread rcp://host/path          | :Nwrite rcp://host/path      | rcp        |
+----------------------------------+------------------------------+------------+
| SCP:                             |                              |            |
|  scp://[user@]host/path          | scp://[user@]host/path       | scp        |
|  :Nread scp://host/path          | :Nwrite scp://host/path      | scp  (*1)  |
+----------------------------------+------------------------------+------------+
| SFTP:                            |                              |            |
|  sftp://[user@]host/path         | sftp://[user@]host/path      | sftp       |
|  :Nread sftp://host/path         | :Nwrite sftp://host/path     | sftp  (*1) |
+==================================+==============================+============+
```

(*1) For an absolute path use scp://machine//path.

(*2) if <.netrc> is present, it is assumed that it will
work with your ftp client. Otherwise the script will
prompt for user-id and password.

(*3) for ftp, "machine" may be machine#port or machine:port
if a different port is needed than the standard ftp port

(*4) for http:..., if wget is available it will be used. Otherwise,
if fetch is available it will be used.

Both the :Nread and the :Nwrite ex-commands can accept multiple filenames.

NETRC netrw-netrc

The <.netrc> file, typically located in your home directory, contains lines therein which map a hostname (machine name) to the user id and password you prefer to use with it.

The typical syntax for lines in a <.netrc> file is given as shown below. Ftp under Unix usually supports <.netrc>; ftp under Windows usually doesn't.

```
machine {full machine name} login {user-id} password "{password}"
default login {user-id} password "{password}"
```

Your ftp client must handle the use of <.netrc> on its own, but if the <.netrc> file exists, an ftp transfer will not ask for the user-id or password.

> Note:
> Since this file contains passwords, make very sure nobody else can read this file! Most programs will refuse to use a .netrc that is readable for others. Don't forget that the system administrator can still read the file! Ie. for Linux/Unix: chmod 600 .netrc

Even though Windows' ftp clients typically do not support .netrc, netrw has a work-around: see netrw-windows-s .

PASSWORD netrw-passwd

The script attempts to get passwords for ftp invisibly using inputsecret() , a built-in Vim function. See netrw-userpass for how to change the password after one has set it.

Unfortunately there doesn't appear to be a way for netrw to feed a password to scp. Thus every transfer via scp will require re-entry of the password. However, netrw-ssh-hack can help with this problem.

---

5. Activation netrw-activate {{{1

Network-oriented file transfers are available by default whenever Vim's 'nocompatible' mode is enabled. Netrw's script files reside in your system's plugin, autoload, and syntax directories; just the plugin/netrwPlugin.vim script is sourced automatically whenever you bring up vim. The main script in autoload/netrw.vim is only loaded when you actually use netrw. I suggest that, at a minimum, you have at least the following in your <.vimrc> customization file:

```
set nocp
if version >= 600
  filetype plugin indent on
endif
```

By also including the following lines in your .vimrc, one may have netrw immediately activate when using [g]vim without any filenames, showing the current directory:

```
" Augroup VimStartup:
augroup VimStartup
  au!
  au VimEnter * if expand("%") == "" | e . | endif
augroup END
```

==========

6. Transparent Remote File Editing netrw-transparent {{{1

Transparent file transfers occur whenever a regular file read or write (invoked via an :autocmd for BufReadCmd , BufWriteCmd , or SourceCmd events) is made. Thus one may read, write, or source files across networks just as easily as if they were local files!

```
vim ftp://[user@]machine/path
...
:wq
```

See netrw-activate for more on how to encourage your vim to use plugins such as netrw.

==========

7. Ex Commands netrw-ex {{{1

The usual read/write commands are supported. There are also a few additional commands available. Often you won't need to use Nwrite or Nread as shown in netrw-transparent (ie. simply use

```
  :e URL
  :r URL
  :w URL
```

instead, as appropriate) -- see netrw-urls . In the explanations below, a {netfile} is a URL to a remote file.

:Nwrite :Nw

:[range]Nw[rite] Write the specified lines to the current file as specified in b:netrw_lastfile. (related: netrw-nwrite)

:[range]Nw[rite] {netfile} [{netfile}]...
Write the specified lines to the {netfile}.

:Nread :Nr

:Nr[ead] Read the lines from the file specified in b:netrw_lastfile into the current buffer. (related: netrw-nread)

:Nr[ead] {netfile} {netfile}...
Read the {netfile} after the current line.

:Nsource :Ns
:Ns[ource] {netfile}
Source the {netfile}.
To start up vim using a remote .vimrc, one may use
the following (all on one line) (tnx to Antoine Mechelynck)
vim -u NORC -N
--cmd "runtime plugin/netrwPlugin.vim"
--cmd "source scp://HOSTNAME/.vimrc"
(related: netrw-source)

:call NetUserPass() NetUserPass()
If g:netrw_uid and s:netrw_passwd don't exist,
this function will query the user for them.
(related: netrw-userpass)

:call NetUserPass("userid")
This call will set the g:netrw_uid and, if
the password doesn't exist, will query the user for it.
(related: netrw-userpass)

:call NetUserPass("userid","passwd")
This call will set both the g:netrw_uid and s:netrw_passwd.
The user-id and password are used by ftp transfers. One may
effectively remove the user-id and password by using empty
strings (ie. "").
(related: netrw-userpass)

:NetrwSettings This command is described in netrw-settings -- used to
display netrw settings and change netrw behavior.

==========

8. Variables and Options netrw-var netrw-settings {{{1

(also see: netrw-options netrw-variables netrw-protocol
netrw-browser-settings netrw-browser-options)

The <netrw.vim> script provides several variables which act as options to
affect <netrw.vim>'s file transfer behavior. These variables typically may be
set in the user's <.vimrc> file: (see also netrw-settings netrw-protocol)
netrw-options

Netrw Options

Option	Meaning
b:netrw_col	Holds current cursor position (during NetWrite)
g:netrw_cygwin	=1 assume scp under windows is from cygwin (default/windows)
	=0 assume scp under windows accepts windows style paths (default/else)

```
g:netrw_ftp             =0 use default ftp           (uid password)
g:netrw_ftpmode         ="binary"                    (default)
                        ="ascii"                     (your choice)
g:netrw_ignorenetrc     =1                           (default)
                           if you have a <.netrc> file but you don't
                           want it used, then set this variable.  Its
                           mere existence is enough to cause <.netrc>
                           to be ignored.
b:netrw_lastfile        Holds latest method/machine/path.
b:netrw_line            Holds current line number    (during NetWrite)
g:netrw_silent          =0 transfers done normally
                        =1 transfers done silently
g:netrw_uid             Holds current user-id for ftp.
g:netrw_use_nt_rcp      =0 don't use WinNT/2K/XP's rcp (default)
                        =1 use WinNT/2K/XP's rcp, binary mode
g:netrw_win95ftp        =0 use unix-style ftp even if win95/98/ME/etc
                        =1 use default method to do ftp
------------------------------------------------------------------------
```

netrw-internal-variables

The script will also make use of the following variables internally, albeit temporarily.

Temporary Variables

Variable	Meaning
b:netrw_method	Index indicating rcp/ftp+.netrc/ftp
w:netrw_method	(same as b:netrw_method)
g:netrw_machine	Holds machine name parsed from input
b:netrw_fname	Holds filename being accessed

netrw-protocol

Netrw supports a number of protocols. These protocols are invoked using the variables listed below, and may be modified by the user.

Protocol Control Options

Option	Type	Setting	Meaning
netrw_ftp	variable	=doesn't exist	userid set by "user userid"
		=0	userid set by "user userid"
		=1	userid set by "userid"
NetReadFixup	function	=doesn't exist	no change
		=exists	Allows user to have files read via ftp automatically transformed however they wish by NetReadFixup()
g:netrw_dav_cmd	var	="cadaver"	if cadaver is executable

```
    g:netrw_dav_cmd      var   ="curl -o"      elseif curl is executable
    g:netrw_fetch_cmd    var   ="fetch -o"     if fetch is available
    g:netrw_ftp_cmd      var   ="ftp"
    g:netrw_http_cmd     var   ="fetch -o"     if      fetch is available
    g:netrw_http_cmd     var   ="wget -O"      else if wget  is available
    g:netrw_http_put_cmd var   ="curl -T"
     g:netrw_list_cmd      var   ="ssh USEPORT HOSTNAME ls -Fa"
    g:netrw_rcp_cmd      var   ="rcp"
    g:netrw_rsync_cmd    var   ="rsync"
     g:netrw_rsync_sep     var   ="/"            used to separate the hostname
                                                from the file spec
    g:netrw_scp_cmd      var   ="scp -q"
    g:netrw_sftp_cmd     var   ="sftp"
    ------------------------------------------------------------------------
```


The g:netrw_..._cmd options (g:netrw_ftp_cmd and g:netrw_sftp_cmd) specify the external program to use handle the ftp protocol. They may include command line options (such as -p for passive mode). Example:

```
        let g:netrw_ftp_cmd= "ftp -p"
```

Browsing is supported by using the g:netrw_list_cmd ; the substring "HOSTNAME" will be changed via substitution with whatever the current request is for a hostname.

Two options (g:netrw_ftp and netrw-fixup) both help with certain ftp's that give trouble . In order to best understand how to use these options if ftp is giving you troubles, a bit of discussion is provided on how netrw does ftp reads.

For ftp, netrw typically builds up lines of one of the following formats in a temporary file:

```
  IF g:netrw_ftp !exists or is not 1     IF g:netrw_ftp exists and is 1
  ----------------------------------     ------------------------------

       open machine [port]                    open machine [port]
       user userid password                   userid password
       [g:netrw_ftpmode]                      password
       [g:netrw_ftpextracmd]                  [g:netrw_ftpmode]
       get filename tempfile                  [g:netrw_extracmd]
                                              get filename tempfile
  ------------------------------------------------------------------------
```

The g:netrw_ftpmode and g:netrw_ftpextracmd are optional.

Netrw then executes the lines above by use of a filter:

```
        :%! {g:netrw_ftp_cmd} -i [-n]
```

where

```
        g:netrw_ftp_cmd is usually "ftp",
```

```
        -i tells ftp not to be interactive
        -n means don't use netrc and is used for Method #3 (ftp w/o <.netrc>)
```

If <.netrc> exists it will be used to avoid having to query the user for
userid and password. The transferred file is put into a temporary file.
The temporary file is then read into the main editing session window that
requested it and the temporary file deleted.

If your ftp doesn't accept the "user" command and immediately just demands a
userid, then try putting "let netrw_ftp=1" in your <.vimrc>.

netrw-cadaver

To handle the SSL certificate dialog for untrusted servers, one may pull
down the certificate and place it into /usr/ssl/cert.pem. This operation
renders the server treatment as "trusted".

netrw-fixup netreadfixup

If your ftp for whatever reason generates unwanted lines (such as AUTH
messages) you may write a NetReadFixup() function:

```
    function! NetReadFixup(method,line1,line2)
      " a:line1: first new line in current file
      " a:line2: last  new line in current file
      if     a:method == 1 "rcp
      elseif a:method == 2 "ftp + <.netrc>
      elseif a:method == 3 "ftp + machine,uid,password,filename
      elseif a:method == 4 "scp
      elseif a:method == 5 "http/wget
      elseif a:method == 6 "dav/cadaver
      elseif a:method == 7 "rsync
      elseif a:method == 8 "fetch
      elseif a:method == 9 "sftp
      else                 " complain
      endif
    endfunction
```

The NetReadFixup() function will be called if it exists and thus allows you to
customize your reading process. As a further example, <netrw.vim> contains
just such a function to handle Windows 95 ftp. For whatever reason, Windows
95's ftp dumps four blank lines at the end of a transfer, and so it is
desirable to automate their removal. Here's some code taken from <netrw.vim>
itself:

```
    if has("win95") && g:netrw_win95ftp
     fun! NetReadFixup(method, line1, line2)
       if method == 3   " ftp (no <.netrc>)
        let fourblanklines= line2 - 3
        silent fourblanklines.",".line2."g/^\s*/d"
       endif
     endfunction
    endif
```

(Related topics: ftp netrw-userpass netrw-start)

==
9. Browsing   netrw-browsing   netrw-browse   netrw-help {{{1
                         netrw-browser   netrw-dir   netrw-list

INTRODUCTION TO BROWSING   netrw-intro-browse {{{2
        (Quick References: netrw-quickmaps   netrw-quickcoms)

Netrw supports the browsing of directories on your local system and on remote
hosts; browsing includes listing files and directories, entering directories,
editing files therein, deleting files/directories, making new directories,
moving (renaming) files and directories, copying files and directories, etc.
One may mark files and execute any system command on them! The Netrw browser
generally implements the previous explorer's maps and commands for remote
directories, although details (such as pertinent global variable names)
necessarily differ. To browse a directory, simply "edit" it!

        vim /your/directory/
        vim .
        vim c:\your\directory\

(Related topics: netrw-cr   netrw-o   netrw-p   netrw-P   netrw-t
                  netrw-mf   netrw-mx   netrw-D   netrw-R   netrw-v)

The Netrw remote file and directory browser handles two protocols: ssh and
ftp. The protocol in the url, if it is ftp, will cause netrw also to use ftp
in its remote browsing. Specifying any other protocol will cause it to be
used for file transfers; but the ssh protocol will be used to do remote
browsing.

To use Netrw's remote directory browser, simply attempt to read a "file" with
a trailing slash and it will be interpreted as a request to list a directory:

        vim [protocol]://[user@]hostname/path/

where [protocol] is typically scp or ftp. As an example, try:

        vim ftp://ftp.home.vim.org/pub/vim/

For local directories, the trailing slash is not required. Again, because it's
easy to miss: to browse remote directories, the URL must terminate with a
slash!

If you'd like to avoid entering the password repeatedly for remote directory
listings with ssh or scp, see netrw-ssh-hack . To avoid password entry with
ftp, see netrw-netrc (if your ftp supports it).

There are several things you can do to affect the browser's display of files:

        * To change the listing style, press the "i" key (netrw-i).
          Currently there are four styles: thin, long, wide, and tree.
          To make that change "permanent", see g:netrw_liststyle .

        * To hide files (don't want to see those xyz~ files anymore?) see
           netrw-ctrl-h .

* Press s to sort files by name, time, or size.

See netrw-browse-cmds for all the things you can do with netrw!

netrw-getftype netrw-filigree netrw-ftype

The getftype() function is used to append a bit of filigree to indicate filetype to locally listed files:

```
directory  : /
executable : *
fifo       : |
links      : @
sockets    : =
```

The filigree also affects the g:netrw_sort_sequence .

QUICK HELP netrw-quickhelp {{{2

(Use ctrl-] to select a topic)

QUICK REFERENCE: MAPS netrw-quickmap netrw-quickmaps netrw-browse-maps {{{2

Map	Quick Explanation	Link
<F1>	Causes Netrw to issue help	
<cr>	Netrw will enter the directory or read the file	netrw-cr
<del>	Netrw will attempt to remove the file/directory	netrw-del
<c-h>	Edit file hiding list	netrw-ctrl-h
<c-l>	Causes Netrw to refresh the directory listing	netrw-ctrl-l
<c-r>	Browse using a gvim server	netrw-ctrl-r
<c-tab>	Shrink/expand a netrw/explore window	netrw-c-tab

-	Makes Netrw go up one directory	netrw--
a	Cycles between normal display, hiding (suppress display of files matching g:netrw_list_hide) and showing (display only files which match g:netrw_list_hide)	netrw-a
c	Make browsing directory the current directory	netrw-c
C	Setting the editing window	netrw-C
d	Make a directory	netrw-d
D	Attempt to remove the file(s)/directory(ies)	netrw-D
gb	Go to previous bookmarked directory	netrw-gb
gd	Force treatment as directory	netrw-gd
gf	Force treatment as file	netrw-gf
gh	Quick hide/unhide of dot-files	netrw-gh
gn	Make top of tree the directory below the cursor	netrw-gn
i	Cycle between thin, long, wide, and tree listings	netrw-i
I	Toggle the displaying of the banner	netrw-I
mb	Bookmark current directory	netrw-mb
mc	Copy marked files to marked-file target directory	netrw-mc
md	Apply diff to marked files (up to 3)	netrw-md
me	Place marked files on arg list and edit them	netrw-me
mf	Mark a file	netrw-mf
mF	Unmark files	netrw-mF
mg	Apply vimgrep to marked files	netrw-mg
mh	Toggle marked file suffices' presence on hiding list	netrw-mh
mm	Move marked files to marked-file target directory	netrw-mm
mp	Print marked files	netrw-mp
mr	Mark files using a shell-style regexp	netrw-mr
mt	Current browsing directory becomes markfile target	netrw-mt
mT	Apply ctags to marked files	netrw-mT
mu	Unmark all marked files	netrw-mu
mv	Apply arbitrary vim command to marked files	netrw-mv
mx	Apply arbitrary shell command to marked files	netrw-mx
mX	Apply arbitrary shell command to marked files en bloc	netrw-mX
mz	Compress/decompress marked files	netrw-mz
o	Enter the file/directory under the cursor in a new browser window. A horizontal split is used.	netrw-o
O	Obtain a file specified by cursor	netrw-O
p	Preview the file	netrw-p
P	Browse in the previously used window	netrw-P
qb	List bookmarked directories and history	netrw-qb
qf	Display information on file	netrw-qf
qF	Mark files using a quickfix list	netrw-qF
qL	Mark files using a location-list	netrw-qL
r	Reverse sorting order	netrw-r
R	Rename the designated file(s)/directory(ies)	netrw-R
s	Select sorting style: by name, time, or file size	netrw-s
S	Specify suffix priority for name-sorting	netrw-S
t	Enter the file/directory under the cursor in a new tab	netrw-t
u	Change to recently-visited directory	netrw-u
U	Change to subsequently-visited directory	netrw-U
v	Enter the file/directory under the cursor in a new browser window. A vertical split is used.	netrw-v
x	View file with an associated program	netrw-x
X	Execute filename under cursor via system()	netrw-X

```
          %    Open a new file in netrw's current directory          netrw-%

 netrw-mouse   netrw-leftmouse   netrw-middlemouse   netrw-rightmouse
      <leftmouse>     (gvim only) selects word under mouse as if a <cr>
                      had been pressed (ie. edit file, change directory)
      <middlemouse>   (gvim only) same as P selecting word under mouse;
                      see  netrw-P
      <rightmouse>    (gvim only) delete file/directory using word under
                      mouse
      <2-leftmouse>   (gvim only) when:
                       * in a netrw-selected file, AND
                       *  g:netrw_retmap  == 1       AND
                       * the user doesn't already have a <2-leftmouse>
                         mapping defined before netrw is autoloaded,
                      then a double clicked leftmouse button will return
                      to the netrw browser window.  See  g:netrw_retmap .
      <s-leftmouse>   (gvim only) like mf, will mark files.  Dragging
                      the shifted leftmouse will mark multiple files.
                      (see  netrw-mf )

      (to disable mouse buttons while browsing:  g:netrw_mousemaps )

                              netrw-quickcom   netrw-quickcoms
QUICK REFERENCE: COMMANDS     netrw-explore-cmds   netrw-browse-cmds  {{{2
    :NetrwClean[!]..................................... netrw-clean
    :NetrwSettings..................................... netrw-settings
    :Ntree............................................. netrw-ntree
    :Explore[!]  [dir] Explore directory of current file...... netrw-explore
    :Hexplore[!] [dir] Horizontal Split & Explore............. netrw-explore
    :Lexplore[!] [dir] Left Explorer Toggle................... netrw-explore
    :Nexplore[!] [dir] Vertical Split & Explore............... netrw-explore
    :Pexplore[!] [dir] Vertical Split & Explore............... netrw-explore
    :Rexplore          Return to Explorer..................... netrw-explore
    :Sexplore[!] [dir] Split & Explore directory ............. netrw-explore
    :Texplore[!] [dir] Tab & Explore.......................... netrw-explore
    :Vexplore[!] [dir] Vertical Split & Explore............... netrw-explore

BANNER DISPLAY                                                  netrw-I

One may toggle the displaying of the banner by pressing "I".

Also See:  g:netrw_banner

BOOKMARKING A DIRECTORY          netrw-mb   netrw-bookmark   netrw-bookmarks  {{{2

One may easily "bookmark" the currently browsed directory by using

        mb

                                                                  .netrwbook
Bookmarks are retained in between sessions of vim in a file called .netrwbook
as a  List , which is typically stored in the first directory on the user's
```

' runtimepath '; entries are kept in sorted order.

If there are marked files and/or directories, mb will add them to the bookmark list.

netrw-:NetrwMB

Addtionally, one may use :NetrwMB to bookmark files or directories.

:NetrwMB[!] [files/directories]

No bang: enters files/directories into Netrw's bookmark system

```
  No argument and in netrw buffer:
    if there are marked files        : bookmark marked files
    otherwise                        : bookmark file/directory under cursor
  No argument and not in netrw buffer: bookmarks current open file
  Has arguments                      :  glob() s each arg and bookmarks them
```

With bang: deletes files/directories from Netrw's bookmark system

The :NetrwMB command is available outside of netrw buffers (once netrw has been invoked in the session).

The file ".netrwbook" holds bookmarks when netrw (and vim) is not active. By default, its stored on the first directory on the user's 'runtimepath' .

Related Topics:

- netrw-gb how to return (go) to a bookmark
- netrw-mB how to delete bookmarks
- netrw-qb how to list bookmarks
- g:netrw_home controls where .netrwbook is kept

BROWSING netrw-enter netrw-cr {{{2

Browsing is simple: move the cursor onto a file or directory of interest. Hitting the <cr> (the return key) will select the file or directory. Directories will themselves be listed, and files will be opened using the protocol given in the original read request.

> CAVEAT: There are four forms of listing (see netrw-i). Netrw assumes that two or more spaces delimit filenames and directory names for the long and wide listing formats. Thus, if your filename or directory name has two or more sequential spaces embedded in it, or any trailing spaces, then you'll need to use the "thin" format to select it.

The g:netrw_browse_split option, which is zero by default, may be used to cause the opening of files to be done in a new window or tab instead of the default. When the option is one or two, the splitting will be taken horizontally or vertically, respectively. When the option is set to three, a <cr> will cause the file to appear in a new tab.

When using the gui (gvim), one may select a file by pressing the <leftmouse>

button. In addition, if

 * g:netrw_retmap == 1   AND   (its default value is 0)
 * in a netrw-selected file, AND
 * the user doesn't already have a <2-leftmouse> mapping defined before
   netrw is loaded

then a doubly-clicked leftmouse button will return to the netrw browser window.

Netrw attempts to speed up browsing, especially for remote browsing where one may have to enter passwords, by keeping and re-using previously obtained directory listing buffers. The g:netrw_fastbrowse variable is used to control this behavior; one may have slow browsing (no buffer re-use), medium speed browsing (re-use directory buffer listings only for remote directories), and fast browsing (re-use directory buffer listings as often as possible). The price for such re-use is that when changes are made (such as new files are introduced into a directory), the listing may become out-of-date. One may always refresh directory listing buffers by pressing ctrl-L (see netrw-ctrl-l).

netrw-s-cr

Squeezing the Current Tree-Listing Directory

When the tree listing style is enabled (see netrw-i) and one is using gvim, then the <s-cr> mapping may be used to squeeze (close) the directory currently containing the cursor.

Otherwise, one may remap a key combination of one's own choice to get this effect:

```
nmap <buffer> <silent> <nowait> YOURKEYCOMBO  <Plug>NetrwTreeSqueeze
```

Put this line in $HOME/ftplugin/netrw/netrw.vim; it needs to be generated for netrw buffers only.

Related topics:

netrw-ctrl-r	netrw-o	netrw-p
netrw-P	netrw-t	netrw-v

Associated setting variables:

g:netrw_browse_split	g:netrw_fastbrowse
g:netrw_ftp_list_cmd	g:netrw_ftp_sizelist_cmd
g:netrw_ftp_timelist_cmd	g:netrw_ssh_browse_reject
g:netrw_ssh_cmd	g:netrw_use_noswf

BROWSING WITH A HORIZONTALLY SPLIT WINDOW netrw-o netrw-horiz {{{2

Normally one enters a file or directory using the <cr>. However, the "o" map allows one to open a new window to hold the new directory listing or file. A horizontal split is used. (for vertical splitting, see netrw-v)

Normally, the o key splits the window horizontally with the new window and cursor at the top.

Associated setting variables: g:netrw_alto   g:netrw_winsize

Related topics:
        netrw-ctrl-r   netrw-o   netrw-p
        netrw-P   netrw-t   netrw-v
Associated setting variables:
    g:netrw_alto   control above/below splitting
    g:netrw_winsize control initial sizing

BROWSING WITH A NEW TAB netrw-t {{{2

Normally one enters a file or directory using the <cr>. The "t" map
allows one to open a new window holding the new directory listing or file in
a new tab.

If you'd like to have the new listing in a background tab, use gT .

Related topics:
        netrw-ctrl-r   netrw-o   netrw-p
        netrw-P   netrw-t   netrw-v
Associated setting variables:
    g:netrw_winsize control initial sizing

BROWSING WITH A VERTICALLY SPLIT WINDOW netrw-v {{{2

Normally one enters a file or directory using the <cr>. However, the "v" map
allows one to open a new window to hold the new directory listing or file. A
vertical split is used. (for horizontal splitting, see netrw-o)

Normally, the v key splits the window vertically with the new window and
cursor at the left.

There is only one tree listing buffer; using "v" on a displayed subdirectory
will split the screen, but the same buffer will be shown twice.

Related topics:
        netrw-ctrl-r   netrw-o   netrw-p
        netrw-P   netrw-t   netrw-v
Associated setting variables:
    g:netrw_altv   control right/left splitting
    g:netrw_winsize control initial sizing

BROWSING USING A GVIM SERVER netrw-ctrl-r {{{2

One may keep a browsing gvim separate from the gvim being used to edit.
Use the <c-r> map on a file (not a directory) in the netrw browser, and it
will use a gvim server (see g:netrw_servername). Subsequent use of <cr>
(see netrw-cr) will re-use that server for editing files.

Related topics:
        netrw-ctrl-r   netrw-o   netrw-p
        netrw-P   netrw-t   netrw-v

Associated setting variables:
        g:netrw_servername   : sets name of server
        g:netrw_browse_split : controls how <cr> will open files

CHANGE LISTING STYLE (THIN LONG WIDE TREE) netrw-i {{{2

The "i" map cycles between the thin, long, wide, and tree listing formats.

The thin listing format gives just the files' and directories' names.

The long listing is either based on the "ls" command via ssh for remote directories or displays the filename, file size (in bytes), and the time and date of last modification for local directories. With the long listing format, netrw is not able to recognize filenames which have trailing spaces. Use the thin listing format for such files.

The wide listing format uses two or more contiguous spaces to delineate filenames; when using that format, netrw won't be able to recognize or use filenames which have two or more contiguous spaces embedded in the name or any trailing spaces. The thin listing format will, however, work with such files. The wide listing format is the most compact.

The tree listing format has a top directory followed by files and directories preceded by one or more "|"s, which indicate the directory depth. One may open and close directories by pressing the <cr> key while atop the directory name.

One may make a preferred listing style your default; see g:netrw_liststyle .
As an example, by putting the following line in your .vimrc,

```
let g:netrw_liststyle= 3
```

the tree style will become your default listing style.

One typical way to use the netrw tree display is to:

```
vim .
(use i until a tree display shows)
navigate to a file
v  (edit as desired in vertically split window)
ctrl-w h  (to return to the netrw listing)
P (edit newly selected file in the previous window)
ctrl-w h  (to return to the netrw listing)
P (edit newly selected file in the previous window)
...etc...
```

Associated setting variables: g:netrw_liststyle g:netrw_maxfilenamelen
                               g:netrw_timefmt   g:netrw_list_cmd

CHANGE FILE PERMISSION netrw-gp {{{2

"gp" will ask you for a new permission for the file named under the cursor.
Currently, this only works for local files.

Associated setting variables: g:netrw_chgperm

CHANGING TO A BOOKMARKED DIRECTORY netrw-gb {{{2

To change directory back to a bookmarked directory, use

        {cnt}gb

Any count may be used to reference any of the bookmarks.
Note that netrw-qb shows both bookmarks and history; to go
to a location stored in the history see netrw-u and netrw-U .

Related Topics:
         netrw-mB how to delete bookmarks
         netrw-mb how to make a bookmark
         netrw-qb how to list bookmarks

CHANGING TO A PREDECESSOR DIRECTORY netrw-u netrw-updir {{{2

Every time you change to a new directory (new for the current session), netrw
will save the directory in a recently-visited directory history list (unless
 g:netrw_dirhistmax is zero; by default, it holds ten entries). With the "u"
map, one can change to an earlier directory (predecessor). To do the
opposite, see netrw-U .

The "u" map also accepts counts to go back in the history several slots. For
your convenience, qb (see netrw-qb) lists the history number which may be
used in that count.

                                                .netrwhist
See g:netrw_dirhistmax for how to control the quantity of history stack
slots. The file ".netrwhist" holds history when netrw (and vim) is not
active. By default, its stored on the first directory on the user's
 'runtimepath' .

Related Topics:
         netrw-U changing to a successor directory
         g:netrw_home controls where .netrwhist is kept

CHANGING TO A SUCCESSOR DIRECTORY netrw-U netrw-downdir {{{2

With the "U" map, one can change to a later directory (successor).
This map is the opposite of the "u" map. (see netrw-u) Use the
qb map to list both the bookmarks and history. (see netrw-qb)

The "U" map also accepts counts to go forward in the history several slots.

See g:netrw_dirhistmax for how to control the quantity of history stack
slots.

CHANGING TREE TOP netrw-ntree :Ntree netrw-gn {{{2

One may specify a new tree top for tree listings using

        :Ntree [dirname]

Without a "dirname", the current line is used (and any leading depth
information is elided).
With a "dirname", the specified directory name is used.

The "gn" map will take the word below the cursor and use that for
changing the top of the tree listing.

NETRW CLEAN netrw-clean :NetrwClean {{{2

With :NetrwClean one may easily remove netrw from one's home directory;
more precisely, from the first directory on your 'runtimepath' .

With :NetrwClean!, netrw will attempt to remove netrw from all directories on
your 'runtimepath' . Of course, you have to have write/delete permissions
correct to do this.

With either form of the command, netrw will first ask for confirmation
that the removal is in fact what you want to do. If netrw doesn't have
permission to remove a file, it will issue an error message.

CUSTOMIZING BROWSING WITH A SPECIAL HANDLER netrw-gx netrw-x netrw-handler {{{2 (also see netrw_filehandler)

Certain files, such as html, gif, jpeg, (word/office) doc, etc, files, are
best seen with a special handler (ie. a tool provided with your computer's
operating system). Netrw allows one to invoke such special handlers by:

        * when Exploring, hit the "x" key
        * when editing, hit gx with the cursor atop the special filename
         (latter not available if the g:netrw_nogx variable exists)

Netrw determines which special handler by the following method:

  * if g:netrw_browsex_viewer exists, then it will be used to attempt to
    view files. Examples of useful settings (place into your <.vimrc>):

        :let g:netrw_browsex_viewer= "kfmclient exec"
   or
        :let g:netrw_browsex_viewer= "xdg-open"

    If g:netrw_browsex_viewer == '-', then netrwFileHandlers#Invoke() will be
    used instead (see netrw_filehandler).

  * for Windows 32 or 64, the URL and FileProtocolHandler dlls are used.
  * for Gnome (with gnome-open): gnome-open is used.
  * for KDE (with kfmclient)   : kfmclient is used
  * for Mac OS X   : open is used.

  * otherwise the netrwFileHandler plugin is used.

The file's suffix is used by these various approaches to determine an
appropriate application to use to "handle" these files. Such things as
OpenOffice (*.sfx), visualization (*.jpg, *.gif, etc), and PostScript (*.ps,
*.eps) can be handled.

The gx mapping extends to all buffers; apply "gx" while atop a word and netrw
will apply a special handler to it (like "x" works when in a netrw buffer).
One may also use visual mode (see visual-start) to select the text that the
special handler will use. Normally gx uses expand("<cfile>") to pick up the
text under the cursor; one may change what expand() uses via the
 g:netrw_gx variable (options include "<cword>", "<cWORD>"). Note that
expand("<cfile>") depends on the 'isfname' setting. Alternatively, one may
select the text to be used by gx by making a visual selection (see
 visual-block) and then pressing gx.

Associated setting variables:
         g:netrw_gx   control how gx picks up the text under the cursor
         g:netrw_nogx   prevent gx map while editing
         g:netrw_suppress_gx_mesg controls gx's suppression of browser messages

                                                          netrw_filehandler

When g:netrw_browsex_viewer exists and is "-", then netrw will attempt to
handle the special file with a vim function. The "x" map applies a function
to a file, based on its extension. Of course, the handler function must exist
for it to be called!

 Ex. mypgm.html   x -> NFH_html("scp://user@host/some/path/mypgm.html")

       Users may write their own netrw File Handler functions to
        support more suffixes with special handling. See
        <autoload/netrwFileHandlers.vim> for examples on how to make
        file handler functions.   As an example:

        " NFH_suffix(filename)
        fun! NFH_suffix(filename)
        ..do something special with filename..
        endfun

These functions need to be defined in some file in your .vim/plugin
(vimfiles\plugin) directory. Vim's function names may not have punctuation
characters (except for the underscore) in them. To support suffices that
contain such characters, netrw will first convert the suffix using the
following table:

    @ -> AT   ! -> EXCLAMATION   % -> PERCENT
    : -> COLON   = -> EQUAL   ? -> QUESTION
    , -> COMMA   - -> MINUS   ; -> SEMICOLON
    $ -> DOLLAR   + -> PLUS   ~ -> TILDE

So, for example:

```
        file.rcs,v  ->  NFH_rcsCOMMAv()

If more such translations are necessary, please send me email:
                NdrOchip at ScampbellPfamily.AbizM - NOSPAM
with a request.

Associated setting variable:  g:netrw_browsex_viewer
```

DELETING BOOKMARKS

netrw-curdir
netrw-mB {{{2

To delete a bookmark, use

```
        {cnt}mB
```

If there are marked files, then mB will remove them from the
bookmark list.

Alternatively, one may use :NetrwMB! (see netrw-:NetrwMB).

```
        :NetrwMB! [files/directories]
```

Related Topics:
- netrw-gb how to return (go) to a bookmark
- netrw-mb how to make a bookmark
- netrw-qb how to list bookmarks

DELETING FILES OR DIRECTORIES netrw-delete netrw-D netrw-del {{{2

If files have not been marked with netrw-mf : (local marked file list)

    Deleting/removing files and directories involves moving the cursor to the
    file/directory to be deleted and pressing "D". Directories must be empty
    first before they can be successfully removed. If the directory is a
    softlink to a directory, then netrw will make two requests to remove the
    directory before succeeding. Netrw will ask for confirmation before doing
    the removal(s). You may select a range of lines with the "V" command
    (visual selection), and then pressing "D".

If files have been marked with netrw-mf : (local marked file list)

    Marked files (and empty directories) will be deleted; again, you'll be
    asked to confirm the deletion before it actually takes place.

A further approach is to delete files which match a pattern.

    * use :MF pattern (see netrw-:MF); then press "D".

    * use mr (see netrw-mr) which will prompt you for pattern.
      This will cause the matching files to be marked. Then,
      press "D".

If your vim has 7.4 with patch#1107, then g:netrw_localrmdir no longer


```
```

is used to remove directories; instead, vim's delete() is used with
the "d" option. Please note that only empty directories may be deleted
with the "D" mapping. Regular files are deleted with delete() , too.

The g:netrw_rm_cmd , g:netrw_rmf_cmd , and g:netrw_rmdir_cmd variables are
used to control the attempts to remove remote files and directories. The
g:netrw_rm_cmd is used with files, and its default value is:

```
        g:netrw_rm_cmd: ssh HOSTNAME rm
```

The g:netrw_rmdir_cmd variable is used to support the removal of directories.
Its default value is:

```
         g:netrw_rmdir_cmd : ssh HOSTNAME rmdir
```

If removing a directory fails with g:netrw_rmdir_cmd, netrw then will attempt
to remove it again using the g:netrw_rmf_cmd variable. Its default value is:

```
         g:netrw_rmf_cmd : ssh HOSTNAME rm -f
```

Related topics: netrw-d
Associated setting variable: g:netrw_localrmdir g:netrw_rm_cmd
g:netrw_rmdir_cmd g:netrw_ssh_cmd

netrw-explore netrw-hexplore netrw-nexplore netrw-pexplore
netrw-rexplore netrw-sexplore netrw-texplore netrw-vexplore netrw-lexplore

DIRECTORY EXPLORATION COMMANDS {{{2

```
     :[N]Explore[!]  [dir]... Explore directory of current file       :Explore
     :[N]Hexplore[!] [dir]... Horizontal Split & Explore              :Hexplore
     :[N]Lexplore[!] [dir]... Left Explorer Toggle                    :Lexplore
     :[N]Sexplore[!] [dir]... Split&Explore current file's directory  :Sexplore
     :[N]Vexplore[!] [dir]... Vertical   Split & Explore              :Vexplore
     :Texplore       [dir]... Tab & Explore                           :Texplore
     :Rexplore            ... Return to/from Explorer                 :Rexplore

     Used with :Explore **/pattern : (also see netrw-starstar )
     :Nexplore.............. go to next matching file                :Nexplore
     :Pexplore.............. go to previous matching file            :Pexplore
```

netrw-:Explore

```
:Explore  will open the local-directory browser on the current file's
          directory (or on directory [dir] if specified).  The window will be
          split only if the file has been modified and  'hidden'  is not set,
          otherwise the browsing window will take over that window.  Normally
          the splitting is taken horizontally.
          Also see:  netrw-:Rexplore
:Explore! is like :Explore, but will use vertical splitting.
```

netrw-:Hexplore

```
:Hexplore  [dir] does an :Explore with  :belowright  horizontal splitting.
:Hexplore! [dir] does an :Explore with  :aboveleft   horizontal splitting.
```

netrw-:Lexplore

:[N]Lexplore [dir] toggles a full height Explorer window on the left hand side of the current tab. It will open a netrw window on the current directory if [dir] is omitted; a :Lexplore [dir] will show the specified directory in the left-hand side browser display no matter from which window the command is issued.

By default, :Lexplore will change an uninitialized g:netrw_chgwin to 2; edits will thus preferentially be made in window#2.

The [N] specifies a g:netrw_winsize just for the new :Lexplore window.

Those who like this method often also like tree style displays; see g:netrw_liststyle .

:[N]Lexplore! [dir] is similar to :Lexplore, except that the full-height Explorer window will open on the right hand side and an uninitialized g:netrw_chgwin will be set to 1 (eg. edits will preferentially occur in the leftmost window).

Also see: netrw-C g:netrw_browse_split g:netrw_wiw
netrw-p netrw-P g:netrw_chgwin
netrw-c-tab g:netrw_winsize

netrw-:Sexplore

:[N]Sexplore will always split the window before invoking the local-directory browser. As with Explore, the splitting is normally done horizontally.
:[N]Sexplore! [dir] is like :Sexplore, but the splitting will be done vertically.

netrw-:Texplore

:Texplore [dir] does a :tabnew before generating the browser window

netrw-:Vexplore

:[N]Vexplore [dir] does an :Explore with :leftabove vertical splitting.
:[N]Vexplore! [dir] does an :Explore with :rightbelow vertical splitting.

The optional parameters are:

[N]: This parameter will override g:netrw_winsize to specify the quantity of rows and/or columns the new explorer window should have. Otherwise, the g:netrw_winsize variable, if it has been specified by the user, is used to control the quantity of rows and/or columns new explorer windows should have.

[dir]: By default, these explorer commands use the current file's directory. However, one may explicitly provide a directory (path) to use instead; ie.

:Explore /some/path

netrw-:Rexplore

:Rexplore This command is a little different from the other Explore commands

as it doesn't necessarily open an Explorer window.

Return to Explorer
When one edits a file using netrw which can occur, for example, when pressing <cr> while the cursor is atop a filename in a netrw browser window, a :Rexplore issued while editing that file will return the display to that of the last netrw browser display in that window.

Return from Explorer
Conversely, when one is editing a directory, issuing a :Rexplore will return to editing the file that was last edited in that window.

The <2-leftmouse> map (which is only available under gvim and cooperative terms) does the same as :Rexplore.

Also see: g:netrw_alto g:netrw_altv g:netrw_winsize

netrw-star netrw-starpat netrw-starstar netrw-starstarpat netrw-grep
EXPLORING WITH STARS AND PATTERNS {{{2

When Explore, Sexplore, Hexplore, or Vexplore are used with one of the following four patterns Explore generates a list of files which satisfy the request for the local file system. These exploration patterns will not work with remote file browsing.

```
    */filepat   files in current directory which satisfy filepat
    **/filepat  files in current directory or below which satisfy the
                file pattern
    *//pattern  files in the current directory which contain the
                pattern (vimgrep is used)
    **//pattern files in the current directory or below which contain
                the pattern (vimgrep is used)
```

<
The cursor will be placed on the first file in the list. One may then continue to go to subsequent files on that list via :Nexplore or to preceding files on that list with :Pexplore . Explore will update the directory and place the cursor appropriately.

A plain

```
        :Explore
```

will clear the explore list.

If your console or gui produces recognizable shift-up or shift-down sequences, then you'll likely find using shift-downarrow and shift-uparrow convenient. They're mapped by netrw as follows:

```
        <s-down>  == Nexplore, and
        <s-up>    == Pexplore.
```

As an example, consider

```
:Explore */*.c
:Nexplore
:Nexplore
:Pexplore
```

The status line will show, on the right hand side of the status line, a message like "Match 3 of 20".

Associated setting variables:

g:netrw_keepdir	g:netrw_browse_split
g:netrw_fastbrowse	g:netrw_ftp_browse_reject
g:netrw_ftp_list_cmd	g:netrw_ftp_sizelist_cmd
g:netrw_ftp_timelist_cmd	g:netrw_list_cmd
g:netrw_liststyle	

DISPLAYING INFORMATION ABOUT FILE netrw-qf {{{2

With the cursor atop a filename, pressing "qf" will reveal the file's size and last modification timestamp. Currently this capability is only available for local files.

EDIT FILE OR DIRECTORY HIDING LIST netrw-ctrl-h netrw-edithide {{{2

The "<ctrl-h>" map brings up a requestor allowing the user to change the file/directory hiding list contained in g:netrw_list_hide . The hiding list consists of one or more patterns delimited by commas. Files and/or directories satisfying these patterns will either be hidden (ie. not shown) or be the only ones displayed (see netrw-a).

The "gh" mapping (see netrw-gh) quickly alternates between the usual hiding list and the hiding of files or directories that begin with ".".

As an example,

```
let g:netrw_list_hide= '\(^\|\s\s\)\zs\.\S\+'
```

Effectively, this makes the effect of a netrw-gh command the initial setting. What it means:

```
\(^\|\s\s\)   : if the line begins with the following, -or-
                two consecutive spaces are encountered
\zs           : start the hiding match now
\.            : if it now begins with a dot
\S\+          : and is followed by one or more non-whitespace
                characters
```

Associated setting variables: g:netrw_hide g:netrw_list_hide
Associated topics: netrw-a netrw-gh netrw-mh

EDITING THE SORTING SEQUENCE netrw-sort-sequence netrw-S netrw-sortsequence {{{2

When "Sorted by" is name, one may specify priority via the sorting sequence (g:netrw_sort_sequence). The sorting sequence typically prioritizes the

name-listing by suffix, although any pattern will do. Patterns are delimited by commas. The default sorting sequence is (all one line):

For Unix:
```
'[\/]$,\<core\%(\.\d\+\)\=,\.[a-np-z]$,\.h$,\.c$,\.cpp$,*,\.o$,\.obj$,
\.info$,\.swp$,\.bak$,\~$'
```

Otherwise:
```
'[\/]$,\.[a-np-z]$,\.h$,\.c$,\.cpp$,*,\.o$,\.obj$,\.info$,
\.swp$,\.bak$,\~$'
```

The lone * is where all filenames not covered by one of the other patterns will end up. One may change the sorting sequence by modifying the g:netrw_sort_sequence variable (either manually or in your <.vimrc>) or by using the "S" map.

Related topics: netrw-s netrw-S
Associated setting variables: g:netrw_sort_sequence g:netrw_sort_options

EXECUTING FILE UNDER CURSOR VIA SYSTEM() netrw-X {{{2

Pressing X while the cursor is atop an executable file will yield a prompt using the filename asking for any arguments. Upon pressing a [return], netrw will then call system() with that command and arguments. The result will be displayed by :echomsg , and so :messages will repeat display of the result. Ansi escape sequences will be stripped out.

See cmdline-window for directions for more on how to edit the arguments.

FORCING TREATMENT AS A FILE OR DIRECTORY netrw-gd netrw-gf {{{2

Remote symbolic links (ie. those listed via ssh or ftp) are problematic in that it is difficult to tell whether they link to a file or to a directory.

To force treatment as a file: use
```
gf
```

To force treatment as a directory: use
```
gd
```

GOING UP netrw-- {{{2

To go up a directory, press "-" or press the <cr> when atop the ../ directory entry in the listing.

Netrw will use the command in g:netrw_list_cmd to perform the directory listing operation after changing HOSTNAME to the host specified by the user-prpvided url. By default netrw provides the command as:

```
ssh HOSTNAME ls -FLa
```

where the HOSTNAME becomes the [user@]hostname as requested by the attempt to read. Naturally, the user may override this command with whatever is preferred. The NetList function which implements remote browsing expects that directories will be flagged by a trailing slash.

HIDING FILES OR DIRECTORIES netrw-a netrw-hiding {{{2

Netrw's browsing facility allows one to use the hiding list in one of three ways: ignore it, hide files which match, and show only those files which match.

If no files have been marked via netrw-mf :

The "a" map allows the user to cycle through the three hiding modes.

The g:netrw_list_hide variable holds a comma delimited list of patterns based on regular expressions (ex. ^.*\.obj$,^\.) which specify the hiding list. (also see netrw-ctrl-h) To set the hiding list, use the <c-h> map. As an example, to hide files which begin with a ".", one may use the <c-h> map to set the hiding list to '^\..*' (or one may put let g:netrw_list_hide= '^\..*' in one's <.vimrc>). One may then use the "a" key to show all files, hide matching files, or to show only the matching files.

```
        Example: \.[ch]$
                This hiding list command will hide/show all *.c and *.h files.

        Example: \.c$,\.h$
                This hiding list command will also hide/show all *.c and *.h
                files.
```

Don't forget to use the "a" map to select the mode (normal/hiding/show) you want!

If files have been marked using netrw-mf , then this command will:

```
  if showing all files or non-hidden files:
   modify the g:netrw_list_hide list by appending the marked files to it
   and showing only non-hidden files.

  else if showing hidden files only:
   modify the g:netrw_list_hide list by removing the marked files from it
   and showing only non-hidden files.
  endif
```

netrw-gh netrw-hide

As a quick shortcut, one may press

```
        gh
```

to toggle between hiding files which begin with a period (dot) and not hiding them.

Associated setting variables: g:netrw_list_hide g:netrw_hide
Associated topics: netrw-a netrw-ctrl-h netrw-mh

netrw-gitignore

Netrw provides a helper function 'netrw_gitignore#Hide()' that, when used with g:netrw_list_hide automatically hides all git-ignored files.

'netrw_gitignore#Hide' searches for patterns in the following files:

```
'./.gitignore'
'./.git/info/exclude'
global gitignore file: `git config --global core.excludesfile`
system gitignore file: `git config --system core.excludesfile`
```

Files that do not exist, are ignored.
Git-ignore patterns are taken from existing files, and converted to patterns for hiding files. For example, if you had '*.log' in your '.gitignore' file, it would be converted to '.*\.log'.

To use this function, simply assign its output to g:netrw_list_hide option.

```
Example: let g:netrw_list_hide= netrw_gitignore#Hide()
        Git-ignored files are hidden in Netrw.

Example: let g:netrw_list_hide= netrw_gitignore#Hide('my_gitignore_file')
        Function can take additional files with git-ignore patterns.

Example: g:netrw_list_hide= netrw_gitignore#Hide() . '.*\.swp$'
        Combining 'netrw_gitignore#Hide' with custom patterns.
```

IMPROVING BROWSING

netrw-listhack netrw-ssh-hack {{{2

Especially with the remote directory browser, constantly entering the password is tedious.

For Linux/Unix systems, the book "Linux Server Hacks - 100 industrial strength tips & tools" by Rob Flickenger (O'Reilly, ISBN 0-596-00461-3) gives a tip for setting up no-password ssh and scp and discusses associated security issues. It used to be available at http://hacks.oreilly.com/pub/h/66 , but apparently that address is now being redirected to some "hackzine". I'll attempt a summary based on that article and on a communication from Ben Schmidt:

1. Generate a public/private key pair on the local machine (ssh client):
   ```
   ssh-keygen -t rsa
   (saving the file in ~/.ssh/id_rsa as prompted)
   ```

2. Just hit the <CR> when asked for passphrase (twice) for no passphrase. If you do use a passphrase, you will also need to use ssh-agent so you only have to type the passphrase once per session. If you don't use a passphrase, simply logging onto your local computer or getting access to the keyfile in any way will suffice to access any ssh servers which have that key authorized for login.

3. This creates two files:
        ~/.ssh/id_rsa
        ~/.ssh/id_rsa.pub

4. On the target machine (ssh server):
        cd
        mkdir -p .ssh
        chmod 0700 .ssh

5. On your local machine (ssh client): (one line)
        ssh {serverhostname}
          cat '>>' '~/.ssh/authorized_keys2' < ~/.ssh/id_rsa.pub

   or, for OpenSSH, (one line)
        ssh {serverhostname}
          cat '>>' '~/.ssh/authorized_keys' < ~/.ssh/id_rsa.pub

You can test it out with
        ssh {serverhostname}
and you should be log onto the server machine without further need to type
anything.

If you decided to use a passphrase, do:
        ssh-agent $SHELL
        ssh-add
        ssh {serverhostname}
You will be prompted for your key passphrase when you use ssh-add, but not
subsequently when you use ssh. For use with vim, you can use
        ssh-agent vim
and, when next within vim, use
        :!ssh-add
Alternatively, you can apply ssh-agent to the terminal you're planning on
running vim in:
        ssh-agent xterm &
and do ssh-add whenever you need.

For Windows, folks on the vim mailing list have mentioned that Pageant helps
with avoiding the constant need to enter the password.

Kingston Fung wrote about another way to avoid constantly needing to enter
passwords:

    In order to avoid the need to type in the password for scp each time, you
    provide a hack in the docs to set up a non password ssh account. I found a
    better way to do that: I can use a regular ssh account which uses a
    password to access the material without the need to key-in the password
    each time. It's good for security and convenience. I tried ssh public key
    authorization + ssh-agent, implementing this, and it works! Here are two
    links with instructions:

    http://www.ibm.com/developerworks/library/l-keyc2/
    http://sial.org/howto/openssh/publickey-auth/

Ssh hints:

Thomer Gil has provided a hint on how to speed up netrw+ssh:
http://thomer.com/howtos/netrw_ssh.html

Alex Young has several hints on speeding ssh up:
http://usevim.com/2012/03/16/editing-remote-files/

LISTING BOOKMARKS AND HISTORY netrw-qb netrw-listbookmark {{{2

Pressing "qb" (query bookmarks) will list both the bookmarked directories and directory traversal history.

Related Topics:

netrw-gb	how to return (go) to a bookmark
netrw-mb	how to make a bookmark
netrw-mB	how to delete bookmarks
netrw-u	change to a predecessor directory via the history stack
netrw-U	change to a successor directory via the history stack

MAKING A NEW DIRECTORY netrw-d {{{2

With the "d" map one may make a new directory either remotely (which depends on the global variable g:netrw_mkdir_cmd) or locally (which depends on the global variable g:netrw_localmkdir). Netrw will issue a request for the new directory's name. A bare <CR> at that point will abort the making of the directory. Attempts to make a local directory that already exists (as either a file or a directory) will be detected, reported on, and ignored.

Related topics: netrw-D
Associated setting variables: g:netrw_localmkdir g:netrw_mkdir_cmd g:netrw_remote_mkdir netrw-%

MAKING THE BROWSING DIRECTORY THE CURRENT DIRECTORY netrw-cd {{{2

By default, g:netrw_keepdir is 1. This setting means that the current directory will not track the browsing directory. (done for backwards compatibility with v6's file explorer).

Setting g:netrw_keepdir to 0 tells netrw to make vim's current directory track netrw's browsing directory.

However, given the default setting for g:netrw_keepdir of 1 where netrw maintains its own separate notion of the current directory, in order to make the two directories the same, use the "c" map (just type c). That map will set Vim's notion of the current directory to netrw's current browsing directory.

netrw-c : This map's name has been changed from "c" to cd (see netrw-cd). This change was done to allow for netrw-cb and netrw-cB maps.

Associated setting variable: g:netrw_keepdir

MARKING FILES netrw-:MF netrw-mf {{{2

(also see netrw-mr)

Netrw provides several ways to mark files:

* One may mark files with the cursor atop a filename and then pressing "mf".

* With gvim, in addition one may mark files with <s-leftmouse>. (see netrw-mouse)

* One may use the :MF command, which takes a list of files (for local directories, the list may include wildcards -- see glob())

```
:MF *.c
```

(Note that :MF uses <f-args> to break the line at spaces)

* Mark files using the argument-list (netrw-mA)

* Mark files based upon a location-list (netrw-qL)

* Mark files based upon the quickfix list (netrw-qF) (quickfix-error-lists)

The following netrw maps make use of marked files:

netrw-a	Hide marked files/directories
netrw-D	Delete marked files/directories
netrw-ma	Move marked files' names to arglist
netrw-mA	Move arglist filenames to marked file list
netrw-mb	Append marked files to bookmarks
netrw-mB	Delete marked files from bookmarks
netrw-mc	Copy marked files to target
netrw-md	Apply vimdiff to marked files
netrw-me	Edit marked files
netrw-mF	Unmark marked files
netrw-mg	Apply vimgrep to marked files
netrw-mm	Move marked files to target
netrw-mp	Print marked files
netrw-ms	Netrw will source marked files
netrw-mt	Set target for netrw-mm and netrw-mc
netrw-mT	Generate tags using marked files
netrw-mv	Apply vim command to marked files
netrw-mx	Apply shell command to marked files
netrw-mX	Apply shell command to marked files, en bloc
netrw-mz	Compress/Decompress marked files
netrw-O	Obtain marked files
netrw-R	Rename marked files

One may unmark files one at a time the same way one marks them; ie. place

the cursor atop a marked file and press "mf". This process also works
with <s-leftmouse> using gvim. One may unmark all files by pressing
"mu" (see netrw-mu).

Marked files are highlighted using the "netrwMarkFile" highlighting group,
which by default is linked to "Identifier" (see Identifier under
 group-name). You may change the highlighting group by putting something
like

```
        highlight clear netrwMarkFile
        hi link netrwMarkFile ..whatever..
```

into $HOME/.vim/after/syntax/netrw.vim .

If the mouse is enabled and works with your vim, you may use <s-leftmouse> to
mark one or more files. You may mark multiple files by dragging the shifted
leftmouse. (see netrw-mouse)

                        markfilelist   global_markfilelist   local_markfilelist
All marked files are entered onto the global marked file list; there is only
one such list. In addition, every netrw buffer also has its own buffer-local
marked file list; since netrw buffers are associated with specific
directories, this means that each directory has its own local marked file
list. The various commands which operate on marked files use one or the other
of the marked file lists.

Known Problem: if one is using tree mode (g:netrw_liststyle) and several
directories have files with the same name, then marking such a file will
result in all such files being highlighted as if they were all marked. The
 markfilelist , however, will only have the selected file in it. This problem
is unlikely to be fixed.

UNMARKING FILES netrw-mF {{{2

        (also see netrw-mf , netrw-mu)

The "mF" command will unmark all files in the current buffer. One may also use
mf (netrw-mf) on a specific, already marked, file to unmark just that file.

MARKING FILES BY LOCATION LIST netrw-qL {{{2

        (also see netrw-mf)

One may convert location-list s into a marked file list using "qL".
You may then proceed with commands such as me (netrw-me) to edit them.

MARKING FILES BY QUICKFIX LIST netrw-qF {{{2

        (also see netrw-mf)

One may convert quickfix-error-lists into a marked file list using "qF".
You may then proceed with commands such as me (netrw-me) to edit them.
Quickfix error lists are generated, for example, by calls to :vimgrep .

MARKING FILES BY REGULAR EXPRESSION netrw-mr {{{2

(also see netrw-mf)

One may also mark files by pressing "mr"; netrw will then issue a prompt, "Enter regexp: ". You may then enter a shell-style regular expression such as *.c$ (see glob()). For remote systems, glob() doesn't work -- so netrw converts "*" into ".*" (see regexp) and marks files based on that. In the future I may make it possible to use regexp s instead of glob()-style expressions (yet-another-option).

See cmdline-window for directions on more on how to edit the regular expression.

MARKED FILES, ARBITRARY VIM COMMAND netrw-mv {{{2

(See netrw-mf and netrw-mr for how to mark files)
(uses the local marked-file list)

The "mv" map causes netrw to execute an arbitrary vim command on each file on the local marked file list, individually:

* 1split
* sil! keepalt e file
* run vim command
* sil! keepalt wq!

A prompt, "Enter vim command: ", will be issued to elicit the vim command you wish used. See cmdline-window for directions for more on how to edit the command.

MARKED FILES, ARBITRARY SHELL COMMAND netrw-mx {{{2

(See netrw-mf and netrw-mr for how to mark files)
(uses the local marked-file list)

Upon activation of the "mx" map, netrw will query the user for some (external) command to be applied to all marked files. All "%"s in the command will be substituted with the name of each marked file in turn. If no "%"s are in the command, then the command will be followed by a space and a marked filename.

Example:

```
(mark files)
mx
Enter command: cat

The result is a series of shell commands:
cat 'file1'
cat 'file2'
...
```

MARKED FILES, ARBITRARY SHELL COMMAND, EN BLOC netrw-mX {{{2

(See netrw-mf and netrw-mr for how to mark files)
(uses the global marked-file list)

Upon activation of the 'mX' map, netrw will query the user for some (external)
command to be applied to all marked files on the global marked file list. The
"en bloc" means that one command will be executed on all the files at once:

```
command files
```

This approach is useful, for example, to select files and make a tarball:

```
(mark files)
mX
Enter command: tar cf mynewtarball.tar
```

The command that will be run with this example:

```
tar cf mynewtarball.tar 'file1' 'file2' ...
```

MARKED FILES: ARGUMENT LIST netrw-ma netrw-mA
(See netrw-mf and netrw-mr for how to mark files)
(uses the global marked-file list)

Using ma, one moves filenames from the marked file list to the argument list.
Using mA, one moves filenames from the argument list to the marked file list.

See Also: netrw-cb netrw-cB netrw-qF argument-list :args

MARKED FILES: BUFFER LIST netrw-cb netrw-cB
(See netrw-mf and netrw-mr for how to mark files)
(uses the global marked-file list)

Using cb, one moves filenames from the marked file list to the buffer list.
Using cB, one copies filenames from the buffer list to the marked file list.

See Also: netrw-ma netrw-mA netrw-qF buffer-list :buffers

MARKED FILES: COMPRESSION AND DECOMPRESSION netrw-mz {{{2
(See netrw-mf and netrw-mr for how to mark files)
(uses the local marked file list)

If any marked files are compressed, then "mz" will decompress them.
If any marked files are decompressed, then "mz" will compress them
using the command specified by g:netrw_compress ; by default,
that's "gzip".

For decompression, netrw uses a Dictionary of suffices and their
associated decompressing utilities; see g:netrw_decompress .

Remember that one can mark multiple files by regular expression
(see netrw-mr); this is particularly useful to facilitate compressing and
decompressing a large number of files.

Associated setting variables: g:netrw_compress   g:netrw_decompress

MARKED FILES: COPYING   netrw-mc {{{2
            (See netrw-mf and netrw-mr for how to mark files)
                      (Uses the global marked file list)

Select a target directory with mt (netrw-mt). Then change directory,
select file(s) (see netrw-mf), and press "mc". The copy is done
from the current window (where one does the mf) to the target.

If one does not have a target directory set with netrw-mt , then netrw
will query you for a directory to copy to.

One may also copy directories and their contents (local only) to a target
directory.

Associated setting variables:
         g:netrw_localcopycmd   g:netrw_localcopycmdopt
         g:netrw_localcopydircmd   g:netrw_localcopydircmdopt
         g:netrw_ssh_cmd

MARKED FILES: DIFF   netrw-md {{{2
            (See netrw-mf and netrw-mr for how to mark files)
                      (uses the global marked file list)

Use vimdiff to visualize difference between selected files (two or
three may be selected for this). Uses the global marked file list.

MARKED FILES: EDITING   netrw-me {{{2
            (See netrw-mf and netrw-mr for how to mark files)
                      (uses the global marked file list)

The "me" command will place the marked files on the arglist and commence
editing them. One may return the to explorer window with :Rexplore .
(use :n and :p to edit next and previous files in the arglist)

MARKED FILES: GREP   netrw-mg {{{2
            (See netrw-mf and netrw-mr for how to mark files)
                      (uses the global marked file list)

The "mg" command will apply :vimgrep to the marked files.
The command will ask for the requested pattern; one may then enter:

        /pattern/[g][j]
        ! /pattern/[g][j]
        pattern

With /pattern/, editing will start with the first item on the quickfix list
that vimgrep sets up (see :copen , :cnext , :cprevious , :cclose). The :vimgrep
command is in use, so without 'g' each line is added to quickfix list only
once; with 'g' every match is included.

With /pattern/j, "mg" will winnow the current marked file list to just those
marked files also possessing the specified pattern. Thus, one may use

```
        mr ...file-pattern...
        mg /pattern/j
```

to have a marked file list satisfying the file-pattern but also restricted to
files containing some desired pattern.

MARKED FILES: HIDING AND UNHIDING BY SUFFIX netrw-mh {{{2
            (See netrw-mf and netrw-mr for how to mark files)
                      (uses the local marked file list)

The "mh" command extracts the suffices of the marked files and toggles their
presence on the hiding list. Please note that marking the same suffix
this way multiple times will result in the suffix's presence being toggled
for each file (so an even quantity of marked files having the same suffix
is the same as not having bothered to select them at all).

Related topics: netrw-a   g:netrw_list_hide

MARKED FILES: MOVING netrw-mm {{{2
            (See netrw-mf and netrw-mr for how to mark files)
                      (uses the global marked file list)

        WARNING: moving files is more dangerous than copying them.
        A file being moved is first copied and then deleted; if the
        copy operation fails and the delete succeeds, you will lose
        the file. Either try things out with unimportant files
        first or do the copy and then delete yourself using mc and D.
        Use at your own risk!

Select a target directory with mt (netrw-mt). Then change directory,
select file(s) (see netrw-mf), and press "mm". The move is done
from the current window (where one does the mf) to the target.

Associated setting variable: g:netrw_localmovecmd   g:netrw_ssh_cmd

MARKED FILES: PRINTING netrw-mp {{{2
            (See netrw-mf and netrw-mr for how to mark files)
                      (uses the local marked file list)

When "mp" is used, netrw will apply the :hardcopy command to marked files.
What netrw does is open each file in a one-line window, execute hardcopy, then
close the one-line window.

MARKED FILES: SOURCING netrw-ms {{{2
            (See netrw-mf and netrw-mr for how to mark files)
                      (uses the local marked file list)

With "ms", netrw will source the marked files (using vim's :source command)

MARKED FILES: SETTING THE TARGET DIRECTORY netrw-mt {{{2

(See netrw-mf and netrw-mr for how to mark files)

Set the marked file copy/move-to target (see netrw-mc and netrw-mm):

* If the cursor is atop a file name, then the netrw window's currently displayed directory is used for the copy/move-to target.

* Also, if the cursor is in the banner, then the netrw window's currently displayed directory is used for the copy/move-to target. Unless the target already is the current directory. In which case, typing "mf" clears the target.

* However, if the cursor is atop a directory name, then that directory is used for the copy/move-to target

* One may use the :MT [directory] command to set the target netrw-:MT This command uses <q-args> , so spaces in the directory name are permitted without escaping.

* With mouse-enabled vim or with gvim, one may select a target by using <c-leftmouse>

There is only one copy/move-to target at a time in a vim session; ie. the target is a script variable (see s:var) and is shared between all netrw windows (in an instance of vim).

When using menus and gvim, netrw provides a "Targets" entry which allows one to pick a target from the list of bookmarks and history.

Related topics:
Marking Files..... netrw-mf
Marking Files by Regular Expression..... netrw-mr
Marked Files: Target Directory Using Bookmarks..... netrw-Tb
Marked Files: Target Directory Using History..... netrw-Th

MARKED FILES: TAGGING netrw-mT {{{2
(See netrw-mf and netrw-mr for how to mark files)
(uses the global marked file list)

The "mT" mapping will apply the command in g:netrw_ctags (by default, it is "ctags") to marked files. For remote browsing, in order to create a tags file netrw will use ssh (see g:netrw_ssh_cmd), and so ssh must be available for this to work on remote systems. For your local system, see ctags on how to get a version. I myself use hdrtags, currently available at http://www.drchip.org/astronaut/src/index.html , and have

```
let g:netrw_ctags= "hdrtag"
```

in my <.vimrc>.

When a remote set of files are tagged, the resulting tags file is "obtained"; ie. a copy is transferred to the local system's directory. The now local tags file is then modified so that one may use it through the network. The

modification made concerns the names of the files in the tags; each filename is
preceded by the netrw-compatible URL used to obtain it. When one subsequently
uses one of the go to tag actions (tags), the URL will be used by netrw to
edit the desired file and go to the tag.

Associated setting variables: g:netrw_ctags   g:netrw_ssh_cmd

MARKED FILES: TARGET DIRECTORY USING BOOKMARKS   netrw-Tb {{{2

Sets the marked file copy/move-to target.

The netrw-qb map will give you a list of bookmarks (and history).
One may choose one of the bookmarks to become your marked file
target by using [count]Tb (default count: 1).

Related topics:
      Copying files to target.......................... netrw-mc
      Listing Bookmarks and History.................... netrw-qb
      Marked Files: Setting The Target Directory....... netrw-mt
      Marked Files: Target Directory Using History..... netrw-Th
      Marking Files.................................... netrw-mf
      Marking Files by Regular Expression.............. netrw-mr
      Moving files to target........................... netrw-mm

MARKED FILES: TARGET DIRECTORY USING HISTORY   netrw-Th {{{2

Sets the marked file copy/move-to target.

The netrw-qb map will give you a list of history (and bookmarks).
One may choose one of the history entries to become your marked file
target by using [count]Th (default count: 0; ie. the current directory).

Related topics:
      Copying files to target.......................... netrw-mc
      Listing Bookmarks and History.................... netrw-qb
      Marked Files: Setting The Target Directory....... netrw-mt
      Marked Files: Target Directory Using Bookmarks..... netrw-Tb
      Marking Files.................................... netrw-mf
      Marking Files by Regular Expression.............. netrw-mr
      Moving files to target........................... netrw-mm

MARKED FILES: UNMARKING   netrw-mu {{{2
     (See netrw-mf , netrw-mF)

The "mu" mapping will unmark all currently marked files. This command differs
from "mF" as the latter only unmarks files in the current directory whereas
"mu" will unmark global and all buffer-local marked files.
(see netrw-mF)

                          netrw-browser-settings
NETRW BROWSER VARIABLES   netrw-browser-options   netrw-browser-var {{{2

(if you're interested in the netrw file transfer settings, see netrw-options
 and netrw-protocol)

The <netrw.vim> browser provides settings in the form of variables which
you may modify; by placing these settings in your <.vimrc>, you may customize
your browsing preferences. (see also: netrw-settings)

Var	Explanation
g:netrw_altfile	some like CTRL-^ to return to the last edited file. Choose that by setting this parameter to 1. Others like CTRL-^ to return to the netrw browsing buffer. Choose that by setting this parameter to 0. default: =0
g:netrw_alto	change from above splitting to below splitting by setting this variable (see netrw-o) default: =&sb (see 'sb')
g:netrw_altv	change from left splitting to right splitting by setting this variable (see netrw-v) default: =&spr (see 'spr')
g:netrw_banner	enable/suppress the banner =0: suppress the banner =1: banner is enabled (default)
g:netrw_bannerbackslash	if this variable exists and is not zero, the banner will be displayed with backslashes rather than forward slashes.
g:netrw_browse_split	when browsing, <cr> will open the file by: =0: re-using the same window (default) =1: horizontally splitting the window first =2: vertically splitting the window first =3: open file in new tab =4: act like "P" (ie. open previous window) Note that g:netrw_preview may be used to get vertical splitting instead of horizontal splitting. =[servername,tab-number,window-number] Given a List such as this, a remote server named by the "servername" will be used for editing. It will also use the specified tab and window numbers to perform editing (see clientserver , netrw-ctrl-r) This option does not affect the production of :Lexplore windows. Related topics:

g:netrw_alto g:netrw_altv
netrw-C netrw-cr
netrw-ctrl-r

g:netrw_browsex_viewer specify user's preference for a viewer:
"kfmclient exec"
"gnome-open"
If
"-"
is used, then netrwFileHandler() will look for a script/function to handle the given extension. (see netrw_filehandler).

g:netrw_chgperm Unix/Linux: "chmod PERM FILENAME"
Windows: "cacls FILENAME /e /p PERM"
Used to change access permission for a file.

g:netrw_compress ="gzip"
Will compress marked files with this command

g:Netrw_corehandler Allows one to specify something additional to do when handling <core> files via netrw's browser's "x" command (see netrw-x). If present, g:Netrw_corehandler specifies either one or more function references (see Funcref). (the capital g:Netrw... is required its holding a function reference)

g:netrw_ctags ="ctags"
The default external program used to create tags

g:netrw_cursor = 2 (default)
This option controls the use of the 'cursorline' (cul) and 'cursorcolumn' (cuc) settings by netrw:

Value	Thin-Long-Tree	Wide
=0	u-cul u-cuc	u-cul u-cuc
=1	u-cul u-cuc	cul u-cuc
=2	cul u-cuc	cul u-cuc
=3	cul u-cuc	cul cuc
=4	cul cuc	cul cuc

Where
u-cul : user's 'cursorline' setting used
u-cuc : user's 'cursorcolumn' setting used
cul : 'cursorline' locally set
cuc : 'cursorcolumn' locally set

g:netrw_decompress = { ".gz" : "gunzip" ,
".bz2" : "bunzip2" ,

```
                        ".zip" : "unzip" ,
                        ".tar" : "tar -xf"}
                    A dictionary mapping suffices to
                    decompression programs.

g:netrw_dirhistmax      =10: controls maximum quantity of past
                         history.  May be zero to supppress
                         history.
                         (related:  netrw-qb   netrw-u   netrw-U )

g:netrw_dynamic_maxfilenamelen  =32: enables dynamic determination of
                          g:netrw_maxfilenamelen , which affects
                        local file long listing.

g:netrw_errorlvl        =0: error levels greater than or equal to
                        this are permitted to be displayed
                        0: notes
                        1: warnings
                        2: errors

g:netrw_fastbrowse      =0: slow speed directory browsing;
                        never re-uses directory listings;
                        always obtains directory listings.
                    =1: medium speed directory browsing;
                        re-use directory listings only
                        when remote directory browsing.
                        (default value)
                    =2: fast directory browsing;
                        only obtains directory listings when the
                        directory hasn't been seen before
                        (or  netrw-ctrl-l  is used).

                    Fast browsing retains old directory listing
                    buffers so that they don't need to be
                    re-acquired.  This feature is especially
                    important for remote browsing.  However, if
                    a file is introduced or deleted into or from
                    such directories, the old directory buffer
                    becomes out-of-date.  One may always refresh
                    such a directory listing with  netrw-ctrl-l .
                    This option gives the user the choice of
                    trading off accuracy (ie. up-to-date listing)
                    versus speed.

g:netrw_ffkeep          (default: doesn't exist)
                    If this variable exists and is zero, then
                    netrw will not do a save and restore for
                     'fileformat' .

g:netrw_fname_escape    =' ?&;%'
                    Used on filenames before remote reading/writing

g:netrw_ftp_browse_reject   ftp can produce a number of errors and warnings
                    that can show up as "directories" and "files"
```

```
                        in the listing.  This pattern is used to
                        remove such embedded messages.  By default its
                        value is:
                         '^total\s\+\d\+$\|
                         ^Trying\s\+\d\+.*$\|
                         ^KERBEROS_V\d rejected\|
                         ^Security extensions not\|
                         No such file\|
                         : connect to address [0-9a-fA-F:]*
                         : No route to host$'

g:netrw_ftp_list_cmd    options for passing along to ftp for directory
                        listing.  Defaults:
                         unix or g:netrw_cygwin set: : "ls -lF"
                         otherwise                   "dir"


g:netrw_ftp_sizelist_cmd options for passing along to ftp for directory
                        listing, sorted by size of file.
                        Defaults:
                         unix or g:netrw_cygwin set: : "ls -slF"
                         otherwise                   "dir"

g:netrw_ftp_timelist_cmd options for passing along to ftp for directory
                        listing, sorted by time of last modification.
                        Defaults:
                         unix or g:netrw_cygwin set: : "ls -tlF"
                         otherwise                   "dir"

g:netrw_glob_escape     ='[]*?`{~$'  (unix)
                        ='[]*?`{$'  (windows
                        These characters in directory names are
                        escaped before applying glob()

g:netrw_gx              ="<cfile>"
                        This option controls how gx ( netrw-gx ) picks
                        up the text under the cursor.  See  expand()
                        for possibilities.

g:netrw_hide            Controlled by the "a" map (see  netrw-a )
                        =0 : show all
                        =1 : show not-hidden files
                        =2 : show hidden files only
                         default: =0

g:netrw_home            The home directory for where bookmarks and
                        history are saved (as .netrwbook and
                        .netrwhist).
                        Netrw uses  expand() on the string.
                         default: the first directory on the
                                  'runtimepath'

g:netrw_keepdir         =1 (default) keep current directory immune from
                           the browsing directory.
```

```
                        =0 keep the current directory the same as the
                           browsing directory.
                        The current browsing directory is contained in
                        b:netrw_curdir (also see  netrw-c )

g:netrw_keepj           ="keepj" (default) netrw attempts to keep the
                                  :jumps  table unaffected.
                        =""       netrw will not use  :keepjumps  with
                                  exceptions only for the
                                  saving/restoration of position.

g:netrw_list_cmd        command for listing remote directories
                         default: (if ssh is executable)
                                  "ssh HOSTNAME ls -FLa"

g:netrw_list_cmd_options If this variable exists, then its contents are
                        appended to the g:netrw_list_cmd.  For
                        example, use "2>/dev/null" to get rid of banner
                        messages on unix systems.


g:netrw_liststyle       Set the default listing style:
                        = 0: thin listing (one file per line)
                        = 1: long listing (one file per line with time
                             stamp information and file size)
                        = 2: wide listing (multiple files in columns)
                        = 3: tree style listing

g:netrw_list_hide       comma separated pattern list for hiding files
                        Patterns are regular expressions (see  regexp )
                        There's some special support for git-ignore
                        files: you may add the output from the helper
                        function 'netrw_gitignore#Hide() automatically
                        hiding all gitignored files.
                        For more details see  netrw-gitignore .

                        Examples:
                         let g:netrw_list_hide= '.*\.swp$'
                         let g:netrw_list_hide= netrw_gitignore#Hide().'.*\.swp$'
                        default: ""

g:netrw_localcopycmd    ="cp"           Linux/Unix/MacOS/Cygwin
                        =expand("$COMSPEC")             Windows
                        Copies marked files ( netrw-mf ) to target
                        directory ( netrw-mt ,  netrw-mc )

g:netrw_localcopycmdopt ='' Linux/Unix/MacOS/Cygwin
                        =' \c copy'                     Windows
                        Options for the  g:netrw_localcopycmd

g:netrw_localcopydircmd ="cp"           Linux/Unix/MacOS/Cygwin
                        =expand("$COMSPEC")             Windows
                        Copies directories to target directory.
                        ( netrw-mc ,  netrw-mt )
```

g:netrw_localcopydircmdopt =" -R"   Linux/Unix/MacOS/Cygwin
=" /c xcopy /e /c /h/ /i /k"   Windows
Options for g:netrw_localcopydircmd

g:netrw_localmkdir ="mkdir"   Linux/Unix/MacOS/Cygwin
=expand("$COMSPEC")   Windows
command for making a local directory

g:netrw_localmkdiropt ==""   Linux/Unix/MacOS/Cygwin
=" /c mkdir"   Windows
Options for g:netrw_localmkdir

g:netrw_localmovecmd ="mv"   Linux/Unix/MacOS/Cygwin
=expand("$COMSPEC")   Windows
Moves marked files (netrw-mf) to target
directory (netrw-mt , netrw-mm)

g:netrw_localmovecmdopt ==""   Linux/Unix/MacOS/Cygwin
=" /c move"   Windows
Options for g:netrw_localmovecmd

g:netrw_localrmdir ="rmdir"   Linux/Unix/MacOS/Cygwin
=expand("$COMSPEC")   Windows
Remove directory command (rmdir)
This variable is only used if your vim is
earlier than 7.4 or if your vim doesn't
have patch#1107. Otherwise, delete()
is used with the "d" option.

g:netrw_localrmdiropt ==""   Linux/Unix/MacOS/Cygwin
=" /c rmdir"   Windows
Options for g:netrw_localrmdir

g:netrw_maxfilenamelen =32 by default, selected so as to make long
listings fit on 80 column displays.
If your screen is wider, and you have file
or directory names longer than 32 bytes,
you may set this option to keep listings
columnar.

g:netrw_mkdir_cmd command for making a remote directory
via ssh (also see g:netrw_remote_mkdir)
default: "ssh USEPORT HOSTNAME mkdir"

g:netrw_mousemaps =1 (default) enables mouse buttons while
browsing to:
leftmouse   : open file/directory
shift-leftmouse : mark file
middlemouse   : same as P
rightmouse   : remove file/directory
=0: disables mouse maps

g:netrw_nobeval doesn't exist (default)

```
                        If this variable exists, then balloon
                        evaluation will be suppressed
                        (see  'balooneval' )

g:netrw_sizestyle       not defined: actual bytes (default)
                        ="b" : actual bytes       (default)
                        ="h" : human-readable (ex. 5k, 4m, 3g)
                               uses 1000 base
                        ="H" : human-readable (ex. 5K, 4M, 3G)
                               uses 1024 base
                        The long listing ( netrw-i ) and query-file
                        maps ( netrw-qf ) will display file size
                        using the specified style.

 g:netrw_usetab         if this variable exists and is non-zero, then
                        the <tab> map supporting shrinking/expanding a
                        Lexplore or netrw window will be enabled.
                        (see  netrw-c-tab )

 g:netrw_remote_mkdir   command for making a remote directory
                        via ftp  (also see  g:netrw_mkdir_cmd )
                         default: "mkdir"

 g:netrw_retmap         if it exists and is set to one, then:
                         * if in a netrw-selected file, AND
                         * no normal-mode <2-leftmouse> mapping exists,
                        then the <2-leftmouse> will be mapped for easy
                        return to the netrw browser window.
                         example: click once to select and open a file,
                                  double-click to return.

                        Note that one may instead choose to:
                         * let g:netrw_retmap= 1, AND
                         * nmap <silent> YourChoice <Plug>NetrwReturn
                        and have another mapping instead of
                        <2-leftmouse> to invoke the return.

                        You may also use the  :Rexplore  command to do
                        the same thing.

                          default: =0

 g:netrw_rm_cmd         command for removing remote files
                         default: "ssh USEPORT HOSTNAME rm"

 g:netrw_rmdir_cmd      command for removing remote directories
                         default: "ssh USEPORT HOSTNAME rmdir"

 g:netrw_rmf_cmd        command for removing remote softlinks
                         default: "ssh USEPORT HOSTNAME rm -f"

 g:netrw_servername     use this variable to provide a name for
                         netrw-ctrl-r  to use for its server.
                         default: "NETRWSERVER"
```

```
g:netrw_sort_by             sort by "name", "time", "size", or
                            "exten".
                             default: "name"

g:netrw_sort_direction      sorting direction: "normal" or "reverse"
                             default: "normal"

g:netrw_sort_options        sorting is done using  :sort ; this
                            variable's value is appended to the
                            sort command.  Thus one may ignore case,
                            for example, with the following in your
                            .vimrc:
                                    let g:netrw_sort_options="i"
                            default: ""

g:netrw_sort_sequence       when sorting by name, first sort by the
                            comma-separated pattern sequence.  Note that
                            any filigree added to indicate filetypes
                            should be accounted for in your pattern.
                             default: '[\/]$,*,\.bak$,\.o$,\.h$,
                                      \.info$,\.swp$,\.obj$'

g:netrw_special_syntax      If true, then certain files will be shown
                            using special syntax in the browser:

                                    netrwBak     : *.bak
                                    netrwCompress: *.gz *.bz2 *.Z *.zip
                                    netrwData    : *.dat
                                    netrwHdr     : *.h
                                    netrwLib     : *.a *.so *.lib *.dll
                                    netrwMakefile: [mM]akefile *.mak
                                    netrwObj     : *.o *.obj
                                    netrwTags    : tags ANmenu ANtags
                                    netrwTilde   : *
                                    netrwTmp     : tmp* *tmp

                            In addition, those groups mentioned in
                             'suffixes'  are also added to the special
                            file highlighting group.
                             These syntax highlighting groups are linked
                            to netrwGray or Folded by default
                            (see  hl-Folded ), but one may put lines like
                                    hi link netrwCompress Visual
                           into one's <.vimrc> to use one's own
                            preferences.  Alternatively, one may
                            put such specifications into
                                    .vim/after/syntax/netrw.vim.
                            The netrwGray highlighting is set up by
                            netrw when
                                    * netrwGray has not been previously
                                      defined
                                    * the gui is running
                            As an example, I myself use a dark-background
```

colorscheme with the following in
.vim/after/syntax/netrw.vim:

```
hi netrwCompress term=NONE cterm=NONE gui=NONE ctermfg=10 guifg=green  ctermbg=0 guibg=bla
hi netrwData     term=NONE cterm=NONE gui=NONE ctermfg=9 guifg=blue ctermbg=0 guibg=black
hi netrwHdr      term=NONE cterm=NONE,italic gui=NONE guifg=SeaGreen1
hi netrwLex      term=NONE cterm=NONE,italic gui=NONE guifg=SeaGreen1
hi netrwYacc     term=NONE cterm=NONE,italic gui=NONE guifg=SeaGreen1
hi netrwLib      term=NONE cterm=NONE gui=NONE ctermfg=14 guifg=yellow
hi netrwObj      term=NONE cterm=NONE gui=NONE ctermfg=12 guifg=red
hi netrwTilde    term=NONE cterm=NONE gui=NONE ctermfg=12 guifg=red
hi netrwTmp      term=NONE cterm=NONE gui=NONE ctermfg=12 guifg=red
hi netrwTags     term=NONE cterm=NONE gui=NONE ctermfg=12 guifg=red
hi netrwDoc      term=NONE cterm=NONE gui=NONE ctermfg=220 ctermbg=27 guifg=yellow2 guibg=
hi netrwSymLink  term=NONE cterm=NONE gui=NONE ctermfg=220 ctermbg=27 guifg=grey60
```

g:netrw_ssh_browse_reject

ssh can sometimes produce unwanted lines,
messages, banners, and whatnot that one doesn't
want masquerading as "directories" and "files".
Use this pattern to remove such embedded
messages. By default its value is:
'^total\s\+\d\+$'

g:netrw_ssh_cmd

One may specify an executable command
to use instead of ssh for remote actions
such as listing, file removal, etc.
default: ssh

g:netrw_suppress_gx_mesg

=1 : browsers sometimes produce messages
which are normally unwanted intermixed
with the page.
However, when using links, for example,
those messages are what the browser produces.
By setting this option to 0, netrw will not
suppress browser messages.

g:netrw_tmpfile_escape

=' &;'
escape() is applied to all temporary files
to escape these characters.

g:netrw_timefmt

specify format string to vim's strftime().
The default, "%c", is "the preferred date
and time representation for the current
locale" according to my manpage entry for
strftime(); however, not all are satisfied
with it. Some alternatives:
"%a %d %b %Y %T",
" %a %Y-%m-%d %I-%M-%S %p"
default: "%c"

g:netrw_use_noswf

netrw normally avoids writing swapfiles
for browser buffers. However, under some
systems this apparently is causing nasty
ml_get errors to appear; if you're getting

ml_get errors, try putting
  let g:netrw_use_noswf= 0
in your .vimrc.
  default: 1

g:netrw_winsize — specify initial size of new windows made with "o" (see netrw-o), "v" (see netrw-v), :Hexplore or :Vexplore. The g:netrw_winsize is an integer describing the percentage of the current netrw buffer's window to be used for the new window.
If g:netrw_winsize is less than zero, then the absolute value of g:netrw_winsize lines or columns will be used for the new window.
If g:netrw_winsize is zero, then a normal split will be made (ie. 'equalalways' will take effect, for example).
default: 50 (for 50%)

g:netrw_wiw — =1 specifies the minimum window width to use when shrinking a netrw/Lexplore window (see netrw-c-tab).

g:netrw_xstrlen — Controls how netrw computes string lengths, including multi-byte characters' string length. (thanks to N Weibull, T Mechelynck)
=0: uses Vim's built-in strlen()
=1: number of codepoints (Latin a + combining circumflex is two codepoints) (DEFAULT)
=2: number of spacing codepoints (Latin a + combining circumflex is one spacing codepoint; a hard tab is one; wide and narrow CJK are one each; etc.)
=3: virtual length (counting tabs as anything between 1 and 'tabstop', wide CJK as 2 rather than 1, Arabic alif as zero when immediately preceded by lam, one otherwise, etc)

g:NetrwTopLvlMenu — This variable specifies the top level menu name; by default, it's "Netrw.". If you wish to change this, do so in your .vimrc.

NETRW BROWSING AND OPTION INCOMPATIBILITIES netrw-incompatible {{{2

Netrw has been designed to handle user options by saving them, setting the options to something that's compatible with netrw's needs, and then restoring them. However, the autochdir option:

```
:set acd
```

is problematic. Autochdir sets the current directory to that containing the file you edit; this apparently also applies to directories. In other words, autochdir sets the current directory to that containing the "file" (even if that "file" is itself a directory).

NETRW SETTINGS WINDOW netrw-settings-window {{{2

With the NetrwSettings.vim plugin,
        :NetrwSettings
will bring up a window with the many variables that netrw uses for its settings. You may change any of their values; when you save the file, the settings therein will be used. One may also press "?" on any of the lines for help on what each of the variables do.

(also see: netrw-browser-var netrw-protocol netrw-variables)

==
OBTAINING A FILE netrw-obtain netrw-O {{{2

If there are no marked files:

    When browsing a remote directory, one may obtain a file under the cursor (ie. get a copy on your local machine, but not edit it) by pressing the O key.

If there are marked files:

    The marked files will be obtained (ie. a copy will be transferred to your local machine, but not set up for editing).

Only ftp and scp are supported for this operation (but since these two are available for browsing, that shouldn't be a problem). The status bar will then show, on its right hand side, a message like "Obtaining filename". The statusline will be restored after the transfer is complete.

Netrw can also "obtain" a file using the local browser. Netrw's display of a directory is not necessarily the same as Vim's "current directory", unless g:netrw_keepdir is set to 0 in the user's <.vimrc>. One may select a file using the local browser (by putting the cursor on it) and pressing "O" will then "obtain" the file; ie. copy it to Vim's current directory.

Related topics:
 * To see what the current directory is, use :pwd
 * To make the currently browsed directory the current directory, see netrw-c
 * To automatically make the currently browsed directory the current directory, see g:netrw_keepdir .

OPEN A NEW FILE IN NETRW'S CURRENT DIRECTORY netrw-newfile netrw-createfile netrw-% {{{2

To open a new file in netrw's current directory, press "%". This map will query the user for a new filename; an empty file by that name will be placed in the netrw's current directory (ie. b:netrw_curdir).

Related topics: netrw-d

PREVIEW WINDOW netrw-p netrw-preview {{{2

One may use a preview window by using the "p" key when the cursor is atop the desired filename to be previewed. The display will then split to show both the browser (where the cursor will remain) and the file (see :pedit). By default, the split will be taken horizontally; one may use vertical splitting if one has set g:netrw_preview first.

An interesting set of netrw settings is:

```
let g:netrw_preview   = 1
let g:netrw_liststyle = 3
let g:netrw_winsize   = 30
```

These will:

1. Make vertical splitting the default for previewing files
2. Make the default listing style "tree"
3. When a vertical preview window is opened, the directory listing will use only 30% of the columns available; the rest of the window is used for the preview window.

Related: if you like this idea, you may also find :Lexplore (netrw-:Lexplore) or g:netrw_chgwin of interest

Also see: g:netrw_chgwin netrw-P 'previewwindow' CTRL-W_z :pclose

PREVIOUS WINDOW netrw-P netrw-prvwin {{{2

To edit a file or directory under the cursor in the previously used (last accessed) window (see :he CTRL-W_p), press a "P". If there's only one window, then the one window will be horizontally split (by default).

If there's more than one window, the previous window will be re-used on the selected file/directory. If the previous window's associated buffer has been modified, and there's only one window with that buffer, then the user will be asked if s/he wishes to save the buffer first (yes, no, or cancel).

Related Actions netrw-cr netrw-o netrw-t netrw-v
Associated setting variables:

g:netrw_alto	control above/below splitting
g:netrw_altv	control right/left splitting
g:netrw_preview	control horizontal vs vertical splitting
g:netrw_winsize	control initial sizing

Also see: g:netrw_chgwin netrw-p

REFRESHING THE LISTING netrw-refresh netrw-ctrl-l netrw-ctrl_l {{{2

To refresh either a local or remote directory listing, press ctrl-l (<c-l>) or hit the <cr> when atop the ./ directory entry in the listing. One may also

refresh a local directory by using ":e .".

REVERSING SORTING ORDER netrw-r netrw-reverse {{{2

One may toggle between normal and reverse sorting order by pressing the
"r" key.

Related topics: netrw-s
Associated setting variable: g:netrw_sort_direction

RENAMING FILES OR DIRECTORIES netrw-move netrw-rename netrw-R {{{2

If there are no marked files: (see netrw-mf)

    Renaming files and directories involves moving the cursor to the
    file/directory to be moved (renamed) and pressing "R". You will then be
    queried for what you want the file/directory to be renamed to. You may
    select a range of lines with the "V" command (visual selection), and then
    press "R"; you will be queried for each file as to what you want it
    renamed to.

If there are marked files: (see netrw-mf)

    Marked files will be renamed (moved). You will be queried as above in
    order to specify where you want the file/directory to be moved.

    If you answer a renaming query with a "s/frompattern/topattern/", then
    subsequent files on the marked file list will be renamed by taking each
    name, applying that substitute, and renaming each file to the result.
    As an example :

        mr [query: reply with *.c]
        R   [query: reply with s/^\(.*\)\.c$/\1.cpp/]

    This example will mark all *.c files and then rename them to *.cpp
    files.

    The ctrl-X character has special meaning for renaming files:

        <c-x>   : a single ctrl-x tells netrw to ignore the portion of the response
                     lying between the last '/' and the ctrl-x.

        <c-x><c-x> : a pair of contiguous ctrl-x's tells netrw to ignore any
                     portion of the string preceding the double ctrl-x's.

    WARNING:

    Note that moving files is a dangerous operation; copies are safer. That's
    because a "move" for remote files is actually a copy + delete -- and if
    the copy fails and the delete succeeds you may lose the file.
    Use at your own risk.

The g:netrw_rename_cmd variable is used to implement remote renaming. By default its value is:

```
ssh HOSTNAME mv
```

One may rename a block of files and directories by selecting them with V (linewise-visual) when using thin style.

See cmdline-editing for more on how to edit the command line; in particular, you'll find <ctrl-f> (initiates cmdline window editing) and <ctrl-c> (uses the command line under the cursor) useful in conjunction with the R command.

SELECTING SORTING STYLE netrw-s netrw-sort {{{2

One may select the sorting style by name, time, or (file) size. The "s" map allows one to circulate amongst the three choices; the directory listing will automatically be refreshed to reflect the selected style.

Related topics: netrw-r netrw-S
Associated setting variables: g:netrw_sort_by g:netrw_sort_sequence

SETTING EDITING WINDOW netrw-editwindow netrw-C netrw-:NetrwC {{{2

One may select a netrw window for editing with the "C" mapping, using the :NetrwC [win#] command, or by setting g:netrw_chgwin to the selected window number. Subsequent selection of a file to edit (netrw-cr) will use that window.

* C : by itself, will select the current window holding a netrw buffer for subsequent editing via netrw-cr . The C mapping is only available while in netrw buffers.

* [count]C : the count will be used as the window number to be used for subsequent editing via netrw-cr .

* :NetrwC will set g:netrw_chgwin to the current window

* :NetrwC win# will set g:netrw_chgwin to the specified window number

Using

```
let g:netrw_chgwin= -1
```

will restore the default editing behavior
(ie. subsequent editing will use the current window).

Related topics: netrw-cr g:netrw_browse_split
Associated setting variables: g:netrw_chgwin

SHRINKING OR EXPANDING A NETRW OR LEXPLORE WINDOW netrw-c-tab {{{2

The <c-tab> key will toggle a netrw or :Lexplore window's width,

but only if g:netrw_usetab exists and is non-zero (and, of course,
only if your terminal supports differentiating <c-tab> from a plain
<tab>).

  * If the current window is a netrw window, toggle its width
    (between g:netrw_wiw and its original width)

  * Else if there is a :Lexplore window in the current tab, toggle
    its width

  * Else bring up a :Lexplore window

If g:netrw_usetab exists and is zero, or if there is a pre-existing mapping
for <c-tab>, then the <c-tab> will not be mapped. One may map something other
than a <c-tab>, too: (but you'll still need to have had g:netrw_usetab set).

        nmap <unique> (whatever)   <Plug>NetrwShrink

Related topics: :Lexplore
Associated setting variable: g:netrw_usetab

USER SPECIFIED MAPS   netrw-usermaps {{{1

One may make customized user maps. Specify a variable, g:Netrw_UserMaps ,
to hold a List of lists of keymap strings and function names:

        [["keymap-sequence","ExampleUserMapFunc"],...]

When netrw is setting up maps for a netrw buffer, if g:Netrw_UserMaps
exists, then the internal function netrw#UserMaps(islocal) is called.
This function goes through all the entries in the g:Netrw_UserMaps list:

        * sets up maps:
                nno <buffer> <silent> KEYMAP-SEQUENCE
                :call s:UserMaps(islocal,"ExampleUserMapFunc")
       * refreshes if result from that function call is the string
         "refresh"
        * if the result string is not "", then that string will be
          executed (:exe result)
        * if the result is a List, then the above two actions on results
          will be taken for every string in the result List

The user function is passed one argument; it resembles

        fun! ExampleUserMapFunc(islocal)

where a:islocal is 1 if its a local-directory system call or 0 when
remote-directory system call.

                                netrw-call   netrw-expose   netrw-modify
Use netrw#Expose("varname")   to access netrw-internal (script-local)
                                     variables.
Use netrw#Modify("varname",newvalue) to change netrw-internal variables.

Use netrw#Call("funcname"[,args])   to call a netrw-internal function with
                                     specified arguments.

Example: Get a copy of netrw's marked file list:

```
let netrwmarkfilelist= netrw#Expose("netrwmarkfilelist")
```

Example: Modify the value of netrw's marked file list:

```
call netrw#Modify("netrwmarkfilelist",[])
```

Example: Clear netrw's marked file list via a mapping on gu

```
" ExampleUserMap: {{{2
fun! ExampleUserMap(islocal)
  call netrw#Modify("netrwmarkfilelist",[])
  call netrw#Modify('netrwmarkfilemtch_{bufnr("%")}',"")
  let retval= ["refresh"]
  return retval
endfun
let g:Netrw_UserMaps= [["gu","ExampleUserMap"]]
```

10. Problems and Fixes netrw-problems {{{1

(This section is likely to grow as I get feedback)
(also see netrw-debug)

netrw-p1

P1. I use windows 95, and my ftp dumps four blank lines at the end of every read.

See netrw-fixup , and put the following into your <.vimrc> file:

```
let g:netrw_win95ftp= 1
```

netrw-p2

P2. I use Windows, and my network browsing with ftp doesn't sort by time or size! -or- The remote system is a Windows server; why don't I get sorts by time or size?

Windows' ftp has a minimal support for ls (ie. it doesn't accept sorting options). It doesn't support the -F which gives an explanatory character (ABC/ for "ABC is a directory"). Netrw then uses "dir" to get both its thin and long listings. If you think your ftp does support a full-up ls, put the following into your <.vimrc>:

```
let g:netrw_ftp_list_cmd    = "ls -lF"
let g:netrw_ftp_timelist_cmd= "ls -tlF"
let g:netrw_ftp_sizelist_cmd= "ls -slF"
```

Alternatively, if you have cygwin on your Windows box, put into your <.vimrc>:

```
let g:netrw_cygwin= 1
```

This problem also occurs when the remote system is Windows.
In this situation, the various g:netrw_ftp_[time|size]list_cmds
are as shown above, but the remote system will not correctly
modify its listing behavior.

netrw-p3

P3. I tried rcp://user@host/ (or protocol other than ftp) and netrw used ssh! That wasn't what I asked for...

Netrw has two methods for browsing remote directories: ssh
and ftp. Unless you specify ftp specifically, ssh is used.
When it comes time to do download a file (not just a directory
listing), netrw will use the given protocol to do so.

netrw-p4

P4. I would like long listings to be the default.

Put the following statement into your .vimrc :

```
let g:netrw_liststyle= 1
```

Check out netrw-browser-var for more customizations that
you can set.

netrw-p5

P5. My times come up oddly in local browsing

Does your system's strftime() accept the "%c" to yield dates
such as "Sun Apr 27 11:49:23 1997"? If not, do a
"man strftime" and find out what option should be used. Then
put it into your .vimrc :

```
let g:netrw_timefmt= "%X"  (where X is the option)
```

netrw-p6

P6. I want my current directory to track my browsing.
How do I do that?

Put the following line in your .vimrc :

```
let g:netrw_keepdir= 0
```

netrw-p7

P7. I use Chinese (or other non-ascii) characters in my filenames, and netrw (Explore, Sexplore, Hexplore, etc) doesn't display them!

(taken from an answer provided by Wu Yongwei on the vim
mailing list)
I now see the problem. Your code page is not 936, right? Vim
seems only able to open files with names that are valid in the
current code page, as are many other applications that do not

use the Unicode version of Windows APIs. This is an OS-related issue. You should not have such problems when the system locale uses UTF-8, such as modern Linux distros.

(...it is one more reason to recommend that people use utf-8!)

netrw-p8

P8. I'm getting "ssh is not executable on your system" -- what do I do?

(Dudley Fox) Most people I know use putty for windows ssh. It is a free ssh/telnet application. You can read more about it here:

http://www.chiark.greenend.org.uk/~sgtatham/putty/ Also:

(Marlin Unruh) This program also works for me. It's a single executable, so he/she can copy it into the Windows\System32 folder and create a shortcut to it.

(Dudley Fox) You might also wish to consider plink, as it sounds most similar to what you are looking for. plink is an application in the putty suite.

http://the.earth.li/~sgtatham/putty/0.58/htmldoc/Chapter7.html#plink

(Vissale Neang) Maybe you can try OpenSSH for windows, which can be obtained from:

http://sshwindows.sourceforge.net/

It doesn't need the full Cygwin package.

(Antoine Mechelynck) For individual Unix-like programs needed for work in a native-Windows environment, I recommend getting them from the GnuWin32 project on sourceforge if it has them:

http://gnuwin32.sourceforge.net/

Unlike Cygwin, which sets up a Unix-like virtual machine on top of Windows, GnuWin32 is a rewrite of Unix utilities with Windows system calls, and its programs works quite well in the cmd.exe "Dos box".

(dave) Download WinSCP and use that to connect to the server. In Preferences > Editors, set gvim as your editor:

- Click "Add..."
- Set External Editor (adjust path as needed, include the quotes and !.! at the end):
  "c:\Program Files\Vim\vim70\gvim.exe" !.!
- Check that the filetype in the box below is {asterisk}.{asterisk} (all files), or whatever types you want (cec: change {asterisk} to * ; I had to

write it that way because otherwise the helptags
system thinks it's a tag)
- Make sure it's at the top of the listbox (click it,
then click "Up" if it's not)
If using the Norton Commander style, you just have to hit <F4>
to edit a file in a local copy of gvim.

(Vit Gottwald) How to generate public/private key and save
public key it on server:
http://www.chiark.greenend.org.uk/~sgtatham/putty/0.60/htmldoc/Chapter8.html#pubkey-getti
(8.3 Getting ready for public key authentication)

How to use a private key with 'pscp':

http://www.chiark.greenend.org.uk/~sgtatham/putty/0.60/htmldoc/Chapter5.html
(5.2.4 Using public key authentication with PSCP)

(Ben Schmidt) I find the ssh included with cwRsync is
brilliant, and install cwRsync or cwRsyncServer on most
Windows systems I come across these days. I guess COPSSH,
packed by the same person, is probably even better for use as
just ssh on Windows, and probably includes sftp, etc. which I
suspect the cwRsync doesn't, though it might

(cec) To make proper use of these suggestions above, you will
need to modify the following user-settable variables in your
.vimrc:

g:netrw_ssh_cmd g:netrw_list_cmd g:netrw_mkdir_cmd
g:netrw_rm_cmd g:netrw_rmdir_cmd g:netrw_rmf_cmd

The first one (g:netrw_ssh_cmd) is the most important; most
of the others will use the string in g:netrw_ssh_cmd by
default.

netrw-p9 netrw-ml_get
P9. I'm browsing, changing directory, and bang! ml_get errors
appear and I have to kill vim. Any way around this?

Normally netrw attempts to avoid writing swapfiles for
its temporary directory buffers. However, on some systems
this attempt appears to be causing ml_get errors to
appear. Please try setting g:netrw_use_noswf to 0
in your <.vimrc>:
let g:netrw_use_noswf= 0

netrw-p10
P10. I'm being pestered with "[something] is a directory" and
"Press ENTER or type command to continue" prompts...

The "[something] is a directory" prompt is issued by Vim,
not by netrw, and there appears to be no way to work around
it. Coupled with the default cmdheight of 1, this message
causes the "Press ENTER..." prompt. So: read hit-enter ;

I also suggest that you set your 'cmdheight' to 2 (or more) in your <.vimrc> file.

netrw-p11

P11. I want to have two windows; a thin one on the left and my editing window on the right. How may I accomplish this?

You probably want netrw running as in a side window. If so, you will likely find that ":[N]Lexplore" does what you want. The optional "[N]" allows you to select the quantity of columns you wish the :Lexplore r window to start with (see g:netrw_winsize for how this parameter works).

Previous solution:

* Put the following line in your <.vimrc>:
  let g:netrw_altv = 1
* Edit the current directory: :e .
* Select some file, press v
* Resize the windows as you wish (see CTRL-W_< and CTRL-W_>). If you're using gvim, you can drag the separating bar with your mouse.
* When you want a new file, use ctrl-w h to go back to the netrw browser, select a file, then press P (see CTRL-W_h and netrw-P). If you're using gvim, you can press <leftmouse> in the browser window and then press the <middlemouse> to select the file.

netrw-p12

P12. My directory isn't sorting correctly, or unwanted letters are appearing in the listed filenames, or things aren't lining up properly in the wide listing, ...

This may be due to an encoding problem. I myself usually use utf-8, but really only use ascii (ie. bytes from 32-126). Multibyte encodings use two (or more) bytes per character. You may need to change g:netrw_sepchr and/or g:netrw_xstrlen .

netrw-p13

P13. I'm a Windows + putty + ssh user, and when I attempt to browse, the directories are missing trailing "/"s so netrw treats them as file transfers instead of as attempts to browse subdirectories. How may I fix this?

(mikeyao) If you want to use vim via ssh and putty under Windows, try combining the use of pscp/psftp with plink. pscp/psftp will be used to connect and plink will be used to execute commands on the server, for example: list files and directory using 'ls'.

These are the settings I use to do this:

```
" list files, it's the key setting, if you haven't set,
" you will get a blank buffer
```

```
let g:netrw_list_cmd = "plink HOSTNAME ls -Fa"
" if you haven't add putty directory in system path, you should
" specify scp/sftp command.  For examples:
"let g:netrw_sftp_cmd = "d:\\dev\\putty\\PSFTP.exe"
"let g:netrw_scp_cmd = "d:\\dev\\putty\\PSCP.exe"
```

netrw-p14

P14. I would like to speed up writes using Nwrite and scp/ssh style connections. How? (Thomer M. Gil)

Try using ssh's ControlMaster and ControlPath (see the ssh_config man page) to share multiple ssh connections over a single network connection. That cuts out the cryptographic handshake on each file write, sometimes speeding it up by an order of magnitude. (see http://thomer.com/howtos/netrw_ssh.html) (included by permission)

Add the following to your ~/.ssh/config:

```
# you change "*" to the hostname you care about
Host *
  ControlMaster auto
  ControlPath /tmp/%r@%h:%p
```

Then create an ssh connection to the host and leave it running:

```
ssh -N host.domain.com
```

Now remotely open a file with Vim's Netrw and enjoy the zippiness:

```
vim scp://host.domain.com//home/user/.bashrc
```

netrw-p15

P15. How may I use a double-click instead of netrw's usual single click to open a file or directory? (Ben Fritz)

First, disable netrw's mapping with

```
let g:netrw_mousemaps= 0
```

and then create a netrw buffer only mapping in $HOME/.vim/after/ftplugin/netrw.vim:

```
nmap <buffer> <2-leftmouse> <CR>
```

Note that setting g:netrw_mousemaps to zero will turn off all netrw's mouse mappings, not just the <leftmouse> one. (see g:netrw_mousemaps)

netrw-p16

P16. When editing remote files (ex. :e ftp://hostname/path/file), under Windows I get an E303 message complaining that its unable to open a swap file.

(romainl) It looks like you are starting Vim from a protected directory. Start netrw from your $HOME or other writable directory.

netrw-p17

P17. Netrw is closing buffers on its own.
     What steps will reproduce the problem?
        1. :Explore, navigate directories, open a file
        2. :Explore, open another file
        3. Buffer opened in step 1 will be closed. o
    What is the expected output? What do you see instead?
        I expect both buffers to exist, but only the last one does.

   (Lance) Problem is caused by "set autochdir" in .vimrc.
   (drchip) I am able to duplicate this problem with 'acd' set.
            It appears that the buffers are not exactly closed;
            a ":ls!" will show them (although ":ls" does not).

netrw-P18

P18. How to locally edit a file that's only available via
     another server accessible via ssh?
     See http://stackoverflow.com/questions/12469645/
     "Using Vim to Remotely Edit A File on ServerB Only
      Accessible From ServerA"

netrw-P19

P19. How do I get numbering on in directory listings?
        With g:netrw_bufsettings , you can control netrw's buffer
        settings; try putting
          let g:netrw_bufsettings="noma nomod nu nobl nowrap ro nornu"
       in your .vimrc. If you'd like to have relative numbering
        instead, try
          let g:netrw_bufsettings="noma nomod nonu nobl nowrap ro rnu"

netrw-P20

P20. How may I have gvim start up showing a directory listing?
        Try putting the following code snippet into your .vimrc:
            augroup VimStartup
              au!
              au VimEnter * if expand("%") == "" && argc() == 0 &&
              \ (v:servername =~ 'GVIM\d*' || v:servername == "")
              \ | e . | endif
            augroup END
       You may use Lexplore instead of "e" if you're so inclined.
        This snippet assumes that you have client-server enabled
        (ie. a "huge" vim version).

netrw-P21

P21. I've made a directory (or file) with an accented character, but
        netrw isn't letting me enter that directory/read that file:

        Its likely that the shell or o/s is using a different encoding
        than you have vim (netrw) using. A patch to vim supporting
        "systemencoding" may address this issue in the future; for
        now, just have netrw use the proper encoding. For example:

                au FileType netrw set enc=latin1

netrw-P22

P22. I get an error message when I try to copy or move a file:

error (netrw) tried using g:netrw_localcopycmd<cp>; it doesn't work!

What's wrong?

Netrw uses several system level commands to do things (see

g:netrw_localcopycmd , g:netrw_localmovecmd ,
g:netrw_localrmdir , g:netrw_mkdir_cmd).

You may need to adjust the default commands for one or more of these commands by setting them properly in your .vimrc. Another source of difficulty is that these commands use vim's local directory, which may not be the same as the browsing directory shown by netrw (see g:netrw_keepdir).

==========

11. Debugging Netrw Itself netrw-debug {{{1

Step 1: check that the problem you've encountered hasn't already been resolved by obtaining a copy of the latest (often developmental) netrw at:

http://www.drchip.org/astronaut/vim/index.html#NETRW

The <netrw.vim> script is typically installed on systems as something like:

/usr/local/share/vim/vim7x/plugin/netrwPlugin.vim
/usr/local/share/vim/vim7x/autoload/netrw.vim
(see output of :echo &rtp)

which is loaded automatically at startup (assuming :set nocp). If you installed a new netrw, then it will be located at

$HOME/.vim/plugin/netrwPlugin.vim
$HOME/.vim/autoload/netrw.vim

Step 2: assuming that you've installed the latest version of netrw, check that your problem is really due to netrw. Create a file called netrw.vimrc with the following contents:

```
set nocp
so $HOME/.vim/plugin/netrwPlugin.vim
```

Then run netrw as follows:

```
vim -u netrw.vimrc --noplugins -i NONE [some path here]
```

Perform whatever netrw commands you need to, and check that the problem is still present. This procedure sidesteps any issues due to personal .vimrc settings, .viminfo file, and other plugins. If the problem does not appear,

then you need to determine which setting in your .vimrc is causing the
conflict with netrw or which plugin(s) is/are involved.

Step 3: If the problem still is present, then get a debugging trace from
netrw:

1. Get the <Decho.vim> script, available as:

   http://www.drchip.org/astronaut/vim/index.html#DECHO
   or
   http://vim.sourceforge.net/scripts/script.php?script_id=120

   Decho.vim is provided as a "vimball"; see vimball-intro .

2. Edit the <netrw.vim> file by typing:

   ```
   vim netrw.vim
   :DechoOn
   :wq
   ```

   To restore to normal non-debugging behavior, re-edit <netrw.vim>
   and type

   ```
   vim netrw.vim
   :DechoOff
   :wq
   ```

   This command, provided by <Decho.vim>, will comment out all
   Decho-debugging statements (Dfunc(), Dret(), Decho(), Dredir()).

3. Then bring up vim and attempt to evoke the problem by doing a
   transfer or doing some browsing. A set of messages should appear
   concerning the steps that <netrw.vim> took in attempting to
   read/write your file over the network in a separate tab or
   server vim window.

   To save the file, use

   ```
   :tabnext
   :set bt=
   :w! DBG
   ```

   Furthermore, it'd be helpful if you would type
   ```
   :Dsep <command>
   ```
   where <command> is the command you're about to type next,
   thereby making it easier to associate which part of the
   debugging trace is due to which command.

   Please send that information to <netrw.vim>'s maintainer along
   with the o/s you're using and the vim version that you're using
   (see :version)
   ```
   NdrOchip at ScampbellPfamily.AbizM - NOSPAM
   ```

==

v162: Sep 19, 2016 * (haya14busa) pointed out two syntax errors with a patch; these are now fixed.
Oct 26, 2016 * I started using mate-terminal and found that x and gx (netrw-x and netrw-gx) were no longer working. Fixed (using atril when $DESKTOP_SESSION is "mate").
Nov 04, 2016 * (Martin Vuille) pointed out that @+ was being restored with keepregstar rather than keepregplus.
Nov 09, 2016 * Broke apart the command from the options, mostly for Windows. Introduced new netrw settings: g:netrw_localcopycmdopt g:netrw_localcopydircmdopt g:netrw_localmkdiropt g:netrw_localmovecmdopt g:netrw_localrmdiropt
Nov 21, 2016 * (mattn) provided a patch for preview; swapped winwidth() with winheight()
Nov 22, 2016 * (glacambre) reported that files containing spaces weren't being obtained properly via scp. Fix: apparently using single quotes such as with 'file name' wasn't enough; the spaces inside the quotes also had to be escaped (ie. 'file\ name').
* Also fixed obtain (netrw-O) to be able to obtain files with spaces in their names
Dec 20, 2016 * (xc1427) Reported that using "I" (netrw-I) when atop "Hiding" in the banner also caused the active-banner hiding control to occur
Jan 03, 2017 * (Enno Nagel) reported that attempting to apply netrw to a directory that was without read permission caused a syntax error.
Jan 13, 2017 * (Ingo Karkat) provided a patch which makes using netrw#Call() better. Now returns value of internal routines return, for example.
Jan 13, 2017 * (Ingo Karkat) changed netrw#FileUrlRead to use :edit instead of :read . I also changed the routine name to netrw#FileUrlEdit.
Jan 16, 2017 * (Sayem) reported a problem where :Lexplore could generate a new listing buffer and window instead of toggling the netrw display. Unfortunately, the directions for eliciting the problem weren't complete, so I may or may not have fixed that issue.
Feb 06, 2017 * Implemented cb and cB. Changed "c" to "cd". (see netrw-cb , netrw-cB , and netrw-cd)
Mar 21, 2017 * previously, netrw would specify (safe) settings even when the setting was already safe for netrw. Netrw now attempts to leave such already-netrw-safe settings alone. (affects s:NetrwOptionRestore() and s:NetrwSafeOptions(); also introduced s:NetrwRestoreSetting())
Jun 26, 2017 * (Christian Brabandt) provided a patch to

allow curl to follow redirects (ie. -L option)
Jun 26, 2017 * (Callum Howard) reported a problem with :Lexpore not removing the Lexplore window after a change-directory
Aug 30, 2017 * (Ingo Karkat) one cannot switch to the previously edited file (e.g. with CTRL-^) after editing a file:// URL. Patch to have a "keepalt" included.
Oct 17, 2017 * (Adam Faryna) reported that gn (netrw-gn) did not work on directories in the current tree
v157: Apr 20, 2016 * (Nicola) had set up a "nmap <expr> ..." with a function that returned a 0 while silently invoking a shell command. The shell command activated a ShellCmdPost event which in turn called s:LocalBrowseRefresh(). That looks over all netrw buffers for changes needing refreshes. However, inside a :map-<expr> , tab and window changes are disallowed. Fixed. (affects netrw's s:LocalBrowseRefresh())
* g:netrw_localrmdir not used any more, but the relevant patch that causes delete() to take over was #1107 (not #1109).
* expand() is now used on g:netrw_home ; consequently, g:netrw_home may now use environment variables
* s:NetrwLeftmouse and s:NetrwCLeftmouse will return without doing anything if invoked when inside a non-netrw window
Jun 15, 2016 * gx now calls netrw#GX() which returns the word under the cursor. The new wrinkle: if one is in a netrw buffer, then netrw's s:NetrwGetWord().
Jun 22, 2016 * Netrw was executing all its associated Filetype commands silently; I'm going to try doing that "noisily" and see if folks have a problem with that.
Aug 12, 2016 * Changed order of tool selection for handling http://... viewing. (Nikolay Aleksandrovich Pavlov)
Aug 21, 2016 * Included hiding/showing/all for tree listings
* Fixed refresh (^L) for tree listings
v156: Feb 18, 2016 * Changed =~ to =~# where appropriate
Feb 23, 2016 * s:ComposePath(base,subdir) now uses fnameescape() on the base portion
Mar 01, 2016 * (gt_macki) reported where :Explore would make file unlisted. Fixed (tst943)
Apr 04, 2016 * (reported by John Little) netrw normally suppresses browser messages, but sometimes those "messages" are what is wanted. See g:netrw_suppress_gx_mesg
Apr 06, 2016 * (reported by Carlos Pita) deleting a remote

```
                      file was giving an error message.  Fixed.
        Apr 08, 2016    * (Charles Cooper) had a problem with an
                          undefined b:netrw_curdir.  He also provided
                          a fix.
        Apr 20, 2016    * Changed s:NetrwGetBuffer(); now uses
                          dictionaries.  Also fixed the "No Name"
                          buffer problem.
v155:   Oct 29, 2015    * (Timur Fayzrakhmanov) reported that netrw's
                          mapping of ctrl-l was not allowing refresh of
                          other windows when it was done in a netrw
                          window.
        Nov 05, 2015    * Improved s:TreeSqueezeDir() to use search()
                          instead of a loop
                        * NetrwBrowse() will return line to
                          w:netrw_bannercnt if cursor ended up in
                          banner
        Nov 16, 2015    * Added a <Plug>NetrwTreeSqueeze ( netrw-s-cr )
        Nov 17, 2015    * Commented out imaps -- perhaps someone can
                          tell me how they're useful and should be
                          retained?
        Nov 20, 2015    * Added  netrw-ma  and  netrw-mA  support
        Nov 20, 2015    * gx ( netrw-gx ) on a URL downloaded the
                          file in addition to simply bringing up the
                          URL in a browser.  Fixed.
        Nov 23, 2015    * Added  g:netrw_sizestyle  support
        Nov 27, 2015    * Inserted a lot of <c-u>s into various netrw
                          maps.
        Jan 05, 2016    *  netrw-qL  implemented to mark files based
                          upon  location-list s; similar to  netrw-qF .
        Jan 19, 2016    * using - call delete(directoryname,"d") -
                          instead of using g:netrw_localrmdir if
                          v7.4 + patch#1107 is available
        Jan 28, 2016    * changed to using  winsaveview()  and
                           winrestview()
        Jan 28, 2016    * s:NetrwTreePath() now does a save and
                          restore of view
        Feb 08, 2016    * Fixed a tree-listing problem with remote
                          directories
v154:   Feb 26, 2015    * (Yuri Kanivetsky) reported a situation where
                          a file was not treated properly as a file
                          due to g:netrw_keepdir == 1
        Mar 25, 2015    * (requested by Ben Friz) one may now sort by
                          extension
        Mar 28, 2015    * (requested by Matt Brooks) netrw has a lot
                          of buffer-local mappings; however, some
                          plugins (such as vim-surround) set up
                          conflicting mappings that cause vim to wait.
                          The "<nowait>" modifier has been included
                          with most of netrw's mappings to avoid that
                          delay.
        Jun 26, 2015    *  netrw-gn  mapping implemted
                        * :Ntree NotADir resulted in having
                          the tree listing expand in the error messages
                          window.  Fixed.
```

```
                Jun 29, 2015    * Attempting to delete a file remotely caused
                                  an error with "keepsol" mentioned; fixed.
                Jul 08, 2015    * Several changes to keep the  :jumps  table
                                  correct when working with
                                   g:netrw_fastbrowse  set to 2
                                * wide listing with accented characters fixed
                                  (using %-S instead of %-s with a  printf()
                Jul 13, 2015    * (Daniel Hahler) CheckIfKde() could be true
                                  but kfmclient not installed.  Changed order
                                  in netrw#BrowseX(): checks if kde and
                                  kfmclient, then will use xdg-open on a unix
                                  system (if xdg-open is executable)
                Aug 11, 2015    * (McDonnell) tree listing mode wouldn't
                                  select a file in a open subdirectory.
                                * (McDonnell) when multiple subdirectories
                                  were concurrently open in tree listing
                                  mode, a ctrl-L wouldn't refresh properly.
                                * The netrw:target menu showed duplicate
                                  entries
                Oct 13, 2015    * (mattn) provided an exception to handle
                                  windows with shellslash set but no shell
                Oct 23, 2015    * if g:netrw_usetab and <c-tab> now used
                                  to control whether NetrwShrink is used
                                  (see  netrw-c-tab )
v153:           May 13, 2014    * added another  g:netrw_ffkeep  usage {{{2
                May 14, 2014    * changed s:PerformListing() so that it
                                  always sets ft=netrw for netrw buffers
                                  (ie. even when syntax highlighting is
                                  off, not available, etc)
                May 16, 2014    * introduced the  netrw-ctrl-r  functionality
                May 17, 2014    * introduced the  netrw-:NetrwMB  functionality
                                * mb and mB ( netrw-mb ,  netrw-mB ) will
                                  add/remove marked files from bookmark list
                May 20, 2014    * (Enno Nagel) reported that :Lex <dirname>
                                  wasn't working.  Fixed.
                May 26, 2014    * restored test to prevent leftmouse window
                                  resizing from causing refresh.
                                  (see s:NetrwLeftmouse())
                                * fixed problem where a refresh caused cursor
                                  to go just under the banner instead of
                                  staying put
                May 28, 2014    * (László Bimba) provided a patch for opening
                                  the  :Lexplore  window 100% high, optionally
                                  on the right, and will work with remote
                                  files.
                May 29, 2014    * implemented :NetrwC  (see  netrw-:NetrwC )
                Jun 01, 2014    * Removed some "silent"s from commands used
                                  to implemented scp://... and pscp://...
                                  directory listing.  Permits request for
                                  password to appear.
                Jun 05, 2014    * (Enno Nagel) reported that user maps "/"
                                  caused problems with "b" and "w", which
                                  are mapped (for wide listings only) to
                                  skip over files rather than just words.
```

```
            Jun 10, 2014    *  g:netrw_gx  introduced to allow users to
                              override default "<cfile>" with the gx
                              ( netrw-gx ) map
            Jun 11, 2014    * gx ( netrw-gx ), with  'autowrite'  set,
                              will write modified files.  s:NetrwBrowseX()
                              will now save, turn off, and restore the
                               'autowrite'  setting.
            Jun 13, 2014    * added visual map for gx use
            Jun 15, 2014    * (Enno Nagel) reported that with having hls
                              set and wide listing style in use, that the
                              b and w maps caused unwanted highlighting.
            Jul 05, 2014    *  netrw-mv  and  netrw-mX  commands included
            Jul 09, 2014    *  g:netrw_keepj  included, allowing optional
                              keepj
            Jul 09, 2014    * fixing bugs due to previous update
            Jul 21, 2014    * (Bruno Sutic) provided an updated
                              netrw_gitignore.vim
            Jul 30, 2014    * (Yavuz Yetim) reported that editing two
                              remote files of the same name caused the
                              second instance to have a "temporary"
                              name.  Fixed: now they use the same buffer.
            Sep 18, 2014    * (Yasuhiro Matsumoto) provided a patch which
                              allows scp and windows local paths to work.
            Oct 07, 2014    * gx (see  netrw-gx ) when atop a directory,
                              will now do  gf  instead
            Nov 06, 2014    * For cygwin: cygstart will be available for
                              netrw#BrowseX() to use if its executable.
            Nov 07, 2014    * Began support for file://... urls.  Will use
                               g:netrw_file_cmd  (typically elinks or links)
            Dec 02, 2014    * began work on having mc ( netrw-mc ) copy
                              directories.  Works for linux machines,
                              cygwin+vim, but not for windows+gvim.
            Dec 02, 2014    * in tree mode, netrw was not opening
                              directories via symbolic links.
            Dec 02, 2014    * added resolved link information to
                              thin and tree modes
            Dec 30, 2014    * (issue#231)  :ls  was not showing
                              remote-file buffers reliably.  Fixed.
v152:       Apr 08, 2014    * uses the  'noswapfile'  option (requires {{{2
                              vim 7.4 with patch 213)
                            * (Enno Nagel) turn  'rnu'  off in netrw
                              buffers.
                            * (Quinn Strahl) suggested that netrw
                              allow regular window splitting to occur,
                              thereby allowing  'equalalways'  to take
                              effect.
                            * (qingtian zhao) normally, netrw will
                              save and restore the  'fileformat' ;
                              however, sometimes that isn't wanted
            Apr 14, 2014    * whenever netrw marks a buffer as ro,
                              it will also mark it as nomod.
            Apr 16, 2014    * sftp protocol now supported by
                              netrw#Obtain(); this means that one
                              may use "mc" to copy a remote file
```

```
                      to a local file using sftp, and that
                      the  netrw-O  command can obtain remote
                      files via sftp.
                    * added [count]C support (see  netrw-C )
          Apr 18, 2014  * when  g:netrw_chgwin  is one more than
                      the last window, then vertically split
                      the last window and use it as the
                      chgwin window.
          May 09, 2014  * SavePosn was "saving filename under cursor"
                      from a non-netrw window when using :Rex.
v151:     Jan 22, 2014  * extended :Rexplore to return to buffer {{{2
                      prior to Explore or editing a directory
                    * (Ken Takata) netrw gave error when
                      clipboard was disabled.  Sol'n: Placed
                      several if has("clipboard") tests in.
                    * Fixed ftp://X@Y@Z// problem; X@Y now
                      part of user id, and only Z is part of
                      hostname.
                    * (A Loumiotis) reported that completion
                      using a directory name containing spaces
                      did not work.  Fixed with a retry in
                      netrw#Explore() which removes the
                      backslashes vim inserted.
          Feb 26, 2014  * :Rexplore now records the current file
                       using w:netrw_rexfile when returning via
                       :Rexplore
          Mar 08, 2014  * (David Kotchan) provided some patches
                      allowing netrw to work properly with
                      windows shares.
                    * Multiple one-liner help messages available
                      by pressing <cr> while atop the "Quick
                      Help" line
                    * worked on ShellCmdPost, FocusGained event
                      handling.
                    *  :Lexplore  path: will be used to update
                      a left-side netrw browsing directory.
          Mar 12, 2014  *  netrw-s-cr : use <s-cr>  to close
                      tree directory implemented
          Mar 13, 2014  * (Tony Mechylynck) reported that using
                      the browser with ftp on a directory,
                      and selecting a gzipped txt file, that
                      an E19 occurred (which was issued by
                      gzip.vim).  Fixed.
          Mar 14, 2014  * Implemented :MF and :MT (see  netrw-:MF
                      and  netrw-:MT , respectively)
          Mar 17, 2014  *  :Ntree  [dir] wasn't working properly; fixed
          Mar 18, 2014  * Changed all uses of set to setl
          Mar 18, 2014  * Commented the netrw_btkeep line in
                      s:NetrwOptionSave(); the effect is that
                      netrw buffers will remain as  'bt' =nofile.
                      This should prevent swapfiles being created
                      for netrw buffers.
          Mar 20, 2014  * Changed all uses of lcd to use s:NetrwLcd()
                      instead.  Consistent error handling results
```

```
                    and it also handles Window's shares
                  * Fixed  netrw-d  command when applied with ftp
                  * https: support included for netrw#NetRead()
v150:   Jul 12, 2013    * removed a "keepalt" to allow ":e #" to {{{2
                    return to the netrw directory listing
        Jul 13, 2013    * (Jonas Diemer) suggested changing
                    a <cWORD> to <cfile>.
        Jul 21, 2013    * (Yuri Kanivetsky) reported that netrw's
                    use of mkdir did not produce directories
                    following the user's umask.
        Aug 27, 2013    * introduced  g:netrw_altfile  option
        Sep 05, 2013    * s:Strlen() now uses  strdisplaywidth()
                    when available, by default
        Sep 12, 2013    * (Selyano Baldo) reported that netrw wasn't
                    opening some directories properly from the
                    command line.
        Nov 09, 2013    *  :Lexplore  introduced
                  * (Ondrej Platek) reported an issue with
                    netrw's trees (P15).  Fixed.
                  * (Jorge Solis) reported that "t" in
                    tree mode caused netrw to forget its
                    line position.
        Dec 05, 2013    * Added <s-leftmouse> file marking
                    (see  netrw-mf )
        Dec 05, 2013    * (Yasuhiro Matsumoto) Explore should use
                    strlen() instead s:Strlen() when handling
                    multibyte chars with strpart()
                    (ie. strpart() is byte oriented, not
                    display-width oriented).
        Dec 09, 2013    * (Ken Takata) Provided a patch; File sizes
                    and a portion of timestamps were wrongly
                    highlighted with the directory color when
                    setting `:let g:netrw_liststyle=1` on Windows.
                  * (Paul Domaskis) noted that sometimes
                    cursorline was activating in non-netrw
                    windows.  All but one setting of cursorline
                    was done via setl; there was one that was
                    overlooked.  Fixed.
        Dec 24, 2013    * (esquifit) asked that netrw allow the
                    /cygdrive prefix be a user-alterable
                    parameter.
        Jan 02, 2014    * Fixed a problem with netrw-based ballon
                    evaluation (ie. netrw#NetrwBaloonHelp()
                    not having been loaded error messages)
        Jan 03, 2014    * Fixed a problem with tree listings
                  * New command installed:  :Ntree
        Jan 06, 2014    * (Ivan Brennan) reported a problem with
                     netrw-P .  Fixed.
        Jan 06, 2014    * Fixed a problem with  netrw-P  when the
                    modified file was to be abandoned.
        Jan 15, 2014    * (Matteo Cavalleri) reported that when the
                    banner is suppressed and tree listing is
                    used, a blank line was left at the top of
                    the display.  Fixed.
```

```
                Jan 20, 2014    * (Gideon Go) reported that, in tree listing
                                  style, with a previous window open, that
                                  the wrong directory was being used to open
                                  a file.  Fixed. (P21)
        v149:   Apr 18, 2013    * in wide listing format, now have maps for {{{2
                                  w and b to move to next/previous file
                Apr 26, 2013    * one may now copy files in the same
                                  directory; netrw will issue requests for
                                  what names the files should be copied under
                Apr 29, 2013    * Trying Benzinger's problem again.  Seems
                                  that commenting out the BufEnter and
                                  installing VimEnter (only) works.  Weird
                                  problem!  (tree listing, vim -O Dir1 Dir2)
                May 01, 2013    * :Explore ftp://... wasn't working.  Fixed.
                May 02, 2013    * introduced  g:netrw_bannerbackslash  as
                                  requested by Paul Domaskis.
                Jul 03, 2013    * Explore now avoids splitting when a buffer
                                  will be hidden.
        v148:   Apr 16, 2013    * changed Netrw's Style menu to allow direct {{{2
                                  choice of listing style, hiding style, and
                                  sorting style

==============================================================================
13. Todo                                                  netrw-todo  {{{1

07/29/09 : banner       : g:netrw_banner  can be used to suppress the
           suppression    banner.  This feature is new and experimental,
                          so its in the process of being debugged.
09/04/09 : "gp"         : See if it can be made to work for remote systems.
                        : See if it can be made to work with marked files.

==============================================================================
14. Credits                                               netrw-credits  {{{1

        Vim editor      by Bram Moolenaar (Thanks, Bram!)
        dav             support by C Campbell
        fetch           support by Bram Moolenaar and C Campbell
        ftp             support by C Campbell <NdrOchip@ScampbellPfamily.AbizM>
        http            support by Bram Moolenaar <bram@moolenaar.net>
        rcp
        rsync           support by C Campbell (suggested by Erik Warendorph)
        scp             support by raf <raf@comdyn.com.au>
        sftp            support by C Campbell

        inputsecret(), BufReadCmd, BufWriteCmd contributed by C Campbell

        Jérôme Augé             -- also using new buffer method with ftp+.netrc
        Bram Moolenaar          -- obviously vim itself, :e and v:cmdarg use,
                                   fetch,...
        Yasuhiro Matsumoto      -- pointing out undo+0r problem and a solution
        Erik Warendorph         -- for several suggestions (g:netrw_..._cmd
                                   variables, rsync etc)
        Doug Claar              -- modifications to test for success with ftp
                                   operation
```

```
==============================================================================
Modelines: {{{1
 vim:tw=78:ts=8:noet:ft=help:norl:fdm=marker
```

pi_paren.txt For Vim version 8.1. Last change: 2013 May 08

VIM REFERENCE MANUAL by Bram Moolenaar

Highlighting matching parens matchparen

The functionality mentioned here is a standard-plugin .
This plugin is only available if 'compatible' is not set.

You can avoid loading this plugin by setting the "loaded_matchparen" variable:
```
:let loaded_matchparen = 1
```

The plugin installs CursorMoved, CursorMovedI and WinEnter autocommands to redefine the match highlighting.

:NoMatchParen :DoMatchParen
To disable the plugin after it was loaded use this command:

```
:NoMatchParen
```

And to enable it again:

```
:DoMatchParen
```

The highlighting used is MatchParen. You can specify different colors with the ":highlight" command. Example:

```
:hi MatchParen ctermbg=blue guibg=lightblue
```

The characters to be matched come from the 'matchpairs' option. You can change the value to highlight different matches. Note that not everything is possible. For example, you can't highlight single or double quotes, because the start and end are equal.

The syntax highlighting attributes are used. When the cursor currently is not in a string or comment syntax item, then matches inside string and comment syntax items are ignored. Any syntax items with "string" or "comment" somewhere in their name are considered string or comment items.

The search is limited to avoid a delay when moving the cursor. The limits are:
- What is visible in the window.
- 100 lines above or below the cursor to avoid a long delay when there are closed folds.
- 'synmaxcol' times 2 bytes before or after the cursor to avoid a delay in a long line with syntax highlighting.
- A timeout of 300 msec (60 msec in Insert mode). This can be changed with the g:matchparen_timeout and g:matchparen_insert_timeout variables and their buffer-local equivalents b:matchparen_timeout and b:matchparen_insert_timeout.

If you would like the % command to work better, the matchit plugin can be

used, see matchit-install . This plugin also helps to skip matches in comments. This is unrelated to the matchparen highlighting, they use a different mechanism.

==
vim:tw=78:ts=8:noet:ft=help:norl:

pi_tar.txt For Vim version 8.1. Last change: 2013 Apr 17

```
                    +====================+
                    | Tar File Interface |
                    +====================+
```

Author: Charles E. Campbell <NdrOchip@ScampbellPfamily.AbizM>
 (remove NOSPAM from Campbell's email first)

==
1. Contents tar tar-contents

==
2. Usage tar-usage tar-manual

When one edits a *.tar file, this plugin will handle displaying a
contents page. Select a file to edit by moving the cursor atop
the desired file, then hit the <return> key. After editing, one may
also write to the file. Currently, one may not make a new file in
tar archives via the plugin.

  :Vimuntar
VIMUNTAR

:Vimuntar [vimhome]

     This command copies, if necessary, the tarball to the .vim or vimfiles
     directory using the first writable directory in the 'runtimepath'
     when no [vimhome] is specified. Otherwise, the [vimhome] argument
     allows the user to specify that directory, instead.

     The copy is done using the command in g:tar_copycmd , which is
             cp   for cygwin, unix, macunix
             copy for windows (32, 95, 64, 16)
    The extraction is done with the command specified with
      g:tar_extractcmd , which by default is
             "tar -xf"

  :TarDiff
DIFFERENCING SUPPORT

:TarDiff [filename]

This command will attempt to show the differences between the tarball version of a file and the associated file on the system. In order to find that file on the system, the script uses the path associated with the file mentioned in the tarball. If the current directory is not correct for that path, :TarDiff will fail to find the associated file.

If the [filename] is given, that that filename (and path) will be used to specify the associated file.

PREVENTING LOADING

If for some reason you do not wish to use vim to examine tar'd files, you may put the following two variables into your <.vimrc> to prevent the tar plugin from loading:

```
let g:loaded_tarPlugin= 1
let g:loaded_tar      = 1
```

3. Options tar-options

These options are variables that one may change, typically in one's <.vimrc> file.

Variable	Default Value	Explanation
g:tar_browseoptions	"Ptf"	used to get a list of contents
g:tar_readoptions	"OPxf"	used to extract a file from a tarball
g:tar_cmd	"tar"	the name of the tar program
g:tar_nomax	0	if true, file window will not be maximized

g:tar_secure	undef	if exists:
		"--"s will be used to prevent unwanted option expansion in tar commands. Please be sure that your tar command accepts "--"; Posix compliant tar utilities do accept them.
		if not exists:
		The tar plugin will reject any tar files or member files that begin with "-"
		Not all tar's support the "--" which is why it isn't default.

g:tar_writeoptions	"uf"	used to update/replace a file

4. History tar-history

v28 Jun 23, 2011 * a few more decompression options (tbz tb2 txz)

```
   v27 May 31, 2011 * moved cygwin detection before g:tar_copycmd handling
                    * inserted additional  :keepj  modifiers
                    * changed silent  to  sil!  ( :silent )
   v26 Aug 09, 2010 * uses buffer-local instead of window variables to hold
                      tarfile name
                    * inserted keepj before 0d to protect jump list
   v25 Jun 19, 2010 * (Jan Steffens) added support for xz compression
   v24 Apr 07, 2009 * :Untarvim command implemented
       Sep 28, 2009 * Added lzma support
   v22 Aug 08, 2008 * security fixes
   v16 Jun 06, 2008 * tarfile:: used instead of tarfile: when editing files
                      inside tarballs.  Fixes a problem with tarballs called
                      things like c:\abc.tar. (tnx to Bill McCarthy)
   v14 May 09, 2008 * arno caught a security bug
       May 28, 2008 * various security improvements.  Now requires patch 299
                      which provides the fnameescape() function
       May 30, 2008 * allows one to view *.gz and *.bz2 files that are in
                     *.tar files.
   v12 Sep 07, 2007 * &shq now used if not the empty string for g:tar_shq
   v10 May 02, 2006 * now using "redraw then echo" to show messages, instead
                      of "echo and prompt user"
   v9 May 02, 2006 * improved detection of masquerading as tar file
   v8 May 02, 2006 * allows editing of files that merely masquerade as tar
                     files
   v7 Mar 22, 2006 * work on making tar plugin work across network
      Mar 27, 2006 * g:tar_cmd now available for users to change the name
                     of the tar program to be used.  By default, of course,
                     it's "tar".
   v6 Dec 21, 2005 * writing to files not in directories caused problems -
                     fixed (pointed out by Christian Robinson)
   v5 Nov 22, 2005 * report option workaround installed
   v3 Sep 16, 2005 * handles writing files in an archive back to the
                     archive
      Oct 18, 2005 * <amatch> used instead of <afile> in autocmds
      Oct 18, 2005 * handles writing to compressed archives
      Nov 03, 2005 * handles writing tarfiles across a network using
                     netrw#NetWrite()
   v2              * converted to use Vim7's new autoload feature by
                     Bram Moolenaar
   v1 (original)   * Michael Toren (see http://michael.toren.net/code/)

==============================================================================
vim:tw=78:ts=8:noet:ft=help
```

pi_vimball.txt For Vim version 8.1. Last change: 2016 Apr 11

Vimball Archiver

Author: Charles E. Campbell <NdrOchip@ScampbellPfamily.AbizM>
(remove NOSPAM from Campbell's email first)

1. Contents vba vimball vimball-contents

2. Vimball Introduction vimball-intro

Vimball is intended to make life simpler for users of plugins. All
a user needs to do with a vimball is:

```
vim someplugin.vba
:so %
:q
```

and the plugin and all its components will be installed into their
appropriate directories. Note that one doesn't need to be in any
particular directory when one does this. Plus, any help for the
plugin will also be automatically installed.

If a user has decided to use the AsNeeded plugin, vimball is smart
enough to put scripts nominally intended for .vim/plugin/ into
.vim/AsNeeded/ instead.

Removing a plugin that was installed with vimball is really easy:

```
vim
:RmVimball someplugin
```

This operation is not at all easy for zips and tarballs, for example.

Vimball examines the user's 'runtimepath' to determine where to put

the scripts. The first directory mentioned on the runtimepath is usually used if possible. Use

```
:echo &rtp
```

to see that directory.

==

3. Vimball Manual vimball-manual

MAKING A VIMBALL :MkVimball

```
:[range]MkVimball[!] filename [path]
```

The range is composed of lines holding paths to files to be included in your new vimball, omitting the portion of the paths that is normally specified by the runtimepath ('rtp'). As an example:

```
plugin/something.vim
doc/something.txt
```

using

```
:[range]MkVimball filename
```

on this range of lines will create a file called "filename.vba" which can be used by Vimball.vim to re-create these files. If the "filename.vba" file already exists, then MkVimball will issue a warning and not create the file. Note that these paths are relative to your .vim (vimfiles) directory, and the files should be in that directory. The vimball plugin normally uses the first 'runtimepath' directory that exists as a prefix; don't use absolute paths, unless the user has specified such a path.

If you use the exclamation point (!), then MkVimball will create the "filename.vba" file, overwriting it if it already exists. This behavior resembles that for :w .

If you wish to force slashes into the filename, that can also be done by using the exclamation mark (ie. :MkVimball! path/filename).

The tip at http://vim.wikia.com/wiki/Using_VimBall_with_%27Make%27 has a good idea on how to automate the production of vimballs using make.

MAKING DIRECTORIES VIA VIMBALLS g:vimball_mkdir

First, the mkdir() command is tried (not all systems support it).

If it doesn't exist, then if g:vimball_mkdir doesn't exist, it is set as follows:

```
|g:netrw_localmkdir|, if it exists
"mkdir"            , if it is executable
"makedir"          , if it is executable
Otherwise          , it is undefined.
```

One may explicitly specify the directory making command using g:vimball_mkdir. This command is used to make directories that are needed as indicated by the vimball.

CONTROLLING THE VIMBALL EXTRACTION DIRECTORY g:vimball_home

You may override the use of the 'runtimepath' by specifying a variable, g:vimball_home.

vimball-extract

```
vim filename.vba
```

Simply editing a Vimball will cause Vimball.vim to tell the user to source the file to extract its contents.

Extraction will only proceed if the first line of a putative vimball file holds the "Vimball Archiver by Charles E. Campbell" line.

LISTING FILES IN A VIMBALL :VimballList

```
:VimballList
```

This command will tell Vimball to list the files in the archive, along with their lengths in lines.

MANUALLY INVOKING VIMBALL EXTRACTION :UseVimball

```
:UseVimball [path]
```

This command is contained within the vimball itself; it invokes the vimball#Vimball() routine which is responsible for unpacking the vimball. One may choose to execute it by hand instead of sourcing the vimball; one may also choose to specify a path for the installation, thereby overriding the automatic choice of the first existing directory on the 'runtimepath' .

REMOVING A VIMBALL :RmVimball

```
:RmVimball vimballfile [path]
```

This command removes all files generated by the specified vimball (but not any directories it may have made). One may choose a path for de-installation, too (see 'runtimepath'); otherwise, the default is the first existing directory on the 'runtimepath' .
To implement this, a file (.VimballRecord) is made in that directory containing a record of what files need to be removed for all vimballs used thus far.

PREVENTING LOADING

If for some reason you don't want to be able to extract plugins using vimballs: you may prevent the loading of vimball.vim by putting the following two variables in your <.vimrc>:

```
let g:loaded_vimballPlugin= 1
let g:loaded_vimball      = 1
```

WINDOWS vimball-windows

Many vimball files are compressed with gzip. Windows, unfortunately, does not come provided with a tool to decompress gzip'ped files. Fortunately, there are a number of tools available for Windows users to un-gzip files:

Item	Tool/Suite	Free	Website
7zip	tool	y	http://www.7-zip.org/
Winzip	tool	n	http://www.winzip.com/downwz.htm
unxutils	suite	y	http://unxutils.sourceforge.net/
cygwin	suite	y	http://www.cygwin.com/
GnuWin32	suite	y	http://gnuwin32.sourceforge.net/
MinGW	suite	y	http://www.mingw.org/

==========

4. Vimball History vimball-history {{{1

```
        37 : Jul 18, 2014 * (by request of T. Miedema) added augroup around
                            the autocmds in vimballPlugin.vim
             Jul 06, 2015 * there are two uses of tabc; changed to tabc!
        34 : Sep 22, 2011 * "UseVimball path" now supports a non-full path by
                            prepending the current directory to it.
        33 : Apr 02, 2011 * Gave priority to *.vmb over *.vba
                          * Changed silent! to sil! (shorter)
                          * Safed  'swf'  setting (during vimball extraction,
                            its now turned off)
        32 : May 19, 2010 * (Christian Brabrandt) :so someplugin.vba and
                            :so someplugin.vba.gz (and the other supported
                            compression types) now works
                          * (Jan Steffens) added support for xz compression
                          * fenc extraction was erroneously picking up the
                            end of the line number when no file encoding
                            was present.  Fixed.
                          * By request, beginning the switchover from the vba
                            extension to vmb.  Currently both are supported;
                            MkVimball, however, now will create *.vmb files.
             Feb 11, 2011 * motoyakurotsu reported an error with vimball's
                            handling of zero-length files
             Feb 18, 2016 * Changed =~ to =~# where appropriate
        30 : Dec 08, 2008 * fnameescape() inserted to protect error
                            messaging using corrupted filenames from
                            causing problems
                          * RmVimball supports filenames that would
                            otherwise be considered to have "magic"
                            characters (ie. Abc[1].vba)
             Feb 18, 2009 * s:Escape(), g:vimball_shq, and g:netrw_shq
                            removed (shellescape() used directly)
             Oct 05, 2009 * (Nikolai Weibull) suggested that MkVimball
                            be allowed to use slashes in the filename.
        26 : May 27, 2008 * g:vimball_mkdir usage installed.  Makes the
```

```
                  $HOME/.vim (or $HOME\vimfiles) directory if
                  necessary.
     May 30, 2008 * (tnx to Bill McCarthy) found and fixed a bug:
                  vimball wasn't updating plugins to AsNeeded/
                  when it should
25 : Mar 24, 2008 * changed vimball#Vimball() to recognize doc/*.??x
                  files as help files, too.
     Apr 18, 2008 * RmVimball command is now protected by saving and
                  restoring settings -- in particular, acd was
                  causing problems as reported by Zhang Shuhan
24 : Nov 15, 2007 * g:vimball_path_escape used by s:Path() to
                  prevent certain characters from causing trouble
                  (defunct:  fnameescape()  and  shellescape()
                  now used instead)
22 : Mar 21, 2007 * uses setlocal instead of set during BufEnter
21 : Nov 27, 2006 * (tnx to Bill McCarthy) vimball had a header
                  handling problem and it now changes \s to /s
20 : Nov 20, 2006 * substitute() calls have all had the 'e' flag
                  removed.
18 : Aug 01, 2006 * vimballs now use folding to easily display their
                  contents.
                  * if a user has AsNeeded/somefile, then vimball
                  will extract plugin/somefile to the AsNeeded/
                  directory
17 : Jun 28, 2006 * changes all \s to /s internally for Windows
16 : Jun 15, 2006 * A. Mechelynck's idea to allow users to specify
                  installation root paths implemented for
                  UseVimball, MkVimball, and RmVimball.
                  * RmVimball implemented
15 : Jun 13, 2006 * bugfix
14 : May 26, 2006 * bugfixes
13 : May 01, 2006 * exists("&acd") used to determine if the acd
                  option exists
12 : May 01, 2006 * bugfix - the  'acd'  option is not always defined
11 : Apr 27, 2006 * VimballList would create missing subdirectories that
                  the vimball specified were needed.  Fixed.
10 : Apr 27, 2006 * moved all setting saving/restoration to a pair of
                  functions.  Included some more settings in them
                  which frequently cause trouble.
9  : Apr 26, 2006 * various changes to support Windows' predilection
                  for backslashes and spaces in file and directory
                  names.
7  : Apr 25, 2006 * bypasses foldenable
                  * uses more exe and less norm! (:yank :put etc)
                  * does better at insuring a "Press ENTER" prompt
                  appears to keep its messages visible
4  : Mar 31, 2006 * BufReadPost seems to fire twice; BufReadEnter
                  only fires once, so the "Source this file..."
                  message is now issued only once.
3  : Mar 20, 2006 * removed query, now requires sourcing to be
                  extracted (:so %).  Message to that effect
                  included.
                  * :VimballList  now shows files that would be
                  extracted.
```

```
        2  : Mar 20, 2006 * query, :UseVimball included
        1  : Mar 20, 2006 * initial release


==============================================================================
vim:tw=78:ts=8:noet:ft=help:fdm=marker
```

pi_zip.txt For Vim version 8.1. Last change: 2016 Sep 13

```
                              +====================+
                              | Zip File Interface |
                              +====================+
```

Author: Charles E. Campbell <NdrOchip@ScampbellPfamily.AbizM>
          (remove NOSPAM from Campbell's email first)

==
1. Contents   zip zip-contents

==
2. Usage   zip-usage zip-manual

   When one edits a *.zip file, this plugin will handle displaying a
   contents page. Select a file to edit by moving the cursor atop
   the desired file, then hit the <return> key. After editing, one may
   also write to the file. Currently, one may not make a new file in
   zip archives via the plugin.

                                                                  zip-x
   x : may extract a listed file when the cursor is atop it

   OPTIONS

                                                        g:zip_nomax

   If this variable exists and is true, the file window will not be
   automatically maximized when opened.

                                                        g:zip_shq
   Different operating systems may use one or more shells to execute
   commands. Zip will try to guess the correct quoting mechanism to
   allow spaces and whatnot in filenames; however, if it is incorrectly
   guessing the quote to use for your setup, you may use
        g:zip_shq
  which by default is a single quote under Unix (') and a double quote
   under Windows ("). If you'd rather have no quotes, simply set
   g:zip_shq to the empty string (let g:zip_shq= "") in your <.vimrc>.

g:zip_unzipcmd

Use this option to specify the program which does the duty of "unzip". It's used during browsing. By default:

```
let g:zip_unzipcmd= "unzip"
```

g:zip_zipcmd

Use this option to specify the program which does the duty of "zip". It's used during the writing (updating) of a file already in a zip file; by default:

```
let g:zip_zipcmd= "zip"
```

g:zip_extractcmd

This option specifies the program (and any options needed) used to extract a file from a zip archive. By default,

```
let g:zip_extractcmd= g:zip_unzipcmd
```

PREVENTING LOADING

If for some reason you do not wish to use vim to examine zipped files, you may put the following two variables into your <.vimrc> to prevent the zip plugin from loading:

```
let g:loaded_zipPlugin= 1
let g:loaded_zip      = 1
```

==========

3. Additional Extensions zip-extension

Apparently there are a number of archivers which generate zip files that don't use the .zip extension (.jar, .xpi, etc). To handle such files, place a line in your <.vimrc> file:

```
au BufReadCmd *.jar,*.xpi call zip#Browse(expand("<amatch>"))
```

One can simply extend this line to accommodate additional extensions that should be treated as zip files.

Alternatively, one may change g:zipPlugin_ext in one's .vimrc. Currently (11/30/15) it holds:

```
let g:zipPlugin_ext= '*.zip,*.jar,*.xpi,*.ja,*.war,*.ear,*.celzip,
\ *.oxt,*.kmz,*.wsz,*.xap,*.docx,*.docm,*.dotx,*.dotm,*.potx,*.potm,
\ *.ppsx,*.ppsm,*.pptx,*.pptm,*.ppam,*.sldx,*.thmx,*.xlam,*.xlsx,*.xlsm,
\ *.xlsb,*.xltx,*.xltm,*.xlam,*.crtx,*.vdw,*.glox,*.gcsx,*.gqsx,*.epub'
```

==========

4. History zip-history {{{1

v28 Oct 08, 2014 * changed the sanity checks for executables to reflect
the command actually to be attempted in zip#Read()
and zip#Write()
* added the extraction of a file capability
Nov 30, 2015 * added *.epub to the g:zipPlugin_ext list

```
    Sep 13, 2016 * added *.apk to the  g:zipPlugin_ext  list and
                   sorted the suffices.
v27 Jul 02, 2013 * sanity check: zipfile must have "PK" as its first
                   two bytes.
                 * modified to allow zipfile: entries in quickfix lists
v26 Nov 15, 2012 * (Jason Spiro) provided a lot of new extensions that
                   are synonyms for .zip
v25 Jun 27, 2011 * using keepj with unzip -Z
                   (consistent with the -p variant)
                 * (Ben Staniford) now uses
                     has("win32unix") && executable("cygpath")
                   before converting to cygwin-style paths
v24 Jun 21, 2010 * (Cédric Bosdonnat) unzip seems to need its filenames
                   fnameescape'd as well as shellquote'd
                 * (Motoya Kurotsu) inserted keepj before 0d to protect
                   jump list
v17 May 09, 2008 * arno caught a security bug
v15 Sep 07, 2007 * &shq now used if not the empty string for g:zip_shq
v14 May 07, 2007 * using b:zipfile instead of w:zipfile to avoid problem
                   when editing alternate file to bring up a zipfile
v10 May 02, 2006 * now using "redraw then echo" to show messages, instead
                   of "echo and prompt user"
                 * g:zip_shq provided to allow for quoting control for the
                   command being passed via :r! ... commands.
v8 Apr 10, 2006 * Bram Moolenaar reported that he received an error message
                  due to "Pattern not found: ^.*\%0c"; this was caused by
                  stridx finding a Name... at the beginning of the line;
                  zip.vim tried 4,$s/^.*\%0c//, but that doesn't work.
                  Fixed.
v7 Mar 22, 2006 * escaped some characters that can cause filename handling
                  problems.
v6 Dec 21, 2005 * writing to files not in directories caused problems -
                  fixed (pointed out by Christian Robinson)
v5 Nov 22, 2005 * report option workaround installed
v3 Oct 18, 2005 * <amatch> used instead of <afile> in autocmds
v2 Sep 16, 2005 * silenced some commands (avoiding hit-enter prompt)
                * began testing under Windows; works thus far
                * filetype detection fixed
   Nov 03, 2005 * handles writing zipfiles across a network using
                  netrw#NetWrite()
v1 Sep 15, 2005 * Initial release, had browsing, reading, and writing

==============================================================================
vim:tw=78:ts=8:noet:ft=help:fdm=marker
```

VIM REFERENCE MANUAL by Bram Moolenaar

SPONSOR VIM DEVELOPMENT sponsor

Fixing bugs and adding new features takes a lot of time and effort. To show your appreciation for the work and motivate Bram and others to continue working on Vim please send a donation.

Since Bram is back to a paid job the money will now be used to help children in Uganda. See uganda . But at the same time donations increase Bram's motivation to keep working on Vim!

For the most recent information about sponsoring look on the Vim web site:

http://www.vim.org/sponsor/

More explanations can be found in the sponsor-faq .

REGISTERED VIM USER register

You can become a registered Vim user by sending at least 10 euro. This works similar to sponsoring Vim, see sponsor above. Registration was made possible for the situation where your boss or bookkeeper may be willing to register software, but does not like the terms "sponsoring" and "donation".

More explanations can be found in the register-faq .

VOTE FOR FEATURES vote-for-features

To give registered Vim users and sponsors an advantage over lurkers they can vote for the items Bram should work on. How does this voting work?

1. You send at least 10 euro. See below for ways to transfer money send-money .

2. You will be e-mailed a registration key. Enter this key on your account page on the Vim website. You can easily create an account if you don't have one yet.

3. You can enter your votes on the voting page. There is a link to that page on your account page after entering a registration key. Your votes will be counted for two years.

4. The voting results appear on the results page, which is visible for everybody: http://www.vim.org/sponsor/vote_results.php

Additionally, once you have sent 100 euro or more in total, your name appears

in the "Vim hall of honour": http://www.vim.org/sponsor/hall_of_honour.php
But only if you enable this on your account page.

HOW TO SEND MONEY send-money

Credit card Through PayPal, see the PayPal site for information:
  https://www.paypal.com/en_US/mrb/pal=XAC62PML3GF8Q
  The e-mail address for sending sponsorship money is:
  donate@vim.org
  The e-mail address for Vim registration is:
  register@vim.org
  Using Euro is preferred, other currencies are also accepted.
  In Euro countries a bank transfer is preferred, this has lower
  costs.

Other methods See iccf-donations .
  Include "Vim sponsor" or "Vim registration" in the comment of
  your money transfer. Send me an e-mail that mentions the
  amount you transferred if you want to vote for features and
  show others you are a registered Vim user or sponsor.

Cash Small amounts can be sent with ordinary mail. Put something
  around the money, so that it's not noticeable from the
  outside. Mention your e-mail address if you want to vote for
  features and show others you are a registered Vim user or
  sponsor.

You can use this permanent address:
  Bram Moolenaar
  Finsterruetihof 1
  8134 Adliswil
  Switzerland

QUESTIONS AND ANSWERS sponsor-faq register-faq

Why should I give money?

If you do not show your appreciation for Vim then Bram will be less motivated
to fix bugs and add new features. He will do something else instead.

How much money should I send?

That is up to you. The more you give, the more children will be helped.
An indication for individuals that use Vim at home: 10 Euro per year. For
professional use: 30 Euro per year per person. Send at least 10 euro to be
able to vote for features.

What do I get in return?

Each registered Vim user and sponsor who donates at least 10 euro will be able to vote for new features. These votes will give priority to the work on Vim. The votes are valid for two years. The more money you send the more your votes count votes-counted .

If you send 100 Euro or more in total you will be mentioned on the "Vim hall of honour" page on the Vim web site. But only if you enable this on your account page. You can also select whether the amount will be visible.

How do I become a Vim sponsor or registered Vim user?

Send money, as explained above send-money and include your e-mail address. When the money has been received you will receive a unique registration key. This key can be used on the Vim website to activate voting on your Vim account. You will then get an extra page where you can vote for features and choose whether others will be able to see that you donated. There is a link to this page on your "My Account" page.

What is the difference between sponsoring and registering?

It has a different name. Use the term "registration" if your boss doesn't like "sponsoring" or "donation". The benefits are the same.

How can I send money?

See send-money . Check the web site for the most recent information: http://www.vim.org/sponsor/

Why don't you use the SourceForge donation system?

SourceForge takes 5% of the donations for themselves. If you want to support SourceForge you can send money to them directly.

I cannot afford to send money, may I still use Vim?

Yes.

I did not register Vim, can I use all available features?

Yes.

I noticed a bug, do I need to register before I can report it?

No, suggestions for improving Vim can always be given. For improvements use the developer maillist , for reporting bugs see bugs .

How are my votes counted? votes-counted

You may vote when you send 10 euro or more. You can enter up to ten votes.
You can select the same item several times to give it more points. You can
also enter three counter votes, these count as negative points.

When you send 30 euro or more the points are doubled. Above 100 euro they
count four times, above 300 euro they count six times, above 1000 euro ten
times.

Can I change my votes?

You can change your votes any time you like, up to two years after you
sent money. The points will be counted right away.

Can I add an item to vote on?

Not directly. You can suggest items to vote on to Bram. He will consider
fitting your item into the list.

How about Charityware?

Currently the Vim donations go to uganda anyway. Thus it doesn't matter if
you sponsor Vim or ICCF. Except that Vim sponsoring will allow you to vote
for features.

I donated $$$, now please add feature XYZ!

There is no direct relation between your donation and the work Bram does.
Otherwise you would be paying for work and we would have to pay tax over the
donation. If you want to hire Bram for specific work, contact him directly,
don't use the donation system.

Are the donations tax deductible?

That depends on your country. The donations to help the children in Uganda
are tax deductible in Holland, Germany, Canada and in the USA. See the ICCF
website http://iccf-holland.org/donate.html. You must send an e-mail to Bram
to let him know that the donation is done because of the use of Vim.

Can you send me a bill?

No, because there is no relation between the money you send and the work that
is done. But a receipt is possible.

 vim:tw=78:ts=8:noet:ft=help:norl:

vim_faq.txt Frequently Asked Questions

Last updated on: 04 August 2016

VIM FAQ by: Christian Brabandt <cb@256bit.org>

Frequently Asked Questions vim-faq Vim-FAQ

This Vim FAQ is created from the questions and answers posted to the vim@vim.org user mailing list and the comp.editors newsgroup. There are several ways to solve a problem in Vim. This FAQ gives one of those several possibilities. You can explore the other ways using the information and links given in this FAQ. The credit for the answers in this FAQ goes to Peppe, Benji, Charles Campbell and numerous others. An online version of this FAQ is available at http://vimhelp.appspot.com/vim_faq.txt.html

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==

faq-1

SECTION 1 - GENERAL INFORMATION

faq-1.1

1.1. What is Vim?

Vim stands for Vi IMproved. It used to be Vi IMitation, but there are so
many improvements that a name change was appropriate. Vim is a text editor
which includes almost all the commands from the Unix program "Vi" and a lot
of new ones. All commands can be given with the keyboard. This has the
advantage that you can keep your fingers on the keyboard and your eyes on
the screen. For those who want it, there is mouse support and a GUI version
with scrollbars and menus.

Vim is an editor, not a word processor. A word processor is used mainly
to do layout of text. This means positioning it, changing the way it
appears on output. More often than not, the final document is meant to
be printed or typeset or what have you, in order to present it in a
pleasing manner to others. Examples of word processors are Microsoft
Word, FrameMaker, and OpenOffice Writer.

An editor is simply for entering text. Any typesetting or laying out of the
document is secondary. With an editor, one's main concern is entering text,
not making the text look good. Examples of editors other than Vim and Vi
are Emacs, TextMate, Ultraedit and gedit. And Notepad.

For more information read

     intro

faq-1.2

1.2. Who wrote Vim?

Most of Vim is based on Stevie and was written by Bram Moolenaar, with contributions from t
people to mention here.

For more information, read:

     author
     credits

faq-1.3

1.3. Is Vim compatible with Vi?

Yes. Vim is very much compatible with Vi. You can use the "-C"
command-line flag to start Vim in Vi compatible mode:

    $ vim -C

You can also use:

```
$ vim -u NONE
```

You can also set the 'compatible' option to enable Vi compatibility:

```
:set compatible
```

If you want to make sure, to start Vim in a 'nocompatible' mode to
original Vi, supply the -N command line argument:

```
$ vim -N
```

For more information, read

```
-C
-N
'compatible'
compatible-default
```

faq-1.4

1.4. What are some of the improvements of Vim over Vi?

A short summary of the improvements of Vim over vi is listed below. The list shows that Vim is a thoroughly modern and feature-packed editor. Standard features of modern editors are implemented, and there is an equal emphasis on general power-user features and features for programmers.

Features to modernise Vi:

Multi-level undo

Allows you to set the number of times you can undo your changes in a file buffer. You can also redo an undone change.
Also starting with version 7.3 Vim can permanently store your undo information, so that you can undo your changes which you have done in a previous editing session.

Tabs, Multiple windows and buffers

Each file can be displayed in its own window. You can move easily from one window to another. Each file opened during a Vim session also has an associated buffer and you can easily jump from one to the other. Also like any modern GUI, Vim supports opening several files in tabs. You can do batch processing for tabs, buffers, windows and the argumentlist.

Flexible insert mode

Vim allows you to use the arrow keys while in insert mode to move around in the file. No more hitting <Esc>, moving around, then hitting `i' or `a'.

Macros

Vim has a facility which allows you to record a sequence of typed characters and repeat them any number of times.

Visual mode

You can highlight sections of text and execute operations on this section of text only.

Block operators

Allow selection and highlighting of rectangular blocks of text in order do execute specific operations on them.

Online help system

You can easily find help on any aspect of using Vim. Help is displayed in its own window.

Command-line editing and history

History allows you to use the arrow keys to repeat or search for a command that has already been typed. Allows you to match the beginning of a command with the beginning of another similar command in the history buffer. You can also edit a command to correct typos or change a few values.

Command line completion.

Using the <Tab> key, you can complete commands, options, filenames, etc. as needed.

Horizontal scrolling.

Long lines can be scrolled horizontally (with or without the GUI).

Unicode and internationalization improvements.

Vim is able to edit files in unicode encoding and uses internally an utf-8 encoding. Additionally Vim can display text right to left oriented.

Advanced user features:

Text formatting

With two keystrokes, you can format large sections of text, without the use of external programs.

Completion in Insert mode

Vim provides several different possibilities to complete your text. For example Vim can complete words while you are typing, by matching the current word with other similar words in the file.

Jump tags

   Just like in an internet browser, you can jump back to previous parts
   of the text you were editing, and then forward again. Your brain is
   thus free to edit instead of navigate.

Automatic commands

   Commands automatically executed when reading or writing a file,
   jumping to another buffer, etc.

Viminfo

   Allows storing of the command line history, marks and registers in a
   file to be read on startup. Therefore, you can recall old search
   patterns, macros, etc., in a new Vim session.

Mouse support

   The mouse is supported in an xterm and for MS-DOS. It can be used to
   position the cursor, select the visual area, paste a register, etc.

Graphical User Interface (GUI)

   There are several different graphical user interfaces available.
   Also, it's very easy to add your own menus. Of course, console vim is
   still supported, and very widely used.

Scripting language

   Vim has a powerful scripting language so new commands can be created.
   You can also use Perl, Python, TCL, Lua and Ruby to achieve the same thing!

Plugins

   Extra functionality implemented via vim commands (regular commands or
   the scripting language) that is automatically loaded on startup.
   Examples: file explorer, network editing, enhanced autocompletion,
   syntax checks.
   More are being developed and shared on VimOnline all the time.

Syntax highlighting for many programming languages

   Syntax highlighting (including concealing items) for hundreds of
   programming languages is supported. Support for others can be
   added.

Extended regular expressions

   Vim supports extended regular expressions which are similar in
   functionality to that of Perl regular expressions.

Integrated Spell checking

Spell checking has been integrated into Vim

Diff mode

Vim can highlight the differences between two, three or four files. Identical lines will be folded away and hidden.

Encryption using the blowfish algorithm

Vim allows to encrypt your files using the symmetric block cipher blowfish as well as the swap file.

Extensive customizable

Vim can be tuned and customized to work like you want by setting options. You can define your own commands, macros and even plugins to extend its capabilities

Packages

Packages have been added to keep the installation of the growing number of plugins manageable. This is a convenient way to get one or more plugins, drop them in a directory and keep them updated. Vim will load them automatically, or only when desired.

Programming performance features:

Edit-compile-edit speedup

You can compile within Vim and automatically jump to the location of errors in the source code.

Indenting for many programming languages

C, C++, Java, Perl, XML and many other languages can be automatically indented by vim while you type. Support for others can be added.

Searching for words in include files

Vim allows you to search for a match of the word under the cursor in the current and included files.

Advanced text objects

Instantly select, delete, copy, indent, format, change case, or ... to all the text between (and), or { and }, or < and >, or [and]. Or a word, sentence, or paragraph. Very powerful.

Folding

Certain parts of the text can be "folded" away. The best example is the body of a function. You can get an overview of the code, and then open the fold of the function whose detail you need to see.

ctags and cscope integration

    Using these two powerful programs, you can jump to a definition of a
    function from a calling instance of it, and use other tricks to
    navigate source code.

Integration of several programming languages

    If you find the internal scripting language not powerful enough, you
    can extend Vim using Lua, Ruby, Tcl, Perl and Python 2 and 3.

Asynchronous I/O support

    Vim uses jobs and channels to talk to other programs
    asynchronously. This allows to have e.g. a compiler run in the
    background and open the quickfix list as soon as it is finished to
    fix warnings and errors.

Timers

    Timers are asynchronous and can fire once or repeatedly to invoke a
    function to do any work.

For more information, read

    vi-differences

faq-1.5

1.5. Is Vim free?

Vim is Charityware. There are no restrictions on using or copying Vim, but
the author encourages you to make a donation to charity. A document
explaining how to do so is included in the distribution.

For more information, read

    copyright

==

faq-2

SECTION 2 - RESOURCES

faq-2.1

2.1. Where can I learn more about Vim?

You can post your Vim questions to the vim@vim.org mailing list. You can
post your Vim development related questions to the vim-dev@vim.org mailing
list. Vim does not have a newsgroup of its own. But the appropriate
newsgroup to post to is comp.editors.

"VimOnline" is a web page that serves as a de facto homepage for vim,
although the main purpose of it is to gather tips and scripts from
everywhere. Get involved! The URL is vim.sourceforge.net or vim.sf.net.

Finally, read the Vi FAQ:

    http://www.faqs.org/faqs/editor-faq/vi/part1/index.html

Finally, there are also some communities, where you can discuss features
or ask questions:

    http://vi.stackexchange.com
    http://vim.reddit.com

For more information, read

     mail-list
     internet

faq-2.2

2.2. Is there a mailing list available?

There are several:

    NAME   DESCRIPTION

    vim-announce   Announcements of new releases
    vim   General discussion
    vim-dev   Patches, bug reports, development discussions
    vim-mac   Macintosh discussion
    vim-fr   General discussion in French

Of these, only vim and vim-dev are of general interest. vim-announce is
read-only to most people, and its messages are sent to the other lists as
well. The remaining four are very low volume.

    To subscribe: send an email to <NAME>-subscribe@vim.org
    To unsubscribe: send an email to <NAME>-unsubscribe@vim.org
    To get help: send an email to <NAME>-help@vim.org

The available mailing lists are also mentioned here:

    http://www.vim.org/maillist.php

faq-2.3

2.3. Is there an archive available for the Vim mailing lists?

Yes. Visit http://www.yahoogroups.com/list/<name>, where name is one of:
vimannounce, vim, vimdev, vim-fr, vim-mac, vim-vms.

Alternatively, visit www.gmane.org to find out about GMANE, which allows
you to access the mailing lists as though they were newsgroups. This
offers some convenience to those who wish to browse the history or casually
observe the current threads.

faq-2.4

2.4. Where can I get the Vim user manual in HTML/PDF/PS format?

You can download the HTML/PDF/PS format of the Vim user manual from:

http://vimdoc.sourceforge.net/

Note, the user manual from that page is currently pretty outdated. It's best to either use the documentation that comes with vim or use the online version at http://vimhelp.appspot.com

You can find a pdf version of the full English help, including this faq (in letter, A4 and Ipad format) at:

http://www.nathangrigg.net/vimhelp/

This document is cross-referenced, so you can use the hyperlink functionality.

faq-2.5

2.5. I have a "xyz" (some) problem with Vim. How do I determine if it is a problem with my setup or with Vim? / Have I found a bug in Vim?

First, you need to find out, whether the error is in the actual runtime files or any plugin that is distributed with Vim or whether it is a simple side effect of any configuration option from your .vimrc or .gvimrc. So first, start vim like this:

```
vim -u NONE -U NONE -N -i NONE
```

This starts Vim in nocompatible mode (-N), without reading your viminfo file (-i NONE), without reading any configuration file (-u NONE for not reading .vimrc file and -U NONE for not reading a .gvimrc file) or even plugin.

In this invocation, try to reproduce your problem. If the error persists, the chance is good you've found a bug in Vim (see also Question 2.6. faq-2.6)

If the error does not occur when starting Vim this way, then the problem is either related to some plugin of yours or some setting in one of your local setup files. You need to find out, what triggers the error, you try starting Vim this way:

```
vim -u NONE -U NONE -N
```

If the error occurs, the problem is your .viminfo file. Simply delete the viminfo file then. If the error does not occur, try:

```
vim -u ~/.vimrc --noplugin -N -i NONE
```

This will simply use your .vimrc as configuration file, but not load any plugins. If the error occurs this time, the error is possibly caused by some configuration option inside your .vimrc file. Depending on the length of your vimrc file, it can be quite hard to trace the origin within that file.

The best way is to add :finish command in the middle of your .vimrc. Then restart again using the same command line. If the error still occurs, the bug must be caused because of a setting in the first half of

your .vimrc. If it doesn't happen, the problematic setting must be in the second half of your .vimrc. So move the :finish command to the middle of that half, of which you know that triggers the error and move your way along, until you find the problematic option. If your .vimrc is 350 lines long, you need at a maximum 9 tries to find the offending line (in practise, this can often be further reduced, since often lines depend on each other).

If the problem does not occur, when only loading your .vimrc file, the error must be caused by a plugin or another runtime file (indent autoload or syntax script). Check the output of the :scriptnames command to see what files have been loaded and for each one try to disable each one by one and see which one triggers the bug. Often files that are loaded by vim, have a simple configuration variable to disable them, but you need to check inside each file separately.

You can also use the -V command line argument to get more debug information to analyze the problem:

```
$ vim -V2logfile
```

You can increase the value passed to the -V argument to get more debug information. By also specifying a logfile name, this makes sure, the debug messages don't appear on the screen and won't disturb you when trying to reproduce the problem.

For more information, read

-u
-U
-N
-V
'verbose'
:verbose
:set-verbose

faq-2.6

2.6. Where can I report bugs?

First collect the required information using the following command:

```
:source $VIMRUNTIME/bugreport.vim
```

Now send the resulting text from the above command to the bugs@vim.org e-mail address. There is also a public bug tracker available at http://code.google.com/p/vim/issues/list. A copy of each message there will be forwarded to the Vim Development list.

The Vim Development mailing list (see Question 2.2 faq-2.2) is a good place to discuss general bugs. If the bug you find is with syntax highlighting, a runtime file, or some other "added feature" (i.e. not directly programmed into vim), attempt to inform the maintainer of that feature. His e-mail address will be mentioned at the top of the corresponding

runtime file.

For more information, read

	bug-reports

faq-2.7

2.7. Where can the FAQ be found?

The FAQ can be found at http://vimhelp.appspot.com/vim_faq.txt.html.
It will be auto-generated from the source that is managed in the github
repository http://www.github.com/chrisbra/vim_faq (Patches are welcome).

The repository also includes the faq in different formats, e.g. manpage,
pdf file, html file, plain text version and a version in vim help format.

A slightly older version (which doesn't seem to get updated anymore) can
still be found at VimOnline (vim.sf.net).

faq-2.8

2.8. What if I don't find an answer in this FAQ?

This FAQ covers mainly Vim-specific questions. You may find more
information suitable for most Vi clones by reading the Vi FAQ. It is posted
regularly on comp.editors. You can also find a copy at

	http://www.faqs.org/faqs/editor-faq/vi/part1/index.html

Also, since Vim has gathered so many features in the last few years,
successfully documenting the frequently asked questions here is a
near-impossible task. To make it possible, please email the maintainer if
you have a good question. A good question is one that you've tried to
answer yourself (remember, Vim has great documentation) but struggled.

faq-2.9

2.9. I have a patch for implementing a Vim feature. Where can I send this
	patch?

You can send your patches to the Vim developer mailing list
vim-dev@vim.org.

For more information, read

	vim-dev

faq-2.10

2.10. I have a Vim tip or developed a new Vim syntax/indent/filetype/
	compiler plugin or developed a new script or a colorscheme.
	Is there a public website where I can upload this?

Yes. You can use the Vim Online website to upload your plugins/scripts,
colorschemes, etc. The site is at http://vim.sourceforge.net
Nowadays people also seem to share their plugins/runtime files at
github.

Tips can also be shared in the Wiki which you can find at
http://vim.wikia.com

==
faq-3

SECTION 3 - AVAILABILITY

faq-3.1

3.1. What is the latest version of Vim?

The latest version of Vim is 7.4 released on 10th August 2013.

The release-history of different versions of Vim is below:

Version 8.0	12th September, 2016
Version 7.4	10th August, 2013
Version 7.3	15th August, 2010
Version 7.2	9th August, 2008
Version 7.1	12th May, 2007
Version 7.0	8th May, 2006
Version 6.4	15th October, 2005
Version 6.3	8th June 2004
Version 6.2	1st June 2003
Version 6.1	24th March 2002
Version 6.0	27th September, 2001
Version 5.8	31st May, 2001
Version 5.7	24th June, 2000
Version 5.6	16th January, 2000
Version 5.5	21st September, 1999
Version 5.4	26th July, 1999
Version 5.3	31st August, 1998
Version 5.2	24th August, 1998
Version 5.1	7th April, 1998
Version 5.0	19th February, 1998
Version 4.6	13th March,1997
Version 4.5	17th October, 1996
Version 4.2	5th July,1996
Version 4.0	21st May, 1996
Version 3.0	16th August, 1994
Version 2.0	21st December, 1993
Version 1.27	23rd April, 1993
Version 1.17	21st April, 1992

For more information, read

new-5
new-6
new-7
new-8
changed-7.1
changed-7.2
changed-7.3
changed-7.4

faq-3.2

3.2. Where can I find the latest version of Vim?

You can download the sources for the latest version of Vim from the
Github repository. The URL for this site is
https://github.com/vim/vim

A mirror is available at bitbucket:
https://bitbucket.org/vim-mirror/vim

Some users keep updated repositories for distributing latest binary
versions of Vim. You can find those repositories here:

http://vim.wikia.com/wiki/Where_to_download_Vim
faq-3.3
3.3. What platforms does it run on?

All Unix platforms.
All Windows platforms.
Amiga, Atari, BeOS, DOS, Macintosh, MachTen, OS/2, RiscOS, VMS, IBM z/OS.

faq-3.4
3.4. Where can I download the latest version of the Vim runtime files?

You can download the latest version of the Vim runtime files (syntax files,
filetype plugins, compiler files, color schemes, documentation, indentation
files and keymaps) from the Vim ftp site from the
ftp://ftp.vim.org/pub/vim/runtime directory.

Alternatively, the runtime files can be downloaded from the git
repository that holds Vim source code at:
https://github.com/vim/vim/tree/master/runtime

==
faq-4
SECTION 4 - HELP

faq-4.1
4.1. How do I use the help files?

Help can be found for all functions of Vim. In order to use it, use the
":help" command. This will bring you to the main help page. On that first
page, you will find explanations on how to move around. Basically, you move
around in the help pages the same way you would in a read-only document.
You can jump to specific subjects by using tags. This can be done in two
ways:

   * Use the "<Ctrl-]>" command while standing on the name of a command
     or option. This only works when the tag is a keyword.
     "<Ctrl-LeftMouse>" and "g<LeftMouse>" work just like "<Ctrl-]>".

   * use the ":tag <subject>" command. This works with all characters.

Use "<Ctrl-T>" to jump back to previous positions in the help files. Use
":q" to close the help window.

If you want to jump to a specific subject on the help pages, use ":help {subject}". If you don't know what to look for, try ":help index" to get a list of all available subjects. Use the standard search keys to locate the information you want. You can abbreviate the ":help" command as ":h".

For searching the help, see the next Question 4.2. faq-4.2

For more information, read

online-help

faq-4.2

4.2. How do I search for a keyword in the Vim help files?

a) You can press the CTRL-D key after typing the help keyword to get a list of all the help keywords containing the supplied pattern. You can also use the meta characters like *, \+, etc to specify the help search pattern:

```
:help init<C-D>
:help str*()<C-D>
:help '*indent<C-D>
```

b) You can press the Tab key after typing a partial help keyword to expand to the matching keyword. You can continue to press the Tab key to see other keyword matches.

c) From the help window, you can use the ":tag" command to search for keywords. For example,

```
:tselect /window
```

This command will list all the help keywords containing the text "window". You can select one from the list and jump to it.

d) You can use the ":helpgrep" command to search for the given text in all the help files. The quickfix window will be opened with all the matching lines.

For more information, read

help-summary
c_CTRL-D
c_<Tab>
:tselect
:help
:helpgrep

faq-4.3

4.3. I am getting an error message E123, what did I do wrong?

You can get more information about the error and the error message using:

E123

For more information, read

error-messages

faq-4.4

4.4. Where can I read about the various modes in Vim?

You can get information about the different modes in Vim by reading

vim-modes

faq-4.5

4.5. How do I generate the Vim help tags file after adding a new Vim help file?

You can use the ":helptags" command to regenerate the Vim help tag file from within Vim. For example:

```
:cd $VIMRUNTIME/doc
:helptags .
```

To update all "doc" directories in your 'runtimepath', you can use

```
:helptags ALL
```

For more information, read

:helptags
add-local-help

faq-4.6

4.6. Can I use compressed versions of the help files?

Yes. You can compress the help files and still be able to view them with Vim. This makes accessing the help files a bit slower and requires the "gzip" utility. Follow these steps to compress and use the Vim help files:

- Compress all the help files using "gzip doc/*.txt".

- Edit the "doc/tags" file and change the ".txt" to ".txt.gz" using
```
:%s=\(\t.*\.txt\)\t=\1.gz\t=
```

- Add the following line to your vimrc:
```
set helpfile={dirname}/help.txt.gz
```

Where {dirname} is the directory where the help files are. The gzip.vim plugin supplied with the standard Vim distribution will take care of decompressing the files. You must make sure that $VIMRUNTIME is set to where the other Vim files are, when they are not in the same location as the compressed "doc" directory.

Note, that the :helpgrep command does not work with compressed help pages.

For more information, read

	gzip-helpfile
	'helpfile'
	gzip
	$VIMRUNTIME

==
faq-5

SECTION 5 - EDITING A FILE

faq-5.1

5.1. How do I load a file in Vim for editing?

There are several ways to load a file for editing. The simplest is to
use the ":e" (:edit) command:

    :e <filename>

You can also use the ":n" (:next) command to load files into Vim:

    :n <filename(s)>

You can also use the ":args" command to load files into Vim:

    :args <filename(s)>

For more information, read

	usr_07.txt
	edit-files
	:edit
	:next_f
	:args_f

faq-5.2

5.2. How do I save the current file in another name (save as) and edit a
     new file?

You can use the ":saveas" command to save the current file in another name:

    :saveas <newfilename>

Alternatively, you can also use the following commands:

    :w <newfilename>
    :edit #

You can also use the ":file" command, followed by ":w" command:

    :file <newfilename>
    :w

For more information, read

```
07.7
:saveas
:file_f
:w
```

faq-5.3

5.3. How do I change the current directory to the directory of the current file?

You can use the following command to change the current directory to the directory of the current file:

```
:cd %:p:h
```

To automatically change the current directory to the directory of the current file, simply set the option 'autochdir'.

```
:set autochdir
```

For more information, read

```
:cd
:lcd
filename-modifiers
autocommand
'acd'
getcwd()
```

faq-5.4

5.4. How do I write a file without the line feed (EOL) at the end of the file?

You can turn off the 'eol' option and turn on the 'binary' option to write a file without the EOL at the end of the file:

```
:set binary
:set noeol
:w
```

Alternatively, you can use:

```
:set noeol
:w ++bin
```

If you rather only like Vim not to write missing EOLs, you can reset the 'fixeol' option. This needs a Vim newer 7.4.785, so you should wrap this in an if condition in your .vimrc like this:

```
if exists('+fixeol')
    set nofixeol
endif
```

This has the advantage of avoiding the many side effects that the
'binary' option has.

For more information, read

	'endofline'
	'fixeol'
	'binary'
	23.4

faq-5.5

5.5. How do I configure Vim to open a file at the last edited location?

Vim stores the cursor position of the last edited location for each buffer
in the '"' register. You can use the following autocmd in your .vimrc or
.gvimrc file to open a file at the last edited location:

```
au BufReadPost * if line("'\"") > 0 && line("'\"") <= line("$") |
                    \ exe "normal! g`\"" | endif
```

Alternatively, you can simply source the vimrc_example.vim file, which is
distributed with Vim.

For more information, read

	'quote
	last-position-jump
	vimrc_example.vim

faq-5.6

5.6. When editing a file in Vim, which is being changed by an external
	application, Vim opens a warning window (like the confirm dialog) each
	time a change is detected. How do I disable this warning?

You can set the Vim 'autoread' option to automatically read the file again
when it is changed outside of Vim:

```
:set autoread
```

You can also use the following autocommand:

```
autocmd FileChangedShell *
      \ echohl WarningMsg |
      \ echo "File has been changed outside of vim." |
      \ echohl None
```

For more information, read

	'autoread'
	FileChangedShell
	timestamp
	:checktime

faq-5.7

5.7. How do I edit a file whose name is under the cursor?

You can use the gf command to edit a file whose name is under the cursor.
You can use the CTRL-W f command to edit the file in a new window and
finally you can use CTRL-W gf top open a new tab page that contains the
file name under the cursor.

For more information, read

	gf
	CTRL-W_f
	CTRL-W_gf
	'isfname'
	'path'
	'suffixesadd'
	'includeexpr'

faq-5.8

5.8. How do I reload/re-edit the current file?

You can use the ":edit" command, without specifying a file name, to reload
the current file. If you have made modifications to the file, you can use
":edit!" to force the reload of the current file (you will lose your
modifications, but depending on your 'undoreload' settings, those
changes might be saved into the undo history).

For more information, read

	:edit
	:edit!
	'confirm'
	'undoreload'

faq-5.9

5.9. How do I autosave a file periodically?

Vim doesn't support auto-saving a file periodically.

For more information, read

	'updatetime'
	CursorHold
	swap-file

faq-5.10

5.10. How do I open a file in read-only mode?

You can open a file in read-only mode using the ":view" command:

    :view <filename>

This command sets the 'readonly' option for the opened buffer. You can also
use the "-R" command-line option to open a file in read-only mode:

```
    $ vim -R <filename>
```

You can also use the symbolic link executable "view" to open a file in
read-only mode from the command-line:

```
    $ view <filename>
```

For more information, read

```
     07.6
     'readonly'
     'modifiable'
     :view
     :sview
     view
     -R
     -M
```

faq-5.11

5.11. How do I open a file for editing without saving the modifications to
      the current file?

You can open a file for editing without saving the modifications to the
current file and without losing the changes using one of the following
methods:

```
    :split <new_filename>
    :new <new_filename>
```

You can also set the 'hidden' option and edit a new file:

```
    :set hidden
    :e <new_filename>
```

If you want to discard the changes made to the current file and load
another file for editing, then you can use the following command:

```
    :e! <new_filename>
```

For more information, read

```
     :edit!_f
     'hidden'
     :split
     :new
```

faq-5.12

5.12. How do I reduce the loading time for very large files in Vim?

You can use the following settings to reduce the loading time for
very large files in Vim:

```
    :set lazyredraw
    :set noswapfile
```

```
    :set undolevels=-1
    :set eventignore=all
    :set nohidden
    :set syntax=off
```

Note that the above settings will disable many Vim features including the
following: Swap files support for crash recovery, undo support, syntax
highlighting, filetype detection and other autocommand based features.

There is also the LargeFile plugin available at
http://www.vim.org/scripts/script.php?script_id=1506
which automatically sets these options, when working with large files
(it is configurable, what is considered to be a large file, by default,
it is 100MB).

==
faq-6

SECTION 6 - EDITING MULTIPLE FILES

faq-6.1

6.1. How do I open multiple files at once from within Vim?

Make a difference between args, buffers, tabs and windows. They are all
different things in VIM.

args is a list of arguments. Buffers are place to edit text, almost
always attached to a file but not necessarily. Window is a place for a
buffer and tab is set of windows, better name would be 'layout'.

There are several ways to open multiple files at once from within Vim. You
can use the ":next" command to specify a group of files:

```
    :next f1.txt f2.txt
    :next *.c
```

You can use the :args command to specify a group of files as arguments:

```
    :args f1.txt f2.txt
    :args *.c
```

After loading the files, you can use the ":next" and ":prev" command to
switch between the files.

To execute command for all files in argument-list use ":argdo"

For more information, read

```
     07.2
     :next
     :args_f
     argument-list
```

faq-6.2

6.2. How do I switch between multiple files/buffers in Vim?

To list all buffers use ":ls", to list buffers without file attached to (also known as unlisted buffers, ex. scratch buffer and help-window) use ":ls!"

There are several ways to switch between multiple files. You can use the ":buffer" command to switch between multiple files. You can also shorten command as ":b" and use only part of the filename. For example,

```
:buffer file1
:buffer file2
:b e2
```

You can also use <TAB> after ":b" for autocompletion. Try also ":b" followed by <CTRL-d> to see all available buffers. This works also for ":e".

You can also use the CTRL-^ key to switch between buffers. By specifying a count before pressing the key, you can edit the buffer with that number. Without the count, you can edit the alternate buffer by pressing CTRL-^

You can also use the ":e #" command to edit a particular buffer:

```
:e #5
```

To close a buffer use ":bd" -command.

To execute command for all files in buffer-list use ":bufdo"

For more information, read

```
edit-files
:buffer
CTRL-^
alternate-file
22.4
07.3
```

faq-6.3

6.3. How do I open several files in Vim, with each file in a separate window/tab?

You can use the -o and -O Vim command line arguments to open multiple files in separate horizontally or vertically split Vim windows. For example:

```
$ vim -o3 f1.txt f2.txt f3.txt
```

The above command will open the files f1.txt, f2.txt and f3.txt in three separate horizontally split Vim windows.

```
$ vim -O3 f1.txt f2.txt f3.txt
```

The above command will open the files f1.txt, f2.txt and f3.txt in three separate vertically split Vim windows.

```
$ vim -p f1.txt f2.txt f3.txt
```

The above command will open the files f1.txt, f2.txt and f3.txt in three separate tab windows. The option 'tabpagemax' defines, how many tabpages can be opened at the same time, by default it is set to 10.

For more information, read

-o
-O
-p
startup-options
'tabpagemax'

faq-6.4

6.4. How do I configure Vim to autoload several files at once similar to "work-sets" or "projects"?

You can use the ":mksession" and the ":mkview" commands to autoload several files in Vim.

The ":mksession" command creates a Vim script that restores the current editing session. You can use the ":source" command to source the file produced by the mksession command.

The ":mkview" command creates a Vim script that restores the contents of the current window. You can use the ":loadview" command to load the view for the current file.

For more information, read

21.4
21.5
views-sessions
'sessionoptions'
:mksession
:source
v:this_session
:mkview
:loadview
'viewdir'
buffers

faq-6.5

6.5. Is it possible to open multiple top level windows in a single instance of Vim similar to Nedit or Emacs?

No. It is currently not possible to open multiple top-level windows in a single instance of Vim. This feature is in the todo list.

faq-6.6

6.6. How do I browse/explore directories from within Vim?

You can use the netrw.vim plugin, supplied with the standard Vim
installation, to browse/explore directories from within Vim. You can start
the file explorer using one of the following commands:

```
:e <directory>
:Explore
:Sexplore
:Vexplore
:Texplore
```

From the file explorer, you can browse through directories, rename, delete
and edit files.

For more information, read

```
netrw.vim
22.1
```

faq-6.7

6.7. How do I edit files over a network using ftp/scp/rcp/http?

You can use the netrw.vim plugin, supplied with the standard Vim package,
to edit files over a network using ftp/scp/rcp/http. Using this plugin, Vim
will transparently load and save the files over ftp/scp/rcp/http. For
example, to edit a file over ftp, you can use the following command:

```
$ vim ftp://machine/path
```

For more information, read:

```
netrw.vim
```

==========

faq-7

SECTION 7 - BACKUP

faq-7.1

7.1. When I edit and save files, Vim creates a file with the same name as
the original file and a "~" character at the end. How do I stop Vim
from creating this file? (or) How do I disable the Vim backup file
feature?

You have set the 'backup' option, so Vim creates a backup file when saving
the original file. You can stop Vim from creating the backup file, by
clearing the option:

```
:set nobackup
```

Note that, by default this option is turned off. You have explicitly
enabled the 'backup' option in one of the initialization files. You may
also have to turn off the 'writebackup' option:

```
:set nowritebackup
```

For more information, read

```
07.4
backup-table
'backup'
'writebackup'
'backupskip'
'backupdir'
'backupext'
'backupcopy'
backup
```

faq-7.2

7.2. When I edit and save files, Vim creates a file with the same name as the original file and a "un~" extension at the end. How do I stop Vim from creating this file (or) How do I disable the Vim undofile feature?

Vim 7.3 contains as new feature persistent undo, that is, undo information won't be lost when quitting Vim and be stored in a file that ends with .un You have set the 'undofile' option, so Vim creates an undo file when saving the original file. You can stop Vim from creating the backup file, by clearing the option:

```
:set noundofile
```

Note that, by default this option is turned off. You have explicitly enabled the 'undofile' option in one of the initialization files. If you want your undofiles to be stored only in a particular directory, you can point the 'undodir' option to a directory that will contain all your aggregated undofiles.

For more information, read

```
'undodir'
'undofile'
undo-persistence
```

faq-7.3

7.3. How do I configure Vim to store all the backup files in a particular directory?

You can configure Vim to store all the backup files in a particular directory using the 'backupdir' option. For example, to store all the backup files in the ~/backup directory, you can use the following command:

```
:set backupdir=~/backup
```

For more information, read

```
07.4
'backupdir'
backup
```

faq-7.4

7.4. When I save a file with Vim, the file permissions are changed. How do I configure Vim to save a file without changing the file

permissions?

This may happen, if the 'backupcopy' option is set to 'no' or 'auto'. Note that the default value for this option is set in such a way that this will correctly work in most of the cases. If the default doesn't work for you, try setting the 'backupcopy' option to 'yes' to keep the file permission when saving a file:

```
:set backupcopy=yes
```

This applies, only if you have configured Vim to make a backup whenever overwriting a file. By default, Vim will not backup files.

For more information, read

```
'backupcopy'
backup
'backup'
'writebackup'
```

==

faq-8

SECTION 8 - BUFFERS

faq-8.1

8.1. I have made some modifications to a buffer. How do I edit another buffer without saving the modified buffer and also without losing the modifications?

You can set the 'hidden' option to edit a file without losing modifications to the current file:

```
:set hidden
```

By setting the 'hidden' option, you can also save the modification history (undo-history) for the buffer. Otherwise, as you switch between files, the undo-history will be lost (unless you use persistent undofiles).

For more information, read

```
'hidden'
hidden-quit
:hide
```

faq-8.2

8.2. How do I configure Vim to auto-save a modified buffer when switching to another buffer?

You can set the 'autowrite' option to auto-save a modified buffer when switching to another buffer:

```
:set autowrite
```

For more information, read

'autowrite'
'autowriteall'
'hidden'

faq-8.3

8.3. How do I replace the buffer in the current window with a blank buffer?

You can use the ":enew" command to load an empty buffer in place of the buffer in the current window.

For more information, read

:enew

faq-8.4

8.4. Is there a keyboard shortcut to load a buffer by the buffer number?

You can use the CTRL-^ command to load a buffer by specifying the buffer number. For example, to load buffer number 5, you have to use the 5 CTRL-^ command.

For more information, read

CTRL-^

faq-8.5

8.5. How do I open all the current buffers in separate windows?

You can use the ":ball" or ":sball" commands to open all the buffers in the buffer list:

```
:ball
```

If you want all buffers to be opened in new tabs, simply prefix the :tab command:

```
:tab :sball
```

For more information, read

:ball

faq-8.6

8.6. How do I close (delete) a buffer without exiting Vim?

You can use any of ":bdelete", ":bwipeout" or ":bunload" commands to delete a buffer without exiting Vim. For example:

```
:bdelete file1
```

For more information, read

:bdelete

:bwipeout
:bunload

faq-8.7
8.7. When I use the command ":%bd" to delete all the buffers, not all the buffers are deleted. Why?

In the ":%bd" command, the '%' range will be replaced with the starting and ending line numbers in the current buffer. Instead of using '%' as the range, you should specify numbers for the range. For example, to delete all the buffers, you can use the command ":1,9999bd".

For more information, read

:bd

(This behaviour has been fixed with patch 7.4.530)

faq-8.8
8.8. How do I display the buffer number of the current buffer/file?

You can use 2<CTRL-G> command to display the buffer number for the current file/buffer. Note the use of count before the CTRL-G command. If the count is greater than 1, then Vim will display the buffer number.

You can also use the following command to display the current buffer number:

```
:echo bufnr("%")
```

You can also include the "%n" field to the 'statusline' option to display the current buffer number on the statusline.

For more information read,

CTRL-G
bufnr()
:echo
'statusline'

faq-8.9
8.9. How do I delete a buffer without closing the window in which the buffer is displayed?

You can use the following command to open the next buffer and delete the current buffer.

```
:bnext | bdelete #
```

For more information read,

:bnext
:bdelete
:buffers

faq-8.10

8.10. How do I map the tab key to cycle through and open all the buffers?

You can use the following two map commands, to map the CTRL-Tab key to open the next buffer and the CTRL-SHIFT-Tab key to open the previous buffer:

```
:nnoremap <C-Tab> :bnext<CR>
:nnoremap <S-C-Tab> :bprevious<CR>
```

Note, this might not work in the terminal version of Vim.

For more information read,

```
:bnext
:bprevious
```

==========

faq-9

SECTION 9 - WINDOWS

faq-9.1

9.1. What is the difference between a Vim window and a buffer?

A Vim buffer is a file loaded into memory for editing. The original file remains unchanged until you write the buffer to the file. A Vim window is a viewport onto a buffer. You can use multiple windows on one buffer or several windows on different buffers.

For more information, read

```
usr_08.txt
22.4
windows-intro
Q_wi
```

faq-9.2

9.2. How do I increase the width of a Vim window?

You can increase the width of a Vim window using one of the following commands:

```
:vert resize +N
:vert resize -N
:vert resize N
```

You can also use CTRL-W < or CTRL-W > or CTRL-W | commands.

For more information, read

```
:vertical-resize
CTRL-W_>
CTRL-W_<
window-resize
```

faq-9.3

9.3. How do I zoom into or out of a window?

You can zoom into a window (close all the windows except the current window) using the "CTRL-W o" command or the ":only" ex command.

You can use the "CTRL-W _" command or the ":resize" ex command to increase the current window height to the highest possible without closing other windows.

You can use the "CTRL-W |" command or the ":vertical resize" ex command to increase the current window width to the highest possible without closing other windows.

You can use the "CTRL-W =" command to make the height and width of all the windows equal.

You can also set the following options to get better results with the above commands:

Method 1:
Set the 'winminheight' option to 0:

```
:set winminheight=0
```

By default, this option is set to 1.
This option controls the minimum height of an inactive window (when it is not the current window). When the 'winminheight' option is set to 0, only the status line will be displayed for inactive windows.

Method 2:
Set the 'noequalalways' option and set the 'winheight' option to a large value (like 99999):

```
:set noequalalways
:set winheight=99999
```

Now, the active window will always open to its maximum size, while the other windows will stay present, but shrunken to just a status line.

With any of the above mentioned methods, you cannot restore the window layout after zooming into a window. If you want to restore the Vim window layout after zooming into a window, you can use the ZoomWin plugin. You can download this plugin from the Vim online website at:

http://vim.sourceforge.net/scripts/script.php?script_id=508

For more information, read

```
CTRL-W_o
window-resize
'winminheight'
'equalalways'
```

'winheight'
08.3

faq-9.4

9.4. How do I execute an ex command on all the open buffers or open windows or all the files in the argument list?

You can use the ":bufdo" command to execute an ex command on all the open buffers. You can use the ":windo" command to execute an ex command on all the open windows. You can use the ":argdo" command to execute an ex command on all the files specified in the argument list. And finally you can use the ":tabdo" command to execute an ex command in all open tab pages.

For more information, read

:windo
:bufdo
:argdo
:tabdo
26.3

==

faq-10

SECTION 10 - MOTION

faq-10.1

10.1. How do I jump to the beginning (first line) or end (last line) of a file?

You can use 'G' command to jump to the last line in the file and the 'gg' command to jump to the first line in the file.

For more information, read

G
gg

faq-10.2

10.2. In insert mode, when I press the <Esc> key to go to command mode, the cursor moves one character to the left (except when the cursor is on the first character of the line). Is it possible to change this behavior to keep the cursor at the same column?

No. It is not possible to change this behavior. The cursor is always positioned on a valid character (unless you have virtual-edit mode enabled). So, if you are appending text to the end of a line, when you return to command mode the cursor must drop back onto the last character you typed. For consistency sake, the cursor drops back everywhere, even if you are in the middle of a line.

You can use the CTRL-O or CTRL-\ CTRL-O command in insert mode to execute a single ex command and return back to insert mode without moving the cursor column.

For more information, read

	'virtualedit'
	i_CTRL-O
	i_CTRL-_CTRL-O

faq-10.3

10.3. How do I configure Vim to maintain the horizontal cursor position when scrolling with the <Page Up>, <Page Down>, etc keys?

You can reset the 'startofline' option to keep the cursor at the same horizontal location when scrolling text:

```
:set nostartofline
```

For more information, read

	'startofline'

faq-10.4

10.4. Some lines in a file are more than the screen width and they are all wrapped. When I use the j, k keys to move from one line to the next, the cursor is moved to the next line in the file instead of the next line on the screen. How do I move from one screen line to the next?

You can use the gj and gk commands to move from one screen line to the next/previous screen line. The j and k commands move the cursor from one file line to the next file line. You can also avoid the line wrapping by resetting the 'wrap' option:

```
:set nowrap
```

For more information, read

	gj
	gk
	'wrap'

You can use the following mappings:

```
:map <Up> gk
:imap <Up> <C-o>gk
:map <Down> gj
:imap <Down> <C-o>gj
:noremap j gj
:noremap k gk
```

faq-10.5

10.5. What is the definition of a sentence, paragraph and section in Vim?

A sentence is defined as ending at a '.', '!' or '?' followed by either the end of a line, or by a space (or two) or tab. Which characters and the number of spaces needed to constitute a sentence ending is determined by the 'joinspaces' and 'cpoptions' options.

A paragraph begins after each empty line, and also at each of a set of paragraph macros, specified by the pairs of characters in the 'paragraphs' option.

A section begins after a form-feed (<C-L>) in the first column and at each of a set of section macros, specified by the pairs of characters in the 'sections' option.

For more information, read

    sentence
    'joinspaces'
    'cpoptions'
    paragraph
    section
    word

faq-10.6

10.6. How do I jump to beginning or end of a sentence, paragraph or a section?

You can use the following motion commands to jump to the beginning or end of a sentence or a paragraph or a section:

motion	position	where
(	beginning	current sentence
)	end	current sentence
{	beginning	current paragraph
}	end	current paragraph
[]	end	previous section
[[	beginning	current section
][	end	current section
]]	beginning	next section

Each of these motions can be preceded by a number which will extend the jump forward (or backward).

For more information, read

    object-motions

faq-10.7

10.7. I have lines in a file that extends beyond the right extent of the screen. How do I move the Vim view to the right to see the text off the screen?

You can use one of the following commands to horizontally scroll the screen to the left or right:

    zl - scroll to the left
    zh - scroll to the right
    zL - scroll half a screenwidth to the left
    zH - scroll half a screenwidth to the right

    zs - scroll to position the cursor at the start of the screen
    ze - scroll to position the cursor at the end of the screen

You can use the g0 command to move the cursor to the first character of the screen line and the g$ command to move the cursor to the last character of the screen line without scrolling the screen.

For more information, read

     scroll-horizontal

faq-10.8

10.8. How do I scroll two or more buffers simultaneously?

You can set the "scrollbind" option for each of the buffers to scroll them simultaneously.

For more information, read

     'scrollbind'
     scroll-binding
     'scrollopt'
     'cursorbind'

faq-10.9

10.9. When I use my arrow keys, Vim changes modes, inserts weird characters in my document but doesn't move the cursor properly. What's going on?

There are a couple of things that could be going on: either you are using Vim over a slow connection or Vim doesn't understand the key sequence that your keyboard is generating.

If you are working over a slow connection (such as a 2400 bps modem), you can try to set the 'timeout' or 'ttimeout' option. These options, combined with the 'timeoutlen' and 'ttimeoutlen' options, may fix the problem.

The preceding procedure will not work correctly if your terminal sends key codes that Vim does not understand. In this situation, your best option is to map your key sequence to a matching cursor movement command and save these mappings in a file. You can then ":source" the file whenever you work from that terminal.

For more information, read

     'timeout'
     'ttimeout'
     'timeoutlen'
     'ttimeoutlen'
     :map
     vt100-cursor-keys

faq-10.10

10.10. How do I configure Vim to move the cursor to the end of the previous line, when the left arrow key is pressed and the cursor is currently

at the beginning of a line?

You can add the '<' flag to the 'whichwrap' option to configure Vim to move the cursor to the end of the previous line, when the left arrow key is pressed and the cursor is currently at the beginning of a line:

```
:set whichwrap+=<
```

Similarly, to move the cursor the beginning of the next line, when the right arrow key is pressed and the cursor is currently at the end of a line, add the '>' flag to the 'whichwrap' option:

```
:set whichwrap+=>
```

The above will work only in normal and visual modes. To use this in insert and replace modes, add the '[' and ']' flags respectively.

For more information, read

```
'whichwrap'
05.7
```

faq-10.11

10.11. How do I configure Vim to stay only in insert mode (modeless editing)?

You can set the 'insertmode' option to configure Vim to stay only in insert mode:

```
:set insertmode
```

By setting this option, you can use Vim as a modeless editor. If you press the <Esc> key, Vim will not go to the normal mode. To execute a single normal mode command, you can press CTRL-O followed by the normal mode command. To execute more than one normal command, you can use CTRL-L followed by the commands. To return to insert mode, press the <Esc> key. To disable this option, reset the 'insertmode' option:

```
:set noinsertmode
```

You can also start vim using the "evim" command or you can use "vim -y" to use Vim as a modeless editor.

You can also start Vim in insert mode using the ":startinsert" ex command.

For more information, read

```
'insertmode'
:startinsert
:stopinsert
i_CTRL-O
i_CTRL-L
evim
evim-keys
```

faq-10.12

10.12. How do I display some context lines when scrolling text?

You can set the 'scrolloff' option to display a minimal number of screen lines (context) above and below the cursor.

```
:set scrolloff=10
```

For more information, read

```
'scrolloff'
'sidescrolloff'
```

faq-10.13

10.13. How do I go back to previous cursor locations?

You can go back to the cursor location before the latest jump using the '' or `` command. You can use the CTRL-O command to go back to older cursor positions and the CTRL-I command to go to the newer cursor positions in the jump list.

For more information, read

```
03.10
mark-motions
jump-motions
```

==========

faq-11

SECTION 11 - SEARCHING TEXT

faq-11.1

11.1. After I searched for a text with a pattern, all the matched text stays highlighted. How do I turn off the highlighting temporarily/permanently?

The 'hlsearch' option controls whether all the matches for the last searched pattern are highlighted or not. By default, this option is not enabled. If this option is set in a system-wide vimrc file, then you can turn off the search highlighting by using the following command:

```
:set nohlsearch
```

To temporarily turn off the search highlighting, use

```
:nohlsearch
```

You can also clear the search highlighting, by searching for a pattern that is not in the current file (for example, search for the pattern 'asdf').

You can use this mapping, to clear the search highlighting when redrawing the window pressing <CTRL-L>

```
:nnoremap <silent> <C-L> <C-L>:nohls<CR>
```

For more information, read

```
'hlsearch'
:nohlsearch
```

faq-11.2

11.2. How do I enter a carriage return character in a search pattern?

You can either use '\r' or <CTRL-V><CTRL-M> to enter a carriage return character in a pattern. In Vim scripts, it is better to use '\r' for the carriage return character.

For more information, read

```
sub-replace-special
```

faq-11.3

11.3. How do I search for the character ^M?

You can enter the ^M character in a search command by first pressing the CTRL-V key and then pressing the CTRL-M key.

```
/^V^M
```

You can also use the "\r" character. In Vim scripts, "\r" is preferred.

For more information, read

```
c_CTRL-V
using_CTRL-V
/\r
```

faq-11.4

11.4. How can I search/replace characters that display as '~R', '~S', etc.?

You can use the 'ga' command to display the ASCII value/code for the special character. For example, let us say the ASCII value is 142. Then you can use the following command to search for the special character:

```
/^V142
```

where, ^V is entered by pressing CTRL-V.

For more information, read

```
ga
using_CTRL_V
24.8
```

faq-11.5

11.5. How do I highlight all the non-printable characters in a file?

You can use the following commands and search pattern to highlight all the non-printable characters in a file:

```
:set hlsearch
/\(\p\|$\)\@!.
```

For more information, read

```
/\p
/bar
/$
/\(
/\@!
'hlsearch'
```

faq-11.6

11.6. How do I search for whole words in a file?

You can search for whole words in a file using the \< and \> atoms. For example:

```
/\<myword\>
```

The \< atom matches the beginning of the word and the \> atom matches the end of the word.

For more information, read

```
/\<
/\>
```

faq-11.7

11.7. How do I search for the current word under the cursor?

You can press the * key to search forward for the current word under the cursor. To search backward, you can press the # key. Note that only whole keywords will be searched using these commands.

For more information, read

```
star
#
gstar
g#
03.8
search-commands
```

faq-11.8

11.8. How do I search for a word without regard to the case (uppercase or lowercase)?

To always ignore case while searching for a pattern, set the 'ignorecase' option:

```
:set ignorecase
```

To ignore case only when searching a particular pattern, use the special \c directive:

```
/\c<pattern>
```

For more information, read

```
'ignorecase'
/ignorecase
/\c
```

faq-11.9

11.9. How do I search for words that occur twice consecutively?

You can use one of the following search commands to locate words that occur twice consecutively:

```
/\(\<\w\+\)\_s\+\1\>
/\(\<\k\+\)\_s\+\1\>
```

The main difference is the use of '\w' and '\k', where the latter is based on the 'iskeyword' option which may include accented and other language specific characters.

For more information, read

```
/\1
/\(
/\)
/\<
/\>
/\w
/\k
/\+
/\_x
'iskeyword'
```

faq-11.10

11.10. How do I count the number of times a particular word occurs in a buffer?

You can use the following set of commands to count the number of times a particular word occurs in a buffer:

```
:let cnt=0
:g/\<your_word\>/let cnt=cnt+1
:echo cnt
```

This only counts the number of lines where the word occurs. You can also use the following command:

```
:%s/\<word\>/&/gn
```

To count the number of alphabetic words in a file, you can use

```
:%s/\a\+/&/gn
```

To count the number of words made up of non-space characters, you can use

```
:%s/\S\+/&/gn
```

For more information, read

```
count-items
word-count
v_g_CTRL-G
12.5
:s_flags
```

faq-11.11

11.11. How do I place the cursor at the end of the matched word when searching for a pattern?

You can use the 'e' offset to the search command to place the cursor at the end of the matched word. For example

```
/mypattern/e
```

For more information about search offsets, read

```
search-offset
/
```

faq-11.12

11.12. How do I search for an empty line?

You can search for an empty line using:

```
/^$
```

or

```
/^\s*$
```

The latter also matches lines, that consist only of white space, while the former only matches true empty lines. For more information, read

```
/^
/$
/\s
/star
search-commands
```

faq-11.13

11.13. How do I search for a line containing only a single character?

You can search for a line containing only a single character using:

```
/^\s*\a\s*$
```

For more information, read

```
/^
/\a
/\s
/star
/$
```

faq-11.14

11.14. How do I search and replace a string in multiple files?

You can use the 'argdo', 'bufdo', 'windo' or 'tabdo' commands to execute an ex command on multiple files. For example:

```
:argdo %s/foo/bar/g|upd
```

For more information, read

```
:argdo
:bufdo
:windo
:tabdo
```

faq-11.15

11.15. I am using the ":s" substitute command in a mapping. When a search for a pattern fails, the map terminates. I would like the map to continue processing the next command, even if the substitute command fails. How do I do this?

You can use the 'e' flag to the substitute command to continue processing other commands in a map, when a pattern is not found.

For more information, read

```
:s_flags
```

faq-11.16

11.16. How do I search for the n-th occurrence of a character in a line?

To search for the n-th occurrence of a character in a line, you can prefix the 'f' command with a number. For example, to search for the 5th occurrence of the character @ in a line, you can use the command 5f@. This assumes the cursor is at the beginning of the line - and that this first character is not the one your are looking for.

For more information, read

```
f
F
```

t
T
;
,

faq-11.17

11.17. How do I replace a tab (or any other character) with a hard return (newline) character?

You can replace a tab (or any other character) with a hard return (newline) character using the following command:

```
:s/\t/\r/
```

Note that in the above command, if you use \n instead of \r, then the tab characters will not be replaced by a new-line character.

For more information, read

sub-replace-special
NL-used-for-Nul
CR-used-for-NL

faq-11.18

11.18. How do I search for a character by its ASCII value?

You can search for a character by its ASCII value by pressing CTRL-V followed by the decimal or hexadecimal or octal value of that character in the search "/" command. To determine the ASCII value of a character you can use the ":ascii" or the "ga" command.

For example, to search for the ASCII character with value 188 (??), you can use one of the following search commands:

```
/<CTRL-V>188
/<CTRL-V>o274
/<CTRL-V>xBC
/<CTRL-V>u00bc
```

You can also search for the character with the decimal/octal/hex number using a collation [] like this:

```
/[\d188]
/[\o274]
/[\xbc]
/[\u00bc]
```

Alternatively, you can use the special atom \%d \%o \%x \%u:

```
/\%d188
/\%o274
/\%xbc
/\%u00bc
```

Or you use digraphs to enter the character. For example enter:

```
/CTRL-K14
```

to search for the above character.

For more information, read

```
i_CTRL-V_digit
:ascii
ga
/\]
/\%d
digraphs
```

faq-11.19

11.19. How do I search for long lines?

You can search for long lines or lines containing more than a specific number of characters using the Vim regular-expressions in the search command. For example, to search for all the lines containing more than 80 characters, you can use one of the following commands:

```
/^.\{80}.\+$
/^.*\%>80c.*$
/^.*\%>80v.*$
```

For more information, read

```
/\{
/\%c
/\%v
```

faq-11.20

11.20. How do I display all the lines in the current buffer that contain a specified pattern?

You can use the following command to display all the lines in the current buffer that contain a specified pattern:

```
:g/<pattern>/p
```

For example, the following command will display all the lines in the current buffer that contain "vim":

```
:g/vim/p
```

Since :p is the default command to be executed for the ex command :g, you can also use:

```
:g/vim
```

If you also want the corresponding line numbers, then you can use the following command:

```
    :g/<pattern>/#
```

For more information, read

```
     :global
     :print
     :number
```

faq-11.21

11.21. How do I search for a text string that spans multiple lines?

You can search for a text string that spans multiple lines using the _x regular expression atom. For example, to search for the text string "Hello World", you can use the following search command:

```
    /Hello\_sWorld
```

This will match the word "Hello" followed by a newline character and then the word "World" at the beginning of the next line. This will also match the word "Hello" immediately followed by a space character and then the word "World". When searching for the "Hello World" string, to include the space characters at the end and beginning of the line, you can use the following search command:

```
    /Hello\_s\+World
```

For more information, read

```
     27.8
     pattern-atoms
     /\_
     pattern-searches
```

faq-11.22

11.22. How do I search for a pattern within the specified range of lines in a buffer?

You can search for a pattern within a range of lines using the \%>l and \%<l regular expression atoms.

For example, to search for the word 'white' between the lines 10 and 30 in a buffer, you can use the following command:

```
    /white\%>9l\%<31l
```

For more information, read

```
     /\%l
```

faq-11.23

11.23. How do I clear the last searched pattern?

The last searched pattern is stored in the "/" register. You can clear

this register using the following command:

```
:let @/=""
```

To clear the last search pattern whenever a buffer is unloaded, you can use the following command:

```
:autocmd BufUnload * let @/ = ""
```

For more information, read

```
@/
:let-@
autocmd-searchpat
last-pattern
```

faq-11.24

11.24. Why does this pattern 'a.\{-}p\@!' not match?

"\{-}" doesn't just mean "as few as possible", it means "as few as possible to make the whole pattern succeed". If it didn't match the 'p', the whole pattern would fail (because of the "p\@!") so it does match the "p". It is a longer match, but it is the shortest match that makes the whole pattern succeed.

If you wanted "as few as possible regardless" you would use "\@>", which basically divides a pattern up so that the pieces either side behave independently. If the pattern were "a.\{-}\@>p\@!" then ".\{-}" would always match nothing because that's the smallest match that can succeed when there are not other restrictions. The whole pattern then would behave the same as "ap\@!", i.e. it would match any "a" not followed by a "p").

This means, it matches as few as possible 'a's without trying to keep going until Vim finds the longest match. This means, it will still match 'ap'.

faq-11.25

11.25. How can I use '/' within a pattern, without escaping it?

When using / to search for a pattern, you need to escape all '/' within the pattern, because they would otherwise terminate the pattern. So you can't directly search for /usr/share/doc/ but need to search for \/usr\/share\/doc\/

The easiest solution around that, would be to use '?' to start a backward search and afterwards use /<CR> to use the last search-pattern in forward direction.

If you have a Vim, that has the eval-feature built in (which needs at least a normal built or higher), you can also directly paste the pattern into the search register:

```
:let @/ = '/usr/share/doc/'
```

Then use 'n' to jump to the next occurrence.

See also the help at

```
@/
/<CR>
```

faq-11.26

11.26. How can I operate on a search match?

The 'gn' command makes it easy to operate on regions of text that match the current search pattern. By default, it will search forward for the last used search pattern and visually select the match. If the cursor is already on the match, it will be visually selected. If you used the 'gn' command after an operator (e.g. 'c' to change text), it will be applied on the match.

If Visual mode is active before using gn, the visual selection will be extended until the end of the next match.

The 'gN' commands works similar but searches backwards.

This allows to repeat simple operations on each match. For example, you might want to change each occurence of apples by peaches. So you search using '/apple' then you can use 'cgnpeach<esc>' to replace the current match by peach. Now you can use the dot '.' command to redo the replacement for the rest of the buffer.

See also the help at

```
gn
gN
```

==

faq-12

SECTION 12 - CHANGING TEXT

faq-12.1

12.1. How do I delete all the trailing white space characters (SPACE and TAB) at the end of all the lines in a file?

You can use the ":substitute" command on the entire file to search and remove all the trailing white space characters:

```
:%s/\s\+$//
```

For more information, read

```
:%
:s
/\s
/\+
/$
```

faq-12.2

12.2. How do I replace all the occurrences of multiple consecutive space characters to a single space?

You can use the following command to replace all the occurrences of multiple consecutive space characters to a single space:

```
:%s/ \{2,}/ /g
```

Alternatively use:

```
:%s/  \+/ /g
```

For more information, read

:%
:s
/\{
:s_flags

faq-12.3

12.3. How do I reduce a range of empty lines into one line only?

You can use the following command to reduce a range of empty lines into one line only:

```
:v/./,/./-1join
```

The explanation for this command is below:

```
:v/./          Execute the following command for all lines not
               containing a character (empty lines).
 .,            Use the current line as the start of the range of
               lines.
 /./           Use the line containing a character as the last line.
 -1            Adjust the range of lines to end with the line before
               the last line.
 j             Join the lines in the range.
```

Note that this will give an error message if the empty lines are at the end of the file. To correct this, you have to add a temporary line at the end of the file, execute the command and then remove the temporary line.

For more information, read

:v
:join
cmdline-ranges
collapse

faq-12.4

12.4. How do I delete all blank lines in a file? How do I remove all the lines containing only space characters?

To remove all blank lines, use the following command:

```
:g/^$/d
```

To remove all lines with only whitespace (spaces or tabs) in them, use the following command:

```
:g/^\s\+$/d
```

To remove all the lines with only whitespace, if anything, use the following command:

```
:g/^\s*$/d
```

faq-12.5

12.5. How do I copy/yank the current word?

You can use the "yiw" (yank inner word without whitespace) command or the "yaw" (yank a word with whitespace) command to copy/yank the current word.

For more information, read

```
04.6
04.8
iw
yank
text-objects
objects
```

faq-12.6

12.6. How do I yank text from one position to another position within a line, without yanking the entire line?

You can specify a motion command with the yank operator (y) to yank text from one position to another position within a line. For example, to yank from the current cursor position till the next letter x, use yfx or Fx or tx or Tx. To yank till the nth column, use n|. To yank till the next occurrence of a 'word', use /word. To do a yank till the nth column on another line, first mark the position using the 'ma' command, go to the start of the yank position, and then yank till the mark using y`a (note the direction of the quote)

For more information, read

```
yank
motion.txt
04.6
```

faq-12.7

12.7. When I yank some text into a register, how do I append the text to the current contents of the register?

When you specify the register for some operation, if you use the upper-case for the register name, then the new text will be appended to the existing

contents. For example, if you have some text in the register "a". If you want to append some new text to this, you have to use the "A" register name. If you use the lowercase register name, then the contents of the register will be overwritten with the new text.

For more information, read

```
quote
quote_alpha
10.1
```

faq-12.8

12.8. How do I yank a complete sentence that spans over more than one line?

To yank a complete sentence that spans over more than one line you have to use the yank operator followed by a motion command. For example:

```
y)
```

From inside the sentence you can use 'yi)' to yank the sentence.

For more information, read

```
yank
{motion}
object-motions
04.6
```

faq-12.9

12.9. How do I yank all the lines containing a pattern into a buffer?

You can use the ":global" command to yank all the lines containing the pattern into a register and then paste the contents of the register into the buffer:

```
:let @a=''
:g/mypattern/y A
```

The first command, clears the contents of the register "a". The second command copies all the lines containing "mypattern" into the register "a". Note that the capital letter "A" is used to append the matched lines. Now you can paste the contents of register "a" to a buffer using "ap command.

If you only want to collect all matches, you can use a different approach. For that run the ':s' command with the flags 'gn' so that it won't actually change the buffer ('n' flag) but select each match ('g' flag). Combining this with the '\=' part in the replacement part, you can copy each match to e.g. a list. Altogether this looks like this:

```
:let list=[]
:%s/pattern/\=add(list, submatch(0))/gn
```

Now all matches will be in the list and you can post process them as wanted.

For more information, read

```
:g
:y
:let-register
quote_alpha
put
registers
:registers
sub-replace-\=
```

faq-12.10

12.10. How do I delete all the lines in a file that do not contain a pattern?

You can use ":v" command to delete all the lines that do not contain a pattern:

```
:v/pattern/d
```

or

```
:g!/pattern/d
```

For more information, read

```
:v
:g
```

faq-12.11

12.11. How do I add a line before each line with "pattern" in it?

You can use the following command to add a line before each line with "pattern" in it:

```
:g/pattern/normal! Oi<line of text goes here>
```

Alternatively you can yank the line using the Y command and then insert the line using the following command:

```
:g/pattern/put!
```

For more information, read

```
:g
:put
insert
0
```

faq-12.12

12.12. Is there a way to operate on a line if the previous line contains a particular pattern?

You can use the ":global" command to operate on a line, if the previous line contains a particular pattern:

```
:g/<pattern>/+{cmd}
```

For more information, read

```
:g
:range
```

faq-12.13

12.13. How do I execute a command on all the lines containing a pattern?

You can use the ":global" (:g) command to execute a command on all the lines containing a pattern.

```
:g/my pattern/d
```

If you want to use a non-Ex command, then you can use the ":normal" command:

```
:g/my pattern/normal {command}
```

Unless you want the normal mode commands to be remapped, consider using a ":normal!" command instead (note the "!").

For more information, read

```
:global
:v
:normal
```

faq-12.14

12.14. Can I copy the character above the cursor to the current cursor position?

In Insert mode, you can copy the character above the cursor to the current cursor position by typing <Ctrl-Y>. The same can be done with the characters below the cursor by typing <Ctrl-E>.

For more information, read

```
i_CTRL-Y
i_CTRL-E
```

faq-12.15

12.15. How do I insert a blank line above/below the current line without entering insert mode?

You can use the ":put" ex command to insert blank lines. For example, try

```
:put =''
:put! =''
```

For more information, read

```
:put
```

faq-12.16

12.16. How do I insert the name of the current file into the current buffer?

There are several ways to insert the name of the current file into the current buffer. In insert mode, you can use the <C-R>% or the <C-R>=expand("%") command. In normal mode, you can use the ":put =@%" command.

For more information, read

```
i_CTRL-R
expand()
!!
```

faq-12.17

12.17. How do I insert the contents of a Vim register into the current buffer?

In insert mode, you can use the <C-R><register> command to insert the contents of <register>. For example, use <C-R>a to insert the contents of register "a" into the current buffer.

In normal mode, you can use the ":put <register>" command to insert the contents of <register>. For example, use the ":put d" command to insert the contents of register "d" into the current buffer.

For more information, read

```
i_CTRL-R
i_CTRL-R_CTRL-R
i_CTRL-R_CTRL-O
i_CTRL-R_CTRL-P
:put
```

faq-12.18

12.18. How do I move the cursor past the end of line and insert some characters at some columns after the end of the line?

You can set the "virtualedit" option to move the cursor past the end-of-line and insert characters in a column after the end-of-line. To start the virtual mode, use

```
:set virtualedit=all
```

For more information, read

```
'virtualedit'
```

faq-12.19

12.19. How to replace the word under the cursor (say: junk) with

"foojunkbar" in Vim?

There are several ways to do this. If the word is the first such word on the line, use the following command:

```
:exe "s/".expand("<cword>")."/foo&bar/"
```

To match specifically you could use a more complex substitution like this:

```
:exe 's/\<'.expand("<cword>").'\%>'.(col(".")-1).'c\>/foo&bar/'
```

You can also use the command: ciwfoo<C-R>"bar<Esc>

For more information, read

```
:substitute
expand()
col()
/\%c
```

faq-12.20

12.20. How do I replace a particular text in all the files in a directory?

You can use the "argdo" command to execute the substitute command on all the files specified as arguments:

```
:args *
:argdo %s/<your_text>/<replacement_text>/ge | update
```

For more information, read

```
:args_f
:argdo
:s_flags
```

faq-12.21

12.21. I have some numbers in a file. How do I increment or decrement the numbers in the file?

You can use the CTRL-A key to increment the number and the CTRL-X key to decrement the number. You can also specify the number to increment/decrement from the number by specifying a count to the key. This works for decimal, octal and hexadecimal numbers. You can change the base used by Vim for this operation by modifying the 'nrformats' option.

For more information, read

```
26.2
CTRL-A
CTRL-X
'nrformats'
```

faq-12.22

12.22. How do I reuse the last used search pattern in a ":substitute"

command?

To reuse the last used search pattern in a ":substitute" command, don't specify a new search pattern:

```
:s/pattern/newtext/
:s//sometext/
```

In the second ":s" command, as a search pattern is not specified, the pattern specified in the first ":s" command 'pattern' will be used.

If you want to change the search pattern but repeat the substitution pattern you can use the special right hand side, you can use the tilde character:

```
:s/newpattern/~/
```

For more information, read

```
:s
:&
:~
&
sub-replace-special
```

faq-12.23

12.23. How do I change the case of a string using the ":substitute" command?

You can use special characters in the replacement string for a ":substitute" command to change the case of the matched string. For example, to change the case of the string "MyString" to all uppercase, you can use the following command:

```
:%s/MyString/\U&/g
```

To change the case to lowercase, you can use the following command:

```
:%s/MyString/\L&/g
```

To change the case of the first character in all the words in the current line to uppercase, you can use the following command:

```
:s/\<\(.\)\(\k*\)\>/\u\1\L\2/g
```

For more information, read

```
sub-replace-special
:substitute
/\U
/\L
/\u
```

faq-12.24

12.24. How do I enter characters that are not present in the keyboard?

You can use digraphs to enter characters that are not present in the keyboard. You can use the ":digraphs" command to display all the currently defined digraphs. You can add a new digraph to the list using the ":digraphs" command.

For more information, read

    digraphs
    'digraph'
    24.9

faq-12.25

12.25. Is there a command to remove any or all digraphs?

No. The digraphs table is defined at compile time. You can only add new ones. Adding a command to remove digraphs is on the todo list.

faq-12.26

12.26. In insert mode, when I press the backspace key, it erases only the characters entered in this instance of insert mode. How do I erase previously entered characters in insert mode using the backspace key?

This is traditional vi behaviour. You can set the 'backspace' option to erase previously entered characters in insert mode:

```
:set backspace=indent,eol,start
```

For more information, read

    'backspace'
    i_backspacing

faq-12.27

12.27. I have a file which has lines longer than 72 characters terminated with "+" and wrapped to the next line. How can I quickly join the lines?

You can use the ":global" command to search and join the lines:

```
:g/+$/j
```

This will, however, only join every second line. A couple of more complex examples which will join all consecutive lines with a "+" at the end are:

```
:g/*$/,/\(^\|[^+]\)$/j
:g/+$/mark a | .,/\(^\|[^+]\)$/s/+$// | 'a,.j
```

For more information, read

    :g
    :j

:mark

faq-12.28

12.28. How do I paste characterwise yanked text into separate lines?

You can use the ":put" command to paste characterwise yanked text into new lines:

```
:put =@"
```

For more information, read

:put
quote_=

faq-12.29

12.29. How do I change the case (uppercase, lowercase) of a word or a character or a block of text?

You can use the "~" command to switch the case of a character.

You can change the case of the word under the cursor to uppercase using the "gUiw" or "viwU" command and to lowercase using the "guiw" or "viwu" command.

You can switch the case (upper case to lower case and vice versa) of the word under the cursor using the "viw~" or "g~iw" command.

You can use the "gUgU" command to change the current line to uppercase and the "gugu" command to change the current line to lowercase.

You can use the "g~g~" command to switch the case of the current line. You can use the "g~{motion}" or "{Visual}~" commands to switch the case of a block of text.

If you set 'tildeop' the "~" command behaves like an operator and expects a motion command to act on. If you have

```
:set tildeop
```

and you want to change the case from the current cursor position to the end of line, simply use "~$".

For more information, read

case
'tildeop'

faq-12.30

12.30. How do I enter ASCII characters that are not present in the keyboard?

You can enter ASCII characters that are not present in the keyboard by pressing CTRL-V and then the ASCII character number. You can also use

digraphs to enter special ASCII characters.

For more information, read

```
i_CTRL-V_digit
digraphs
45.5
```

faq-12.31

12.31. How do I replace non-printable characters in a file?

To replace a non-printable character, you have to first determine the ASCII value for the character. You can use the ":ascii" ex command or the "ga" normal-mode command to display the ASCII value of the character under the cursor.

You can enter the non-printable character by entering CTRL-V followed by the decimal number 1-255 (with no leading zero), or by x and a hex number 00-FF, or by an octal number 0-0377 (with leading zero), or by u and a hex number 0-FFFF, or by U and a hex number 0-7FFFFFFF

Another alternative is to use the ":digraphs" ex command to display the digraphs for all characters, together with their value in decimal and alpha. You can enter a non-printable character by entering CTRL-K followed by two alphanumeric characters (a digraph).

For more information, read

```
:ascii
i_CTRL-V
i_CTRL-V_digit
:digraphs
```

faq-12.32

12.32. How do I remove duplicate lines from a buffer?

You can use the following user-defined command to remove all the duplicate lines from a buffer:

```
:command -range=% Uniq <line1>,<line2>g/^\%<<line2>l\(.*\)\n\1$/d
```

Add the above command to your .vimrc file and invoke ":Uniq" to remove all the duplicate lines.

faq-12.33

12.33. How do I prefix all the lines in a file with the corresponding line numbers?

You can prefix the lines in a file with the corresponding line number in several ways. Some of them are listed below:

```
:%s/^/\=line('.'). ' '
:%s/^/\=printf('%5d ', line('.'))/
:%s/^/\=strpart(line('.').'     ', 0, 5)
```

```
:%s/^/\=strpart('    ', strlen(line('.'))).line('.').'. '
```

The last two commands will pad the line numbers with space characters. The last command will right align the numbers and the command before that will left align the numbers.

If you don't want to number consecutive lines but rather non-consecutive regions, you can also use this idiom:

```
:let i = 1
:g/TODO/s/^/\=printf('%2d.',i)|let i+=1
```

This first initializes the variable i with 1. In the next line, a :g command is used to perform a substitute command only on lines, that match 'TODO'. After the substitute command has taken place, the variable i will be incremented by 1.

For more information, read

sub-replace-special
line()
expr6
strpart()
printf()
:execute
:global

faq-12.34

12.34. How do I exchange (swap) two characters or words or lines?

You can exchange two characters with the "xp" command sequence. The 'x' will delete the character under the cursor and 'p' will paste the just deleted character after the character under the cursor. This will result in exchanging the two characters.

You can exchange two words with the "deep" command sequence (start with the cursor in the blank space before the first word).

You can exchange two lines with the "ddp" command sequence. The 'dd' will delete the current line and 'p' will paste the just deleted line after the current line. This will result in exchanging the two lines.

All of the above operations will change the " unnamed register.

You can use the ":m +" ex command to exchange two lines without changing the unnamed register.

For more information, read

x
p
dd
d
e
linewise-register

quotequote
:move

faq-12.35

12.35. How do I change the characters used as word delimiters?

Vim uses the characters specified by the 'iskeyword' option as word
delimiters. The default setting for this option is "@,48-57,_,192-255".

For example, to add ':' as a word delimiter, you can use

```
:set iskeyword+=:
```

To remove '_' as a word delimiter, you can use

```
:set iskeyword-=_
```

For more information, read

'iskeyword'
word

==

faq-13

SECTION 13 - COMPLETION IN INSERT MODE

faq-13.1

13.1. How do I complete words or lines in insert mode?

In insert mode, you can complete words using the CTRL-P and CTRL-N keys.
The CTRL-N command searches forward for the next matching keyword.
The CTRL-P command searches backwards for the next matching keyword.

In insert mode, you can use the CTRL-X CTRL-L command sequence to complete
lines that starts with the same characters as in the current line before
the cursor. To get the next matching line, press the CTRL-P or CTRL-N keys.
There are a lot of other keys/ways available to complete words in insert
mode.

Vim supports completion of the following items:

```
CTRL-X CTRL-L    whole lines
CTRL-X CTRL-N    keywords in the current file
CTRL-X CTRL-K    words from a dictionary
CTRL-X CTRL-T    words from a thesaurus
CTRL-X CTRL-I    current and included files
CTRL-X CTRL-]    tags
CTRL-X CTRL-F    file names
CTRL-X CTRL-D    macro definitions (also in included files)
CTRL-X CTRL-V    Vim command line
CTRL-X CTRL-U    User defined completion
CTRL-X CTRL-O    Omni completion
```

User defined completions and omni completions are often set by filetype

plugins.

For more information, read

	24.3
	ins-completion

faq-13.2

13.2. How do I complete file names in insert mode?

In insert mode, you can use the CTRL-X CTRL-F command sequence to complete filenames that start with the same characters as in the current line before the cursor.

For more information, read

	compl-filename

faq-13.3

13.3. I am using CTRL-P/CTRL-N to complete words in insert mode. How do I complete words that occur after the just completed word?

You can use CTRL-X CTRL-N and CTRL-X CTRL-P keys to complete words that are present after the just completed word.

For more information, read

	i_CTRL-X_CTRL-P
	i_CTRL-X_CTRL-N
	ins-completion

==

faq-14

SECTION 14 - TEXT FORMATTING

faq-14.1

14.1. How do I format a text paragraph so that a new line is inserted at the end of each wrapped line?

You can use the 'gq' command to format a paragraph. This will format the text according to the current 'textwidth' setting. An alternative would be to use the 'gw' command that formats like 'gq' but does not move the cursor.

Note that the gq operator can be used with a motion command to operate on a range of text. For example:

	gqgq - Format the current line
	gqap - Format current paragraph
	gwap - Format current paragraph (and don't move cursor)
	gq3j - Format the current and the next 3 lines

For more information, read

gq
gw
formatting
usr_25.txt
motion.txt

faq-14.2

14.2. How do I format long lines in a file so that each line contains less than 'n' characters?

You can set the 'textwidth' option to control the number of characters that can be present in a line. For example, to set the maximum width of a line to 70 characters, you can use the following command:

```
set textwidth=70
```

Now to break the long lines in a file to the length defined by the 'textwidth' option, you can use

```
:g/./normal gqq
```

For more information, read

'textwidth'
gq

faq-14.3

14.3. How do I join short lines to form a paragraph?

First, make sure the 'textwidth' option is set to a high value:

```
:set textwidth=99999
```

Next, join the short lines to form a paragraph using the command:

```
1GgqG
```

The above command will operate on the entire file. To do the formatting on all paragraphs in a specific range, use:

```
:'a,'bg/\S/normal gq}
```

For more information, read

gq
G
gqq

faq-14.4

14.4. How do I format bulleted and numbered lists?

You can configure Vim to format bulleted and numbered lists using the 'formatoptions' option. For example, you can format the list of the following format:

```
  - this is a test. this is a test. this is a test. this is a test.
  this is a test.

into this format:

  - this is a test. this is a test. this is a test. this is a test.
    this is a test.

You can use the 'n' flag in the 'formatoptions' to align the text.

    :set fo+=n

With this option, when formatting text, Vim will recognize numbered lists.
For this option to work, the 'autoindent' option also must be set.

For more information, read

     'formatoptions'
     fo-table
     format-comments
```

faq-14.5

14.5. How do I indent lines in insert mode?

In insert mode, you can press the CTRL-T key to insert one shiftwidth of indent at the start of the current line. In insert mode, you can use the CTRL-D key to delete on shiftwidth of indent at the start of the current line. You can also use the CTRL-O >> and CTRL-O << commands to indent the current line in insert mode.

For more information, read

```
     i_CTRL-T
     i_CTRL-D
     i_0_CTRL-D
     i_CTRL-O
     >>
     <<
```

faq-14.6

14.6. How do I format/indent an entire file?

You can format/indent an entire file using the gg=G command, where

```
    gg - Goto the beginning of the file
    =  - apply indentation
    G  - till end of file
```

For more information, read

```
     gg
     =
     G
```

'formatprg'
C-indenting

faq-14.7

14.7. How do I increase or decrease the indentation of the current line?

You can use the '>>' and '<<' commands to increase or decrease the indentation of the current line.

For more information, read

shift-left-right
>>
<<
'shiftwidth'

faq-14.8

14.8. How do I indent a block/group of lines?

You can visually select the group of lines and press the > or < key to indent/unindent the lines. You can also use the following ex-command to indent the lines

```
:10,20>
```

For more information, read

shift-left-right
v_>
v_<
:<
:>

faq-14.9

14.9. When I indent lines using the > or < key, the standard 8-tabstops are used instead of the current 'tabstop' setting. Why?

The number of spaces used when lines are indented using the ">" operator is controlled by the 'shiftwidth' option. The 'tabstop' setting is only used, when the 'shiftwidth' option is zero.

```
:set shiftwidth=4
```

For more information, read

'shiftwidth'
>>
'softtabstop'

faq-14.10

14.10. How do I turn off the automatic indentation of text?

By default, the automatic indentation of text is not turned on. Check the configuration files (.vimrc, .gvimrc) for settings related to indentation.

Make sure the ":filetype indent on" command is not present. If it is present, remove it. Also, depending on your preference, you may also want to check the value of the 'autoindent', 'smartindent', 'cindent' and 'indentexpr' options and turn them off as needed.

For more information, read

```
:filetype-indent-off
'autoindent'
'smartindent'
'cindent'
'indentexpr'
```

faq-14.11

14.11. How do I configure Vim to automatically set the 'textwidth' option to a particular value when I edit mails?

You can use the 'FileType' autocommand to set the 'textwidth' option:

```
autocmd FileType mail set tw=<your_value>
```

For more information, read

```
:autocmd
FileType
usr_43.txt
```

faq-14.12

14.12. Is there a way to make Vim auto-magically break lines?

Yes. Set the 'textwidth' option to the preferred length for a line. Then Vim will auto-magically break the newly entered lines. For example:

```
:set textwidth=75
```

For more information, read

```
'textwidth'
ins-textwidth
'formatoptions'
fo-table
formatting
```

faq-14.13

14.13. I am seeing a lot of ^M symbols in my file. I tried setting the 'fileformat' option to 'dos' and then 'unix' and then 'mac'. None of these helped. How can I hide these symbols?

When a file is loaded in Vim, the format of the file is determined as below:

- If all the lines end with a new line (<NL>), then the fileformat is 'unix'.
- If all the lines end with a carriage return (<CR>) followed by a new line

  (<NL>), then the fileformat is 'dos'.
- If all the lines end with carriage return (<CR>), then the fileformat is
  'mac'.

If the file has some lines ending with <CR> and some lines ending with <CR>
followed by a <NL>, then the fileformat is set to 'unix'.

You can change the format of the current file, by saving it explicitly in
dos format:

```
:w ++ff=dos
```

To display the format of the current file, use

```
:set fileformat?
```

The above behavior is also controlled by the 'fileformats' option. You can
try the following commands:

```
:set fileformats+=unix
:e <your_file>
:set fileformat=unix
:w
```

To remove the carriage return (<CR>) character at the end of all the lines
in the current file, you can use the following command:

```
:%s/\r$//
```

To force Vim to use a particular file format, when editing a file, you can
use the following command:

```
:e ++ff=dos filename
```

For more information, read

```
'fileformats'
'fileformat'
file-formats
DOS-format-write
Unix-format-write
Mac-format-write
dos-file-formats
23.1
++ff
```

faq-14.14

14.14. When I paste some text into a Vim buffer from another application,
the alignment (indentation) of the new text is messed up. How do I
fix this?

When you paste text into a GUI Vim using the mouse, Vim is able to
detect that you are pasting text. So all the indentation related
settings (like autoindent, smartindent, cindent, etc.) are ignored and

the text is pasted literally.

When pasting text into a Vim running in a terminal (like xterm) using the mouse, Vim may not be able to detect that you are pasting text. This depends on several things: the capability of the terminal to pass the mouse events to Vim, Vim is compiled to handle mouse events and access the clipboard, the DISPLAY variable is set properly, the Vim 'mouse' option is set correctly.

If Vim is able to detect that you are pasting text using the mouse, then the pasted text will be inserted literally.

If Vim is not able to detect that you are pasting using the mouse, then it will see the pasted text as though you literally typed the text. After the first line from the pasted text is inserted, when Vim encounters the newline character, because of the indentation settings, the next line will start indented. The spaces at the beginning of the second line in the pasted text will be inserted leading to additional indentation. This will be repeated for subsequent lines. So the pasted text will be inserted with stair case indentation.

You can fix this problem in a terminal Vim in several ways:

1. Build Vim with the +mouse and +xterm_clipboard compile-time options. The normal or big or huge build of Vim includes these options. Set the 'mouse' option to either 'a' or include 'i'. When pasting text using the mouse, don't press the Shift key. This will work only if Vim can access the X display. For more information, read the following Vim help topics:

   ```
   +feature-list
   'mouse'
   <MiddleMouse>
   x11-selection
   xterm-clipboard
   ```

1.1 Some Linux distributions build their terminal vim packages without X support. This makes no sense and leaves many users with the impression that Vim in terminal mode doesn't support some operations such as properly pasting text with a mouse.

   If your distribution includes gvim, which it almost certainly does these days, the solutions to this include the following.

   a) Start Vim as

      ```
      gvim -v
      ```

   b) Put this alias in your shell's configuration file, e.g. ~/.bashrc:

      ```
      alias vim='gvim -v'
      ```

   c) Put the following command in a file named 'vim' and put that

file in your ~/bin directory:

```
gvim -v "$@"
```

d) Link the distribution's gvim to ~/bin/vim with the following command, which needs to be executed only once.

```
ln -s $(which gvim) ~/bin/vim
```

For c) and d), make sure that ~/bin precedes /usr/bin in your PATH.

2. Paste the text using the CTRL-R CTRL-O * command. This will paste the text literally without any automatic indentation. If you want to paste the text and then fix the indentation, then you can use CTRL-R CTRL-P *. These commands will work only if Vim can access the X display. For more information, read the following Vim help topics:

```
i_CTRL-R_CTRL-O
i_CTRL-R_CTRL-P
quotestar
```

3. Set the 'paste' option before pasting the text. This option will disable the effect of all the indentation related settings. Make sure to turn off this option using ':set nopaste' after pasting the text. Otherwise the Vim indentation feature will not work. Do not permanently set the 'paste' option in your .vimrc file. If you are going to repeat these steps often, then you can set the 'pastetoggle' option to a key. When you press the specified key, the 'paste' option will be toggled. You can press the key once before pasting the text and the press the key once after pasting the text. Note that when the 'paste' option is set, all the mappings and abbreviations are disabled. For more information, read the following Vim help topics:

```
'paste'
'pastetoggle'
```

You can also refer to the following topics in the user manual:

```
04.7
09.3
```

faq-14.15

14.15. When there is a very long wrapped line (wrap is "on") and a line doesn't fit entirely on the screen it is not displayed at all. There are blank lines beginning with '@' symbol instead of wrapped line. If I scroll the screen to fit the line the '@' symbols disappear and the line is displayed again. What Vim setting control this behavior?

You can set the 'display' option to 'lastline' to display as much as possible of the last line in a window instead of displaying the '@' symbols.

```
    :set display=lastline
```

For more information, read

```
     'display'
```

faq-14.16

14.16. How do I convert all the tab characters in a file to space characters?

You can use the ":retab" command to update all the tab characters in the current file with the current setting of 'expandtab' and 'tabstop'. For example, to convert all the tabs to white spaces, use

```
    :set expandtab
    :retab
```

For more information, read

```
     :retab
     'expandtab'
     'tabstop'
     25.3
```

faq-14.17

14.17. What Vim options can I use to edit text that will later go to a word processor?

You can set the following options to edit text that will later go into a word processor:

```
    :set wrap
    :set linebreak
    :set textwidth=0
    :set showbreak=>>>
```

You can use the 'gk' and 'gj' commands to move one screen line up and down. For more information, read

```
     'wrap'
     'linebreak'
     'textwidth'
     'showbreak'
     gk
     gj
```

faq-14.18

14.18. How do I join lines without adding or removing any space characters?

By default, when you join lines using the "J" or ":join" command, Vim will replace the line break, leading white space and trailing white space with a single space character. If there are space characters at the end of a line or a line starts with the ')' character, then Vim will not add a space character.

To join lines without adding or removing any space characters, you can use
the gJ or ":join!" commands.

For more information, read

	gJ
	:join
	J
	10.5
	'joinspaces'
	'cpoptions'
	'formatoptions'

==
faq-15

SECTION 15 - VISUAL MODE

faq-15.1

15.1. How do I do rectangular block copying?

You can do rectangular block copying in Vim using the blockwise visual
mode. To start blockwise visual mode use the CTRL-V key. Move the cursor
using any of the motion commands and then use the y operator to yank to
visually selected text.

If CTRL-V does not work as expected, it may have been remapped to CTRL-Q by
the mswin.vim script which is often sourced by a vimrc on Windows machines
to mimic some common short cuts from other programs.

For more information, read

	04.4
	blockwise-visual
	visual-mode
	Q_vi

faq-15.2

15.2. How do I delete or change a column of text in a file?

You can use the Vim block-wise visual mode to select the column of text and
apply an operator (delete, change, copy, etc) on it.

For more information, read

	visual-block
	visual-operators

faq-15.3

15.3. How do I apply an ex-command on a set of visually selected lines?

When you select a range of lines in visual mode, the < register is set to
the start of the visual region and the > register is set to the end of the
visual region. You can use these registers to specify the range for an ex

command. After visually selecting the lines, press ":" to go to the command mode. Vim will automatically insert the visual range '<,'>. You can run any ex-command on the visual range.

For more information, read

```
v_:
'<
'>
```

faq-15.4

15.4. How do I execute an ex command on a column of text selected in Visual block mode?

All the ex commands operate on whole lines only. If you try to execute an ex command on a column of text selected in visual block mode, Vim will operate on all the selected lines (instead of the selected columns). You can use the vis.vim or NrrwRgn plugin script from http://vim.sourceforge.net scripts archive to do this.

For more information, read

```
cmdline-ranges
10.3
cmdline-lines
```

faq-15.5

15.5. How do I select the entire file in visual mode?

You can select the entire file in visual mode using ggVG.

```
gg - go to the beginning of the file.
V  - Start linewise visual mode
G  - goto the end of the file.
```

For more information, read

```
gg
linewise-visual
G
```

faq-15.6

15.6. When I visually select a set of lines and press the > key to indent the selected lines, the visual mode ends. How can I reselect the region for further operation? (or) How do I re-select the last selected visual area again?

You can use the 'gv' command to reselect the last selected visual area. You can also use the marks '< and '> to jump to the beginning or the end of the last selected visual area.

For more information, read

```
gv
```

'<
'>

faq-15.7
15.7. How do I jump to the beginning/end of a visually selected region?

You can use the 'o' command to jump to the beginning/end of a visually selected region.

For more information, read

v_o

faq-15.8
15.8. When I select text with mouse and then press : to enter an ex command, the selected text is replaced with the : character. How do I execute an ex command on a text selected using the mouse similar to the text selected using the visual mode?

This will happen if you have configured Vim to use select mode instead of Visual mode by setting the 'selectmode' option. Check the value of this option:

```
:set selectmode?
```

This mode is known as selectmode and is similar to the visual mode. This option is also automatically set when you use the "behave mswin" command. Select mode looks like visual mode, but it is similar to the selection mode in MS-Windows.

For more information, read

Select-mode
'selectmode'
09.4
:behave

faq-15.9
15.9. When I select a block of text using the mouse, Vim goes into selection mode instead of Visual mode. Why?

The 'selectmode' option controls whether Select mode will be started when selecting a block of text using the mouse. To start Visual mode when selecting text using mouse, remove the 'mouse' value from the 'selectmode' option:

```
:set selectmode-=mouse
```

Note that by default, the 'selectmode' option will be set to empty, so that always visual mode is used.

For more information, read

'selectmode'

Select-mode
:behave

faq-15.10

15.10. How do I visually select the last copy/pasted text?

You can use the '[and '] marks to visually select the last copy/pasted text. The '[mark is set to the beginning of the last changed/yanked text and the '] mark is set to the end of the last changed/yanked text. To visually select this block of text use the command '[v']

For more information, read

'[
']
`a
v

==

faq-16

SECTION 16 - COMMAND-LINE MODE

faq-16.1

16.1. How do I use the name of the current file in the command mode or an ex command line?

In the command line, the '%' character represents the name of the current file. In some commands, you have to use expand("%") to get the filename:

```
:!perl %
```

Another example is to load the latex generated pdf file from the file you are currently editing:

```
:!xpdf %<.pdf
```

For more information, read

:_%
cmdline-special
expand()

faq-16.2

16.2. How do I edit the text in the Vim command-line effectively?

You can use the command-line window for editing Vim command-line text. To open the Vim command-line window use the "q:" command in normal mode. In command-line mode, use the CTRL-F key. In this window, the command line history will be displayed. You can use normal Vim keys/commands to edit any previous/new command line. To execute a command line, press the enter/return key.

In a similar vain, the search history can be edited with "q/" and "q?" commands.

For more information, read

```
cmdline-window
```

faq-16.3

16.3. How do I switch from Vi mode to Ex mode?

You can use the Q command to switch from Vi mode to Ex mode. To switch from Ex mode back to the Vi mode, use the :vi command.

For more information, read

```
Q
gQ
Ex-mode
:vi
```

faq-16.4

16.4. How do I copy the output from an ex-command into a buffer?

To copy the output from an ex-command into a buffer, you have to first get the command output into a register. You can use the ":redir" command to get the output into a register. For example,

```
:redir @a
:g/HelloWord/p
:redir END
```

Now the register 'a' will contain the output from the ex command "g/HelloWord/p". Now you can paste the contents of the register 'a' into a buffer. You can also send or append the output of an ex-command into a file using the 'redir' command.

You can prefix the ":global" command with ":silent", to avoid having the lines printed to the screen.

To redirect the output from an ex-command to a file, you can use the following set of commands:

```
:redir > myfile
:g/HelloWord/p
:redir END
```

For more information, read

```
:redir
:silent
```

faq-16.5

16.5. When I press the tab key to complete the name of a file in the command mode, if there are more than one matching file names, then Vim completes the first matching file name and displays a list of all matching filenames. How do I configure Vim to only display the list

of all the matching filenames and not complete the first one?

You can modify the 'wildmode' option to configure the way Vim completes filenames in the command mode. In this case, you can set the 'wildmode' option to 'list':

```
:set wildmode=list
```

For more information, read

'wildmode'

faq-16.6

16.6. How do I copy text from a buffer to the command line and from the command line to a buffer?

To copy text from a buffer to the command line, after yanking the text from the buffer, use Ctrl-R 0 in the command line to paste the text. You can also yank the text to a specific register and use CTRL-R <register> to paste the text to the command line. You can use CTRL-R CTRL-W to paste the word under the cursor in the command line.

To copy text from the command line into a buffer, you can paste the contents of the : register using the ":p command. The most recently executed command line is stored in the : register.

Another approach for copying and pasting text to and from the command line is to open the command line window using q: from normal mode or CTRL-F from the command-line mode. In the command line window you can use all the Vim commands to edit the command line.

For more information, read

c_CTRL-R
quote_:
cmdline-window

faq-16.7

16.7. How do I put a command onto the command history without executing it?

To put a command onto the command history without executing it, press the <Esc> key to cancel the command.

An alternative solution, is to use the histadd() function like this:

```
:call histadd(':', 'echo strftime("%c")')
```

For more information, read

c_<Esc>
histadd()

faq-16.8

16.8. How do I increase the height of the command-line?

You can increase the height of the command-line by changing the 'cmdheight'
option:

```
:set cmdheight=2
```

For more information, read

```
'cmdheight'
hit-enter
05.7
```

==

faq-17

SECTION 17 - VIMINFO

faq-17.1

17.1. When I invoke Vim, I get error messages about illegal characters in
the viminfo file. What should I do to get rid of these messages?

You can remove the $HOME/.viminfo or the $HOME/_viminfo file to get rid of
these error messages.

For more information, read

```
viminfo-errors
viminfo-file-name
viminfo
21.3
```

faq-17.2

17.2. How do I disable the viminfo feature?

By default, the viminfo feature is disabled. If the viminfo feature is
enabled by a system-wide vimrc file, then you can disable the viminfo
feature by setting the 'viminfo' option to an empty string in your local
.vimrc file:

```
:set viminfo=""
```

For more information, read

```
'viminfo'
```

faq-17.3

17.3. How do I save and use Vim marks/commands across Vim sessions?

You can save and restore Vim marks across Vim sessions using the viminfo
file. To use the viminfo file, make sure the 'viminfo' option is not empty.
To save and restore Vim marks, the 'viminfo' option should not contain the
'f' flag or should have a value greater than zero for the 'f' option.

You can also use the viminfo file to synchronize the commandline history
across different sessions using :wviminfo and :rviminfo commands together

with the FocusGained and FocusLost autocommands:

```
augroup viminfo
    au!
    au FocusLost   * wviminfo
    au FocusGained * rviminfo
augroup end
```

Note, this will only work reliably, when Vim can detect the FocusLost and FocusGained autocommands correctly. This means it should work with GVim but might depend on your terminal for konsole vim.

For more information, read

```
21.3
viminfo
'viminfo'
:wviminfo
:rviminfo
FocusLost
FocusGained
```

==========

faq-18

SECTION 18 - REMOTE EDITING

faq-18.1

18.1. How do I open a file with existing instance of gvim? What happened to the Vim 5.x OpenWithVim.exe and SendToVim.exe files?

Starting with Vim6, the OLE version of OpenWithVim.exe and SendToVim.exe Vim utilities are replaced by the new client-server feature. To open the file j.txt with an existing instance of Gvim (MyVim), use:

```
$ gvim --servername MyVim --remote-silent j.txt
```

To list the server names of all the currently running Vim instances, use

```
$ vim --serverlist
```

To get more information about client-server feature, read

```
client-server
```

faq-18.2

18.2. How do I send a command to a Vim server to write all buffers to disk?

You can use the Vim remote server functionality to do this:

```
$ gvim --servername myVIM --remote-send "<C-\><C-N>:wall<CR>"
```

For more information, read

```
client-server
```

```
     CTRL-\_CTRL-N
     :wall
```

faq-18.3

18.3. Where can I get the documentation about the Vim remote server functionality?

You can get more information about the Vim remote server functionality by reading

```
     client-server
```

==

faq-19

SECTION 19 - OPTIONS

faq-19.1

19.1. How do I configure Vim in a simple way?

You can use the ":options" command to open the Vim option window:

```
    :options
```

This window can be used for viewing and setting all the options.

For more information, read

```
     :options
```

faq-19.2

19.2. How do I toggle the value of an option?

You can prefix the option with "inv" to toggle the value of the option:

```
    :set invignorecase
    :set invhlsearch
```

You can also suffix the option with "!" to toggle the value:

```
    :set ignorecase!
    :set hlsearch!
```

For more information, read

```
     set-option
```

faq-19.3

19.3. How do I set an option that affects only the current buffer/window?

Some of the Vim options can have a local or global value. A local value applies only to a specific buffer or window. A global value applies to all the buffers or windows.

When a Vim option is modified using the ":set" command, both the global and

local values for the option are changed. You can use the ":setlocal"
command to modify only the local value for the option and the ":setglobal"
command to modify only the global value.

You can use the ":setlocal" command to set an option that will affect only
the current file/buffer:

```
:setlocal textwidth=70
```

Note that not all options can have a local value. You can use ":setlocal"
command to set an option locally to a buffer/window only if the option is
allowed to have a local value.

You can also use the following command to set an option locally:

```
:let &l:{option-name} = <value>
```

For more information, read

```
:setlocal
local-options
```

faq-19.4

19.4. How do I use space characters for a Vim option value?

To use space characters in a Vim option value, you have to escape the space
character. For example:

```
:set tags=tags\ /usr/tags
```

For more information, read

```
option-backslash
```

faq-19.5

19.5. Can I add (embed) Vim option settings to the contents of a file?

You can use modelines to add Vim option settings to the contents of a file.
For example, in a C file, you can add the following line to the top or the
bottom of the file:

```
/* vim:sw=4: */
```

This will set the 'shiftwidth' option to 4, when editing that C file.
For this to work, the 'modeline' option should be set. By default, the
'modeline' option is set. An alternative example is given in this document
in the first line.

The 'modelines' settings specifies the number of
lines that will be checked for the Vim set commands.

For more information, read

```
21.6
```

modeline
auto-setting
'modeline'
'modelines'

faq-19.6

19.6. How do I display the line numbers of all the lines in a file?

You can set the 'number' option to display the line numbers for all the lines.

```
:set number
```

For more information, read

```
'number'
```

faq-19.7

19.7. How do I change the width of the line numbers displayed using the "number" option?

You can set the minimum number of columns to be used for line numbering by setting the 'numberwidth' option:

```
:set numberwidth=3
```

This set's the width for the line number to 3 digits, which is enough, if your buffer contains less than 999 lines. However, if your current buffer contains more lines than 999, the 'numberwidth' will be adjusted accordingly, so that the maximum line number will fit on the screen.

faq-19.8

19.8. How do I display (view) all the invisible characters like space, tabs and newlines in a file?

You can set the 'list' option to see all the invisible characters in your file.

```
:set list
```

With this option set, you can view space characters, tabs, newlines, trailing space characters and wrapped lines.

To not display the invisible characters (which is the default), you have to reset the 'list' option:

```
:set nolist
(or)
:set list!
```

The ":set list!" command will toggle the current setting of the boolean 'list' option.

You can modify the 'listchars' option to configure how and which invisible

characters are displayed. For example, with the following command all the trailing space characters will be displayed with a '.' character.

```
:set listchars=trail:.
```

For more information, read

'listchars'
'list'

faq-19.9

19.9. How do I configure Vim to always display the current line and column number?

You can set the 'ruler' option to display current column and line number in the status line:

```
:set ruler
```

For more information, read

'ruler'

faq-19.10

19.10. How do I display the current Vim mode?

You can set the 'showmode' option to display the current Vim mode. In Insert, Replace and Visual modes, Vim will display the current mode on the last line.

```
:set showmode
```

For more information, read

'showmode'

faq-19.11

19.11. How do I configure Vim to show pending/partial commands on the status line?

You can set the 'showcmd' option to display pending/partial commands in the status line:

```
:set showcmd
```

For more information, read

'showcmd'

faq-19.12

19.12. How do I configure the Vim status line to display different settings/values?

You can set the 'statusline' option to display different values/settings in

the Vim status line.

For more information, read

```
'statusline'
'laststatus'
'rulerformat'
'ruler'
```

faq-19.13

19.13. How do I configure Vim to display status line always?

You can set the 'laststatus' option to 2 to display the status line always.

```
:set laststatus=2
```

For more information, read

```
'laststatus'
```

faq-19.14

19.14. How do I make a Vim setting persistent across different Vim invocations/instances/sessions?

To make a Vim option setting persistent across different Vim instances, add your setting to the .vimrc or .gvimrc file. You can also use the ":mkvimrc" command to generate a vimrc file for the current settings.

For more information, read

```
save-settings
vimrc
gvimrc
vimrc-intro
:mkvimrc
initialization
```

faq-19.15

19.15. Why do I hear a beep (why does my window flash) about 1 second after I hit the Escape key?

This is normal behavior. If your window flashes, then you've got the visual bell on. Otherwise, you should hear a beep.

Vim needs a timeout to tell the difference between a simple escape and, say, a cursor key sequence. When you press a key in normal mode (and even in insert mode) and that key is the beginning of a mapping, Vim waits a certain amount of time to see if the rest of the mapping sequence follows. If the mapping sequence is completed before a given timeout period, the mapping for that sequence of keys is applied. If you interrupt the mapping, the normal actions associated with the keys are executed.

For example, if you have a mapping defined as ":imap vvv Vim is great!!" and you type "vvv" quickly, the "Vim is great!!" will be inserted into your

text. But if you type "vv v" then that is what will put into your text. This is also true if you type "vvv" too slowly where "too slowly" is longer than the value for the timeout option. Setting the timeout option to a larger value can help alleviate problems that appear when using function keys over a slow line.

For more information, read

    'ttimeout'

faq-19.16

19.16. How do I make the 'c' and 's' commands display a '$' instead of deleting the characters I'm changing?

To make the 'c' and 's' commands display a '$' instead of deleting the characters, add the $ flag to the 'cpoptions' option:

```
:set cpoptions+=$
```

For more information, read

    'cpoptions'

faq-19.17

19.17. How do I remove more than one flag using a single ":set" command from a Vim option?

You can remove more than one flag from a Vim option using a single ":set" command, by specifying the flags in exactly the same order as they appear in the option. For example, if you use the following command to remove the 't' and 'n' flags from the 'formatoptions' option:

```
:set formatoptions-=tn
```

The 't' and 'n' flags will be removed from the 'formatoptions' option, only if the 'formatoptions' option contains these flags in this order: 'tn'. Otherwise, it will not remove the flags. To avoid this problem, you can remove the flags one by one:

```
:set formatoptions-=t formatoptions-=n
```

For more information, read

    :set-=

==

faq-20

SECTION 20 - MAPPING KEYS

faq-20.1

20.1. How do I know what a key is mapped to?

To see what a key is mapped to, use the following commands:

```
    :map <key>
    :map! <key>
```

You can also check the mappings in a particular mode using one of the ":cmap", ":nmap", ":vmap", ":imap", ":omap", etc commands.

To find out, where the key has been mapped, prefix the :verbose command:

```
    :verbose :map <key>
```

For more information, read

```
     map-listing
     map-overview
```

faq-20.2

20.2. How do I list all the user-defined key mappings?

You can list all the user-defined key mappings using:

```
    :map
```

For more information, read

```
     map-listing
```

faq-20.3

20.3. How do I unmap a previously mapped key?

You can unmap a previously mapped key using the ":unmap" command:

```
    :unmap <key>
    :unmap! <key>
```

For mode specific mappings, you can use one of the ":nunmap/:vunmap/:ounmap/:iunmap/:lunmap/:cunmap" commands.

The following command will fail to unmap a buffer-local mapped key:

```
    :unmap <key>
```

To unmap a buffer-local mapped key, you have to use the <buffer> keyword in the unmap command:

```
    :unmap <buffer> <key>
    :unmap! <buffer> <key>
```

For more information, read

```
     :unmap
     map-modes
     :map-local
     mapleader
```

faq-20.4

20.4. I am not able to create a mapping for the <xxx> key. What is wrong?

1) First make sure, the key is passed correctly to Vim. To determine if this is the case, put Vim in Insert mode and then hit Ctrl-V (or Ctrl-Q if your Ctrl-V is remapped to the paste operation (e.g. on Windows if you are using the mswin.vim script file) followed by your key.

   If nothing appears in the buffer (and assuming that you have 'showcmd' on, ^V remains displayed near the bottom right of the Vim screen), then Vim doesn't get your key correctly and there is nothing to be done, other than selecting a different key for your mapping or using GVim, which should recognise the key correctly.

2) Possibly, Vim gets your key, but sees it as no different than something else. Say you want to map Ctrl-Right, then in Insert mode hit Ctrl-K followed by Ctrl-Right. If Vim displays <C-Right> it has correctly seen the keystroke and you should be able to map it (by using <C-Right> as your {lhs}). If it displays <Right> it has seen the keystroke but as if you hadn't held Ctrl down: this means your temrinal passes Ctrl-Right as if it were just <Right>. Anything else means the key has been misidentified.

3) If the key is seen, but not as itself and not as some recognizable key, then there is probably an error in the terminal library for the current terminal (termcap or terminfo database). In that case

```
:set term?
```

   will tell you which termcap or terminfo Vim is using. You can try to tell vim, what termcode to use in that terminal, by adding the following to your vimrc:

```
if &term == <termname>
    set <C-Right>=<keycode>
endif
```

   where <termname> above should be replaced by the value of 'term' (with quotes around it) and <keycode> by what you get when hitting Ctrl-V followed by Ctrl-Right in Insert mode (with nothing around it). <C-Right> should be left as-is (9 characters). Don't forget that in a :set command, white space is not allowed between the equal sign and the value, and any space, double quote, vertical bar or backslash present as part of the value must be backslash-escaped.

   Now you should be able to see the keycode corresponding to the key and you can create a mapping for the key using the following command:

```
:map <C-Right>  <your_command_to_be_mapped>
```

For more information, read

```
map-keys-fails
```

```
:map-special-keys
key-codes
```

faq-20.5

20.5. Why does mapping the <C-...> key not work?

The only Ctrl-printable-key chords which Vim can reliably detect (because they are defined in the ASCII standard) are the following:

```
Ctrl-@                  0x00            NUL
Ctrl-A to Ctrl-Z        0x01 to 0x1A
Ctrl-a to Ctrl-z        0x01 to 0x1A
Ctrl-[                  0x1B            ESC
Ctrl-\                  0x1C
Ctrl-]                  0x1D
Ctrl-^                  0x1E
Ctrl-_                  0x1F
Ctrl-?                  0x7F            DEL
```

Most of these, however, already have a function in Vim (and some are aliases of other keys: Ctrl-H and Bsp, Ctrl-I and Tab, Ctrl-M and Enter, Ctrl-[and Esc, Ctrl-? and Del).

The "safest" keys to use in Vim for the {lhs} of a mapping are the F keys, with or without Shift: <F2> to <F12> and <S-F1> to <S-F12>. (Some OSes, including mine, intercept Ctrl-Fn and Alt-Fn, which never reach an application program such as vim or gvim).

You can try other combinations of Ctrl + any key, but they may either not work everywhere (e.g. the terminal might not pass that key to Vim, or they might have unintended side effects (e.g. mapping <C-I> means also to map <Tab>).

This is a known issue, that has been discussed and might be implemented in the future to enable Vim to distinguish between various keys even in console mode. (e.g. https://groups.google.com/d/msg/vim_dev/2bp9UdfZ63M/sajb9KM0pNYJ)

faq-20.6

20.6. How do I map the numeric keypad keys?

First make sure that the numeric keypad keys are passed to Vim. Next, you can use the following command to map the numeric keypad keys:

```
:map <kSomething>  <your_command>
```

where, <kSomething> can be kHome, kEnd, kPageUp, kPageDown, kPlus, kMinus, kDivide, kMultiply, kEnter, etc.

For more information, read

```
key-codes
terminal-options
```

faq-20.7

20.7. How do I create a mapping that works only in visual mode?

You can create mappings that work only in specific modes (normal, command, insert, visual, etc). To create a mapping that works only in the visual mode, use the ":vmap" command:

```
:vmap <F3> <your mapping here>
```

This mapping will work in visual and select mode. If you want the map to work only in visual mode (excluding select mode), use:

```
:xmap <F3> <your mapping here>
```

and to have the mapping only work in select mode (but not visual mode), use:

```
:smap <F3> <your mapping here>
```

For more information, read

```
:vmap
:xmap
:smap
map-modes
40.1
```

faq-20.8

20.8. How do I create a mapping that works only in normal and operator pending mode (but not in visual mode)?

Using ":map" creates a mapping that works in normal, visual+select mode and operator pending mode. You can use ":nmap" to have the mapping only work in normal mode and ":vmap" to have the mapping only be defined for visual and select mode or use ":omap" to have the mapping only defined in operator pending mode.

But if you want to have a mapping defined, that works in both operator pending mode and normal mode, but not in visual and select mode, you need to first define the mapping using ":map" and afterwards delete the mapping for visual and select mode:

```
:map <f3> <your mapping here>
:vunmap <f3>
```

faq-20.9

20.9. In a Vim script, how do I know which keys to use for my mappings, so that the mapped key will not collide with an already used key?

Vim uses most of the keys in the keyboard. You can use the <leader> prefix in maps to define keys which will not overlap with Vim keys. For example:

```
:map <leader>S <C-W>s
:map <leader>j <C-W>j
:map <leader>k <C-W>k
```

where by default <leader> gets substituted with a backslash (\), so the user would enter

```
\s
\j
\k
```

to invoke the above map commands. The user can change the mapleader variable to be whatever they wanted:

```
:let mapleader = ","
```

When writing a plugin or other script, more often than not, it is advisable to use :noremap instead of :map to avoid side effects from user defined mappings.

For more information, read

```
<Leader>
<LocalLeader>
write-plugin
```

faq-20.10

20.10. How do I map the escape key?

You can map the Escape key to some other key using the ":map" command. For example, the following command maps the escape key to CTRL-O.

```
:map <C-O> <Esc>
```

faq-20.11

20.11. How do I map a key to perform nothing?

You can map a key to <Nop> to perform nothing when the key is pressed. For example, with the following mappings, the <F7> key will do nothing when pressed.

```
:map <F7> <Nop>
:map! <F7> <Nop>
```

For more information, read

```
<Nop>
:map
:map!
map-modes
```

faq-20.12

20.12. I want to use the Tab key to indent a block of text and Shift-Tab key to unindent a block of text. How do I map the keys to do this? This behavior is similar to textpad, visual studio, etc.

Use the following mapping:

```
    :inoremap <S-Tab> <C-O><lt><lt>
    :nnoremap <Tab> >>
    :nnoremap <S-Tab> <lt><lt>
    :vnoremap <Tab> >
    :vnoremap <S-Tab> <lt>
```

Note, that the <S-Tab> mapping will work only if Vim receives the correct key sequence. This is mostly the case with GUI Vim.

For more information, read

```
     :inoremap
     :nnoremap
     :vnoremap
     <S-Tab>
     i_CTRL-O
     >>
     <<
     <lt>
```

faq-20.13

20.13. In my mappings the special characters like <CR> are not recognized. How can I configure Vim to recognize special characters?

Check the value of the 'cpoptions' option:

```
    :set cpoptions?
```

If this option contains the '<' flag, then special characters will not be recognized in mappings. Remove the '<' flag from 'cpoptions' option:

```
    :set cpo-=<
```

Also, check the value of the 'compatible' option:

```
    :set compatible?
```

The 'compatible' option must be reset:

```
    :set nocompatible
```

For more information, read

```
     'cpoptions'
     'compatible'
```

faq-20.14

20.14. How do I use the '|' to separate multiple commands in a map?

You can escape the '|' character using backslash (\) to use '|' in a map.

```
    :map _l :!ls \| more<CR>
```

You can also try the following command:

```
:map _l :!ls <bar> more<CR>
```

There are also other ways to do this.

For more information, read

map_bar

faq-20.15

20.15. If I have a mapping/abbreviation whose ending is the beginning of another mapping/abbreviation, how do I keep the first from expanding into the second one?

Instead of using the ":map lhs rhs" command, use the ":noremap lhs rhs" command. For abbreviations, use "noreabbrev lhs rhs". The "nore" prefix prevents the mapping or abbreviation from being expanded again.

For more information, read

:noremap
:noreabbrev

faq-20.16

20.16. Why does it take a second or more for Vim to process a key, sometimes when I press a key?

Make sure you have not defined a mapping for this key using the following command:

```
:map <key>
```

If a mapping is defined for this key and the mapped key contains more than one character, then Vim will wait for the next character to be pressed to determine whether it is the mapped key or not. For example, if you have mapped "ab", then if you press "a", Vim will wait for the next key to be pressed. If the next key is "b", Vim will execute the mapped sequence. Otherwise, Vim will proceed with the normal processing of "a" followed by the next key. If the 'timeout' option is set (which is the default), then Vim will timeout after waiting for the period specified with the 'timeoutlen' option (default is 1 second).

For more information, read

map-typing
'timeoutlen'
'ttimeoutlen'
'timeout'
'ttimeout'
vt100-cursor-keys
slow-fast-terminal

faq-20.17

20.17. How do I map a key to run an external command using a visually

selected text?

You can the ":vmap" command to map a key in the visual mode. In the mapped command sequence, you have to first yank the text. The yanked text is available in the '"' register. Now, you can use the contents of this register to run the external command. For example, to run the external command "perldoc" on a visually selected text, you can use the following mapping:

```
:vmap <F7> y:!exec "!perldoc '" . @" . "'"<CR>
```

If you want the mapping to work in the visual mode, but not with the highlighted text, you can use the following command:

```
:vmap <F7> :<C-U>!perldoc <cword><CR>
```

The above mapping will use the word under the cursor instead of the highlighted text. Note the use of the <C-U> before invoking the "perldoc" external command. The <C-U> is used to erase the range of text selected in the visual mode and displayed on the command line. If the visual range is not removed using <C-U>, then the output from the external command will replace the visually selected text.

For more information, read

```
:vmap
quote_quote
:let-register
c_CTRL-U
:!cmd
```

faq-20.18

20.18. How do I map the Ctrl-I key while still retaining the functionality of the <Tab> key?

The Ctrl-I key and the <Tab> key produce the same keycode, so Vim cannot distinguish between the Ctrl-I and the <Tab> key. When you map the Ctrl-I key, the <Tab> key is also mapped (and vice versa). The same restriction applies for the Ctrl-[key and the <Esc> key.

For more information, read

```
keycodes
```

faq-20.19

20.19. How do I define a map to accept a count?

Use the @= command to use an expression. For example,

```
nnoremap = @='3l'
```

Now you can specify a count to the '=' command.

```
complex-repeat
```

faq-20.20

20.20. How can I make my normal mode mapping work from within Insert Mode?

Mappings in normal mode can be executed after <Ctrl-O> from insert mode as well but if there are more commands included in the mapping {rhs}, only the first one will be executed in normal mode and the rest of {rhs} will be printed literally in insert mode. One of ways to workaround this problem is to make {rhs} be one command, via wrapping it to the function. For example:

```
function GetFontNameOfFirstChar()
normal! 0
echo getfontname()
endfunction

:nmap <F9> :call GetFontNameOfFirstChar()<CR>
```

A more technical and detailed solution to this problem follows and can be found at http://groups.google.com/group/vim_dev/msg/75f1f2dfc00908bb

Not every normal mode-mapping is automatically suitable for execution via <Ctrl-O> from within insert mode; you need to explicitly design your mappings for that purpose.

The <Ctrl-O> command allows execution of one normal mode command from within insert mode, then returns to insert mode. If a normal mode mapping concatenates multiple normal mode commands, this breaks down in temporary normal mode and literally inserts the second part of the command into the buffer instead. To support execution of normal mode mappings from within insert mode, these strategies can be used:

1) Instead of concatenating multiple normal mode commands, use one :normal mapping:

```
:nnoremap <silent> zC :<C-U>normal! zCVzC<CR>
```

2) Concatenate multiple Ex commands via <Bar> on the rhs:

```
:nnoremap zC :<C-U>call MyMap1()<Bar>call MyMap2()<CR>
```

3) Shadow normal mode mappings by insert mode mappings that re-enter normal mode, then invoke the normal mode mapping:

```
:nnoremap <silent> <SID>MyMap2 :<C-U>call MyMap2()<CR>
:inoremap <silent> <script> <SID>MyMap2 <C-\><C-O><SID>MyMap2
:nnoremap <silent> <script> zC <SID>MyMap1<SID>MyMap2
```

4) Normal mode mappings that consist of multiple Ex command lines (and where Ex commands cannot be concatenated via <Bar>) replace ':<C-U>' with <SID>NM; the <SID>NM mapping enters normal mode for one ex command line:

```
:nnoremap <silent> <SID>NM :<C-U>
:inoremap <silent> <SID>NM <C-\><C-O>:
:nnoremap <silent> <script> zC <SID>MyMap1<SID>NMcall MyMap2()<CR>
```

5) If none of the above is possible, at least force normal mode for
    subsequent commands via <CTRL-\><CTRL-N> to avoid accidental insertion
    of the remainder of the mapping.

    :nnoremap zC zC<C-\><C-N>VzCzz

For more information, read
     i_CTRL-O
     map_bar
     i_CTRL-_CTRL-O
     CTRL-_CTRL-N

==
                                                                      faq-21
SECTION 21 - ABBREVIATIONS

                                                                    faq-21.1
21.1. How do I auto correct misspelled words?

You can auto correct misspelled words using abbreviations. For example, the
following abbreviation can be used to correct "teh" with "the":

    :abbreviate teh the

Vim supports abbreviations in insert mode, replace mode and command-line
mode.

For more information, read

     24.7
     abbreviations
     Q_ab

                                                                    faq-21.2
21.2. How do I create multi-line abbreviations?

You can create multi-line abbreviations by embedding the "<CR>"
key code in the text:

    iabbrev #c --------------<CR>-- Date:<CR>--<CR>---------

With the above abbreviation, when you type #c, it will be expanded to
the following text:

-- Date:
--

For more information, read

     abbreviations

faq-21.3

21.3. When my abbreviations are expanded, an additional space character is added at the end of the expanded text. How do I avoid this character?

To avoid an additional space character at the end of the expanded text, you can expand the abbreviation by pressing the CTRL-] key. The abbreviation will be expanded without adding a space character at the end.

Another alternative is to use the following function and command:

```
function! Eatchar(pat)
    let c = nr2char(getchar())
    return (c =~ a:pat) ? '' : c
endfunction
command! -nargs=+ Iabbr execute "iabbr" <q-args> . "<C-R>=Eatchar('\\s')<CR>"
```

Now, define your abbreviations using the new "Iabbr" command instead of the builtin "iabbrev" command. With this command, after expanding the abbreviated text, the next typed space character will be discarded.

For more information, read

abbreviations

faq-21.4

21.4. How do I insert the current date/time stamp into the file?

You can use the strftime() function to insert the current data/time stamp in a file. For example, you can use the following abbreviation:

```
iabbrev dts <C-R>=strftime("%y/%m/%d %H:%M")<CR>
```

With this abbreviation, when you type dts in insert mode, it will be expanded to the date/time stamp.

Some other forms of the above abbreviation are listed below:

```
iabbrev mdyl <C-R>=strftime("%a %d %b %Y")<CR>
iabbrev mdys <C-R>=strftime("%y%m%d")<CR>
iabbrev mdyc <C-R>=strftime("%c")<CR>
iabbrev hml  <C-R>=strftime("%d/%m/%y %H:%M:%S")<CR>
iabbrev hms  <C-R>=strftime("%H:%M:%S")<CR>
```

For more information, read

strftime()
i_CTRL-R

faq-21.5

21.5. How do I prevent an abbreviation from expanding in insert mode?

You can prevent an abbreviation from expanding in insert mode by typing CTRL-V before the character after the abbreviated word.

For more information, read

    abbreviations

==
faq-22

SECTION 22 - RECORD AND PLAYBACK

faq-22.1

22.1. How do I repeat an editing operation (insertion, deletion, paste, etc)?

You can repeat the last editing operation using the '.' command. This will repeat the last simple change like a insert, delete, change, paste, etc.

For more information, read

    04.3
    single-repeat
    Q_re

faq-22.2

22.2. How I record and repeat a set of key sequences?

You can use the 'q' command in normal mode to record a set of key sequences and store it in a register. For example, in the normal mode you can press q followed by a register name {0-9a-bA-Z"} to start the recording. To end/stop the recording press q again. You can playback/repeat the recorded key sequences by pressing @ followed by the register name. e.g. @a.

Another approach is to start Vim with the "-w" command-line argument.

```
$ vim -w <file_name>
```

Vim will record all the characters typed in the session in the specified file "file_name". You can use the recorded file with the "-s" command line argument to play it back:

```
$ vim -s <file_name>
```

For more information, read

    10.1
    recording
    -w
    -s

faq-22.3

22.3. How do I edit/modify a recorded set of key sequences?

The recorded key sequences are stored in a register. You can paste the contents of the register into a Vim buffer, edit the pasted text and again yank the text into the register. You can also use the ":let" command to

modify the register. For example:

```
:let @a = "iHello World\<Esc>"
```

For more information, read

```
recording
10.1
:let-register
<>
'cpoptions'
```

faq-22.4

22.4. How do I write recorded key sequences to a file?

The recorded key sequences are stored in a register. You can paste the contents of the register into a Vim buffer. Now you can save the buffer into a file. You can also modify the pasted text and again yank into the register to modify the recorded key sequence. For example, if you record a set of key sequences using qa ..... q. The recorded key sequences are stored in the register 'a'. You can paste the contents of register 'a' using "ap.

For more information, read

```
recording
10.1
```

faq-22.5

22.5. I am using register 0 to record my key sequences (i.e. q0 .... q). In the recorded key sequences, I am yanking some text. After the first replay of the recorded key sequence, I am no longer able to play it back.

Register 0 contains the text from the last yank operation. In your recorded key sequence, when the yank is performed, register 0 is overwritten with the yanked text. So your recording stored in register 0 is lost. You have to use some other register.

For more information, read

```
registers
```

==

faq-23

SECTION 23 - AUTOCOMMANDS

faq-23.1

23.1. How do I execute a command when I try to modify a read-only file?

You can use the FileChangedRO autocommand event to execute a command when a read-only file is modified. For example, you can use this event to checkout a read-only file:

```
:autocmd FileChangedRO * call MyCheckoutFunction()
```

For more information, read

```
FileChangedRO
```

faq-23.2

23.2. How do I execute a command every time when entering a buffer?

You can use the BufEnter autocommand event to execute a command every time when entering a buffer. For example:

```
:autocmd BufEnter *.c set formatoptions=croqt
```

For more information, read

```
BufEnter
```

faq-23.3

23.3. How do I execute a command every time when entering a window?

You can use the WinEnter autocommand event to execute a command every time when entering a window. For example:

```
:autocmd WinEnter *.c call MyFunction()
```

For more information, read

```
WinEnter
```

faq-23.4

23.4. From an autocmd, how can I determine the name of the file or the buffer number for which the autocommand is executed?

You can use the special words <afile> or <abuf> in an autocmd to get the name of the file or the buffer number for which the autocommand is executed.

For more information, read

```
:<afile>
:<abuf>
:<amatch>
```

faq-23.5

23.5. How do I automatically save all the changed buffers whenever Vim loses focus?

You can define an autocommand for the FocusLost event which will save all the modified buffers whenever Vim loses focus:

```
:autocmd FocusLost * wall
```

For more information, read

FocusLost
:wall

faq-23.6

23.6. How do I execute/run a function when Vim exits to do some cleanup?

You can use VimLeave autocmd event to execute a function just before Vim exits. For example,

```
:autocmd VimLeave * call MyCleanupFunction()
```

For more information, read

VimLeave

==========

faq-24

SECTION 24 - SYNTAX HIGHLIGHT

faq-24.1

24.1. How do I turn off/on syntax highlighting?

By default, the Vim syntax highlighting is turned off. To enable the syntax highlighting, you can use one of the following commands:

```
:syntax enable
```

or

```
:syntax on
```

To disable the syntax highlighting, you can use the following command:

```
:syntax off
```

For more information, read

06.1
06.4
:syntax-enable
:syntax-on
:syn-clear

faq-24.2

24.2. How do I change the background and foreground colors used by Vim?

Vim uses the "Normal" highlight group for the background and foreground colors. To change the foreground/background colors, you have to modify the "Normal" highlight group. For example, to set the background color to blue and foreground color to white, you can use

```
:highlight Normal ctermbg=blue ctermfg=white guibg=blue guifg=white
```

If you are using the Motif or the Athena version of the GUI Vim, then you can modify the foreground and background resource names in the .Xdefaults files to change the colors:

```
Vim.foreground:     Black
Vim.backround:      Wheat
```

You can also use the "-foreground" and "-background" command-line arguments to specify the foreground and background colors. These arguments are supported only in the Motif or Athena versions:

```
$ gvim -foreground Black -background Wheat
```

For more information, read

```
:highlight
.Xdefaults
-gui
```

faq-24.3

24.3. How do I change the highlight colors to suit a dark/light background?

You can set the 'background' option to either 'dark' or 'light' to change the highlight colors to suit a dark/light background:

```
:set background=dark
```

For more information, read

```
'background'
06.2
```

faq-24.4

24.4. How do I change the color of the line numbers displayed when the ":set number" command is used?

The line numbers displayed use the LineNr highlighting group. To display the current colors used, use

```
:hi LineNr
```

To change the color modify the LineNr highlight group. For example:

```
:hi linenr guifg=red guibg=black
```

This will give red numbers on a black background in GVIM.

For more information, read

```
:highlight
```

faq-24.5

24.5. How do I change the background color used for a Visually selected block?

You can modify the 'Visual' highlight group to change the color used for a visually selected block:

```
:highlight Visual guibg=red
```

For more information, read

```
:highlight
hl-Visual
```

faq-24.6

24.6. How do I highlight the special characters (tabs, trailing spaces, end of line, etc) displayed by the 'list' option?

You can modify the "NonText" and "SpecialKey" highlight groups to highlight the special characters displayed by the 'list' option:

```
:highlight NonText guibg=red
:highlight SpecialKey guibg=green
```

The "NonText" highlighting group is used for "eol", "extends" and "precedes" settings in the "listchars" option. The "SpecialKey" highlighting group is used for the "tab" and "trail" settings.

For more information, read

```
'listchars'
hl-NonText
hl-SpecialKey
```

faq-24.7

24.7. How do I specify a colorscheme in my .vimrc/.gvimrc file, so that Vim uses the specified colorscheme every time?

You can specify the color scheme using the ":colorscheme" command in your .vimrc or .gvimrc file:

```
colorscheme evening
```

For more information, read

```
:colorscheme
```

faq-24.8

24.8. Vim syntax highlighting is broken. When I am editing a file, some parts of the file is not syntax highlighted or syntax highlighted incorrectly.

Vim doesn't read the whole file to parse the text for syntax highlighting. It starts parsing wherever you are viewing the file. That saves a lot of time, but sometimes the colors are wrong. A simple fix is refreshing the screen using the CTRL-L key. Or scroll back a bit and then forward again. You can also use the command:

```
    :syntax sync fromstart
```

Note that this might considerably slow down the screen refreshing.

For more information, read

```
     :syn-sync
     :syn-sync-first
```

faq-24.9

24.9. Is there a built-in function to syntax-highlight the corresponding matching bracket?

Yes. Vim includes the matchparen Plugin as standard plugin that is enabled by default. Whenever the cursor moves over an item defined with the 'matchpairs' option, Vim will highlight the corresponding bracket using the MatchParen highlighting group.

However, if the corresponding parenthesis is not visible in the current window, the cursor won't jump to it.

The matchit plugin provides a similar function, that lets the cursor jump to related items (e.g. "if", "else", "endif" items) and skips matches in comments. This uses the % command to jump to corresponding items. Though both plugins provide similar functions they are unrelated and work differently.

For more information, read

```
     matchparen
     'matchpairs'
     matchit-install
     matchit-intro
```

faq-24.10

24.10. How do I turn off the C comment syntax highlighting?

You can use the following command to turn off C comment syntax highlighting:

```
    :highlight clear comment
```

For more information, read

```
     ft-c-syntax
```

faq-24.11

24.11. How do I add my own syntax extensions to the standard syntax files supplied with Vim?

You should not modify the syntax files supplied with Vim to add your extensions. When you install the next version of Vim, you will lose your changes. Instead you should create a file under the ~/.vim/after/syntax

directory with the same name as the original syntax file and add your additions to this file.

For more information, read

```
mysyntaxfile-add
'runtimepath'
```

faq-24.12

24.12. How do I replace a standard syntax file that comes with the Vim distribution with my own syntax file?

You can replace a standard syntax file that comes with the Vim distribution by creating a file with the same name as the original syntax file and placing it in the vim runtime syntax (~/.vim/syntax) directory. For example, to replace the c.vim syntax file in a Unix system, place the new c.vim in the ~/.vim/syntax directory. In a MS-Windows system, place the new syntax file in the $HOME/vimfiles/syntax or $VIM/vimfiles/syntax directory.

For more information, read

```
mysyntaxfile-replace
44.11
mysyntaxfile
```

faq-24.13

24.13. How do I highlight all the characters after a particular column?

You can use the ":match" command to highlight all the characters after a particular column:

```
:match Todo '\%>75v.\+'
```

This will highlight all the characters after the 75th column.

You can also set the 'colorcolumn' option to highlight a particular column:

```
:set colorcolumn=+2
```

which highlights 2 columns after the current 'textwidth' setting (alternatively, you can use the exact column number).

For more information, read

```
:match
/\%v
/\+
/.
'colorcolumn'
```

faq-24.14

24.14. How do I convert a source file (.c, .h, etc) with the Vim syntax highlighting into a HTML file?

You can use the 2html.vim script to convert a source file into a HTML file
with the Vim syntax highlighting. Use the following command:

```
:TOhtml
```

For more information, read

```
convert-to-HTML
:TOhtml
```

faq-24.15

24.15. How do I list the definition of all the current highlight groups?

You can list the definition of all the current highlight groups using the
":highlight" (without any arguments) ex command.

For more information, read

```
:highlight
```

faq-24.16

24.16. How can I embed one syntax highlighting language into another one?

It is possible to include one syntax highlighting into another one,
however most of the currently deployed syntax highlighting scripts are
not prepared to be included into another syntax script.

You can however create your own custom script to define your own
regions, which will be highlighted with a different language.

See the wiki for a comprehensive solution:
http://vim.wikia.com/wiki/Different_syntax_highlighting_within_regions_of_a_file

For more information, read

```
|:syn-include|
|sh-awk|
```

==

faq-25

SECTION 25 - VIM SCRIPT WRITING

faq-25.1

25.1. How do I list the names of all the scripts sourced by Vim?

You can use the ":scriptnames" command to list the names of all the scripts
sourced by Vim:

```
:scriptnames
```

For more information, read

```
:scriptnames
```

faq-25.2

25.2. How do I debug Vim scripts?

Vim has built-in support for a primitive debugger to debug Vim plugins and scripts. Using this debugger you can set breakpoints and step through the plugin functions.

For more information, read

```
debug-scripts
-D
```

faq-25.3

25.3. How do I locate the script/plugin which sets a Vim option?

You can use the ":verbose" command to locate the plugin/script which last modified a Vim option. For example:

```
:verbose set textwidth?
```

For more information, read

```
:set-verbose
:verbose
```

faq-25.4

25.4. I am getting some error/informational messages from Vim (possibly when running a script), the messages are cleared immediately. How do I display the messages again?

You can use the ":messages" command to display the previous messages.

```
:messages
```

For more information, read

```
:messages
:echoerr
:echomsg
message-history
```

faq-25.5

25.5. How do I save and restore a plugin specific information across Vim invocations?

Vim will save and restore global variables that start with an uppercase letter and don't contain a lower case letter. For this to work, the 'viminfo' option must contain the '!' flag. Vim will store the variables in the viminfo file.

For more information, read

```
'viminfo'
```

viminfo-file
variables

faq-25.6

25.6. How do I start insert mode from a Vim function?

You can use the ":startinsert" command to start the insert mode from inside a Vim function.

For more information, read

:startinsert

faq-25.7

25.7. How do I change the cursor position from within a Vim function?

You can use the cursor() function to position the cursor.

```
call cursor(lnum, col)
```

Alternatively, use the setpos() function:

```
call setpos('.', [bufnum, lnum, col, off])
```

which set's the cursor in the buffer bufnum to line lnum, column col and offset for 'virtualedit'. You can use the getpos() function, to return a list with these values, that can then be fed back to the setpos() function.

If you want to save and restore the viewpoint on a window, use the winsaveview() and winrestview() function calls.

You can also use the following command to change the cursor position:

```
exe "normal! " . lnum . "G" . col . "|"
```

For more information, read

cursor()
bar
getpos()
setpos()
winsaveview()
winrestview()

faq-25.8

25.8. How do I check the value of an environment variable in the .vimrc file?

You can use prefix the environment variable name with the '$' character to use it from a Vim script/function. You can refer to the value of an environment variable using the $env_var syntax:

```
if $EDITOR == 'vi'
endif
```

For more information, read

```
expr-env
```

faq-25.9

25.9. How do I check whether an environment variable is set or not from a Vim function?

You can use the exists() function to check for the existence of an environment variable.

```
if exists("$MY_ENV_VAR")
endif
```

For more information, read

```
exists()
expr-env
```

faq-25.10

25.10. How do I call/use the Vim built-in functions?

You can use the ":call" command to invoke a Vim built-in function:

```
:call cursor(10,20)
```

You can use the ":echo" command to echo the value returned by a function:

```
:echo char2nr('a')
```

You can use the ":let" command to assign the value returned by a function to a variable:

```
:let a = getline('.')
```

To store the return value from a function into a Vim register, you can use the following command:

```
:let @a = system('ls')
```

The above command will store the return value from the 'ls' command into the register 'a'.

For more information, read

```
:call
:echo
:let
:let-register
user-functions
usr_41.txt
```

faq-25.11

25.11. I am using some normal mode commands in my Vim script. How do I avoid using the user-defined mappings for these normal mode commands and use the standard Vim functionality for these normal mode commands?

You can use the "normal!" command in your script to invoke a normal-mode command. This will use the standard functionality of the normal mode command and will not use the user-defined mapping.

For more information, read

```
:normal
```

faq-25.12

25.12. How do I get the current visually selected text into a Vim variable or register?

You can get the current visually selected text into a Vim variable by yanking the text into Vim register and then assigning the contents of the register into the variable:

```
:normal! gvy
:let myvar = @"
```

The above command copies the visually selected text into the variable "myvar".

You can also use the command:

```
:normal! gv"*y
```

In the above command, gv reselects the last visually selected text and the rest of the command copies the selected text into the * (clipboard) register. Alternatively, you can set the 'a' flag in the 'guioptions' option to automatically copy a visually selected text into the * register. To do this as part of a visual map, you can use a command similar to the one shown below:

```
:vmap <F3> "*y:call ...
```

For more information, read

```
gv
:normal
:let-@
quotestar
clipboard
registers
```

faq-25.13

25.13. I have some text in a Vim variable 'myvar'. I would like to use this variable in a ":s" substitute command to replace a text 'mytext'. How do I do this?

You can use the 'execute' command to evaluate the variable:

```
:execute '%s/mytext/' . myvar . '/'
```

For more information, read

```
:execute
```

You can also use "\=" in the substitute command to evaluate the variable:

```
:%s/mytext/\=myvar/
```

For more information, read

```
sub-replace-special
```

faq-25.14

25.14. A Vim variable (bno) contains a buffer number. How do I use this variable to open the corresponding buffer?

The :buffer command will not accept a variable name. It accepts only a buffer number or buffer name. You have to use the ":execute" command to evaluate the variable into the corresponding value. For example:

```
:execute "buffer " . bno
```

For more information, read

```
:execute
```

faq-25.15

25.15. How do I store the value of a Vim option into a Vim variable?

You can prefix the option name with the '&' character and assign the option value to a Vim variable using the "let" command. For example, to store the value of the 'textwidth' option into the Vim variable "old_tw", you can use the following command:

```
:let old_tw = &tw
```

To explicitly save buffer local options, use the prefix "l:"

```
:let old_tw = &l:tw
```

If you want to explicitly select the global option, use the "g:" prefix to the option name.

To do the opposite, to set the 'textwidth' option with the value stored in the 'old_tw' variable, you can use the following command:

```
:let &tw = old_tw
```

For more information, read

expr-option
:let-option

faq-25.16

25.16. I have copied and inserted some text into a buffer from a Vim function. How do I indent the inserted text from the Vim function?

You can use the following command to format the just inserted text:

```
:normal '[=']
```

For more information, read

'[
']
=
:normal

faq-25.17

25.17. How do I get the character under the cursor from a Vim script?

You can use the getline() function and use string index [] to get the character:

```
:echo getline(".")[col(".") - 1]
```

In the above command, getline(".") returns the text in the current line. The indexing of the string starts at zero, and you can get a single character in a string by its index with the "string[index]" notation. The col(".") returns the column of the cursor position; the adjustment is to get the right character of the string. However, this does NOT work with multibyte characters as this command only returns the byte index.

Alternatively, you can use the following sequence of commands to get the character under the cursor:

```
normal! vy
let ch=@"
```

Note, that the above commands will change the '< and '> marks.

For more information, read

getline()
col()
expr-[]

faq-25.18

25.18. How do I get the name of the current file without the extension?

You can get the name of the current file without the extension using:

```
:echo expand("%:r")
```

With some commands, you can use the file name modifiers directly:

```
:cd %:p:h
:!gcc -o %:r.o %
:!xpdf %<.pdf
```

For more information, read

```
filename-modifiers
expand()
cmdline-special
fnamemodify()
```

faq-25.19

25.19. How do I get the basename of the current file?

You can use the :t filename modifier to get the basename of the current file:

```
:echo expand("%:t")
```

For more information, read

```
filename-modifiers
```

faq-25.20

25.20. How do I get the output from a Vim function into the current buffer?

You can insert the return value from a function using the following command in insert mode:

```
<C-R>=MyFunc()
```

Note, that this will only insert the return value of the function.

For more information, read

```
i_CTRL-R
i_CTRL-R_CTRL-R
i_CTRL-R_CTRL-O
expression
```

faq-25.21

25.21. How do I call external programs from a Vim function?

There are several ways to call external programs from a Vim function. You can use the builtin system() function to invoke external programs and get the result:

```
:let output = system("ls")
```

You can also use "!" ex-command to run an external command.

For more information, read

```
system()
:!
10.9
```

faq-25.22

25.22. How do I get the return status of a program executed using the ":!" command?

You can use the predefined Vim v:shell_error variable to get the return status of the last run shell command.

For more information, read

```
v:shell_error
```

faq-25.23

25.23. How do I determine whether the current buffer is modified or not?

You can check the value of the 'modified' option to determine whether the current buffer is modified:

```
:set modified?
```

From a Vim script, you can check the value of the 'modified' option:

```
if &modified
    echo "File is modified"
endif
```

For more information, read

```
'modified'
```

faq-25.24

25.24. I would like to use the carriage return character in a normal command from a Vim script. How do I specify the carriage return character?

You can use the ":execute" command to specify the special (control) character in a normal mode command:

```
:execute "normal \<CR>"
:execute "normal ixxx\<Esc>"
```

For more information, read

```
:execute
expr-quote
```

faq-25.25

25.25. How do I split long lines in a Vim script?

You can split long lines in a Vim script by inserting the backslash
character ("\") at the start of the next line. For example,

For more information, read

	line-continuation

faq-25.26

25.26. When I try to "execute" my function using the "execute 'echo
Myfunc()'" command, the cursor is moved to the top of the current
buffer. Why?

The ":execute" command runs the normal mode command specified by the
argument. In the case of the following command:

```
:execute "echo Myfunc()"
```

The call to "echo Myfunc()" will return 0. The ":execute" command will run
the normal mode command "0", which moves the cursor to the top of the file.
To call a Vim function, you should use the ":call" command instead of the
":execute" command:

```
:call Myfunc()
```

For more information, read

	:call
	:execute
	:echo
	user-functions
	41.5
	41.6

faq-25.27

25.27. How do I source/execute the contents of a register?

If you have yanked a set of Vim commands into a Vim register (for example
register 'a'), then you can source the contents of the register using one
of the following commands:

```
:@a
```
or
```
:exe @a
```

For more information, read

	:@

faq-25.28

25.28. After calling a Vim function or a mapping, when I press the 'u'
key to undo the last change, Vim undoes all the changes made by
the mapping/function. Why?

When you call a function or a mapping, all the operations performed by the

function/mapping are treated as one single operation. When you undo the last operation by pressing 'u', all the changes made by the function/mapping are reversed.

For more information, read

```
undo-redo
:map-undo
```

faq-25.29

25.29. How can I call a function defined with s: (script local function) from another script/plugin?

The s: prefix for a Vim function name is used to create a script local function. A script local function can be called only from within that script and cannot be called from other scripts. To define a function in a script/plugin, so that it can be called from other plugins/scripts, define the function without the s: prefix.

For more information, read

```
script-variable
script-local
:scriptnames
```

faq-25.30

25.30. Is it possible to un-source a sourced script? In other words, reverse all the commands executed by sourcing a script.

No. It is not possible to reverse or undo all the commands executed by sourcing a script.

For more information, read

```
:source
```

==

faq-26

SECTION 26 - PLUGINS

faq-26.1

26.1. How do I set different options for different types of files?

You can create filetype plugins to set different options for different types of files. You should first enable filetype plugins using the command:

```
:filetype plugin on
```

A filetype plugin is a vim script that is loaded whenever Vim opens or creates a file of that type. For example, to ensure that the 'textwidth' option is set to 80 when editing a C program (filetype 'c'), create one of the following files:

```
~/.vim/ftplugin/c.vim (Unix)
```

```
        %HOME%\vimfiles\ftplugin\c.vim (Windows)
```

with the following text in it:

```
        setlocal textwidth=80
```

You can also use autocommands to set specific options when editing specific type of files. For example, to set the 'textwidth' option to 75 for only *.txt files, you can use the following autocmd:

```
    autocmd BufRead *.txt setlocal textwidth=80
```

For more information, read

```
     filetype-plugin
     add-filetype-plugin
     :autocmd
     40.3
```

faq-26.2

26.2. I have downloaded a Vim plugin or a syntax file or a indent file, or a color scheme or a filetype plugin from the web. Where should I copy these files so that Vim will find them?

You can place the Vim runtime files (plugins, syntax files, indent files, color schemes, filetype plugins, etc) under one of the directories specified in the 'runtimepath' option. To determine the current value of the 'runtimepath' option, use the following command:

```
    :set runtimepath
```

For Unix systems, this is usually the "$HOME/.vim" directory. For MS-Windows systems, this is usually the $VIM\vimfiles or $HOME\vimfiles directory. Depending on the type of the runtime file, you have to place it under a specific directory under the above runtime directory. The names of the directories are listed below:

```
    colors/   - color scheme files
    compiler/ - compiler files
    doc/      - documentation
    ftplugin/ - filetype plugins
    indent/   - indent scripts
    keymap/   - key mapping files
    lang/     - menu translations
    plugin/   - plugin scripts
    syntax/   - syntax files
    tutor/    - files for vimtutor
```

For more information, read

```
     your-runtime-dir
     'runtimepath'
     :runtime
```

faq-26.3

26.3. How do I extend an existing filetype plugin?

You can extend an existing filetype plugin by creating a file in the after/ directory in any of the 'runtimepath' directories.

- for small changes to be done after (and in addition to) what is already done by the ftplugin installed with Vim, use an after-directory, as follows (replacing foobar by the 'filetype' of the concerned files):

    - For changes private to one user:
        - on Windows:
            $HOME/vimfiles/after/ftplugin/foobar.vim
        - on Unix-like OSes:
            $HOME/.vim/after/ftplugin/foobar.vim
    - For changes affecting all users on the system:
        $VIM/vimfiles/after/ftplugin/foobar.vim

- when replacing the whole filetype-plugin by a different version, or when installing a new ftplugin for some filetype not yet supported by Vim out of the box: use the same paths without the after/ in them. In that case you should place near the start of your plugin an "if... finish... endif... let" block like the one in the plugins distributed with Vim.

All the above paths are given in Vim terminology (which is similar to Unix terminology, but is understood even by Vim for Windows); they don't exist by default, so the first time you need them you will have to create them using mkdir (on any OS including DOS/Windows) or md (on DOS/Windows only). $VIM and, on DOS/Windows, $HOME, do not necessarily exist outside Vim. If $HOME has no value (or no valid value) inside Vim, you can use $VIM instead; but on any but possibly very old versions of Windows, $HOMEDRIVE and $HOMEPATH are defined by the system, and if $HOME is undefined at Vim startup, Vim will set it by expanding $HOMEDRIVE$HOMEPATH before sourcing your vimrc. To know which values Vim uses, you can type (in a running Vim):

```
:echo $VIM
:echo $HOME
```

If you placed the file in the after/ftplugin runtime directory, then Vim will first source the existing filetype plugin file and then will source the new file. If you placed the file in the $VIMRTUNTIME/ftplugin runtime directory, then Vim will first source the new file and then will source the existing filetype plugin file.

For more information, read

```
ftplugin-overrule
filetype-plugin
add-filetype-plugin
```

'runtimepath'

faq-26.4

26.4. How do I turn off loading the Vim plugins?

You can reset the 'loadplugins' option to turn off loading the plugins:

```
:set noloadplugins
```

You can also specify the "--noplugin" command line argument to stop loading the plugins:

```
$ vim --noplugin
```

For more information, read

'loadplugins'
--noplugin
load-plugins

faq-26.5

26.5. How do I turn on/off loading the filetype plugins?

By default, Vim will not load the filetype plugins. You can configure Vim to load filetype plugins using the command:

```
filetype plugin on
```

You can turn off loading the filetype plugins using:

```
filetype plugin off
```

For more information, read

:filetype-plugin-on
:filetype-plugin-off
:filetype

faq-26.6

26.6. How do I override settings made in a file type plugin in the global ftplugin directory for all the file types?

You can use an autocommand triggered on the FileType event:

```
au Filetype * set formatoptions=xyz
```

This should at least be after "filetype on" in your vimrc. Best is to put it in your "myfiletypefile" file, so that it's always last.

If you want to override a setting for a particular filetype, then create a file with the same name as the original filetype plugin in the ~/.vim/after/ftplugin directory For example, to override a setting in the c.vim filetype plugin, create a c.vim file in the ~/.vim/after/ftplugin directory and add your preferences in this file.

For more information, read

	ftplugin-overrule
	ftplugins
	myfiletypefile

faq-26.7

26.7. How do I disable the Vim directory browser plugin?

To disable the directory browsing Vim plugin, add the following line to your .vimrc file:

```
let g:loaded_netrw = 1
```

For more information, read

	netrw

faq-26.8

26.8. How do I set the filetype option for files with names matching a particular pattern or depending on the file extension?

You can set the 'filetype' option for files with names matching a particular pattern using an autocmd. For example, to set the 'filetype' option to 'c' for all files with extension '.x', you can use the following autocmd:

```
autocmd! BufRead,BufNewFile *.x     setfiletype c
```

A better alternative to the above approach is to create a filetype.vim file in the ~/.vim directory (or in one of the directories specified in the 'runtimepath' option) and add the following lines:

```
" my filetype file
if exists("did_load_filetypes")
    finish
endif
augroup filetypedetect
    au! BufRead,BufNewFile *.x       setfiletype c
augroup END
```

For more information, read

	new-filetype
	43.2
	:setfiletype

==

faq-27

SECTION 27 - EDITING PROGRAM FILES

faq-27.1

27.1. How do I enable automatic indentation for C/C++ files?

You can enable file-type based indentation using:

```
:filetype indent on
```

If you want to only enable automatic C indentation, then use:

```
:set cindent
```

For more information, read

```
'cindent'
C-indenting
filetype
```

faq-27.2

27.2. How do I configure the indentation used for C/C++ files?

You can configure the Vim C indentation by modifying the value of the 'cinoptions', 'cinkeys' and 'cinwords' options.

For more information, read

```
'cindent'
'cinoptions'
'cinkeys'
'cinwords'
C-indenting
cinoptions-values
'smartindent'
```

faq-27.3

27.3. How do I turn off the automatic indentation feature?

By default, the automatic indentation is not turned on. You must have configured Vim to do automatic indentation in either .vimrc or .gvimrc files. You can disable automatic indentation using either,

```
:filetype indent off
```

or

```
:set nocindent
```

Also, check the setting for the following options:

```
:set autoindent?
:set smartindent?
:set indentexpr?
```

For more information, read

```
'cindent'
:filetype-indent-off
```

'autoindent'
'smartindent'
'indentexpr'

faq-27.4

27.4. How do I change the number of space characters used for the automatic indentation?

You can modify the 'shiftwidth' option to change the number of space characters used for the automatic indentation:

```
:set shiftwidth=4
```

For more information, read

'shiftwidth'

faq-27.5

27.5. I am editing a C program using Vim. How do I display the definition of a macro or a variable?

You can use the "[d" command to display the definition of a macro, "[i" command to display the definition of a variable, "gd" to goto the local declaration of a variable and "gD" to go to the global Declaration.

For more information, read

[d
[i
gd
gD
include-search
29.4
29.5

faq-27.6

27.6. I am editing a C program using Vim. How do I jump to the beginning or end of a code block from within the block?

You can use '[{' command to jump to the beginning of the code block and ']} to jump to the end of the code block from inside the block.

For more information, read

[{
]}
various-motions

faq-27.7

27.7. When editing C++ files and when inserting new lines above or below a comment (//) line, Vim automatically inserts the C++ comment character (//) at the beginning of the line. How do I disable this?

This automatic insertion of the comment leader (//) when new lines

are added is controlled by three flags in the 'formatoptions'
option: 'c', 'r' and 'o'. 'c' enables auto-wrapping of comment
lines when typing extends beyond the right margin. 'r' enables the
automatic insertion of the comment leader when <Enter> is pressed
while editing a comment line. 'o' enables the automatic insertion
of the comment leader when a new line is opened above or below an
existing comment line by typing O or o in Normal mode.

You can stop Vim from automatically inserting the comment leader
when typing <Enter> within a comment or when opening a new line by
removing the 'r' and 'o' flags from 'formatoptions'.

```
:set formatoptions-=r
:set formatoptions-=o
```

The default filetype plugin for C and C++ files
($VIMRUNTIME/ftplugin/c.vim) adds the 'r' and 'o' flags to the
'formatoptions' option. If you want to override this for C++ files,
then you can add the above lines to the
~/.vim/after/ftplugin/cpp.vim file.

For more information, read

```
formatoptions
30.6
format-comments
filetype-plugins
ftplugin-overrule
```

faq-27.8

27.8. How do I add the comment character '#' to a set of lines at the beginning of each line?

First, select the first character in all the lines using visual block mode
(CTRL-V). Press 'I' to start inserting characters at the beginning of the
line. Enter the comment character and then stop the insert mode by pressing
<Esc>. Vim will automatically insert the entered characters at the
beginning of all the selected lines.

For more information, read

```
visual-block
blockwise-operators
v_b_I
```

faq-27.9

27.9. How do I edit a header file with the same name as the corresponding C source file?

You can use the following command to edit a header file with the same name
as the corresponding C source file:

```
:e %:t:r.h
```

You can use the following command to edit the file in a new split window:

```
:sp %:t:r.h
```

In the above commands, the percent sign expands to the name of the current file. The ":t" modifier extracts the tail (last component) of the filename. The ":r" modifier extracts the root of the filename. The .h is appended to the resulting name to get the header filename.

Another approach is to use the following command:

```
:sfind %:t:r.h
```

This command will search for the header file in the directories specified in the 'path' option.

For more information, read

```
cmdline-special
filename-modifiers
:sfind
'path'
```

faq-27.10

27.10. How do I automatically insert comment leaders while typing comments?

To automatically insert comment leaders while typing comments, add the 'r' and 'o' flags to the 'formatoptions' option.

```
:set formatoptions+=ro
```

You may also want to add the 'c' flag to auto-wrap comments using the 'textwidth' option setting and the 'q' flag to format comments with the "gq" command:

```
:set formatoptions=croq
```

For more information, read

```
30.6
format-comments
'comments'
fo-table
```

==

faq-28

SECTION 28 - QUICKFIX

faq-28.1

28.1. How do I build programs from Vim?

You can use the ":make" command to build programs from Vim. The ":make" command runs the program specified by the 'makeprg' option.

For more information, read

	30.1
	:make_makeprg
	'makeprg'
	'makeef'
	:make
	quickfix

faq-28.2

28.2. When I run the make command in Vim I get the errors listed as the compiler compiles the program. When it finishes this list disappears and I have to use the :clist command to see the error message again. Is there any other way to see these error messages?

You can use the ":copen" or ":cwindow" command to open the quickfix window that contains the compiler output. You can select different error lines from this window and jump to the corresponding line in the source code.

For more information, read

	:copen
	:cwindow
	quickfix

faq-28.3

28.3. How can I perform a command for each item in the quickfix/location list?

Starting from Vim 7.4.858 Vim provides the new commands :cfdo, :cdo, :lfdo and :ldo. They work by iterating over all items in the quickfix list and performing a command on each. The difference is, that the :lfdo and :ldo commands iterate over the location list entries, while the :cfdo and :cdo commands operate on the items in the quickfix list. Also, the :cfdo and :lfdo operate on all different files, while the :cdo and :ldo commands operate on each item in the quickfix/location list.

For example you could vimgrep all C files in the current directory for a search string "Foobar":

```
:vimgrep /Foobar/ *.c
```

and as this populates your quickfix list, you could simply replace all occurences by using:

```
:cdo :%s/Foobar/Foobaz | upd
```

For more information, read

	:cfdo
	:cdo

==

faq-29

SECTION 29 - FOLDING

faq-29.1

29.1. How do I extend the Vim folding support?

You can use the 'foldexpr' option to fold using a user specified function. For example, to fold subroutines of the following form into a single line:

```
sub foo {
  my $barf;
  $barf = 3;
  return $barf;
}
```

You can use the following commands:

```
set foldmethod=expr
set foldexpr=MyFoldExpr(v:lnum)
fun! MyFoldExpr(line)
    let str = getline(a:line)
    if str =~ '^sub\>'
        return '1'
    elseif str =~ '^}'
        return '<1'
    else
        return foldlevel(a:line - 1)
    endif
endfun
```

For more information, read

'foldexpr'
fold-expr

faq-29.2

29.2. When I enable folding by setting the 'foldmethod' option, all the folds are closed. How do I prevent this?

You can set the 'foldlevelstart' option to a particular value to close only folds above the specified value.

```
:set foldlevelstart=99
```

For more information, read

'foldlevelstart'
'foldlevel'
fold-foldlevel

faq-29.3

29.3. How do I control how many folds will be opened when I start editing a file?

You can modify the 'foldlevelstart' option to control the number of folds that will be opened when you start editing a file. To start editing with

all the folds closed:

```
:set foldlevelstart=0
```

To start editing with all the folds opened, you can use

```
:set foldlevelstart=999
```

For more information, read

'foldlevelstart'

faq-29.4

29.4. How do I open and close folds using the mouse?

You can click on the + and - characters displayed at the leftmost column to open and close fold. For this to work, you have to set the 'foldcolumn' to a value greater than zero:

```
:set foldcolumn=2
```

For more information, read

'foldcolumn'

faq-29.5

29.5. How do I change the text displayed for a closed fold?

You can use the 'foldtext' option to change the text displayed for a closed fold.

For more information, read

'foldtext'
fold-foldtext
'fillchars'

faq-29.6

29.6. How do I store and restore manually created folds across different Vim invocations?

You can use the ":mkview" command to store manually created folds. Later, you can use the ":loadview" command to restore the folds. For this to work, the 'viewoptions' must contain "folds".

For more information, read

28.4
:mkview
:loadview
'viewoptions'
'viewdir'
:mksession
'sessionoptions'

faq-29.7

29.7. I have enabled syntax based folding. Why is Vim so slow?

Syntax based folding is currently rather slow in Vim and will possibly slow down Vim considerably. There is an issue in the todo list to fix this, but the todo list is rather long and it may take a while until this will be fixed.

You can find the issue in the todo list, if you read

    todo.txt

followed by a search for "folding with 'foldmethod'"

A workaround is to temporarily set the foldmethod to manual while in insert mode. This is described in the wiki at:
http://vim.wikia.com/wiki/Keep_folds_closed_while_inserting_text

==========

faq-30

SECTION 30 - VIM WITH EXTERNAL APPLICATIONS

faq-30.1

30.1. Can I run a shell inside a Vim window?

Currently Vim doesn't have support for running shell and other external commands inside a Vim window.

For more information, read

    shell-window

The Neovim project however has added the ":terminal" command which opens a new shell prompt. To read more about Neovim, look at their webpage
http://neovim.io

Alternatively, you can try using the Unix "screen", "tmux" or "splitvt" utility.

Following is a post from the vim_use mailinglist (http://groups.google.com/group/vim_use/msg/22c97ebfd6a978eb)

Date: Mon, 24 May 2010
Subject: Re: Terminal into vim, best options???
From: Nico Raffo
To: vim_use

There are quite a few options out there, all with their strengths and weaknesses. Shell integration is at the top of the Vim wish list. I'm sure Bram would be more interested in including it if someone developed and maintained a kick-ass patch :-)

Here is a (quite biased) overview of what's currently available:

Conque Shell
URL: http://code.google.com/p/conque/
Author: Nico Raffo (me!)
Requirements: *nix, python-enabled vim
Type: Plugin

Conque is a Vim plugin, written with Vim script and python. It turns
your Vim buffer into a terminal emulator. In INSERT mode your buffer
behaves like a standard unix terminal. In NORMAL mode you can navigate/
search/page through the terminal output.

Pros:
 * Relatively easy to install
 * Near complete VT100 support (you can run emacs in a vim buffer)
 * Use of Vim features in terminal, including syntax highlighting,
   copy/paste, etc
 * Active development

Cons:
 * No Windows support (coming with Vim 7.3)
 * Can be slow, especially with programs which use a lot of terminal
   colors

Vimshell
URL: http://github.com/Shougo/vimshell + http://github.com/Shougo/vimproc
Author: Shougo M
Requirements: Works on both *nix and Windows. One small, independent
component may need to be compiled from C source.
Type: Plugin

Vimshell is a shell, written in the Vim scripting language, that runs
in a Vim buffer. The shell was written to take full advantage of all
of Vim's features, for example you can use Vim's omnicomplete
features, or any other normal mode Vim commands, to edit your command
line. Great potential, but missing a few features, particularly
regarding interactive programs.

Pros:
 * Relatively easy to install
 * Edit the command line with Vim, full use of Vim features in both
   normal and insert mode
 * Very fast, since there is no background process required
 * Windows support
 * Active development

Cons:
 * Very limited support of interactive programs such as bash, mysql or
   python.
 * Shell has incomplete functionality compared to bash, etc.
 * Documentation only available in Japanese.

screen.vim (Vim + screen/tmux)
URL: http://www.vim.org/scripts/script.php?script_id=2711
Author: Eric Van Dewoestine
Requirements: *nix
Type: Plugin

screen.vim is a Vim plugin which streamlines and enhances the
experience of running split screen terminal with Vim running in one of
the windows and a terminal running in the other. It uses the programs
screen or tmux to manage the split windows and to run the terminal
emulation. Both of these programs are very mature, and will give a
better terminal experience than any other option. However since the
terminal is running independently of Vim, you won't be able to use Vim
commands to interact with the terminal output.

Pros:
 * Easy to install
 * Great shell support
 * Active development

Cons:
 * No use of Vim commands to manage the shell window
 * Relatively little integration between Vim and the shell

Vim-Shell
URL: http://www.wana.at/vimshell/
Author: Thomas Wanda
Requirements: *nix, patch and recompile Vim from source
Type: Extension

Vim-Shell is a Vim extension which converts a buffer into a terminal
emulator. The shell window itself is very fast and functionality is
very strong. It is works great for running complex interactive
programs. However the Vim buffer where it runs is no longer editable
(you can't scroll up, or even move the cursor). The last official
release was for Vim 7.0, although time spent searching on Google will
turn up patches for Vim 7.1 and 7.2.

Pros:
 * Near complete VT100 support (you can run emacs in a vim buffer, and
   just about anything else)
 * Very fast. Compiled into the C source

Cons:
 * Relatively difficult to install
 * No use of Vim features to navigate terminal output
 * No Windows or Mac support.
 * No development activity since 2006

Vimsh
URL: http://www.vim.org/scripts/script.php?script_id=165
Author: Brian Sturk

Requirements: python-enabled vim
Type: Plugin

Vimsh is a Vim plugin which allows you to run interactive programs in
a vim buffer. It provides a nice option for Windows use, but
functionality is overall less mature than the other options.

Pros:
 * Relatively easy to install
 * Use Vim commands to edit commands and navigate terminal output
 * Support in both *nix and Windows (no interactive programs in
   Windows)

Cons:
 * Limited functionality
 * Inactive development

---

faq-30.2

30.2. How do I pass the word under the cursor to an external command?

You can use the special keyword <cword> to pass the word under the cursor
to an external command. For example:

```
:!dict <cword>
```

For more information, read

:<cword>

faq-30.3

30.3. How do I get the output of a shell command into a Vim buffer?

You can use the ":r !" command to get the output of a shell command into a
Vim buffer. For example, to insert the output of the "ls" shell command,
you can use the following command:

```
:r !ls
```

To insert the output of the shell command above the first line use the
following command:

```
:0r !ls
```

For more information, read

:r!

faq-30.4

30.4. How do I pipe the contents of the current buffer to an external command and replace the contents of the buffer with the output from the command?

You can use the :! command to pipe the contents of the current buffer to an external command and replace the contents of the buffer with the output from the command. For example, to sort the contents of the current buffer, using the Unix sort command, you can use the following command:

```
:%!sort
```

To sort only lines 10-20, you can use the following command

```
:10,20!sort
```

Also, if you want to pipe a buffer to an external command but not put the results back in the buffer, you can use

```
:w !sort
```

The above command will pipe the entire buffer to the sort command. Note, that the space between the 'w' and the '!' is critical. To pipe only a range of lines, you can use

```
:10,20w !sort
```

The above command will pipe the lines 10-20 to the sort command.

For more information, read

```
:range!
10.9
:w_c
```

faq-30.5

30.5. How do I sort a section of my file?

You use the ":sort" command like this:

```
:5,100sort
```

Using the ":sort" command provides many options, you can sort numerical on the first found decimal number using:

```
:%sort n
```

Or you can specify to sort on the text, starting at virtual column 8:

```
:%sort /.*\%8v/
```

Alternatively can pipe a section of the file to the Unix "sort" utility to sort the file. For example:

```
:5,100!sort
```

You can also use a visual block, and use the "!sort" command on the selected block.

See also:
	:sort
	filter

faq-30.6

30.6. How do I use Vim as a pager?

You can use Vim as a pager using the $VIMRUNTIME/macros/less.sh shell script, supplied as part of the standard Vim distribution. This shell script uses the $VIMRUNTIME/macros/less.vim Vim script to provide less like key bindings.

For more information, read

	less

faq-30.7

30.7. How do I view Unix man pages from inside Vim?

You can view Unix man pages, inside Vim, using the man.vim plugin supplied as part of the standard Vim distribution. To use this plugin, add the following line to your startup vimrc file:

```
runtime ftplugin/man.vim
```

You can also press the K key to run the program specified by the 'keywordprg' option with the keyword under the cursor. By default, 'keywordprg' is set to run man on the keyword under the cursor.

For more information, read

	ft-man-plugin
	K
	'keywordprg'

faq-30.8

30.8. How do I change the diff command used by the Vim diff support?

By default, the Vim diff support uses the 'diff' command. You can change this by changing the 'diffexpr' option.

For more information, read

	diff-diffexpr
	'diffexpr'

faq-30.9

30.9. How do I use the Vim diff mode without folding?

You can use the following command-line to start Vim with two filenames and use the diff mode without folding:

```
$ vim -o file1 file2 "+windo set diff scrollbind scrollopt+=hor nowrap"
```

If you like vertically split windows, then replace "-o" with "-O".

For more information, read

    vimdiff

==

faq-31

SECTION 31 - GUI VIM

faq-31.1

31.1. How do I create buffer specific menus?

Adding support for buffer specific menus is in the Vim TODO list. In the mean time, you can try Michael Geddes's plugin, buffermenu.vim:

    http://vim.sourceforge.net/scripts/script.php?script_id=246

faq-31.2

31.2. How do I change the font used by GUI Vim?

You can change the 'guifont' option to change the font used by GUI Vim. To display the current value of this option, you can use

    :set guifont?

You can add the displayed font name to the .vimrc file to use the font across Vim sessions. For example, add the following line to the .vimrc file to use Andale Mono font.

    set guifont=Andale_Mono:h10:cANSI

For Win32, GTK and Photon version of Vim, you can use the following command to bringup a dialog which will help you in changing the guifont:

    :set guifont=*

You can also use the -font Vim command line option to specify the font used for normal text.

For more information, read

    'guifont'
    'guifontset'
    'guifontwide'
    font-sizes
    -font
    -boldfont
    -italicfont
    -menufont
    -menufontset

faq-31.3

31.3. When starting GUI Vim, how do I specify the location of the GVIM

window?

You can use the "-geometry" command line argument to specify the location of the GUI Vim window. For example:

```
$ gvim -geometry 80x25+100+300
```

For more information, read

31.4
-geom

faq-31.4

31.4. How do I add a horizontal scrollbar in GVim?

You can enable the horizontal scrollbar by modifying the 'guioptions' option:

```
:set guioptions+=b
```

For more information, read

'guioptions'
gui-horiz-scroll

faq-31.5

31.5. How do I make the scrollbar appear in the left side by default?

You can add the 'l' flag to the 'guioptions' option to make the scrollbar appear in the left side.

```
:set guioptions+=l
:set guioptions-=r
```

For more information, read

'guioptions'
gui-scrollbars

faq-31.6

31.6. How do I remove the Vim menubar?

You can remove the Vim menubar by removing the 'm' flag from the 'guioptions' option:

```
:set guioptions-=m
```

For more information, read

'guioptions'

faq-31.7

31.7. I am using GUI Vim. When I press the ALT key and a letter, the menu starting with that letter is selected. I don't want this behavior as

I want to map the ALT-<key> combination. How do I do this?

You can use the 'winaltkeys' option to disable the use of the ALT key to select a menu item:

```
:set winaltkeys=no
```

For more information, read

```
'winaltkeys'
:simalt
```

faq-31.8

31.8. Is it possible to scroll the text by dragging the scrollbar so that the cursor stays in the original location?

The way Vim is designed, the cursor position has to be in a visible spot in normal, visual, select and insert mode. This cannot be changed without modifying Vim. When the scrollbar is used, the cursor will be moved so that it is always visible. Another approach to solving this problem is to use the Vim marks. You can mark the current cursor position using ma. Then scroll to a different part of the text and jump back to the old position using `a. You can also try the following suggestion from the Vim Online website:

```
http://vim.wikia.com/wiki/VimTip320
```

For more information, read

```
mark-motions
```

faq-31.9

31.9. How do I get gvim to start browsing files in a particular directory when using the ":browse" command?

You can set the 'browsedir' option to the default directory to use for the ":browse" command.

```
:set browsedir='<your_dir>'
```

For more information, read

```
'browsedir'
```

faq-31.10

31.10. For some questions, like when a file is changed outside of Vim, Vim displays a GUI dialog box. How do I replace this GUI dialog box with a console dialog box?

You can set the 'c' flag in the 'guioptions' option to configure Vim to use console dialogs instead of GUI dialogs:

```
:set guioptions+=c
```

For more information, read

	'guioptions'

faq-31.11

31.11. I am trying to use GUI Vim as the editor for my xxx application. When the xxx application launches GUI Vim to edit a file, the control immediately returns to the xxx application. How do I start GUI Vim, so that the control returns to the xxx application only after I quit Vim?

You have to start GUI Vim with the '-f' (foreground) command line option:

```
$ gvim -f
```

By default, GUI Vim will disconnect from the program that started Vim. With the '-f' option, GUI Vim will not disconnect from the program that started it.

For more information, read

	gui-fork
	-f

faq-31.12

31.12. Why does the "Select Font" dialog doesn't show all the fonts installed in my system?

Vim supports only fixed width (mono-spaced) fonts. Proportional fonts are not supported. In the "Select Font" dialog, only fixed width fonts will be displayed.

For more information, read

	font-sizes
	'guifont'

faq-31.13

31.13. How do I use the mouse in Vim command-line mode?

You can set the 'c' flag in the 'mouse' option to use mouse in the Vim command-line mode:

```
:set mouse+=c
```

For more information, read

	mouse-using
	gui-mouse
	09.2

faq-31.14

31.14. When I use the middle mouse button to scroll text, it pastes the last copied text. How do I disable this behavior?

You can map the middle mouse button to <Nop> to disable the middle mouse button:

```
:map  <MiddleMouse> <Nop>
:map! <MiddleMouse> <Nop>
```

For more information, read

gui-mouse-mapping
<Nop>

faq-31.15

31.15. How do I change the location and size of a GUI Vim window?

You can use the "winpos" command to change the Vim window position. To change the size of the window, you can modify the "lines" and "columns" options.

For example, the following commands will position the GUI Vim window at the X,Y co-ordinates 50,50 and set the number of lines to 50 and the number of columns to 80.

```
:winpos 50 50
:set lines=50
:set columns=80
```

The arguments to the 'winpos' command specify the pixel co-ordinates of the Vim window. The 'lines' and 'columns' options specify the number of lines and characters to use for the height and the width of the window respectively.

For more information, read

31.4
:winpos
'lines'
'columns'
GUIEnter

faq-31.16

31.16. When splitting the Vim window vertically, Vim changes the position.

This is a known problem. When you are splitting the Vim window, Vim will try to draw a scrollbar. Since this changes the gui window, Vim tries to resize its main window to keep the same position and this will cause Vim to move its position. This happens on Windows with a multi-window setup or a window that was "snapped" to a certain position.

A workaournd to this problem is, to remove gui scrollbars, e.g.

```
:set guioptions-=L
```

==========

faq-32

SECTION 32 - VIM ON UNIX

faq-32.1

32.1. I am running Vim in a xterm. When I press the CTRL-S key, Vim freezes. What should I do now?

Many terminal emulators and real terminal drivers use the CTRL-S key to stop the data from arriving so that you can stop a fast scrolling display to look at it (also allowed older terminals to slow down the computer so that it did not get buffer overflows). You can start the output again by pressing the CTRL-Q key.

When you press the CTRL-S key, the terminal driver will stop sending the output data. As a result of this, it will look like Vim is hung. If you press the CTRL-Q key, then everything will be back to normal.

You can turn off the terminal driver flow control using the 'stty' command:

```
$ stty -ixon -ixoff
```

or, you can change the keys used for the terminal flow control, using the following commands:

```
$ stty stop <char>
$ stty start <char>
```

faq-32.2

32.2. I am seeing weird screen update problems in Vim. What can I do to solve this screen/display update problems?

You have to use a proper terminal emulator like xterm with correct TERM settings (TERM=xterm) and a correct terminfo/termcap file.
For more information, read

'term'

faq-32.3

32.3. I am using the terminal/console version of Vim. In insertmode, When I press the backspace key, the character before the cursor is not erased. How do I configure Vim to do this?

You have to make sure that Vim gets the correct keycode for the backpspace key. You can try using the command:

```
:fixdel
```

Make sure the TERM environment variable is set to the correct terminal name. You can try using the 'stty' command:

```
$ stty erase ^H
```

where, you have to enter the ^H character by pressing the CTRL-V key and then the CTRL-H key. Also check the value of your 'backspace' setting.

For more information, read

```
:fixdel
Linux-backspace
NetBSD-backspace
'backspace'
```

faq-32.4

32.4. I am using Vim in a xterm. When I quit Vim, the screen contents are restored back to the original contents. How do I disable this?

The xterm has a capability called "alternate screen". If this capability is present, vim switches to that alternate screen upon startup and back on exit, thus restoring the original screen contents. To disable this feature, add the following line to your .vimrc file:

```
:set t_ti= t_te=
```

For more information, read

```
'restorescreen'
xterm-screens
```

faq-32.5

32.5. When I start Vim, it takes quite a few seconds to start. How do I minimize the startup time?

This may be related to Vim opening the X display for setting the xterm title and using the X clipboard. Make sure the DISPLAY variable is set to point to the correct host. Try using the command line:

```
$ vim -X
```

This will prevent Vim from opening the X display. With this command-line option, the X clipboard cannot be used and also Vim will not be able to change the xterm title.

You can also set the 'clipboard' option to

```
:set clipboard=exclude:.*
```

This has the same effect as using the -X command-line argument.

For more information, read

```
-X
'clipboard'
```

If the clipboard is not the cause of the slow startup, it might be a plugin that slows down Vim. In that case, you can use the --startuptime argument to debug this further. You can do:

```
$ vim --startuptime vim_startup.log
```

and the timing will be written to the file vim_startup.log. For even more advanced profiling, you can use the profiling feature, that is available in huge builds of Vim. To do so, call Vim like this:

```
$ vim --cmd 'profile start profile.log' \
  --cmd 'profile func *' \
  --cmd 'profile file *' \
  -c 'profdel func *' \
  -c 'profdel file *' \
  -c 'qa!'
```

After running this, you will have a file profile.log in your current directory. To further analyse this, open the file profile.log and run:

```
" Open profile.log file in vim first
:let timings=[]
:g/^SCRIPT/call add(timings, [getline('.')[len('SCRIPT  '):], matchstr(getline(line('.
:enew
:call setline('.', ['count total (s)   self (s)  script']+map(copy(timings), 'printf("%
```

For more information, read

```
--startuptime
profiling
```

faq-32.6

32.6. How can I make the cursor in gvim in unix stop blinking?

You can modify the 'guicursor' option, to stop the cursor from blinking. For example:

```
:set guicursor=a:blinkon0
```

For more information, read

```
'guicursor'
```

faq-32.7

32.7. How do I change the menu font on GTK Vim?

You can modify the ~/.gtkrc file to change the menu font on GTK Vim. For example:

```
style "default"
{ font ="smooth09" }
class "*" style "default"
```

The last line changes the font of all widgets.

For more information, read

```
gui-gtk
```

faq-32.8

32.8. How do I prevent <Ctrl-Z> from suspending Vim?

You can map <Ctrl-Z> to prevent the suspending. Here are some suggestions:

- Make <Ctrl-Z> do nothing:

```
:map <C-Z> <Nop>
```

- Make <Ctrl-Z> start a shell:

```
:map <C-Z> :shell<CR>
```

- Make <Ctrl-Z> give an error message:

```
:map <C-Z> :"suspending disabled<CR>
```

For the last example, the double quote is necessary in order to keep the message on the status line.

faq-32.9

32.9. When I kill the xterm running Vim, the Vim process continues to run and takes up a lot of CPU (99%) time. Why is this happening?

When Vim is built with support for Python interface, you will have this problem. This is a known problem with the python thread library and Vim. To solve this problem, use a Vim binary built without the Python interface.

For more information, read

```
+python
python
```

faq-32.10

32.10. How do I get the Vim syntax highlighting to work in a Unix terminal?

The easiest and simplest way to get Vim syntax highlighting is to use the GUI version of Vim (GVIM). To get syntax highlighting to work in the console/terminal version of Vim, you have to run a terminal emulator (like Xfree86 xterm or rxvt or dtterm) that supports color. Note that if a terminal emulator supports changing the background and foreground colors, that does not mean that it also supports ANSI escape sequences for changing the color. You can download the latest version of Xfree86 xterm from http://dickey.his.com/xterm/xterm.html. You can download the latest version of rxvt from http://www.rxvt.org. You have to install the terminfo/termcap file that supports colors for the terminal emulator. Also, set the TERM environment variable to the correct name of the term that supports colors.

You can use the colortest.vim script supplied with the Vim runtime package to test the color setup. To use this script, follow these steps:

```
:e $VIMRUNTIME/syntax/colortest.vim
:source %
```

For more information, read

06.2
terminal-colors
termcap-colors
startup-terminal
xterm-color
colortest.vim

==

faq-33

SECTION 33 - VIM ON MS-WINDOWS

faq-33.1

33.1. In MS-Windows, CTRL-V doesn't start the blockwise visual mode. What happened?

The mswin.vim script provides key mappings and options to make Vim behave like a MS-Windows application. One of the keys mapped is CTRL-V which is used for pasting text in MS-Windows applications. This will disable the use of CTRL-V to start the blockwise visual mode. The mswin.vim script maps CTRL-Q for staring the blockwise visual mode. So you can use CTRL-Q instead of CTRL-V.

For more information, read

CTRL-V
CTRL-V-alternative
CTRL-Q
10.5

faq-33.2

33.2. When I press the CTRL-Y key, it acts like the CTRL-R key. How do I configure Vim to treat CTRL-Y as CTRL-Y?

The mapping of the CTRL-Y key to the CTRL-R key is done by the mswin.vim script. The mswin.vim script maps CTRL-Y to make Vim behave like a standard MS-Windows application. This is explained in ":help CTRL-Y". You can either comment out the line in mswin.vim that maps the CTRL-Y key or you can remove the line in your .vimrc file that sources the mswin.vim script.

faq-33.3

33.3. How do I start GUI Vim in a maximized window always?

You can use the "simalt" command to maximize the Vim window. You can use the GUIEnter autocmd to maximize the Vim window on startup:

```
autocmd GUIEnter * simalt ~x
```

For more information, read

:simalt
GUIEnter
gui-win32-maximized

faq-33.4

33.4. After doing some editing operations, Vim freezes. The cursor becomes an empty rectangle. I am not able enter any characters. What is happening?

Most probably, you used the mouse wheel to scroll the text in Vim. There is a known problem in using intellimouse mouse wheel with Vim. To avoid this problem, disable Universal scrolling support for Vim.

For more information, read

    intellimouse-wheel-problems

faq-33.5

33.5. I am using Windows XP, the display speed of maximized GVim is very slow. What can I do to speed the display updates?

This may be due to the fact that you have enabled 'Smooth edges of screen fonts' in the display properties. Try turning off font smoothing or try changing the smoothing method to "Standard".

faq-33.6

33.6. What are the recommended settings for using Vim with cygwin?

You may want to set the following shell related Vim settings:

```
:set shellcmdflag=-c
:set shellquote=
:set shellslash          " Use the forward slash for expansion.
:set shellxquote=\"
:set shell=d:\cygwin\bin\bash.exe " Use the bash shell
:set shellpipe=2>&1| tee
:set shellredir=>%s 2>&1
```

faq-33.7

33.7. I am trying to use GNU diff with Vim diff mode. When I run the diff from command line, it works. When I try to use the diff with Vim it doesn't work. What should I do now?

There is a problem with using GNU diff with Vim. You can try using the GNU diff.exe built by Ron Aaron from the following link:

    http://www.mossbayeng.com/~ron/vim/builds.html

faq-33.8

33.8. Is it possible to use Vim as an external editor for MS-Windows Outlook email client?

You can use the "cubiclevim" COM Add-In to use Vim as an external editor for MS-Windows Outlook email client. Visit the following URL for more information:

    http://sourceforge.net/projects/cubiclevim

Note, that currently this works only with MS-Office 2000 and XP.

Also the plugin OutlookVim might be worth a look:

http://www.vim.org/scripts/script.php?script_id=3087

faq-33.9

33.9. I am using Vim to edit HTML files. How do I start internet explorer with the current file to preview the HTML file?

You can use the following command:

```
:!start c:\progra~1\intern~1\iexplore.exe file://%:p<CR>
```

faq-33.10

33.10. I would like to use Vim with Microsoft Visual Studio. How do I do this?

You have to download and use the OLE version of Vim (for example: gvim61ole.zip). This file also contains instructions on how to use Vim with Visual Studio.

For more information, read

```
MSVisualStudio
```

faq-33.11

33.11. Where do I place the _vimrc and _gvimrc files?

You can place the _vimrc and _gvimrc files under the directory pointed to by the VIM environment variable. If you are sharing this system with other users, then you can place the files in a directory and set the HOME environment variable to this directory.

For more information, read

```
$HOME-use
_vimrc
```

faq-33.12

33.12. Every time I save a file, Vim warns about the file being changed outside of Vim. Why?

If you get the following warning message, every time you save a file:

```
WARNING: The file has been changed since reading it!!!
Do you really want to write to it (y/n)?
```

then this problem could be related to a bug in MS-Windows on the day daylight saving time starts. Vim remembers the timestamp of the file after it was written. Just before the next write the timestamp is obtained again to check if the file was changed outside of Vim. This works correctly, except on the day daylight saving time starts.

This problem will go away the next day after the day the daylight saving

time starts.

For more information, read

	W11

==
faq-34

SECTION 34 - PRINTING

faq-34.1

34.1. How do I print a file along with line numbers for all the lines?

You can set the 'printoptions' option and use the ":hardcopy" command to
print your file:

```
:set printoptions=number:y
:hardcopy
```

For more information, read

	'printoptions'
	:hardcopy

faq-34.2

34.2. How do I print a file with the Vim syntax highlighting colors?

You can use the ":hardcopy" command to print a file with the Vim syntax
highlighting colors. You can also convert your file to a HTML file using
the 2html.vim script and print the HTML file.

For more information, read

	syntax-printing
	2html.vim
	:hardcopy
	printing

==
faq-35

SECTION 35 - BUILDING VIM FROM SOURCE

faq-35.1

35.1. How do I build Vim from the sources on a Unix system?

For a Unix system, follow these steps to build Vim from the sources:

- Download the source and run-time files archive (vim-##.tar.bz2) from the
  ftp://ftp.vim.org/pub/vim/unix directory.
- Extract the archive using the bzip2 and tar utilities using the command:

```
$ bunzip2 -c <filename> | tar -xf -
```

- Alternatively, download the source from the mercurial repository:

  http://code.google.com/p/vim/source/checkout
- Run the 'make' command to configure and build Vim with the default
  configuration.
- Run 'make install' command to install Vim in the default directory.

To enable/disable various Vim features, before running the 'make' command
you can run the 'configure' command with different flags to include/exclude
the various Vim features. To list all the available options for the
'configure' command, use:

    $ configure -help

For more information, read

     install

faq-35.2

35.2. How do I install Vim in my home directory or a directory other
      than the default installation directory in Unix?

To install Vim in a directory other than the default installation
directory, you have to specify the directory using the --prefix option
while running the configure script.

    $ ./configure --prefix=/users/xyz

You can enable/disable various Vim feature by supplying different arguments
to the configure script. For more information about all these options, run

    $ ./configure --help

For more information, read

     install-home
     install

faq-35.3

35.3. How do I build Vim from the sources on a MS-Windows system?

For a MS-Windows system, Vim can be built using either the Visual C++
compiler or the Borland C++ compiler or the Ming GCC compiler or the cygwin
gcc compiler. Follow these steps to build Vim from the sources for
MS-Windows:

    - Download the source (vim##src.zip), runtime (vim##rt.zip) and the
      extra (vim-##-extra.tar.gz) archives from the
      ftp://ftp.vim.org/pub/vim/pc directory.
    - Extract the archives into a directory (for example, c:\vimsrc)
    - Alternatively, download the source from the mercurial repository:
      http://code.google.com/p/vim/source/checkout
    - Depending on the installed compiler, you can use the corresponding
      makefile to build the Vim sources. For Visual C++ use the
      Make_mvc.mak makefile, for borland C++ use the Make_bc5.mak makefile,
      for ming GCC use the Make_ming.mak makefile, for cygwin gcc use the

Make_cyg.mak makefile.

Depending on whether you want to build the GUI version of Vim or the console version of Vim, you have to pass different arguments to the makefiles. After successfully building the sources, you can copy the vim.exe or gvim.exe file to the desired directory along with the files from the runtime archive.

For more information, read

install

faq-35.4

35.4. The Vim help, syntax, indent files are missing from my Vim installation. How do I install these files?

The Vim help, syntax, indent and other runtime files are part of the Vim runtime package. You need to download and install the Vim runtime package. For example, for MS-Windows, the name of the Vim 6.1 runtime package is vim61rt.zip.

For more information, read

install

faq-35.5

35.5. I have built Vim from the source and installed the Vim package using "make install". Do I need to keep the Vim source directory?

No. Once you have built and installed Vim in some directory other than the original source directory (for example, /usr/bin or /usr/local/bin), then you can remove the source directory.

faq-35.6

35.6. How do I determine the Vim features which are enabled at compile time?

You can use the ":version" command to determine the Vim features that are enabled at compile time. The features that are enabled will be prefixed with a "+". The features that are not enabled will be prefixed with a "-".

If you want to test for a feature in a script, you can use the has() function:

```
if has("menu")
    " Set up some menus
endif
```

For more information, read

:version
+feature-list
has()

faq-35.7

35.7. Can I build Vim without the GUI support?

Yes. You can build Vim by optionally enabling/disabling many of the features including GUI.

For more information, read

    install

faq-35.8

35.8. When building Vim on a Unix system, I am getting "undefined reference to term_set_winsize" error. How do I resolve this error?

You will get this error when the build process is not able to locate the termlib, termcap or ncurses library. You have to install the ncurses-dev package to resolve this error.

faq-35.9

35.9. Vim configure keeps complaining about the lack of gtk-config while trying to use GTK 2.03. This is correct, since in GTK 2 they moved to using the generic pkg-config. I can get pkg-config to list the various includes and libs for gtk, but for some reason the configure script still isn't picking this up.

Use the following shell script named gtk-config:

```
#!/bin/sh
pkg-config gtk+-2.0 $1 $2
```

faq-35.10

35.10. I did successfully download the sources and compiled Vim on Unix. But feature ... still does not work. What is wrong and how can I fix it?

You should first check, that you are actually running your self compiled Vim and not the system's provided version. So first check your $PATH setting.

Depending on your compile options, some features might not be included in your build of Vim. You can use the ":version" command to determine the Vim features that are enabled at compile time. The features that are enabled will be prefixed with a "+". The features that are not enabled will be prefixed with a "-".

The easiest way to include all features is to build the huge version. To do this, you have to specify the --with-features option while running the configure script:

```
$ ./configure --with-features=huge
```

Nevertheless, a feature could still be disabled at compile time, if the configure script can't find the required libraries for those features (e.g. for clipboard integration, your Vim needs to be linked against the X11

development libraries).

There are several ways to install the required libraries:

1) On a Debian based distribution, you can use the package manager "apt"
   to install all required dependencies. As superuser, run the command:

   $ apt-get build-dep vim-gtk

   This makes sure all required libraries needed to compile the vim-gtk
   package will be installed. (This requires, that your sources list
   contains deb-src entries. See your distribution manual on how to
   enable this, if the above command did not work.)

2) In openSUSE you can use the package manager "zypper" to install all
   required libraries. This requires, that there is a source version of
   the package installable from a configured repository (which by
   default is not the case). Use:

   $ zypper search -t srcpackage vim

   to find out, whether or not there exists a source version in the
   repository. If there is none, you'll need to add a source repository.
   For openSUSE 11.2 you could use, e.g.

   $ zypper ar
   http://download.opensuse.org/source/distribution/11.2/repo/oss/src-11.2

   (one line)

   Once you have a source version available in your repositories, use
   this command to install all needed requirements:

   $ zypper source-install --build-deps-only vim

3) On a Fedora/RedHat based system, you can use

   $ yum-builddep vim-enhanced

4) Run configure with your options and watch for missing libraries:

   $ ./configure --with-features=huge 2>&1 |tee logfile

   This will run configure and record the output into the file "logfile".
   You need to check the logfile for missing dependencies. Consider this
   output:

    checking --disable-gtktest argument... gtk test enabled
    checking for pkg-config... /usr/bin/pkg-config
    checking for GTK - version >= 2.2.0... no

    Here you can see, that the gtk libraries are missing and therefore
    no GTK gui version can't be build. So you need to install the GTK
    library in your system, with your package manager or by compiling it

yourself. Then run the configure script again and check, that it finds the library.

In theory, those provided dependencies by your distribution might still lack some libraries, that are needed for features, that simply are not enabled in your distribution and therefore those commands in 1-3 won't install it. At the very least, this provides a jumping point and you need to track down the required missing packages using method 4 from above. But usually, this works good enough for most people and you won't have to bother with the fourth method.

For more information, read

```
:version
+feature-list
```

==

faq-36

SECTION 36 - VARIOUS

faq-36.1

36.1. How do I edit binary files with Vim?

You can set the following options to edit binary files in Vim:

```
:set binary
:set display=uhex
```

You can also use the "-b" command-line option to edit a binary file:

```
$ vim -b <binary_file_name>
```

You can also use the xxd utility (part of the Vim distribution) to edit binary files.

For more information, read

```
23.4
edit-binary
hex-editing
-b
'binary'
'endofline'
'display'
```

faq-36.2

36.2. How do I disable the visual error flash and the error beep?

You can disable both the visual error flash and the error beep using the following command:

```
:set visualbell t_vb=
```

For more information, read

'visualbell'
'errorbells'
t_vb

faq-36.3

36.3. How do I display the ascii value of a character displayed in a buffer?

You can use the 'ga' command to display the ascii value of a displayed character.

For more information, read

ga
:ascii

faq-36.4

36.4. Can I use zero as a count for a Vim command?

You cannot use zero as a count for a Vim command, as "0" is a command on its own, moving to the first column of the line.

For more information, read

0
count

faq-36.5

36.5. How do I disable the Vim welcome screen?

You can disable the Vim welcome screen, by adding the 'I' flag to the 'shortmess' option:

```
:set shortmess+=I
```

For more information, read

:intro
'shortmess'

faq-36.6

36.6. How do I avoid the "hit enter to continue" prompt?

Vim will prompt you with the "hit enter to continue" prompt, if there are some messages on the screen for you to read and the screen is about to be redrawn. You can add the 'T' flag to the 'shortmess' option to truncate all messages. This will help in avoiding the hit-enter prompt:

```
:set shortmess+=T
```

You can also increase the command height by setting the 'cmdheight' option:

```
:set cmdheight=2
```

For more information, read

```
hit-enter
avoid-hit-enter
'shortmess'
'cmdheight'
```

faq-36.7

36.7. How do I invoke Vim from command line to run a group of commands on a group of files?

There are several ways to invoke Vim from command line to run a group of commands on a group of files. You can use a set of "-c" command line options to specify a group of commands:

```
$ vim -c "<ex_command_1>" -c "<ex_command_2>" *.txt
```

Each of the ex-command specified with the "-c" command line option is executed one by one sequentially. You can also use a single "-c" command line option and the "|" character to separate the ex commands:

```
$ vim -c "<ex_command_1> | <ex_command_2>" *.txt
```

In the above command, if an ex command fails, then all the remaining ex commands will not be executed.

For example, to replace "ABC" with "DEF" in a file from the command-line, you can use the following command:

```
$ vim -c "%s/ABC/DEF/ge | update" myfile.txt
```

To replace "ABC" with "DEF" in multiple files from the command-line, you can use the following command:

```
$ vim -c "argdo %s/ABC/DEF/ge | update" *.txt
```

You can store the group of commands into a file and use the "-s" command line option to run the commands on a set of files. For example, if the group of commands are stored in the file mycmds.txt, then you can use the following command:

```
$ vim -s mycmds.txt *.pl
```

For more information, read

```
-c
-s
```

faq-36.8

36.8. How do I use a normal mode command from insert mode without leaving the insert mode?

You can use a normal command from insert mode, without leaving the insert

mode, by first pressing the CTRL-O key and then follow that with a single
normal mode command.

To execute more than one normal mode command, press the CTRL-L key,
followed by any number of normal mode commands and then press <Esc> to get
back to the insert mode. (This only works, when the 'insertmode' option
is set).

For more information, read

     i_CTRL-O
     i_CTRL-L

faq-36.9

36.9. How do I start Vim in insert mode?

You can start Vim in insert mode using the ":startinsert" ex command.

    $ vim +startinsert myfile.txt

The above command will open the file "myfile.txt" and start insert mode
with the cursor in front of the first character on the first line. To open
the file and start appending after the last character on the last line,
you can use the following command:

    $ vim + +startinsert! myfile.txt

For more information, read

     :startinsert

faq-36.10

36.10. How do I use Copy and Paste with Vim?

You should first check the output of the ":version" command and make
sure that +xterm-clipboard is present.

When running Vim in an xterm, you can either let Vim control the mouse
or let xterm control the mouse. This is configured by the 'mouse' option.

If the 'mouse' option is not set (or set to the default value), then Vim will
not control the mouse. You cannot move the Vim text cursor using the
mouse. When you select some text using the mouse, xterm will copy
it to the X11 cut buffer. When you press both the mouse buttons,
xterm will paste the text from the cut buffer.

If the 'mouse' option is set to 'a' or some other value, then Vim controls
the mouse. The mode (normal or insert or visual, etc) in which Vim
controls the mouse is configured by the 'mouse' option. You can move
the Vim text cursor using the mouse. When you select some text,
the 'clipboard' option setting is used to determine whether to transfer
the selected text to the clipboard or not. The default setting is to
transfer the selected text to the clipboard. If you want to use the
xterm selection mechanism in this mode, then you can press the

<Shift> key. If you press <Shift> key when selecting text using the
mouse, then Vim doesn't control the mouse and xterm controls the
mouse.

In the GUI mode, Copy and Paste should just work, depending on the 'mouse'
setting. For more information, read

	'clipboard'
	x11-selection
	clipboard
	'go-a'
	'mouse'
	xterm-copy-paste
	09.3

faq-36.11

36.11. Why shouldn't I modify the files in the system runtime directory?

Just be careful about modifying files under $VIMRUNTIME, which usually
is /usr/share/vim/vimXX (Unix) or C:\Program Files\vim\vimXX
(Windows) and XX being the version for which it applies, e.g. 73 for Vim
7.3.

One should generally avoid modifying those files because they may be
replaced during an upgrade of your Vim installation and your changes
will be lost. Also, if you upgrade to a new major or minor revision of
Vim (e.g., from 7.3 to 7.4), the new version of Vim will use a different
$VIMRUNTIME directory and while your changes won't be lost, they will be
ignored.

Consequently, take a look at

	filetypes

for an explanation of several ways to modify Vim's response to
different filetypes and where to put those modifications so that
they will not be overwritten.

==

faq-37

SECTION 37 - UNICODE
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faq-37.1

37.1. Is it possible to create Unicode files using Vim?

Yes. It may be more or less complicated depending on the keyboard and fonts
available to you, but it is always possible to encode any possible Unicode
codepoint (and some illegal ones) into a file. To create a Unicode file
using Vim, you should have compiled Vim with the "+multi_byte" compile-time
option. You can get more information about Unicode from the following
sites:

	http://www.unicode.org

http://www.cl.cam.ac.uk/~mgk25/unicode.html

For more information, read

multibyte
usr_45.txt

faq-37.2

37.2. Which Vim settings are particularly important for editing Unicode files?

The most important are the various "encoding" options, i.e., 'encoding', 'fileencoding', 'fileencodings' and 'termencoding'. The boolean option 'bomb' is also significant.

For more information, read

'encoding'
'fileencoding'
'fileencodings'
'termencoding'
'bomb'

faq-37.3

37.3. What is the 'encoding' option?

Basically, the 'encoding' option defines how Vim will represent your data internally. However, all Unicode encodings are represented internally as utf-8 and converted (if necessary) when reading and writing.

For more information, read

'encoding'

faq-37.4

37.4. How does Vim name the various Unicode encodings?

Utf-8 is called utf-8 or utf8; utf-16 is called ucs-2 or ucs2; utf-32 is called ucs-4 or ucs4. Also, you may specify endianness (except for utf-8 which does not vary for endianness) by appending le for little-endian or be for big-endian. If you create a file with an encoding of ucs-2 or ucs-4 without specifying endianness, Vim will use what is typical of your machine.

For more information, read

encoding-names
encoding-values
encoding-table

faq-37.5

37.5. How does Vim specify the presence or absence of a byte-order mark?

When reading a file, if the 'fileencodings' option includes "ucs-bom", Vim

will check for a byte-order mark. When writing a file, if the 'bomb' option is set, Vim will write a byte-order mark on files whose encoding warrants it.

For more information, read

    'fileencodings'
    'bomb'

faq-37.6

37.6. What is the 'fileencoding' option?

The 'fileencoding' option defines the particular encoding which Vim will use to write a file. If empty, then the value of the 'encoding' option is the default.

For more information, read

    'fileencoding'

faq-37.7

37.7. What is the 'fileencodings' option?

The 'fileencodings' option defines the heuristics used by Vim when opening an existing file. It is a comma separated list of encodings. A special name, "ucs-bom" is used to indicate that Vim should check for the presence of a byte-order mark; however, it will not be recognised if it comes after "utf-8". Normally, "ucs-bom" (if present) should be first in the list.

When Vim opens a file, it checks it against the encodings listed in 'fileencodings'. The first one that matches is used. If there is no match, then Vim sets 'fileencoding' to the null string, i.e., the value of 'encoding' will be used.

For more information, read

    'fileencodings'
    'encoding'

faq-37.8

37.8. What is the 'termencoding' option?

The 'termencoding' option defines how your keyboard encodes the data you type. If empty, Vim assumes that it has the same value as 'encoding'. Usually it should be set to something that matches your locale.

For more information, read

    'termencoding'
    locale

faq-37.9

37.9. What is the 'bomb' option?

When reading a file with "ucs-bom" present in the 'fileencodings' option, Vim will set the 'bomb' option on or off depending on the presence or absence of a byte-order mark at the start of the file. When writing, Vim will write a byte-order mark if the 'bomb' option is set. You may set or unset it manually do make Vim write, or not write, the b.o.m.

For more information, read

    'bomb'

faq-37.10

37.10. Where can I find an example of a typical use of all these options?

There is a "tip", with explains them in different words with an example, at

http://vim.wikia.com/wiki/VimTip246

faq-37.11

37.11. How can I insert Unicode characters into a file using Vim?

Several methods are available:

- Characters present on your keyboard can be typed in the usual way, even those which require a "dead-key" prefix, like (for instance) the circumflex on French keyboards.
- Characters for which a digraph is defined can be typed as two characters prefixed by <Ctrl-K>.
- If you have set the 'digraph' option, you can enter the characters for which a digraph is defined as <char1><BS><char2>.
- Any character can be entered by using a <Ctrl-V> prefix (or <Ctrl-Q> if <Ctrl-V> is remapped to paste from the clipboard).

For more information, read

    digraphs
    'digraph'
    i_CTRL-V_digit

faq-37.12

37.12. How can I know which digraphs are defined and for which characters?

First set the 'encoding' option properly (for instance, to utf-8), then use the :digraphs command to list the currently defined digraphs.

Alternatively, the help file contains the complete set of all digraphs. So you can easily search that list there.

For more information, read

    :digraphs
    'encoding'
    digraph-table

 vim:tw=78:ts=8:ft=help:norl:

! !! # $ $HOME $HOME-use $HOME-windows $MYGVIMRC $MYVIMRC $VIM $VIM-use
$VIMRUNTIME $VIM_POSIX % %:. %:8 %:S %:e %:gs %:h %:p %:r %:s %:t %:~ & ' ''
'(') '. '0 '< '> 'A '['] '^ 'a 'acd' 'ai' 'akm' 'al' 'aleph' 'allowrevins'
'altkeymap' 'ambiwidth' 'ambw' 'anti' 'antialias' 'ap' 'ar' 'arab' 'arabic'
'arabicshape' 'ari' 'arshape' 'as' 'autochdir' 'autoindent' 'autoprint'
'autoread' 'autosave' 'autowrite' 'autowriteall' 'aw' 'awa' 'background'
'backspace' 'backup' 'backupcopy' 'backupdir' 'backupext' 'backupskip'
'balloondelay' 'ballooneval' 'balloonevalterm' 'balloonexpr' 'bdir' 'bdlay'
'beautify' 'belloff' 'beval' 'bevalterm' 'bex' 'bexpr' 'bf' 'bg' 'bh' 'bin'
'binary' 'biosk' 'bioskey' 'bk' 'bkc' 'bl' 'bo' 'bomb' 'breakat'
'breakindent' 'breakindentopt' 'bri' 'briopt' 'brk' 'browsedir' 'bs' 'bsdir'
'bsk' 'bt' 'bufhidden' 'buflisted' 'buftype' 'casemap' 'cb' 'cc' 'ccv' 'cd'
'cdpath' 'cedit' 'cf' 'cfu' 'ch' 'character' 'charconvert' 'ci' 'cin'
'cindent' 'cink' 'cinkeys' 'cino' 'cinoptions' 'cinw' 'cinwords' 'clipboard'
'cm' 'cmdheight' 'cmdwinheight' 'cmp' 'cms' 'co' 'cocu' 'cole' 'colorcolumn'
'columns' 'com' 'comments' 'commentstring' 'compatible' 'complete'
'completefunc' 'completeopt' 'concealcursor' 'conceallevel' 'confirm' 'consk'
'conskey' 'copyindent' 'cot' 'cp' 'cpo' 'cpoptions' 'cpt' 'crb' 'cryptmethod'
'cscopepathcomp' 'cscopeprg' 'cscopequickfix' 'cscoperelative' 'cscopetag'
'cscopetagorder' 'cscopeverbose' 'cspc' 'csprg' 'csqf' 'csre' 'cst' 'csto'
'csverb' 'cuc' 'cul' 'cursorbind' 'cursorcolumn' 'cursorline' 'cwh' 'debug'
'deco' 'def' 'define' 'delcombine' 'dex' 'dg' 'dict' 'dictionary' 'diff'
'diffexpr' 'diffopt' 'digraph' 'dip' 'dir' 'directory' 'display' 'dy' 'ea'
'ead' 'eadirection' 'eb' 'ed' 'edcompatible' 'ef' 'efm' 'ei' 'ek' 'emo'
'emoji' 'enc' 'encoding' 'endofline' 'eol' 'ep' 'equalalways' 'equalprg'
'errorbells' 'errorfile' 'errorformat' 'esckeys' 'et' 'eventignore' 'ex'
'expandtab' 'exrc' 'fcl' 'fcs' 'fdc' 'fde' 'fdi' 'fdl' 'fdls' 'fdm' 'fdn'
'fdo' 'fdt' 'fe' 'fen' 'fenc' 'fencs' 'fex' 'ff' 'ffs' 'fic' 'fileencoding'
'fileencodings' 'fileformat' 'fileformats' 'fileignorecase' 'filetype'
'fillchars' 'fixendofline' 'fixeol' 'fk' 'fkmap' 'fl' 'flash' 'flp' 'fml'
'fmr' 'fo' 'foldclose' 'foldcolumn' 'foldenable' 'foldexpr' 'foldignore'
'foldlevel' 'foldlevelstart' 'foldmarker' 'foldmethod' 'foldminlines'
'foldnestmax' 'foldopen' 'foldtext' 'formatexpr' 'formatlistpat'
'formatoptions' 'formatprg' 'fp' 'fs' 'fsync' 'ft' 'gcr' 'gd' 'gdefault'
'gfm' 'gfn' 'gfs' 'gfw' 'ghr' 'go' 'go-!' 'go-A' 'go-F' 'go-L' 'go-M' 'go-P'
'go-R' 'go-T' 'go-a' 'go-b' 'go-c' 'go-e' 'go-f' 'go-g' 'go-h' 'go-i' 'go-k'
'go-l' 'go-m' 'go-p' 'go-r' 'go-t' 'go-v' 'gp' 'gr' 'graphic' 'grepformat'
'grepprg' 'gtl' 'gtt' 'guicursor' 'guifont' 'guifontset' 'guifontwide'
'guiheadroom' 'guioptions' 'guipty' 'guitablabel' 'guitabtooltip' 'hardtabs'
'helpfile' 'helpheight' 'helplang' 'hf' 'hh' 'hi' 'hid' 'hidden' 'highlight'
'history' 'hk' 'hkmap' 'hkmapp' 'hkp' 'hl' 'hlg' 'hls' 'hlsearch' 'ht' 'ic'
'icon' 'iconstring' 'ignorecase' 'im' 'imactivatefunc' 'imactivatekey' 'imaf'
'imak' 'imc' 'imcmdline' 'imd' 'imdisable' 'imi' 'iminsert' 'ims' 'imsearch'
'imsf' 'imst' 'imstatusfunc' 'imstyle' 'inc' 'include' 'includeexpr'
'incsearch' 'inde' 'indentexpr' 'indentkeys' 'indk' 'inex' 'inf' 'infercase'
'insertmode' 'is' 'isf' 'isfname' 'isi' 'isident' 'isk' 'iskeyword' 'isp'
'isprint' 'joinspaces' 'js' 'key' 'keymap' 'keymodel' 'keywordprg' 'km' 'kmp'
'kp' 'langmap' 'langmenu' 'langnoremap' 'langremap' 'laststatus' 'lazyredraw'
'lbr' 'lcs' 'linebreak' 'lines' 'linespace' 'lisp' 'lispwords' 'list'
'listchars' 'lm' 'lmap' 'lnr' 'loadplugins' 'lpl' 'lrm' 'ls' 'lsp' 'luadll'
'lw' 'lz' 'ma' 'macatsui' 'magic' 'makeef' 'makeencoding' 'makeprg' 'mat'
'matchpairs' 'matchtime' 'maxcombine' 'maxfuncdepth' 'maxmapdepth' 'maxmem'
'maxmempattern' 'maxmemtot' 'mco' 'mef' 'menc' 'menuitems' 'mesg' 'mfd' 'mh'
'mis' 'mkspellmem' 'ml' 'mls' 'mm' 'mmd' 'mmp' 'mmt' 'mod' 'modeline'

'modelines' 'modifiable' 'modified' 'more' 'mouse' 'mousef' 'mousefocus'
'mousehide' 'mousem' 'mousemodel' 'mouses' 'mouseshape' 'mouset' 'mousetime'
'mp' 'mps' 'msm' 'mzq' 'mzquantum' 'mzschemedll' 'mzschemegcdll' 'nf' 'noacd'
'noai' 'noakm' 'noallowrevins' 'noaltkeymap' 'noanti' 'noantialias' 'noar'
'noarab' 'noarabic' 'noarabicshape' 'noari' 'noarshape' 'noas' 'noautochdir'
'noautoindent' 'noautoread' 'noautosave' 'noautowrite' 'noautowriteall'
'noaw' 'noawa' 'nobackup' 'noballooneval' 'noballoonevalterm' 'nobeval'
'nobevalterm' 'nobin' 'nobinary' 'nobiosk' 'nobioskey' 'nobk' 'nobl' 'nobomb'
'nobreakindent' 'nobri' 'nobuflisted' 'nocf' 'noci' 'nocin' 'nocindent'
'nocompatible' 'noconfirm' 'noconsk' 'noconskey' 'nocopyindent' 'nocp'
'nocrb' 'nocscoperelative' 'nocscopetag' 'nocscopeverbose' 'nocsre' 'nocst'
'nocsverb' 'nocuc' 'nocul' 'nocursorbind' 'nocursorcolumn' 'nocursorline'
'nodeco' 'nodelcombine' 'nodg' 'nodiff' 'nodigraph' 'noea' 'noeb' 'noed'
'noedcompatible' 'noek' 'noemo' 'noemoji' 'noendofline' 'noeol'
'noequalalways' 'noerrorbells' 'noesckeys' 'noet' 'noex' 'noexpandtab'
'noexrc' 'nofen' 'nofic' 'nofileignorecase' 'nofixendofline' 'nofixeol'
'nofk' 'nofkmap' 'nofoldenable' 'nofs' 'nofsync' 'nogd' 'nogdefault'
'noguipty' 'nohid' 'nohidden' 'nohk' 'nohkmap' 'nohkmapp' 'nohkp' 'nohls'
'nohlsearch' 'noic' 'noicon' 'noignorecase' 'noim' 'noimc' 'noimcmdline'
'noimd' 'noimdisable' 'noincsearch' 'noinf' 'noinfercase' 'noinsertmode'
'nois' 'nojoinspaces' 'nojs' 'nolangnoremap' 'nolangremap' 'nolazyredraw'
'nolbr' 'nolinebreak' 'nolisp' 'nolist' 'nolnr' 'noloadplugins' 'nolpl'
'nolrm' 'nolz' 'noma' 'nomacatsui' 'nomagic' 'nomh' 'noml' 'nomod'
'nomodeline' 'nomodifiable' 'nomodified' 'nomore' 'nomousef' 'nomousefocus'
'nomousehide' 'nonu' 'nonumber' 'noodev' 'noopendevice' 'nopaste' 'nopi'
'nopreserveindent' 'nopreviewwindow' 'noprompt' 'nopvw' 'noreadonly'
'norelativenumber' 'noremap' 'norestorescreen' 'norevins' 'nori'
'norightleft' 'norl' 'nornu' 'noro' 'nors' 'noru' 'noruler' 'nosb' 'nosc'
'noscb' 'noscrollbind' 'noscs' 'nosecure' 'nosft' 'noshellslash'
'noshelltemp' 'noshiftround' 'noshortname' 'noshowcmd' 'noshowfulltag'
'noshowmatch' 'noshowmode' 'nosi' 'nosm' 'nosmartcase' 'nosmartindent'
'nosmarttab' 'nosmd' 'nosn' 'nosol' 'nospell' 'nosplitbelow' 'nosplitright'
'nospr' 'nosr' 'nossl' 'nosta' 'nostartofline' 'nostmp' 'noswapfile' 'noswf'
'nota' 'notagbsearch' 'notagrelative' 'notagstack' 'notbi' 'notbidi' 'notbs'
'notermbidi' 'noterse' 'notextauto' 'notextmode' 'notf' 'notgst' 'notildeop'
'notimeout' 'notitle' 'noto' 'notop' 'notr' 'nottimeout' 'nottybuiltin'
'nottyfast' 'notx' 'noudf' 'noundofile' 'novb' 'novice' 'novisualbell' 'nowa'
'nowarn' 'nowb' 'noweirdinvert' 'nowfh' 'nowfw' 'nowic' 'nowildignorecase'
'nowildmenu' 'nowinfixheight' 'nowinfixwidth' 'nowiv' 'nowmnu' 'nowrap'
'nowrapscan' 'nowrite' 'nowriteany' 'nowritebackup' 'nows' 'nrformats' 'nu'
'number' 'numberwidth' 'nuw' 'odev' 'oft' 'ofu' 'omnifunc' 'op' 'open'
'opendevice' 'operatorfunc' 'opfunc' 'optimize' 'option' 'osfiletype' 'pa'
'packpath' 'para' 'paragraphs' 'paste' 'pastetoggle' 'patchexpr' 'patchmode'
'path' 'pdev' 'penc' 'perldll' 'pex' 'pexpr' 'pfn' 'ph' 'pheader' 'pi' 'pm'
'pmbcs' 'pmbfn' 'popt' 'pp' 'preserveindent' 'previewheight' 'previewwindow'
'printdevice' 'printencoding' 'printexpr' 'printfont' 'printheader'
'printmbcharset' 'printmbfont' 'printoptions' 'prompt' 'pt' 'pumheight'
'pumwidth' 'pvh' 'pvw' 'pw' 'pythondll' 'pythonhome' 'pythonthreedll'
'pythonthreehome' 'pyx' 'pyxversion' 'qe' 'quote 'quoteescape' 'rdt' 're'
'readonly' 'redraw' 'redrawtime' 'regexpengine' 'relativenumber' 'remap'
'renderoptions' 'report' 'restorescreen' 'revins' 'ri' 'rightleft'
'rightleftcmd' 'rl' 'rlc' 'rnu' 'ro' 'rop' 'rs' 'rtp' 'ru' 'rubydll' 'ruf'
'ruler' 'rulerformat' 'runtimepath' 'sb' 'sbo' 'sbr' 'sc' 'scb' 'scl' 'scr'
'scroll' 'scrollbind' 'scrolljump' 'scrolloff' 'scrollopt' 'scs' 'sect'

'sections' 'secure' 'sel' 'selection' 'selectmode' 'sessionoptions' 'sft'
'sh' 'shcf' 'shell' 'shellcmdflag' 'shellpipe' 'shellquote' 'shellredir'
'shellslash' 'shelltemp' 'shelltype' 'shellxescape' 'shellxquote'
'shiftround' 'shiftwidth' 'shm' 'shortmess' 'shortname' 'showbreak' 'showcmd'
'showfulltag' 'showmatch' 'showmode' 'showtabline' 'shq' 'si' 'sidescroll'
'sidescrolloff' 'signcolumn' 'siso' 'sj' 'slm' 'slow' 'slowopen' 'sm'
'smartcase' 'smartindent' 'smarttab' 'smc' 'smd' 'sn' 'so' 'softtabstop'
'sol' 'sourceany' 'sp' 'spc' 'spell' 'spellcapcheck' 'spellfile' 'spelllang'
'spellsuggest' 'spf' 'spl' 'splitbelow' 'splitright' 'spr' 'sps' 'sr' 'srr'
'ss' 'ssl' 'ssop' 'st' 'sta' 'stal' 'startofline' 'statusline' 'stl' 'stmp'
'sts' 'su' 'sua' 'suffixes' 'suffixesadd' 'sw' 'swapfile' 'swapsync' 'swb'
'swf' 'switchbuf' 'sws' 'sxe' 'sxq' 'syn' 'synmaxcol' 'syntax' 't_#2' 't_#4'
't_%1' 't_%i' 't_&8' 't_8b' 't_8f' 't_@7' 't_AB' 't_AF' 't_AL' 't_BD' 't_BE'
't_CS' 't_CV' 't_Ce' 't_Co' 't_Cs' 't_DL' 't_EC' 't_EI' 't_F1' 't_F2' 't_F3'
't_F4' 't_F5' 't_F6' 't_F7' 't_F8' 't_F9' 't_GP' 't_IE' 't_IS' 't_K1' 't_K3'
't_K4' 't_K5' 't_K6' 't_K7' 't_K8' 't_K9' 't_KA' 't_KB' 't_KC' 't_KD' 't_KE'
't_KF' 't_KG' 't_KH' 't_KI' 't_KJ' 't_KK' 't_KL' 't_PE' 't_PS' 't_RB' 't_RC'
't_RF' 't_RI' 't_RS' 't_RV' 't_SC' 't_SH' 't_SI' 't_SR' 't_Sb' 't_Sf' 't_Te'
't_Ts' 't_VS' 't_WP' 't_WS' 't_ZH' 't_ZR' 't_al' 't_bc' 't_cd' 't_ce' 't_cl'
't_cm' 't_cs' 't_da' 't_db' 't_dl' 't_fs' 't_k1' 't_k2' 't_k3' 't_k4' 't_k5'
't_k6' 't_k7' 't_k8' 't_k9' 't_k;' 't_kB' 't_kD' 't_kI' 't_kN' 't_kP' 't_kb'
't_kd' 't_ke' 't_kh' 't_kl' 't_kr' 't_ks' 't_ku' 't_le' 't_mb' 't_md' 't_me'
't_mr' 't_ms' 't_nd' 't_op' 't_se' 't_so' 't_sr' 't_star7' 't_te' 't_ti'
't_ts' 't_u7' 't_ue' 't_us' 't_ut' 't_vb' 't_ve' 't_vi' 't_vs' 't_xn' 't_xs'
'ta' 'tabline' 'tabpagemax' 'tabstop' 'tag' 'tagbsearch' 'tagcase'
'taglength' 'tagrelative' 'tags' 'tagstack' 'tal' 'tb' 'tbi' 'tbidi' 'tbis'
'tbs' 'tc' 'tcldll' 'tenc' 'term' 'termbidi' 'termencoding' 'termguicolors'
'termwinkey' 'termwinscroll' 'termwinsize' 'terse' 'textauto' 'textmode'
'textwidth' 'tf' 'tgc' 'tgst' 'thesaurus' 'tildeop' 'timeout' 'timeoutlen'
'title' 'titlelen' 'titleold' 'titlestring' 'tl' 'tm' 'to' 'toolbar'
'toolbariconsize' 'top' 'tpm' 'tr' 'ts' 'tsl' 'tsr' 'ttimeout' 'ttimeoutlen'
'ttm' 'tty' 'ttybuiltin' 'ttyfast' 'ttym' 'ttymouse' 'ttyscroll' 'ttytype'
'tw' 'twk' 'tws' 'twsl' 'tx' 'uc' 'udf' 'udir' 'ul' 'undodir' 'undofile'
'undolevels' 'undoreload' 'updatecount' 'updatetime' 'ur' 'ut'
'varsofttabstop' 'vartabstop' 'vb' 'vbs' 'vdir' 've' 'verbose' 'verbosefile'
'vfile' 'vi' 'viewdir' 'viewoptions' 'vif' 'viminfo' 'viminfofile'
'virtualedit' 'visualbell' 'vop' 'vsts' 'vts' 'w1200' 'w300' 'w9600' 'wa'
'wak' 'warn' 'wb' 'wc' 'wcm' 'wd' 'weirdinvert' 'wfh' 'wfw' 'wh' 'whichwrap'
'wi' 'wic' 'wig' 'wildchar' 'wildcharm' 'wildignore' 'wildignorecase'
'wildmenu' 'wildmode' 'wildoptions' 'wim' 'winaltkeys' 'window'
'winfixheight' 'winfixwidth' 'winheight' 'winminheight' 'winminwidth'
'winptydll' 'winwidth' 'wiv' 'wiw' 'wm' 'wmh' 'wmnu' 'wmw' 'wop' 'wrap'
'wrapmargin' 'wrapscan' 'write' 'writeany' 'writebackup' 'writedelay' 'ws'
'ww' '{ '} ( ) + ++bad ++bin ++builtin_terms ++edit ++enc ++ff ++nobin ++opt
+ARP +GUI_Athena +GUI_GTK +GUI_Motif +GUI_Photon +GUI_neXtaw +X11 +acl
+arabic +autocmd +autoservername +balloon_eval +balloon_eval_term +browse
+builtin_terms +byte_offset +channel +cindent +clientserver +clipboard +cmd
+cmdline_compl +cmdline_hist +cmdline_info +comments +conceal +cryptv +cscope
+cursorbind +cursorshape +debug +dialog_con +dialog_con_gui +dialog_gui +diff
+digraphs +directx +dnd +emacs_tags +eval +ex_extra +extra_search +farsi
+feature-list +file_in_path +find_in_path +float +folding +footer +fork
+gettext +hangul_input +iconv +iconv/dyn +insert_expand +job +jumplist
+keymap +lambda +langmap +libcall +linebreak +lispindent +listcmds +localmap
+lua +lua/dyn +menu +mksession +modify_fname +mouse +mouse_dec +mouse_gpm

+mouse_jsbterm +mouse_netterm +mouse_pterm +mouse_sgr +mouse_sysmouse
+mouse_urxvt +mouse_xterm +mouseshape +multi_byte +multi_byte_ime +multi_lang
+mzscheme +mzscheme/dyn +netbeans_intg +num64 +ole +packages +path_extra
+perl +perl/dyn +persistent_undo +postscript +printer +profile +python
+python/dyn +python3 +python3/dyn +quickfix +reltime +rightleft +ruby
+ruby/dyn +scrollbind +signs +smartindent +startuptime +statusline
+sun_workshop +syntax +system() +tag_any_white +tag_binary +tag_old_static
+tcl +tcl/dyn +termguicolors +terminal +terminfo +termresponse +textobjects
+tgetent +timers +title +toolbar +unix +user_commands +vartabs +vertsplit
+viminfo +virtualedit +visual +visualextra +vreplace +vtp +wildignore
+wildmenu +windows +writebackup +xfontset +xim +xpm +xpm_w32 +xsmp
+xsmp_interact +xterm_clipboard +xterm_save , - -+ -+/ -+c -+reverse -+rv --
--- --clean --cmd --echo-wid --help --literal --nofork --noplugin
--not-a-term --remote --remote-expr --remote-send --remote-silent
--remote-tab --remote-tab-silent --remote-tab-wait --remote-tab-wait-silent
--remote-wait --remote-wait-silent --role --serverlist --servername
--socketid --startuptime --ttyfail --version --windowid -? -A -C -D -E -F -H
-L -M -N -O -P -R -S -T -U -V -W -X -Z -b -background -bg -boldfont
-borderwidth -bw -c -d -dev -display -e -f -fg -file -fn -font -foreground -g
-geom -geometry -geometry-example -gui -h -i -iconic -italicfont -l -m
-menufont -menufontset -menuheight -mf -mh -n -nb -o -p -q -qf -r -register
-reverse -rv -s -s-ex -scrollbarwidth -silent -sw -t -tag -u -ul -unregister
-v -vim -w -w_nr -x -xrm -y . ... .Xdefaults .aff .dic .exrc .gvimrc
.netrwbook .netrwhist .vimrc / /$ /. // //; /<CR> /[[. /[[= /[\n] /[] /\ /\$
/\%# /\%#= /\%$ /\%'m /\%(/\%(\) /\%<'m /\%<c /\%<l /\%<v /\%>'m /\%>c /\%>l
/\%>v /\%C /\%U /\%V /\%[] /\%^ /\%c /\%d /\%l /\%o /\%u /\%v /\%x /\& /\(
/\(\) /\) /\+ /\. /\1 /\2 /\3 /\9 /\< /\= /\> /\? /\@! /\@<! /\@<= /\@= /\@>
/\A /\C /\D /\F /\H /\I /\K /\L /\M /\O /\P /\S /\U /\V /\W /\X /\Z /\[] /\\
/\] /\^ /_ /_$ /_. /_A /_D /_F /_H /_I /_K /_L /_O /_P /_S /_U
/_W /_X /_[] /_^ /_a /_d /_f /_h /_i /_k /_l /_o /_p /_s /_u
/_w /_x /\a /\b /\bar /\c /\d /\e /\f /\h /\i /\k /\l /\m /\n /\o /\p /\r
/\s /\star /\t /\u /\v /\w /\x /\z(/\z(\) /\z1 /\z2 /\z3 /\z4 /\z5 /\z6 /\z7
/\z8 /\z9 /\ze /\zs /\{ /\{- /\~ /^ /_CTRL-G /_CTRL-L /_CTRL-T /atom /bar
/branch /character-classes /collection /concat /dyn /ignorecase /magic /multi
/ordinary-atom /pattern /piece /star /zero-width /~ 0 01.1 01.2 01.3 01.4
02.1 02.2 02.3 02.4 02.5 02.6 02.7 02.8 03.1 03.10 03.2 03.3 03.4 03.5 03.6
03.7 03.8 03.9 04.1 04.10 04.2 04.3 04.4 04.5 04.6 04.7 04.8 04.9 05.1 05.2
05.3 05.4 05.5 05.6 05.7 05.8 06.1 06.2 06.3 06.4 06.5 06.6 07.1 07.2 07.3
07.4 07.5 07.6 07.7 08.1 08.2 08.3 08.4 08.5 08.6 08.7 08.8 08.9 09.1 09.2
09.3 09.4 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9 11.1 11.2 11.3 11.4
12.1 12.2 12.3 12.4 12.5 12.6 12.7 12.8 1gD 1gd 20.1 20.2 20.3 20.4 20.5 21.1
21.2 21.3 21.4 21.5 21.6 22.1 22.2 22.3 22.4 23.1 23.2 23.3 23.4 23.5 24.1
24.10 24.2 24.3 24.4 24.5 24.6 24.7 24.8 24.9 25.1 25.2 25.3 25.4 25.5 26.1
26.2 26.3 26.4 27.1 27.2 27.3 27.4 27.5 27.6 27.7 27.8 27.9 28.1 28.10 28.2
28.3 28.4 28.5 28.6 28.7 28.8 28.9 29.1 29.2 29.3 29.4 29.5 2html.vim 30.1
30.2 30.3 30.4 30.5 30.6 31.1 31.2 31.3 31.4 31.5 32.1 32.2 32.3 32.4 40.1
40.2 40.3 41.1 41.10 41.11 41.12 41.13 41.14 41.15 41.16 41.2 41.3 41.4 41.5
41.6 41.7 41.8 41.9 42 42.1 42.2 42.3 42.4 43.1 43.2 44.1 44.10 44.11 44.12
44.2 44.3 44.4 44.5 44.6 44.7 44.8 44.9 45.1 45.2 45.3 45.4 45.5 8g8 90.1
90.2 90.3 90.4 90.5 : :! :!! :!cmd :!start :# :#! :$:% :& :&& :' :, :. :/
:0file :2match :3match ::. ::8 ::S ::e ::gs ::h ::p ::r ::s ::t ::~ :; :<
:<abuf> :<afile> :<amatch> :<cWORD> :<cexpr> :<cfile> :<cword> :<sfile> := :>
:? :@ :@: :@@ :AdaLines :AdaRainbow :AdaSpaces :AdaTagDir :AdaTagFile
:AdaTypes :Arguments :Break :Clear :CompilerSet :Continue :DiffOrig

:DoMatchParen :Evaluate :Explore :Finish :GLVS :Gdb :GetLatestVimScripts_dat
:GnatFind :GnatPretty :GnatTags :Hexplore :LP :LPE :LPF :Lexplore :LogiPat
:Man :MkVimball :N :NetrwClean :Nexplore :Next :NoMatchParen :Nr :Nread :Ns
:Nsource :Ntree :Nw :Nwrite :Over :P :Pexplore :Print :Program :Rexplore
:RmVimball :Run :RustEmitAsm :RustEmitIr :RustExpand :RustFmt :RustFmtRange
:RustPlay :RustRun :Sexplore :Source :Step :Stop :TOhtml :TarDiff :Termdebug
:TermdebugCommand :Texplore :UseVimball :Vexplore :VimballList :Vimuntar
:Winbar :X :XMLent :XMLns :[range] :\bar :_! :_# :_## :_#0 :_#< :_#n :_% :_%:
:_%< :a :ab :abbreviate :abbreviate-<buffer> :abbreviate-local
:abbreviate-verbose :abc :abclear :abo :aboveleft :al :all :am :amenu :an
:anoremenu :append :ar :arga :argadd :argd :argdelete :argdo :arge :argedit
:argglobal :arglocal :args :args_f :args_f! :argu :argument :as :ascii :au
:aug :augroup :augroup-delete :aun :aunmenu :autocmd :autocmd-verbose :b :bN
:bNext :ba :bad :badd :ball :bar :bd :bdel :bdelete :be :behave :bel
:belowright :bf :bfirst :bl :blast :bm :bmodified :bn :bnext :bo :botright
:bp :bprevious :br :brea :break :breaka :breakadd :breakd :breakdel :breakl
:breaklist :brewind :bro :browse :browse-set :bu :buf :bufdo :buffer
:buffer-! :buffers :bun :bunload :bw :bwipe :bwipeout :c :cN :cNext :cNf
:cNfile :ca :cabbrev :cabc :cabclear :cad :caddbuffer :cadde :caddexpr :caddf
:caddfile :cal :call :cat :catch :cb :cbo :cbottom :cbuffer :cc :ccl :cclose
:cd :cd- :cdo :ce :center :cex :cexpr :cf :cfdo :cfile :cfir :cfirst :cg
:cgetb :cgetbuffer :cgete :cgetexpr :cgetfile :ch :change :changes :chd
:chdir :che :checkpath :checkt :checktime :chi :chistory :cl :cla :clast :cle
:clearjumps :clist :clo :close :cm :cmap :cmap_l :cmapc :cmapclear :cme
:cmenu :cn :cnew :cnewer :cnext :cnf :cnfile :cno :cnorea :cnoreabbrev
:cnoremap :cnoreme :cnoremenu :co :col :colder :colo :colorscheme :com :comc
:comclear :command :command-addr :command-bang :command-bar :command-buffer
:command-complete :command-completion :command-completion-custom
:command-completion-customlist :command-count :command-nargs :command-range
:command-register :command-verbose :comment :comp :compiler :con :conf
:confirm :continue :cope :copen :copy :cp :cpf :cpfile :cprevious :cq :cquit
:cr :crewind :cs :cscope :cstag :cu :cuna :cunabbrev :cunmap :cunme :cunmenu
:cw :cwindow :d :de :debug :debug-name :debugg :debuggreedy :del :delc
:delcommand :delcr :delete :delf :delfunction :delm :delmarks :di :dif :diffg
:diffget :diffo :diffoff :diffp :diffpatch :diffpu :diffput :diffs :diffsplit
:difft :diffthis :diffupdate :dig :digraphs :display :dj :djump :dl :dli
:dlist :do :doau :doautoa :doautoall :doautocmd :dp :dr :drop :ds :dsearch
:dsp :dsplit :e :ea :earlier :ec :echo :echo-redraw :echoe :echoerr :echoh
:echohl :echom :echomsg :echon :edit :edit! :edit!_f :edit_f :el :else :elsei
:elseif :em :emenu :en :endf :endfo :endfor :endfunction :endif :endt :endtry
:endw :endwhile :ene :ene! :enew :enew! :ex :exe :exe-comment :execute :exi
:exit :exu :exusage :f :fi :file :file_f :filename :files :filet :filetype
:filetype-indent-off :filetype-indent-on :filetype-off :filetype-overview
:filetype-plugin-off :filetype-plugin-on :filt :filter :fin :fina :finally
:find :fini :finish :fir :first :fix :fixdel :fo :fold :foldc :foldclose
:foldd :folddoc :folddoclosed :folddoopen :foldo :foldopen :for :fu
:func-abort :func-closure :func-dict :func-range :function :function-verbose
:g :global :go :goto :gr :grep :grepa :grepadd :gu :gui :gv :gvim :h :ha
:hardcopy :help :helpc :helpclose :helpf :helpfind :helpg :helpgrep :helpt
:helptags :hi :hi-default :hi-link :hi-normal :hi-normal-cterm :hide
:highlight :highlight-default :highlight-link :highlight-normal
:highlight-verbose :his :history :history-indexing :i :ia :iabbrev :iabc
:iabclear :if :ij :ijump :il :ilist :im :imap :imap_l :imapc :imapclear :ime
:imenu :in :index :ino :inorea :inoreabbrev :inoremap :inoreme :inoremenu

:insert :intro :is :isearch :isp :isplit :iu :iuna :iunabbrev :iunmap :iunme
:iunmenu :j :join :ju :jumps :k :kee :keepa :keepalt :keepj :keepjumps
:keepmarks :keepp :keeppatterns :l :lN :lNext :lNf :lNfile :la :lad :laddb
:laddbuffer :laddexpr :laddf :laddfile :lan :lang :language :last :lat :later
:lb :lbo :lbottom :lbuffer :lc :lcd :lch :lchdir :lcl :lclose :lcs :lcscope
:ldo :le :left :lefta :leftabove :let :let+= :let-$:let-& :let-= :let-@
:let-environment :let-option :let-register :let-unpack :let.= :lex :lexpr :lf
:lfdo :lfile :lfir :lfirst :lg :lgetb :lgetbuffer :lgete :lgetexpr :lgetfile
:lgr :lgrep :lgrepa :lgrepadd :lh :lhelpgrep :lhi :lhistory :list :ll :lla
:llast :lli :llist :lm :lmak :lmake :lmap :lmap_l :lmapc :lmapclear :ln :lne
:lnew :lnewer :lnext :lnf :lnfile :lnoremap :lo :loadk :loadkeymap :loadview
:loc :lockmarks :lockv :lockvar :lol :lolder :lop :lopen :lp :lpf :lpfile
:lprevious :lr :lrewind :ls :lt :ltag :lu :lua :luado :luafile :lunmap :lv
:lvimgrep :lvimgrepa :lvimgrepadd :lw :lwindow :m :ma :mak :make
:make_makeprg :map :map! :map-<buffer> :map-<expr> :map-<nowait>
:map-<script> :map-<silent> :map-<special> :map-<unique> :map-alt-keys
:map-arguments :map-commands :map-expression :map-local :map-modes
:map-nowait :map-operator :map-script :map-silent :map-special
:map-special-chars :map-special-keys :map-undo :map-verbose :map_l :map_l!
:mapc :mapc! :mapclear :mapclear! :mark :marks :mat :match :me :menu
:menu-<script> :menu-<silent> :menu-<special> :menu-disable :menu-enable
:menu-script :menu-silent :menu-special :menut :menutrans :menutranslate :mes
:messages :mk :mkexrc :mks :mksession :mksp :mkspell :mkv :mkvie :mkview
:mkvimrc :mo :mod :mode :move :mz :mzf :mzfile :mzscheme :n :nbclose :nbkey
:nbstart :ne :new :next :next_f :nm :nmap :nmap_l :nmapc :nmapclear :nme
:nmenu :nn :nnoremap :nnoreme :nnoremenu :no :no! :noa :noautocmd :noh
:nohlsearch :nor :nore :norea :noreabbrev :norem :noremap :noremap! :noreme
:noremenu :norm :normal :normal-range :nos :noswapfile :nu :number :nun
:nunmap :nunme :nunmenu :o :ol :oldfiles :om :omap :omap_l :omapc :omapclear
:ome :omenu :on :only :ono :onoremap :onoreme :onoremenu :op :open :opt
:options :ou :ounmap :ounme :ounmenu :ownsyntax :p :pa :packadd :packl
:packloadall :pc :pclose :pe :ped :pedit :perl :perld :perldo :po :pop :popu
:popup :pp :ppop :pr :pre :preserve :prev :previous :print :pro :prof :profd
:profdel :profile :promptfind :promptr :promptrepl :ps :psearch :ptN :ptNext
:pta :ptag :ptf :ptfirst :ptj :ptjump :ptl :ptlast :ptn :ptnext :ptp
:ptprevious :ptr :ptrewind :pts :ptselect :pu :put :pw :pwd :py :py3 :py3do
:py3file :pydo :pyf :pyfile :python :python3 :pythonx :pyx :pyxdo :pyxfile :q
:qa :qall :quit :quita :quitall :quote :r :r! :range :range! :re :read :read!
:rec :recover :recover-crypt :red :redi :redir :redo :redr :redraw :redraws
:redrawstatus :reg :registers :res :resize :ret :retab :retab! :retu :return
:rew :rewind :ri :right :rightb :rightbelow :ru :rub :ruby :rubyd :rubydo
:rubyf :rubyfile :rundo :runtime :rv :rviminfo :s :s% :sI :sIc :sIe :sIg :sIl
:sIn :sIp :sIr :sN :sNext :s\= :s_c :s_flags :sa :sal :sall :san :sandbox
:sargument :sav :saveas :sb :sbN :sbNext :sba :sball :sbf :sbfirst :sbl
:sblast :sbm :sbmodified :sbn :sbnext :sbp :sbprevious :sbr :sbrewind
:sbuffer :sc :scI :sce :scg :sci :scl :scp :scr :scripte :scriptencoding
:scriptnames :scs :scscope :se :search-args :set :set+= :set-! :set-&
:set-&vi :set-&vim :set-= :set-args :set-browse :set-default :set-inv
:set-termcap :set-verbose :set^= :set_env :setf :setfiletype :setg :setglobal
:setl :setlocal :sf :sfind :sfir :sfirst :sg :sgI :sgc :sge :sgi :sgl :sgn
:sgp :sgr :sh :shell :si :sic :sie :sig :sign :sign-define :sign-fname
:sign-jump :sign-list :sign-place :sign-place-list :sign-undefine
:sign-unplace :sil :silent :silent! :sim :simalt :sin :sip :sir :sl :sla
:slast :sleep :sm :smagic :smap :smap_l :smapc :smapclear :sme :smenu :smile

:sn :snext :sno :snomagic :snor :snoremap :snoreme :snoremenu :so :sor :sort
:source :source_crnl :sp :spe :spelld :spelldump :spellgood :spelli
:spellinfo :spellr :spellrepall :spellu :spellundo :spellw :spellwrong :split
:split_f :spr :sprevious :sr :srI :src :sre :srewind :srg :sri :srl :srn :srp
:st :sta :stag :star :start :startgreplace :startinsert :startreplace :stj
:stjump :stop :stopi :stopinsert :sts :stselect :su :substitute :sun :sunhide
:sunm :sunmap :sunme :sunmenu :sus :suspend :sv :sview :sw :swapname :sy :syn
:syn-arguments :syn-case :syn-cchar :syn-clear :syn-cluster :syn-conceal
:syn-conceal-implicit :syn-concealends :syn-contained :syn-containedin
:syn-contains :syn-context :syn-default-override :syn-define :syn-display
:syn-enable :syn-end :syn-excludenl :syn-ext-match :syn-extend
:syn-file-remarks :syn-files :syn-fold :syn-include :syn-iskeyword
:syn-keepend :syn-keyword :syn-lc :syn-leading :syn-list :syn-manual
:syn-match :syn-matchgroup :syn-multi-line :syn-nextgroup :syn-off :syn-on
:syn-oneline :syn-pattern :syn-pattern-offset :syn-priority :syn-qstart
:syn-region :syn-reset :syn-skip :syn-skipempty :syn-skipnl :syn-skipwhite
:syn-spell :syn-start :syn-sync :syn-sync-ccomment :syn-sync-first
:syn-sync-fourth :syn-sync-linebreaks :syn-sync-maxlines :syn-sync-minlines
:syn-sync-second :syn-sync-third :syn-transparent :sync :syncbind :syntax
:syntax-enable :syntax-on :syntax-reset :syntime :t :tN :tNext :ta :tab :tabN
:tabNext :tabc :tabclose :tabd :tabdo :tabe :tabedit :tabf :tabfind :tabfir
:tabfirst :tabl :tablast :tabm :tabmove :tabn :tabnew :tabnext :tabo :tabonly
:tabp :tabprevious :tabr :tabrewind :tabs :tag :tags :tc :tcl :tcld :tcldo
:tclf :tclfile :te :tearoff :ter :terminal :tf :tfirst :th :throw :tj :tjump
:tl :tlast :tm :tma :tmap :tmap_l :tmapc :tmapclear :tmenu :tn :tnext :tno
:tnoremap :topleft :tp :tprevious :tr :trewind :try :ts :tselect :tu :tunma
:tunmap :tunmenu :u :un :una :unabbreviate :undo :undoj :undojoin :undol
:undolist :unh :unhide :unl :unlet :unlet-$:unlet-environment :unlo
:unlockvar :unm :unm! :unmap :unmap! :unme :unmenu :unmenu-all :uns :unsilent
:up :update :v :ve :verb :verbose :verbose-cmd :version :vert :vertical
:vertical-resize :vglobal :vi :vie :view :vim :vimgrep :vimgrepa :vimgrepadd
:visual :visual_example :viu :viusage :vm :vmap :vmap_l :vmapc :vmapclear
:vme :vmenu :vn :vne :vnew :vnoremap :vnoreme :vnoremenu :vs :vsplit :vu
:vunmap :vunme :vunmenu :w :w! :wN :wNext :w_a :w_c :w_f :wa :wall :wh :while
:win :winc :wincmd :windo :winp :winpos :winsize :wn :wnext :wp :wprevious
:wq :wqa :wqall :write :write_a :write_c :write_f :ws :wsverb :wundo :wv
:wviminfo :x :xa :xall :xit :xm :xmap :xmap_l :xmapc :xmapclear :xme :xmenu
:xn :xnoremap :xnoreme :xnoremenu :xu :xunmap :xunme :xunmenu :y :yank :z :z#
:~ ; < <2-LeftMouse> <3-LeftMouse> <4-LeftMouse> << <> <A- <A-LeftMouse>
<A-RightMouse> <BS> <Bar> <Bslash> <C- <C-Del> <C-End> <C-Home> <C-Insert>
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<C-ScrollWheelUp> <CR> <CSI> <Char-> <Char> <CursorHold> <D- <D-c> <D-v>
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<LeftRelease> <LocalLeader> <M- <MiddleDrag> <MiddleMouse> <MiddleRelease>
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<kMultiply> <kPageDown> <kPageUp> <kPlus> <kPoint> <line1> <line2> <lt>
<mods> <nomodeline> <q-args> <range> <reg> <register> <sfile> <slnum> <xCSI>
<xDown> <xEnd> <xEnd>-xterm <xF1> <xF1>-xterm <xF2> <xF2>-xterm <xF3>
<xF3>-xterm <xF4> <xF4>-xterm <xHome> <xHome>-xterm <xLeft> <xRight> <xUp> =
== > >> >backtrace >bt >cont >down >finish >frame >interrupt >next >quit
>step >up >where ? ?<CR> @ @/ @: @= @@ @r A ACL ANSI-C ATTENTION
Abbreviations Aleph Amiga Arabic Atari Athena B BeBox BeOS Bram BufAdd
BufCreate BufDelete BufEnter BufFilePost BufFilePre BufHidden BufLeave BufNew
BufNewFile BufRead BufReadCmd BufReadPost BufReadPre BufUnload BufWinEnter
BufWinLeave BufWipeout BufWrite BufWriteCmd BufWritePost BufWritePre C
C-editing C-indenting C89 C99 COMSPEC CR-used-for-NL CTRL-6 CTRL-<PageDown>
CTRL-<PageUp> CTRL-A CTRL-B CTRL-C CTRL-D CTRL-E CTRL-F CTRL-G CTRL-H CTRL-I
CTRL-J CTRL-L CTRL-M CTRL-N CTRL-O CTRL-P CTRL-Q CTRL-R CTRL-T CTRL-U
CTRL-U-changed CTRL-V CTRL-V-alternative CTRL-W CTRL-W_+ CTRL-W_- CTRL-W_.
CTRL-W_: CTRL-W_< CTRL-W_<BS> CTRL-W_<CR> CTRL-W_<Down> CTRL-W_<Enter>
CTRL-W_<Left> CTRL-W_<Right> CTRL-W_<Up> CTRL-W_= CTRL-W_> CTRL-W_CTRL-B
CTRL-W_CTRL-C CTRL-W_CTRL-D CTRL-W_CTRL-F CTRL-W_CTRL-H CTRL-W_CTRL-I
CTRL-W_CTRL-J CTRL-W_CTRL-K CTRL-W_CTRL-L CTRL-W_CTRL-N CTRL-W_CTRL-O
CTRL-W_CTRL-P CTRL-W_CTRL-Q CTRL-W_CTRL-R CTRL-W_CTRL-S CTRL-W_CTRL-T
CTRL-W_CTRL-V CTRL-W_CTRL-W CTRL-W_CTRL-X CTRL-W_CTRL-Z CTRL-W_CTRL-]
CTRL-W_CTRL-^ CTRL-W_CTRL-_ CTRL-W_F CTRL-W_H CTRL-W_J CTRL-W_K CTRL-W_L
CTRL-W_N CTRL-W_P CTRL-W_R CTRL-W_S CTRL-W_T CTRL-W_W CTRL-W_] CTRL-W_^
CTRL-W__ CTRL-W_b CTRL-W_bar CTRL-W_c CTRL-W_d CTRL-W_f CTRL-W_gF CTRL-W_g]
CTRL-W_g_CTRL-] CTRL-W_gf CTRL-W_g} CTRL-W_h CTRL-W_i CTRL-W_j CTRL-W_k
CTRL-W_l CTRL-W_n CTRL-W_o CTRL-W_p CTRL-W_q CTRL-W_quote CTRL-W_r CTRL-W_s
CTRL-W_t CTRL-W_v CTRL-W_w CTRL-W_x CTRL-W_z CTRL-W_} CTRL-X CTRL-Y CTRL-Z
CTRL-_CTRL-G CTRL-_CTRL-N CTRL-] CTRL-^ CTRL-{char} Channel Channels
Chinese Cmd-event CmdUndefined Cmdline Cmdline-mode CmdlineChanged
CmdlineEnter CmdlineLeave CmdwinEnter CmdwinLeave ColorScheme ColorSchemePre
Command-line Command-line-mode CompleteDone Contents Cscope CursorHold
CursorHold-example CursorHoldI CursorIM CursorMoved CursorMovedI D DOS
DOS-format DOS-format-write Dictionaries Dictionary Dictionary-function
Digraphs DirChanged E E10 E100 E101 E102 E103 E104 E105 E107 E108 E109 E11
E110 E111 E112 E113 E114 E115 E116 E117 E118 E119 E12 E120 E121 E122 E123
E124 E125 E126 E127 E128 E129 E13 E130 E131 E132 E133 E134 E135 E136 E137
E138 E139 E14 E140 E141 E142 E143 E144 E145 E146 E147 E148 E149 E15 E150 E151
E152 E153 E154 E155 E156 E157 E158 E159 E16 E160 E161 E162 E163 E164 E165
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E618 E619 E62 E620 E621 E622 E623 E624 E625 E626 E627 E628 E629 E63 E630 E631
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E940 E941 E942 E943 E944 E945 E946 E947 E948 E949 E95 E950 E951 E952 E953
E954 E955 E956 E957 E96 E97 E98 E99 EX EXINIT Elvis EncodingChanged Eterm Ex
Ex-mode ExitPre Exuberant_ctags F FALSE FAQ Farsi FileAppendCmd
FileAppendPost FileAppendPre FileChangedRO FileChangedShell
FileChangedShellPost FileEncoding FileReadCmd FileReadPost FileReadPre
FileType FileWriteCmd FileWritePost FileWritePre FilterReadPost FilterReadPre
FilterWritePost FilterWritePre Float FocusGained FocusLost Folding
FuncUndefined Funcref G GNOME GTK GTK+ GTK3 GUI GUI-X11 GUIEnter GUIFailed
GetLatestVimScripts GetLatestVimScripts-copyright GetLatestVimScripts_dat
Gnome H I ICCF IM-server IME Insert Insert-mode InsertChange InsertCharPre
InsertEnter InsertLeave J Japanese Job Jobs K KDE KVim Kibaale Korean L
Linux-backspace List Lists LogiPat() LogiPat-flags Lua M MDI MS-DOS
MS-Windows MSDOS MSVisualStudio MVS Mac Mac-format Mac-format-write Macintosh
Mark MenuPopup MiNT Moolenaar MorphOS Motif Myspell MzScheme N N% N: N<Del>
NFA NL-used-for-Nul NetBSD-backspace NetUserPass() Normal Normal-mode Number
Nvi O OS/2 OS2 OS390 OS390-Motif OS390-PuTTY OS390-bugs OS390-has-ebcdic

OS390-limitations OS390-open-source OffTheSpot OnTheSpot Operator-pending
Operator-pending-mode OptionSet OverTheSpot P PATHEXT PEP8
PHP_BracesAtCodeLevel PHP_autoformatcomment PHP_default_indenting
PHP_noArrowMatching PHP_outdentSLComments PHP_outdentphpescape
PHP_removeCRwhenUnix PHP_vintage_case_default_indent Partial Pattern Perl
Posix Python Q Q-command-changed QNX Q_ab Q_ac Q_ai Q_bu Q_ce Q_ch Q_cm Q_co
Q_ct Q_de Q_di Q_ed Q_et Q_ex Q_fl Q_fo Q_gu Q_in Q_km Q_lr Q_ma Q_op Q_pa
Q_qf Q_ra Q_re Q_sc Q_si Q_ss Q_st Q_sy Q_ta Q_tm Q_to Q_ud Q_ur Q_vc Q_vi
Q_vm Q_wi Q_wq QuickFixCmdPost QuickFixCmdPost-example QuickFixCmdPre
Quickfix QuitPre R RISC-OS RISCOS RemoteReply Replace Replace-mode Root Ruby
Russian S SHELL SQLGetType SQLSetType Select Select-mode Select-mode-mapping
Session SessionLoad-variable SessionLoadPost ShellCmdPost ShellFilterPost
SourceCmd SourcePre Special SpellFileMissing StdinReadPost StdinReadPre
String SwapExists Syntax T TCL TERM TOhtml-encoding TOhtml-encoding-detect
TOhtml-performance TOhtml-uncopyable-text TOhtml-wrap-text TRUE TSQL
TTpro-telnet Tab TabClosed TabEnter TabLeave TabNew Tcl TermChanged
TermResponse Terminal-Job Terminal-Normal Terminal-mode TerminalOpen
TextChanged TextChangedI TextChangedP TextYankPost Transact-SQL U UTF-8
UTF8-xterm Uganda Unicode Unix Unix-format Unix-format-write User
UserGettingBored V VIMINIT VMS Vi View VimEnter VimLeave VimLeavePre
VimResized Vimball-copyright Virtual-Replace-mode VisVim Visual Visual-mode W
W10 W11 W12 W13 W14 W15 W16 W17 W18 W19 W20 W21 W22 WORD WWW Win32 WinBar
WinEnter WinLeave WinNew X X11 X11-icon X11_mouse_shapes X1Drag X1Mouse
X1Release X2Drag X2Mouse X2Release XIM XLFD Y Y2K ZQ ZZ [[# [' [([++opt]
[+cmd] [..] [/ [:alnum:] [:alpha:] [:backspace:] [:blank:] [:cntrl:]
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[:space:] [:tab:] [:upper:] [:xdigit:] [<MiddleMouse> [==] [D [I [M [P [S [[
[] [_CTRL-D [_CTRL-I [` [c [count] [d [f [i [m [p [pattern] [quotex] [range]
[s [star [z [{ \0]]#]'])]/]<MiddleMouse>]D]I]M]P]S][ ]]]_CTRL-D
]_CTRL-I]` ]c ]d ]f ]i ]m ]p ]s ]star ]z ]} ^ _ _exrc _gvimrc _vimrc ` `( `)
`-expansion `. `0 `< `= `> `A `[`] `^ `` `a `quote `{ `} a a' a(a) a4 a:0
a:000 a:1 a:firstline a:lastline a:var a< a> aB aW a[a] a` ab abandon
abbreviations abel.vim abs() acos() active-buffer ada#Create_Tags()
ada#Jump_Tag() ada#Listtags() ada#Switch_Syntax_Option() ada#Word()
ada-compiler ada-ctags ada-extra-plugins ada-reference ada.vim add()
add-filetype-plugin add-global-plugin add-local-help add-option-flags
add-package add-plugin added-5.1 added-5.2 added-5.3 added-5.4 added-5.5
added-5.6 added-5.7 added-5.8 added-6.1 added-6.2 added-6.3 added-6.4
added-7.1 added-7.2 added-7.3 added-7.4 added-8.1 added-BeOS added-Mac
added-VMS added-cmdline-args added-options added-regexp added-various
added-win32-GUI aff-dic-format after-directory aleph alt alt-input
alternate-file amiga-window and() anonymous-function ant.vim ap apache.vim
append() appendbufline() aquote arabic.txt arabicfonts arabickeymap
arg-functions argc() argidx() arglist arglist-position arglist-quit
arglistid() argument-list argv() as asin() asm.vim asm68k asmh8300.vim
assert-return assert_beeps() assert_equal() assert_equalfile()
assert_exception() assert_fails() assert_false() assert_inrange()
assert_match() assert_notequal() assert_notmatch() assert_report()
assert_true() at atan() atan2() athena-intellimouse attr-list author
auto-format auto-setting auto-shortname autocmd-<> autocmd-buffer-local
autocmd-buflocal autocmd-changes autocmd-define autocmd-disable
autocmd-events autocmd-events-abc autocmd-execute autocmd-groups
autocmd-intro autocmd-list autocmd-nested autocmd-osfiletypes
autocmd-patterns autocmd-remove autocmd-searchpat autocmd-use autocmd.txt

autocmds-kept autocommand autocommand-events autocommand-pattern autocommands
autoformat autoload autoload-functions avoid-hit-enter aw a{ a} b b:
b:changedtick b:changelog_name b:clojure_syntax_keywords
b:clojure_syntax_without_core_keywords b:current_syntax-variable
b:netrw_lastfile b:tex_stylish b:var b:yaml_schema baan-folding baan-syntax
baan.vim backslash backspace backspace-delete backtick-expansion backup
backup-changed backup-extension backup-table balloon-eval balloon_show()
balloon_split() bar bars base_font_name_list basic.vim beep beos-colors
beos-compiling beos-dragndrop beos-fonts beos-general beos-gui beos-launch
beos-meta beos-mouse beos-perl beos-timeout beos-unicode beos-utf8
beos-vimdir better-python-interface beval_bufnr-variable beval_col-variable
beval_lnum-variable beval_text-variable beval_winid-variable
beval_winnr-variable binary-number bitwise-function blockwise-examples
blockwise-operators blockwise-register blockwise-visual blowfish blowfish2
bold bom-bytes book bookmark boolean break-finally browse() browsedir()
browsefilter bufexists() buffer-functions buffer-hidden buffer-list
buffer-variable buffer-write buffer_exists() buffer_name() buffer_number()
buffers buffers-menu buflisted() bufloaded() bufname() bufnr() bufwinid()
bufwinnr() bug-fixes-5 bug-fixes-6 bug-fixes-7 bug-fixes-8 bug-reports
bugreport.vim bugs builtin-terms builtin-tools builtin_terms byte-count
byte2line() byteidx() byteidxcomp() bzip2 c c.vim cW c_# c_## c_#< c_#n c_%
c_<BS> c_<C-Left> c_<C-R> c_<C-R>_<C-A> c_<C-R>_<C-F> c_<C-R>_<C-L>
c_<C-R>_<C-O> c_<C-R>_<C-P> c_<C-R>_<C-R> c_<C-R>_<C-W> c_<C-Right> c_<CR>
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c_<MiddleMouse> c_<NL> c_<PageDown> c_<PageUp> c_<Right> c_<S-Down>
c_<S-Left> c_<S-Right> c_<S-Tab> c_<S-Up> c_<Tab> c_<Up> c_BS c_CR c_CTRL-A
c_CTRL-B c_CTRL-C c_CTRL-D c_CTRL-E c_CTRL-F c_CTRL-G c_CTRL-H c_CTRL-I
c_CTRL-J c_CTRL-K c_CTRL-L c_CTRL-M c_CTRL-N c_CTRL-P c_CTRL-Q c_CTRL-R
c_CTRL-R_= c_CTRL-R_CTRL-A c_CTRL-R_CTRL-F c_CTRL-R_CTRL-L c_CTRL-R_CTRL-O
c_CTRL-R_CTRL-P c_CTRL-R_CTRL-R c_CTRL-R_CTRL-W c_CTRL-T c_CTRL-U c_CTRL-V
c_CTRL-W c_CTRL-Y c_CTRL-[c_CTRL-_CTRL-G c_CTRL-_CTRL-N c_CTRL-_e
c_CTRL-] c_CTRL-^ c_CTRL-_ c_Del c_Down c_End c_Esc c_Home c_Insert c_Left
c_Right c_Up c_ansi_constants c_ansi_typedefs c_comment_strings c_curly_error
c_digraph c_gnu c_no_ansi c_no_bracket_error c_no_bsd c_no_c11 c_no_c99
c_no_cformat c_no_curly_error c_no_if0 c_no_tab_space_error
c_no_trail_space_error c_no_utf c_space_errors c_syntax_for_h c_wildchar
call() carriage-return case catch-all catch-errors catch-interrupt
catch-order catch-text cc ceil() ch.vim ch_canread() ch_close() ch_close_in()
ch_evalexpr() ch_evalraw() ch_getbufnr() ch_getjob() ch_info() ch_log()
ch_logfile() ch_open() ch_read() ch_readraw() ch_sendexpr() ch_sendraw()
ch_setoptions() ch_status() change-list-jumps change-name change-tabs
change.txt changed-5.1 changed-5.2 changed-5.3 changed-5.4 changed-5.5
changed-5.6 changed-5.7 changed-5.8 changed-6.1 changed-6.2 changed-6.3
changed-6.4 changed-7.1 changed-7.2 changed-7.3 changed-7.4 changed-8.1
changelist changelog.vim changenr() changetick changing channel
channel-callback channel-close channel-close-in channel-commands channel-demo
channel-drop channel-functions channel-mode channel-more channel-open
channel-open-options channel-raw channel-timeout channel-use channel.txt
char-variable char2nr() characterwise characterwise-register
characterwise-visual charconvert_from-variable charconvert_to-variable
charity charset charset-conversion chill.vim chmod cindent() cinkeys-format
cino-# cino-(cino-) cino-+ cino-/ cino-: cino-= cino-> cino-C cino-E cino-J
cino-L cino-M cino-N cino-U cino-W cino-^ cino-b cino-c cino-e cino-f cino-g
cino-h cino-i cino-j cino-k cino-l cino-m cino-n cino-p cino-star cino-t

cino-u cino-w cino-{ cino-} cinoptions-values clear-undo clearmatches()
client-server client-server-name clientserver clipboard clipboard-autoselect
clipboard-autoselectml clipboard-autoselectplus clipboard-exclude
clipboard-html clipboard-unnamed clipboard-unnamedplus clojure-indent
close_cb closure cmdarg-variable cmdbang-variable cmdline-arguments
cmdline-changed cmdline-completion cmdline-editing cmdline-history
cmdline-lines cmdline-ranges cmdline-special cmdline-too-long cmdline-window
cmdline.txt cmdwin cmdwin-char cobol.vim codeset coding-style col()
coldfusion.vim collapse color-xterm coloring colortest.vim
command-line-functions command-line-window command-mode compatible-default
compile-changes-5 compile-changes-6 compile-changes-7 compile-changes-8
compiler-compaqada compiler-decada compiler-gcc compiler-gnat compiler-hpada
compiler-manx compiler-perl compiler-pyunit compiler-select compiler-tex
compiler-vaxada compl-current compl-define compl-dictionary compl-filename
compl-function compl-generic compl-keyword compl-omni compl-omni-filetypes
compl-spelling compl-tag compl-vim compl-whole-line complete()
complete-functions complete-items complete_CTRL-E complete_CTRL-Y
complete_add() complete_check() completed_item-variable completion-functions
complex-change complex-repeat compress conceal confirm() connection-refused
console-menus control conversion-server convert-to-HTML convert-to-XHTML
convert-to-XML copy() copy-diffs copy-move copying copyright cos() cosh()
count count() count-bytes count-items count-variable count1-variable
cp-default cpo cpo-! cpo-# cpo-$ cpo-% cpo-& cpo-+ cpo-- cpo-. cpo-/ cpo-;
cpo-< cpo-> cpo-A cpo-B cpo-C cpo-D cpo-E cpo-F cpo-H cpo-I cpo-J cpo-K cpo-L
cpo-M cpo-O cpo-P cpo-R cpo-S cpo-W cpo-X cpo-Z cpo-\ cpo-a cpo-b cpo-bar
cpo-c cpo-d cpo-e cpo-f cpo-g cpo-i cpo-j cpo-k cpo-l cpo-m cpo-n cpo-o cpo-p
cpo-q cpo-r cpo-s cpo-star cpo-t cpo-u cpo-v cpo-w cpo-x cpo-y cpo-{ cpp.vim
crash-recovery creating-menus credits crontab cs-find cs7-problem cscope
cscope-commands cscope-find cscope-howtouse cscope-info cscope-intro
cscope-limitations cscope-options cscope-suggestions cscope-win32
cscope_connection() cscopepathcomp cscopeprg cscopequickfix cscoperelative
cscopetag cscopetagorder cscopeverbose csh.vim cspc csprg csqf csre cst csto
csverb ctags ctags-gone cterm-colors ctrl ctype-variable
curly-braces-function-names curly-braces-names curpos-visual
current-directory current-file current_compiler cursor() cursor-blinking
cursor-down cursor-functions cursor-left cursor-motions cursor-position
cursor-right cursor-up cursor_down cursor_left cursor_right cursor_up cw
cweb.vim cynlib.vim d daB daW dab dap das date-functions dav davs daw dd
debug-gcc debug-highlight debug-leaks debug-minidump debug-mode debug-scripts
debug-signs debug-vim debug-vs2005 debug-win32 debug-windbg debug.txt
debugbreak() debugger-compilation debugger-features debugger-integration
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delete-menus deletebufline() deleting demoserver.py design-assumptions
design-compatible design-decisions design-documented design-flexible
design-goals design-improved design-maintain design-multi-platform design-not
design-speed-size desktop.vim develop-spell develop-spell-suggestions
develop.txt development dgn dh diB diW dialog dialogs-added dib dict
dict-functions dict-identity dict-modification did_filetype() diff
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diff-slow diff.txt diff.vim diff_filler() diff_hlID() diff_translations
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digraph.txt digraphs digraphs-changed digraphs-default digraphs-define
digraphs-use dip dircolors.vim dis disable-menus discard distribute-script

distribution diw dl do doc-file-list docbk.vim docbksgml.vim docbkxml.vim
docbook documentation-6 donate dos dos-:cd dos-CTRL-Break dos-backslash
dos-colors dos-file-formats dos-locations dos-shell dos-standard-mappings
dos-temp-files dosbatch.vim double-click download doxygen-syntax doxygen.vim
dp drag-n-drop drag-n-drop-win32 drag-status-line dtd.vim dtd2vim
dying-variable e easy edit-a-file edit-binary edit-dialogs edit-files
edit-intro edit-no-break edit-paragraph-join editing.txt efm-%> efm-entries
efm-ignore eiffel.vim emacs-keys emacs-tags emacs_tags empty() encoding-names
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enlightened-terminal erlang.vim err_buf err_cb err_mode err_modifiable
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errorformat errorformat-Jikes errorformat-LaTeX errorformat-Perl
errorformat-ant errorformat-changed errorformat-jade errorformat-javac
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eval() eval-examples eval-sandbox eval.txt event-variable eventhandler()
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except-autocmd except-autocmd-Cmd except-autocmd-Post except-autocmd-Pre
except-autocmd-ill except-compat except-examine except-from-finally
except-hier-param except-several-errors except-single-line except-syntax-err
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exclusive-linewise executable() execute() execute-menus exepath() exim
exists() exiting exp() expand() expand-env expand-environment-var expr expr-!
expr-!= expr-!=# expr-!=? expr-!~ expr-!~# expr-!~? expr-% expr-&& expr-'
expr-+ expr-- expr-. expr-/ expr-< expr-<# expr-<= expr-<=# expr-<=? expr-<?
expr-== expr-==# expr-==? expr-=~ expr-=~# expr-=~? expr-> expr-># expr->=
expr->=# expr->=? expr->? expr-[:] expr-[] expr-barbar expr-entry expr-env
expr-env-expand expr-function expr-is expr-is# expr-is? expr-isnot
expr-isnot# expr-isnot? expr-lambda expr-nesting expr-number expr-option
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function-argument function-key function-list function-range-example
function-search-undo function_key functions fvwm.vim fvwm2rc fvwmrc g g# g$
g& g' g'a g+ g, g- g0 g8 g: g:NetrwTopLvlMenu g:Netrw_UserMaps
g:Netrw_corehandler g:Netrw_funcref g:actual_curbuf g:ada#Comment
g:ada#Ctags_Kinds g:ada#DotWordRegex g:ada#Keywords g:ada#WordRegex
g:ada_abbrev g:ada_all_tab_usage g:ada_begin_preproc g:ada_default_compiler
g:ada_extended_completion g:ada_extended_tagging g:ada_folding
g:ada_gnat_extensions g:ada_line_errors g:ada_no_tab_space_error
g:ada_no_trail_space_error g:ada_omni_with_keywords g:ada_rainbow_color
g:ada_space_errors g:ada_standard_types g:ada_with_gnat_project_files
g:ada_withuse_ordinary g:clojure_align_multiline_strings
g:clojure_align_subforms g:clojure_fold g:clojure_fuzzy_indent
g:clojure_fuzzy_indent_blacklist g:clojure_fuzzy_indent_patterns
g:clojure_maxlines g:clojure_special_indent_words g:clojure_syntax_keywords
g:colors_name g:decada g:decada.Error_Format g:decada.Make()
g:decada.Make_Command g:decada.Unit_Name() g:filetype_csh g:filetype_r
g:ftplugin_rust_source_path g:gnat g:gnat.Error_Format g:gnat.Find()
g:gnat.Find_Program g:gnat.Make() g:gnat.Make_Command g:gnat.Pretty()
g:gnat.Pretty_Program g:gnat.Project_File g:gnat.Set_Project_File()
g:gnat.Tags() g:gnat.Tags_Command g:html_charset_override

g:html_diff_one_file g:html_dynamic_folds g:html_encoding_override
g:html_end_line g:html_expand_tabs g:html_font g:html_hover_unfold
g:html_id_expr g:html_ignore_conceal g:html_ignore_folding g:html_line_ids
g:html_no_foldcolumn g:html_no_invalid g:html_no_pre g:html_no_progress
g:html_number_lines g:html_pre_wrap g:html_prevent_copy g:html_start_line
g:html_use_css g:html_use_encoding g:html_use_xhtml g:html_whole_filler
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g:netrw_bannerbackslash g:netrw_browse_split g:netrw_browsex_viewer
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g:netrw_http_cmd g:netrw_http_put_cmd g:netrw_http_xcmd g:netrw_ignorenetrc
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g:netrw_sort_direction g:netrw_sort_options g:netrw_sort_sequence
g:netrw_special_syntax g:netrw_ssh_browse_reject g:netrw_ssh_cmd
g:netrw_sshport g:netrw_suppress_gx_mesg g:netrw_timefmt
g:netrw_tmpfile_escape g:netrw_uid g:netrw_use_errorwindow g:netrw_use_noswf
g:netrw_use_nt_rcp g:netrw_usetab g:netrw_win95ftp g:netrw_winsize
g:netrw_wiw g:netrw_xstrlen g:rust_bang_comment_leader g:rust_conceal
g:rust_conceal_mod_path g:rust_conceal_pub g:rust_fold g:rust_playpen_url
g:rust_recommended_style g:rust_shortener_url g:rustc_makeprg_no_percent
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g:yaml_schema g:zipPlugin_ext g:zip_extractcmd g:zip_nomax g:zip_shq
g:zip_unzipcmd g:zip_zipcmd g; g< g<Down> g<End> g<Home> g<LeftMouse>
g<RightMouse> g<Up> g? g?? g?g? g@ gD gE gF gH gI gJ gN gP gQ gR gT gU gUU
gUgU gV g] g^ g_ g_CTRL-A g_CTRL-G g_CTRL-H g_CTRL-] g` g`a ga
garbagecollect() gd gdb gdb-version ge get() get-ms-debuggers getbufinfo()
getbufline() getbufvar() getchangelist() getchar() getcharmod()
getcharsearch() getcmdline() getcmdpos() getcmdtype() getcmdwintype()
getcompletion() getcurpos() getcwd() getfontname() getfperm() getfsize()
getftime() getftype() getjumplist() getlatestvimscripts-install getline()
getloclist() getmatches() getpid() getpos() getqflist() getqflist-examples

getreg() getregtype() getscript getscript-autoinstall getscript-data
getscript-history getscript-plugins getscript-start gettabinfo() gettabvar()
gettabwinvar() getwininfo() getwinpos() getwinposx() getwinposy() getwinvar()
gex gf gg gh gi gj gk glob() glob2regpat() global-ime global-local
global-variable global_markfilelist globpath() glvs glvs-alg glvs-algorithm
glvs-autoinstall glvs-contents glvs-copyright glvs-data glvs-dist-install
glvs-hist glvs-install glvs-options glvs-plugins glvs-usage gm gn
gnat#Insert_Tags_Header() gnat#New() gnat-xref gnat_members gnome-session go
gp gpm-mouse gq gqap gqgq gqq gr graphic-option-gone greek grep groff.vim
gross-national-happiness group-name gs gsp.vim gstar gt gtk-css
gtk-tooltip-colors gu gugu gui gui-IME gui-clipboard gui-colors gui-extras
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gui-gtk-socketid gui-horiz-scroll gui-init gui-kde gui-mouse gui-mouse-focus
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gui-mouse-status gui-mouse-various gui-pty gui-pty-erase gui-resources
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gui-w32-start gui-w32-various gui-w32-windowid gui-w32s gui-win32-maximized
gui-x11 gui-x11-athena gui-x11-compiling gui-x11-gtk gui-x11-kde gui-x11-misc
gui-x11-motif gui-x11-neXtaw gui-x11-printing gui-x11-start gui-x11-various
gui.txt gui_w32.txt gui_x11.txt guifontwide_gtk guifontwide_win_mbyte
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gzip-example gzip-helpfile g~ g~g~ g~~ h hangul hangulin.txt has() has-patch
has-python has-pythonx has_key() haskell.vim haslocaldir() hasmapto() hebrew
hebrew.txt help help-context help-summary help-tags help-translated
help-writing help-xterm-window help.txt helpfile_name.txt helphelp
helphelp.txt hex-editing hex-number hidden-buffer hidden-changed hidden-menus
hidden-options hidden-quit highlight-args highlight-changed highlight-cterm
highlight-ctermbg highlight-ctermfg highlight-default highlight-font
highlight-groups highlight-gui highlight-guibg highlight-guifg
highlight-guisp highlight-start highlight-stop highlight-term highlightID()
highlight_exists() highlighting-functions hist-names histadd() histdel()
histget() histnr() history history-functions hit-enter hit-enter-prompt
hit-return hitest.vim hjkl hl-ColorColumn hl-Conceal hl-Cursor
hl-CursorColumn hl-CursorIM hl-CursorLine hl-CursorLineNr hl-DiffAdd
hl-DiffChange hl-DiffDelete hl-DiffText hl-Directory hl-EndOfBuffer
hl-ErrorMsg hl-FoldColumn hl-Folded hl-Ignore hl-IncSearch hl-LineNr
hl-MatchParen hl-Menu hl-ModeMsg hl-MoreMsg hl-NonText hl-Normal hl-Pmenu
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hl-Scrollbar hl-Search hl-SignColumn hl-SpecialKey hl-SpellBad hl-SpellCap
hl-SpellLocal hl-SpellRare hl-StatusLine hl-StatusLineNC hl-StatusLineTerm
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hl-Title hl-Tooltip hl-User1 hl-User1..9 hl-User9 hl-VertSplit hl-Visual
hl-VisualNOS hl-WarningMsg hl-WildMenu hl-debugBreakpoint hl-debugPC hlID()
hlexists() hlsearch-variable holy-grail home home-replace hostname() how-do-i
how-to howdoi howto howto.txt hpterm hpterm-color html-flavor html-indent
html-indenting html.vim htmlos.vim http i i' i(i) i< i> iB iBus iW i[i]
i_0_CTRL-D i_<BS> i_<C-End> i_<C-Home> i_<C-Left> i_<C-PageDown> i_<C-PageUp>
i_<C-Right> i_<CR> i_<Del> i_<Down> i_<End> i_<Esc> i_<F1> i_<Help> i_<Home>
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i_<S-ScrollWheelRight> i_<S-ScrollWheelUp> i_<S-Up> i_<ScrollWheelDown>
i_<ScrollWheelLeft> i_<ScrollWheelRight> i_<ScrollWheelUp> i_<Tab> i_<Up>
i_BS i_CTRL-<PageDown> i_CTRL-<PageUp> i_CTRL-@ i_CTRL-A i_CTRL-B-gone

i_CTRL-C i_CTRL-D i_CTRL-E i_CTRL-F i_CTRL-G_<Down> i_CTRL-G_<Up>
i_CTRL-G_CTRL-J i_CTRL-G_CTRL-K i_CTRL-G_U i_CTRL-G_j i_CTRL-G_k i_CTRL-G_u
i_CTRL-H i_CTRL-I i_CTRL-J i_CTRL-K i_CTRL-L i_CTRL-M i_CTRL-N i_CTRL-O
i_CTRL-P i_CTRL-Q i_CTRL-R i_CTRL-R_= i_CTRL-R_CTRL-O i_CTRL-R_CTRL-P
i_CTRL-R_CTRL-R i_CTRL-T i_CTRL-U i_CTRL-V i_CTRL-V_digit i_CTRL-W i_CTRL-X
i_CTRL-X_CTRL-D i_CTRL-X_CTRL-E i_CTRL-X_CTRL-F i_CTRL-X_CTRL-I
i_CTRL-X_CTRL-K i_CTRL-X_CTRL-L i_CTRL-X_CTRL-N i_CTRL-X_CTRL-O
i_CTRL-X_CTRL-P i_CTRL-X_CTRL-S i_CTRL-X_CTRL-T i_CTRL-X_CTRL-U
i_CTRL-X_CTRL-V i_CTRL-X_CTRL-Y i_CTRL-X_CTRL-] i_CTRL-X_index i_CTRL-X_s
i_CTRL-Y i_CTRL-Z i_CTRL-[i_CTRL-_CTRL-G i_CTRL-_CTRL-N i_CTRL-_CTRL-O
i_CTRL-] i_CTRL-^ i_CTRL-_ i_DEL i_Tab i_^_CTRL-D i_backspacing i_digraph
i_esc i` ia64.vim ib iccf iccf-donations icon-changed iconise iconize iconv()
iconv-dynamic ident-search idl-syntax idl.vim if_cscop.txt if_lua.txt
if_mzsch.txt if_ole.txt if_perl.txt if_pyth.txt if_ruby.txt if_sniff.txt
if_tcl.txt ignore-errors improved-autocmds-5.4 improved-quickfix
improved-sessions improved-viminfo improvements-5 improvements-6
improvements-7 improvements-8 in_bot in_buf in_io-buffer in_mode in_name
in_top inactive-buffer include-search inclusive incomp-small-6 incompatible-5
incompatible-6 incompatible-7 incompatible-8 indent() indent-expression
indent.txt indentkeys-format index index() index.txt info-message inform.vim
informix initialization input() inputdialog() inputlist() inputrestore()
inputsave() inputsecret() ins-completion ins-completion-menu ins-expandtab
ins-reverse ins-smarttab ins-softtabstop ins-special-keys ins-special-special
ins-textwidth insert insert() insert-index insert.txt insert_expand inserting
inserting-ex inserting-file insertmode-variable install install-home
install-registry intel-itanium intellimouse-wheel-problems
interactive-functions interfaces-5.2 internal-variables internal-wordlist
internet intro intro.txt inverse invert() ip iquote is isdirectory()
islocked() isnan() it italic items() iw i{ i} j java-cinoptions
java-indenting java.vim javascript-cinoptions javascript-indenting job
job-callback job-channel-overview job-close_cb job-control job-drop
job-err_cb job-err_io job-exit_cb job-functions job-in_io job-options
job-out_cb job-out_io job-start job-start-if-needed job-start-nochannel
job-stoponexit job-term job-timeout job_getchannel() job_info()
job_setoptions() job_start() job_status() job_stop() join() js_decode()
js_encode() jsbterm-mouse json_decode() json_encode() jtags jump-motions
jumplist jumpto-diffs k kcc kde key-codes key-codes-changed key-mapping
key-notation key-variable keycodes keymap-accents keymap-file-format
keymap-hebrew keypad-0 keypad-9 keypad-comma keypad-divide keypad-end
keypad-enter keypad-home keypad-minus keypad-multiply keypad-page-down
keypad-page-up keypad-plus keypad-point keys() known-bugs l l: l:var lCursor
lace.vim lambda lang-variable language-mapping last-pattern
last-position-jump last_buffer_nr() latex-syntax lc_time-variable lcs-conceal
lcs-eol lcs-extends lcs-nbsp lcs-precedes lcs-space lcs-tab lcs-trail
left-right-motions len() less letter lex.vim lhaskell.vim libcall()
libcallnr() license lid lifelines.vim limits line() line-continuation
line2byte() linefeed linewise linewise-register linewise-visual lisp.vim
lispindent() list list-functions list-identity list-index list-modification
list-repeat lite.vim literal-string lnum-variable load-plugins
load-vim-script local-additions local-function local-options local-variable
local-variables local_markfilelist locale locale-name localtime()
location-list location-list-window log() log10() logiPat logiPat-arg
logiPat-caveat logiPat-contents logiPat-copyright logiPat-examples
logiPat-history logiPat-input logiPat-man logiPat-manual logiPat-operators

logiPat-pattern long-lines love lowercase lpc.vim lua lua-buffer lua-commands
lua-dict lua-dynamic lua-eval lua-funcref lua-list lua-luaeval lua-vim
lua-window lua.vim luaeval() m m' m< m> m[m] m` mac mac-bug mac-compile
mac-darwin-feature mac-faq mac-filename mac-lack mac-standard-mappings
mac-vimfile macintosh macro mail-list mail.vim maillist maillist-archive
make.vim man.vim manpager.vim manual-copyright map() map-<SID> map-CTRL-C
map-ambiguous map-backslash map-backtick map-bar map-comments map-empty-rhs
map-error map-examples map-keys-fails map-listing map-modes map-multibyte
map-overview map-precedence map-return map-self-destroy map-space_in_lhs
map-space_in_rhs map-typing map-which-keys map.txt map_CTRL-C map_backslash
map_bar map_empty_rhs map_return map_space_in_lhs map_space_in_rhs maparg()
mapcheck() maple.vim mapleader maplocalleader mapmode-c mapmode-i mapmode-ic
mapmode-l mapmode-n mapmode-nvo mapmode-o mapmode-s mapmode-t mapmode-v
mapmode-x mapping mapping-functions mark mark-functions mark-motions
markfilelist masm.vim match() match-highlight match-parens matchadd()
matchaddpos() matcharg() matchdelete() matchend() matchit-install matchlist()
matchparen matchstr() matchstrpos() max() mbyte-IME mbyte-XIM mbyte-combining
mbyte-composing mbyte-conversion mbyte-encoding mbyte-first mbyte-fonts-MSwin
mbyte-fonts-X11 mbyte-func mbyte-keymap mbyte-locale mbyte-options
mbyte-terminal mbyte-utf8 mbyte.txt menu-changes-5.4 menu-examples
menu-priority menu-separator menu.vim menus merge message-history message.txt
messages meta min() missing-options mkdir() mlang.txt mma.vim mode() mode-Ex
mode-cmdline mode-ins-repl mode-replace mode-switching modeless-and-clipboard
modeless-selection modeline modeline-local modeline-version moo.vim
more-compatible more-prompt more-variables motion.txt mouse-mode-table
mouse-overview mouse-swap-buttons mouse-using mouse_col-variable
mouse_lnum-variable mouse_win-variable mouse_winid-variable movement ms-dos
msdos msql.vim mswin.vim multi-byte multi-lang multi-repeat multibyte
multibyte-ime multibyte-input multilang multilang-menus multilang-messages
multilang-scripts myfiletypefile myscriptsfile mysql mysyntaxfile
mysyntaxfile-add mysyntaxfile-replace mzeval() mzscheme mzscheme-buffer
mzscheme-commands mzscheme-dynamic mzscheme-examples mzscheme-funcref
mzscheme-mzeval mzscheme-sandbox mzscheme-setup mzscheme-threads mzscheme-vim
mzscheme-vimext mzscheme-window n n1ql.vim nasm.vim navigation nb-commands
nb-events nb-functions nb-messages nb-protocol_errors nb-special nb-terms
ncf.vim netbeans netbeans-commands netbeans-configure netbeans-debugging
netbeans-download netbeans-integration netbeans-intro netbeans-keybindings
netbeans-messages netbeans-parameters netbeans-preparation netbeans-problems
netbeans-protocol netbeans-run netbeans-setup netbeans-support netbeans.txt
netreadfixup netrw netrw-% netrw-- netrw-:Explore netrw-:Hexplore
netrw-:Lexplore netrw-:MF netrw-:MT netrw-:NetrwC netrw-:NetrwMB
netrw-:Rexplore netrw-:Sexplore netrw-:Texplore netrw-:Vexplore netrw-C
netrw-D netrw-I netrw-O netrw-P netrw-P18 netrw-P19 netrw-P20 netrw-P21
netrw-P22 netrw-R netrw-S netrw-Tb netrw-Th netrw-U netrw-X netrw-a
netrw-activate netrw-bookmark netrw-bookmarks netrw-browse netrw-browse-cmds
netrw-browse-maps netrw-browser netrw-browser-options netrw-browser-settings
netrw-browser-var netrw-browsing netrw-c netrw-c-tab netrw-cB netrw-cadaver
netrw-call netrw-cb netrw-cd netrw-chgup netrw-clean netrw-contents
netrw-copyright netrw-cr netrw-createfile netrw-credits netrw-ctrl-h
netrw-ctrl-l netrw-ctrl-r netrw-ctrl_l netrw-curdir netrw-d netrw-debug
netrw-del netrw-delete netrw-dir netrw-dirlist netrw-downdir netrw-edithide
netrw-editwindow netrw-enter netrw-ex netrw-explore netrw-explore-cmds
netrw-expose netrw-externapp netrw-file netrw-filigree netrw-fixup netrw-ftp
netrw-ftype netrw-gb netrw-gd netrw-getftype netrw-gf netrw-gh

netrw-gitignore netrw-gn netrw-gp netrw-grep netrw-gx netrw-handler
netrw-help netrw-hexplore netrw-hide netrw-hiding netrw-history netrw-horiz
netrw-i netrw-incompatible netrw-internal-variables netrw-intro-browse
netrw-leftmouse netrw-lexplore netrw-list netrw-listbookmark netrw-listhack
netrw-login netrw-mA netrw-mB netrw-mF netrw-mT netrw-mX netrw-ma netrw-mb
netrw-mc netrw-md netrw-me netrw-mf netrw-mg netrw-mh netrw-middlemouse
netrw-ml_get netrw-mm netrw-modify netrw-mouse netrw-move netrw-mp netrw-mr
netrw-ms netrw-mt netrw-mu netrw-mv netrw-mx netrw-mz netrw-netrc
netrw-newfile netrw-nexplore netrw-noload netrw-nread netrw-ntree
netrw-nwrite netrw-o netrw-obtain netrw-options netrw-p netrw-p1 netrw-p10
netrw-p11 netrw-p12 netrw-p13 netrw-p14 netrw-p15 netrw-p16 netrw-p17
netrw-p2 netrw-p3 netrw-p4 netrw-p5 netrw-p6 netrw-p7 netrw-p8 netrw-p9
netrw-passwd netrw-password netrw-path netrw-pexplore netrw-preview
netrw-problems netrw-protocol netrw-prvwin netrw-pscp netrw-psftp netrw-putty
netrw-qF netrw-qL netrw-qb netrw-qf netrw-quickcom netrw-quickcoms
netrw-quickhelp netrw-quickmap netrw-quickmaps netrw-r netrw-read netrw-ref
netrw-refresh netrw-rename netrw-reverse netrw-rexplore netrw-rightmouse
netrw-s netrw-s-cr netrw-settings netrw-settings-window netrw-sexplore
netrw-sort netrw-sort-sequence netrw-sortsequence netrw-source netrw-ssh-hack
netrw-star netrw-starpat netrw-starstar netrw-starstarpat netrw-start netrw-t
netrw-texplore netrw-todo netrw-trailingslash netrw-transparent netrw-u
netrw-updir netrw-urls netrw-usermaps netrw-userpass netrw-v netrw-var
netrw-variables netrw-vexplore netrw-windows-netrc netrw-windows-s
netrw-write netrw-x netrw-xfer netrw.vim netrw_filehandler netterm-mouse
network new-5 new-6 new-7 new-8 new-GTK-GUI new-MzScheme new-Select-mode
new-View new-argument-list new-buftype new-cmdwin new-color-schemes
new-commands new-commands-5.4 new-conceal new-debug-itf new-debug-mode
new-debug-support new-define-operator new-diff-mode new-encryption new-evim
new-ex-commands-5.2 new-file-browser new-file-writing new-filetype
new-filetype-5.4 new-filetype-plugins new-filetype-scripts new-folding
new-functions-5.2 new-global-values new-highlighting new-indent-flex
new-items-6 new-items-7 new-items-8 new-line-continuation new-location-list
new-lua new-manpage-trans new-map-expression new-map-select
new-more-encryption new-more-highlighting new-more-unicode new-multi-byte
new-multi-lang new-netrw-explore new-network-files new-omni-completion
new-onemore new-operator-mod new-options-5.2 new-options-5.4 new-perl-python
new-persistent-undo new-plugins new-posix new-print-multi-byte new-printing
new-python3 new-regexp-engine new-runtime-dir new-script new-script-5.4
new-scroll-back new-search-path new-searchpat new-session-files new-spell
new-style-testing new-tab-pages new-terminal-window new-undo-branches
new-unlisted-buffers new-user-defined new-user-manual new-utf-8 new-vertsplit
new-vim-script new-vim-script-8 new-vim-server new-vimgrep new-virtedit news
nextnonblank() nice no-eval-feature no-type-checking no_buffers_menu
no_mail_maps no_plugin_maps nocombine non-greedy non-zero-arg none-variable
normal-index not-compatible not-edited notation notepad nr2char() nroff.vim
null-variable number_relativenumber numbered-function o o_CTRL-V o_V o_v
object-motions object-select objects obtaining-exted ocaml.vim octal
octal-nrformats octal-number old-style-testing oldfiles-variable
ole-activation ole-eval ole-gethwnd ole-interface ole-methods ole-normal
ole-registration ole-sendkeys ole-setforeground omap-info omni-sql-completion
online-help opening-window operator operator-variable option-backslash
option-list option-summary option-window option_restore() option_save()
options options-changed options-in-terminal options.txt optwin or() oracle
os2 os390 os_390.txt os_amiga.txt os_beos.txt os_dos.txt os_mac.txt

os_mint.txt os_msdos.txt os_os2.txt os_qnx.txt os_risc.txt os_unix.txt
os_vms.txt os_win32.txt other-features out_buf out_cb out_io-buffer out_mode
out_modifiable out_msg out_name out_timeout p pack-add package-create
packages packload-two-steps page-down page-up page_down page_up pager
papp.vim paragraph pascal.vim patches-8 patches-8.1 pathshorten() pattern
pattern-atoms pattern-multi-byte pattern-multi-items pattern-overview
pattern-searches pattern.txt patterns-composing pdev-option peace penc-option
perl perl-Append perl-Buffer perl-Buffers perl-Count perl-Delete
perl-DoCommand perl-Eval perl-Get perl-GetCursor perl-Msg perl-Name
perl-Number perl-Set perl-SetHeight perl-SetOption perl-Windows
perl-compiling perl-dynamic perl-editing perl-overview perl-patterns
perl-using perl.vim perleval() persistent-undo pexpr-option pfn-option
pheader-option photon-fonts photon-gui php-comment php-indent php-indenting
php.vim php3.vim phtml.vim pi_getscript.txt pi_gzip.txt pi_logipat.txt
pi_netrw.txt pi_paren.txt pi_spec.txt pi_tar.txt pi_vimball.txt pi_zip.txt
pkzip plaintex.vim plsql plugin plugin-details plugin-filetype plugin-special
pmbcs-option pmbfn-option popt-option popup-menu popup-menu-added
popupmenu-completion popupmenu-keys ports-5.2 ports-6 posix posix-compliance
posix-screen-size postgresql postscr.vim postscript-cjk-printing
postscript-print-encoding postscript-print-trouble postscript-print-util
postscript-printing pow() ppwiz.vim press-enter press-return
prevcount-variable preview-window prevnonblank() print-intro print-options
print.txt printf() printf-% printf-B printf-E printf-G printf-S printf-X
printf-b printf-c printf-d printf-e printf-f printf-g printf-o printf-s
printf-x printing printing-formfeed profile profiling profiling-variable
progname-variable progpath-variable progress.vim prompt-buffer
prompt_setcallback() prompt_setinterrupt() prompt_setprompt() pronounce psql
ptcap.vim pterm-mouse pumvisible() put put-Visual-mode py3eval() pyeval()
python python-.locked python-2-and-3 python-Dictionary python-Function
python-List python-VIM_SPECIAL_PATH python-_get_paths python-bindeval
python-bindeval-objects python-buffer python-buffers python-building
python-chdir python-command python-commands python-current python-dynamic
python-error python-eval python-examples python-fchdir python-find_module
python-foreach_rtp python-input python-options python-output python-path_hook
python-pyeval python-range python-special-path python-strwidth python-tabpage
python-tabpages python-vars python-vim python-vvars python-window
python-windows python.vim python2-directory python3 python3-directory
python_x python_x-special-comments pythonx pythonx-directory pyxeval() q q/
q: q? qnx qnx-compiling qnx-general qnx-terminal quake.vim quickfix
quickfix-6 quickfix-ID quickfix-changedtick quickfix-context
quickfix-directory-stack quickfix-error-lists quickfix-functions quickfix-gcc
quickfix-manx quickfix-parse quickfix-perl quickfix-size quickfix-title
quickfix-valid quickfix-window quickfix-window-ID quickfix.txt quickref
quickref.txt quote quote# quote% quote+ quote- quote. quote/ quote0 quote1
quote2 quote3 quote4 quote9 quote: quote= quote_ quote_# quote_% quote_-
quote_. quote_/ quote_: quote_= quote_alpha quote_number quote_quote quote_~
quotea quotecommandquote quoteplus quotequote quotes quotes.txt quotestar
quote~ r range() raw-terminal-mode rcp read-in-close-cb read-messages
read-only-share read-stdin readfile() readline.vim recording recover.txt
recovery recursive_mapping redo redo-register ref reference reference_toc
reg_executing() reg_recording() regexp regexp-changes-5.4 register
register-faq register-variable registers regular-expression reload reltime()
reltimefloat() reltimestr() remote.txt remote_expr() remote_foreground()
remote_peek() remote_read() remote_send() remote_startserver() remove()

remove-filetype remove-option-flags rename() rename-files repeat() repeat.txt
repeating replacing replacing-ex reselect-Visual resolve() restore-cursor
restore-position restricted-mode retab-example rethrow reverse() rexx.vim
rgb.txt rgview rgvim right-justify rileft rileft.txt riscos rot13 round()
rst.vim rsync ruby ruby-buffer ruby-command ruby-commands ruby-dynamic
ruby-evaluate ruby-globals ruby-message ruby-set_option ruby-vim ruby-window
ruby.vim ruby_fold ruby_foldable_groups ruby_minlines ruby_no_expensive
ruby_operators ruby_space_errors ruby_spellcheck_strings russian
russian-intro russian-issues russian-keymap russian-l18n russian.txt rust
rust-commands rust-intro rust-mappings rust-settings rust_<D-R> rust_<D-r>
rview rvim rxvt s s/\& s/\0 s/\1 s/\2 s/\3 s/\9 s/\<CR> s/\= s/\E s/\L s/\U
s/\\ s/\b s/\e s/\l s/\n s/\r s/\t s/\u s/\~ s:netrw_passwd s:var s<CR>
sandbox sandbox-option save-file save-settings scheme.vim scp screenattr()
screenchar() screencol() screenrow() script script-here script-local
script-variable scriptnames-dictionary scriptout-changed scroll-binding
scroll-cursor scroll-down scroll-horizontal scroll-insert scroll-mouse-wheel
scroll-region scroll-smooth scroll-up scroll.txt scrollbind-quickadj
scrollbind-relative scrolling scrollstart-variable sdl.vim search()
search()-sub-match search-commands search-offset search-pattern search-range
search-replace searchdecl() searchforward-variable searchpair()
searchpairpos() searchpos() section sed.vim self send-money send-to-menu
sendto sentence server-functions server2client() serverlist()
servername-variable session-file set-option set-spc-auto setbufline()
setbufvar() setcharsearch() setcmdpos() setfperm() setline() setloclist()
setmatches() setpos() setqflist() setqflist-examples setreg() settabvar()
settabwinvar() setting-guifont setting-guitablabel setting-tabline setuid
setwinvar() sftp sgml.vim sgr-mouse sh-awk sh-embed sh.vim sha256()
shell-window shell_error-variable shellescape() shift shift-left-right
shiftwidth() short-name-changed showing-menus sign-commands sign-intro
sign-support sign.txt signs simple-change simplify() simulated-command sin()
single-repeat sinh() skeleton skip_defaults_vim slice slow-fast-terminal
slow-start slow-terminal socket-interface sort() sorting soundfold() space
spec-customizing spec-how-to-use-it spec-setting-a-map spec_chglog_format
spec_chglog_prepend spec_chglog_release_info special-buffers speed-up spell
spell-ACCENT spell-AUTHOR spell-BAD spell-BREAK spell-CHECKCOMPOUNDCASE
spell-CHECKCOMPOUNDDUP spell-CHECKCOMPOUNDPATTERN spell-CHECKCOMPOUNDREP
spell-CHECKCOMPOUNDTRIPLE spell-CIRCUMFIX spell-COMMON spell-COMPLEXPREFIXES
spell-COMPOUND spell-COMPOUNDBEGIN spell-COMPOUNDEND spell-COMPOUNDFIRST
spell-COMPOUNDFLAG spell-COMPOUNDFORBIDFLAG spell-COMPOUNDMIDDLE
spell-COMPOUNDMIN spell-COMPOUNDPERMITFLAG spell-COMPOUNDROOT
spell-COMPOUNDRULE spell-COMPOUNDRULES spell-COMPOUNDSYLLABLE
spell-COMPOUNDSYLMAX spell-COMPOUNDWORDMAX spell-COPYRIGHT spell-EMAIL
spell-FLAG spell-FOL spell-FORBIDDENWORD spell-HOME spell-IGNOREEXTRA
spell-KEEPCASE spell-KEY spell-LANG spell-LEMMA_PRESENT spell-LOW spell-MAP
spell-MAXNGRAMSUGS spell-NAME spell-NEEDAFFIX spell-NEEDCOMPOUND
spell-NOBREAK spell-NOCOMPOUNDSUGS spell-NOSPLITSUGS spell-NOSUGFILE
spell-NOSUGGEST spell-ONLYINCOMPOUND spell-PFX spell-PFXPOSTPONE
spell-PSEUDOROOT spell-RARE spell-REP spell-SAL spell-SET spell-SFX
spell-SLASH spell-SOFOFROM spell-SOFOTO spell-SUGSWITHDOTS spell-SYLLABLE
spell-SYLLABLENUM spell-SpellFileMissing spell-TRY spell-UPP spell-VERSION
spell-WORDCHARS spell-aff-format spell-affix-chars spell-affix-comment
spell-affix-flags spell-affix-mbyte spell-affix-not-supported spell-affix-vim
spell-cjk spell-compound spell-dic-format spell-double-scoring
spell-file-format spell-functions spell-german spell-load spell-midword

spell-mkspell spell-quickstart spell-remarks spell-russian spell-sug-file
spell-syntax spell-wordlist-format spell-yiddish spell.txt spellbadword()
spellfile-cleanup spellfile.vim spellsuggest() split() splitfind splitview
sponsor sponsor-faq sponsor.txt spoon spup.vim sql-adding-dialects
sql-completion sql-completion-columns sql-completion-customization
sql-completion-dynamic sql-completion-filetypes sql-completion-maps
sql-completion-procedures sql-completion-static sql-completion-tables
sql-completion-tutorial sql-completion-views sql-dialects sql-macros
sql-matchit sql-navigation sql-object-motions sql-predefined-objects
sql-type-default sql-types sql.vim sqlanywhere sqlanywhere.vim sqlgettype
sqlinformix.vim sqlj sqlserver sqlsettype sqrt() sscanf standard-plugin
standard-plugin-list standout star starstar starstar-wildcard start-of-file
start-vimdiff starting starting-amiga starting.txt startup startup-options
startup-terminal static-tag status-line statusmsg-variable str2float()
str2nr() strcasestr() strcharpart() strchars() strchr() strcspn()
strdisplaywidth() strftime() strgetchar() stridx() strikethrough string
string() string-functions string-match strlen() strpart() strpbrk() strrchr()
strridx() strspn() strstr() strtrans() strwidth() style-changes
style-compiler style-examples style-functions style-names style-spaces
style-various sub-menu-priority sub-replace-\= sub-replace-expression
sub-replace-special sublist submatch() subscribe-maillist subscript
substitute() substitute-CR suffixes suspend swap-exists-choices swap-file
swapchoice-variable swapcommand-variable swapfile-changed swapname-variable
sybase syn-sync-grouphere syn-sync-groupthere syn-sync-linecont synID()
synIDattr() synIDtrans() syncbind syncolor synconcealed() synload-1 synload-2
synload-3 synload-4 synload-5 synload-6 synstack() syntax syntax-functions
syntax-highlighting syntax-loading syntax-printing syntax.txt syntax_cmd
sys-file-list sysmouse system() system-functions system-vimrc systemlist() s~
t t: t:var t_#2 t_#4 t_%1 t_%i t_&8 t_8b t_8f t_@7 t_AB t_AF t_AL t_BD t_BE
t_CS t_CTRL-W_CTRL-C t_CTRL-_CTRL-N t_CV t_Ce t_Co t_Cs t_DL t_EC t_EI t_F1
t_F2 t_F3 t_F4 t_F5 t_F6 t_F7 t_F8 t_F9 t_GP t_IE t_IS t_K1 t_K3 t_K4 t_K5
t_K6 t_K7 t_K8 t_K9 t_KA t_KB t_KC t_KD t_KE t_KF t_KG t_KH t_KI t_KJ t_KK
t_KL t_PE t_PS t_RB t_RC t_RF t_RI t_RS t_RV t_SC t_SH t_SI t_SR t_Sb t_Sf
t_Te t_Ts t_VS t_WP t_WS t_ZH t_ZR t_al t_bc t_bool-variable t_cd t_cdl t_ce
t_channel-variable t_ci t_cil t_cl t_cm t_cri t_cs t_csc t_cv t_cvv t_da t_db
t_dict-variable t_dl t_ed t_el t_f1 t_f10 t_f2 t_f3 t_f4 t_f5 t_f6 t_f7 t_f8
t_f9 t_float-variable t_fs t_func-variable t_help t_il t_job-variable t_k1
t_k2 t_k3 t_k4 t_k5 t_k6 t_k7 t_k8 t_k9 t_k; t_kB t_kD t_kI t_kN t_kP t_kb
t_kd t_ke t_kh t_kl t_kr t_ks t_ku t_le t_list-variable t_mb t_md t_me t_mr
t_ms t_nd t_none-variable t_number-variable t_op t_se t_sf1 t_sf10 t_sf2
t_sf3 t_sf4 t_sf5 t_sf6 t_sf7 t_sf8 t_sf9 t_skd t_skl t_skr t_sku t_so t_sr
t_star7 t_string-variable t_tb t_te t_ti t_tp t_ts t_ts_old t_u7 t_ue t_undo
t_us t_ut t_vb t_ve t_vi t_vs t_xn t_xs tab tab-page tab-page-commands
tab-page-intro tab-page-other tabline-menu tabnew-autocmd tabpage
tabpage-variable tabpage.txt tabpagebuflist() tabpagenr() tabpagewinnr() tag
tag-! tag-any-white tag-binary-search tag-blocks tag-commands tag-details
tag-highlight tag-matchlist tag-old-static tag-overloaded tag-preview
tag-priority tag-regexp tag-search tag-security tag-skip-file tag-stack
tagfiles() taglist() tags tags-and-searches tags-file-changed
tags-file-format tags-option tagsrch.txt tagstack tan() tanh() tar
tar-contents tar-copyright tar-history tar-manual tar-options tar-usage tcl
tcl-beep tcl-buffer tcl-buffer-append tcl-buffer-cmds tcl-buffer-command
tcl-buffer-count tcl-buffer-delcmd tcl-buffer-delete tcl-buffer-expr
tcl-buffer-get tcl-buffer-insert tcl-buffer-last tcl-buffer-mark

tcl-buffer-option tcl-buffer-set tcl-buffer-windows tcl-bugs tcl-command
tcl-commands tcl-dynamic tcl-ex-commands tcl-examples tcl-expr
tcl-linenumbers tcl-misc tcl-option tcl-output tcl-var-current tcl-var-lbase
tcl-var-line tcl-var-lnum tcl-var-range tcl-variables tcl-window
tcl-window-buffer tcl-window-cmds tcl-window-command tcl-window-cursor
tcl-window-delcmd tcl-window-expr tcl-window-height tcl-window-option
tcsh-style tcsh.vim tear-off-menus telnet-CTRL-] temp-file-name tempfile
template tempname() term++close term++open term-dependent-settings term-list
term.txt term_dumpdiff() term_dumpload() term_dumpwrite() term_getaltscreen()
term_getansicolors() term_getattr() term_getcursor() term_getjob()
term_getline() term_getscrolled() term_getsize() term_getstatus()
term_gettitle() term_gettty() term_list() term_scrape() term_sendkeys()
term_setansicolors() term_setkill() term_setrestore() term_setsize()
term_start() term_wait() termcap termcap-changed termcap-colors
termcap-cursor-color termcap-cursor-shape termcap-options termcap-title
termdebug-commands termdebug-communication termdebug-customizing
termdebug-example termdebug-prompt termdebug-starting termdebug-stepping
termdebug-variables termdebug_popup termdebug_shortcuts termdebug_use_prompt
termdebug_wide terminal terminal-api terminal-client-server terminal-colors
terminal-communication terminal-cursor-style terminal-debug terminal-debugger
terminal-diff terminal-diffscreendump terminal-dumptest terminal-functions
terminal-info terminal-key-codes terminal-ms-windows terminal-options
terminal-output-codes terminal-resizing terminal-screendump terminal-session
terminal-size-color terminal-special-keys terminal-testing terminal-to-job
terminal-typing terminal-unix terminal-use terminal-window terminal.txt
terminfo termresponse-variable test-functions test_alloc_fail()
test_autochdir() test_feedinput() test_garbagecollect_now()
test_ignore_error() test_null_channel() test_null_dict() test_null_job()
test_null_list() test_null_partial() test_null_string() test_override()
test_settime() testing testing-variable tex-cchar tex-cole tex-conceal
tex-error tex-folding tex-math tex-morecommands tex-nospell tex-package
tex-runon tex-slow tex-stopzone tex-style tex-supersub tex-sync tex-verb
tex.vim text-functions text-objects text-objects-changed textlock tf.vim
this_session-variable throw-catch throw-expression throw-from-catch
throw-variables throwpoint-variable time-functions timer timer-functions
timer_info() timer_pause() timer_start() timer_stop() timer_stopall() timers
timestamp timestamps tips tips.txt todo todo.txt toggle toggle-revins
tolower() toolbar-icon toupper() tr() trim() trojan-horse true-variable
trunc() try-conditionals try-echoerr try-finally try-nested try-nesting tutor
twice two-engines type() type-mistakes typecorr-settings typecorr.txt u
uganda uganda.txt undercurl underline undo undo-blocks undo-branches
undo-commands undo-persistence undo-redo undo-remarks undo-tree undo-two-ways
undo.txt undo_ftplugin undo_indent undofile() undotree() unicode uniq() unix
unlisted-buffer up-down-motions uppercase urxvt-mouse use-cpo-save
use-visual-cmds useful-mappings usenet user-cmd-ambiguous user-commands
user-functions user-manual using-<Plug> using-menus using-scripts using-xxd
using_CTRL-V usr_01.txt usr_02.txt usr_03.txt usr_04.txt usr_05.txt
usr_06.txt usr_07.txt usr_08.txt usr_09.txt usr_10.txt usr_11.txt usr_12.txt
usr_20.txt usr_21.txt usr_22.txt usr_23.txt usr_24.txt usr_25.txt usr_26.txt
usr_27.txt usr_28.txt usr_29.txt usr_30.txt usr_31.txt usr_32.txt usr_40.txt
usr_41.txt usr_42.txt usr_43.txt usr_44.txt usr_45.txt usr_90.txt usr_toc.txt
utf-8 utf-8-char-arg utf-8-in-xwindows utf-8-typing utf8 v v: v:beval_bufnr
v:beval_col v:beval_lnum v:beval_text v:beval_winid v:beval_winnr v:char
v:charconvert_from v:charconvert_to v:cmdarg v:cmdbang v:completed_item

v:count v:count1 v:ctype v:dying v:errmsg v:errors v:event v:exception
v:false v:fcs_choice v:fcs_reason v:fname_diff v:fname_in v:fname_new
v:fname_out v:folddashes v:foldend v:foldlevel v:foldstart v:hlsearch
v:insertmode v:key v:lang v:lc_time v:lnum v:mouse_col v:mouse_lnum
v:mouse_win v:mouse_winid v:none v:null v:oldfiles v:operator v:option_new
v:option_old v:option_type v:prevcount v:profiling v:progname v:progpath
v:register v:scrollstart v:searchforward v:servername v:shell_error
v:statusmsg v:swapchoice v:swapcommand v:swapname v:t_TYPE v:t_bool
v:t_channel v:t_dict v:t_float v:t_func v:t_job v:t_list v:t_none v:t_number
v:t_string v:termblinkresp v:termrbgresp v:termresponse v:termrfgresp
v:termstyleresp v:termu7resp v:testing v:this_session v:throwpoint v:true
v:val v:var v:version v:vim_did_enter v:warningmsg v:windowid v_! v_$ v_: v_<
v_<BS> v_<Del> v_<Esc> v_= v_> v_C v_CTRL-A v_CTRL-C v_CTRL-G v_CTRL-H
v_CTRL-O v_CTRL-V v_CTRL-X v_CTRL-Z v_CTRL-_CTRL-G v_CTRL-_CTRL-N v_CTRL-]
v_D v_J v_K v_O v_P v_R v_S v_U v_V v_X v_Y v_a v_a' v_a(v_a) v_a< v_a> v_aB
v_aW v_a[v_a] v_a` v_ab v_ap v_aquote v_as v_at v_aw v_a{ v_a} v_b_<
v_b_<_example v_b_> v_b_>_example v_b_A v_b_A_example v_b_C v_b_D v_b_I
v_b_I_example v_b_c v_b_r v_b_r_example v_c v_d v_g? v_gF v_gJ v_gN v_gV v_g]
v_g_CTRL-A v_g_CTRL-G v_g_CTRL-X v_g_CTRL-] v_gf v_gn v_gq v_gv v_gw v_i v_i'
v_i(v_i) v_i< v_i> v_iB v_iW v_i[v_i] v_i` v_ib v_ip v_iquote v_is v_it
v_iw v_i{ v_i} v_o v_p v_r v_s v_u v_v v_x v_y v_~ vab val-variable valgrind
values() var-functions variables various various-cmds various-functions
various-motions various.txt vb.vim vba verbose version-5.1 version-5.2
version-5.3 version-5.4 version-5.5 version-5.6 version-5.7 version-5.8
version-6.1 version-6.2 version-6.3 version-6.4 version-7.0 version-7.1
version-7.2 version-7.3 version-7.4 version-8.0 version-8.1 version-variable
version4.txt version5.txt version6.txt version7.0 version7.1 version7.2
version7.3 version7.4 version7.txt version8.0 version8.1 version8.txt vi
vi-differences vi: vi_diff.txt vib view view-diffs view-file views-sessions
vim-7.4 vim-8 vim-8.1 vim-additions vim-announce vim-arguments
vim-default-editor vim-dev vim-mac vim-modes vim-modes-intro vim-script-intro
vim-use vim-variable vim.vim vim7 vim8 vim: vim_announce vim_dev
vim_did_enter-variable vim_mac vim_starting vim_use vimball vimball-contents
vimball-extract vimball-history vimball-intro vimball-manual vimball-windows
vimdev vimdiff vimfiles viminfo viminfo-! viminfo-% viminfo-' viminfo-/
viminfo-: viminfo-< viminfo-@ viminfo-c viminfo-encoding viminfo-errors
viminfo-f viminfo-file viminfo-file-marks viminfo-file-name viminfo-h
viminfo-n viminfo-quote viminfo-r viminfo-read viminfo-read-write viminfo-s
viminfo-timestamp viminfo-write vimrc vimrc-filetype vimrc-intro
vimrc-option-example vimrc_example.vim vimtutor virtcol() visual-block
visual-change visual-examples visual-index visual-mode visual-operators
visual-repeat visual-search visual-start visual-use visual.txt visualmode()
vms vms-authors vms-changes vms-compiling vms-deploy vms-download vms-gui
vms-notes vms-problems vms-started vms-usage vote-for-features votes-counted
votes-for-changes vreplace-mode vt100-cursor-keys vt100-function-keys w
w32-clientserver w32-xpm-support w: w:current_syntax w:quickfix_title w:var
waittime warningmsg-variable white-space whitespace wildcard wildcards
wildmenumode() win16 win32 win32-!start win32-PATH win32-backslashes
win32-cmdargs win32-colors win32-compiling win32-curdir win32-faq
win32-gettext win32-gui win32-hidden-menus win32-mouse win32-open-with-menu
win32-popup-menu win32-problems win32-quotes win32-restore win32-startup
win32-term win32-vimrun win32-win3.1 win32-win95 win32s win_findbuf()
win_getid() win_gotoid() win_id2tabwin() win_id2win() win_screenpos()
winbufnr() wincol() window window-ID window-contents window-exit

window-functions window-move-cursor window-moving window-resize window-size
window-size-functions window-tag window-toolbar window-variable windowid
windowid-variable windows windows-3.1 windows-icon windows-intro
windows-starting windows.txt windows95 windows98 windowsme winheight() winid
winline() winnr() winrestcmd() winrestview() winsaveview() winwidth() word
word-count word-motions wordcount() workbench workshop workshop-commands
workshop-compiling workshop-configure workshop-intro workshop-support
workshop-xpm workshop.txt wrap-off write-compiler-plugin write-device
write-fail write-filetype-plugin write-library-script write-local-help
write-permissions write-plugin write-plugin-quickload write-quit
write-readonly writefile() writing www x x-input-method x-resources
x11-clientserver x11-cut-buffer x11-selection xf86conf.vim xfontset
xfree-xterm xim xim-input-style xiterm xml-folding xml-omni-datafile xml.vim
xor() xpm.vim xterm-8-bit xterm-8bit xterm-blink xterm-blinking-cursor
xterm-bracketed-paste xterm-clipboard xterm-codes xterm-color
xterm-command-server xterm-copy-paste xterm-cursor-keys xterm-end-home-keys
xterm-function-keys xterm-modifier-keys xterm-mouse xterm-mouse-wheel
xterm-resize xterm-save-screen xterm-screens xterm-scroll-region
xterm-shifted-keys xterm-true-color y yaml.vim yank ye-option-gone year-2000
your-runtime-dir yy z z+ z- z. z/OS z<CR> z<Left> z<Right> z= zA zC zD zE zF
zG zH zL zM zN zN<CR> zO zOS zOS-Bugs zOS-Motif zOS-PuTTY zOS-has-ebcdic
zOS-limitations zOS-open-source zR zW zX z^ za zb zc zd ze zf zg zh zi zip
zip-contents zip-copyright zip-extension zip-history zip-manual zip-usage
zip-x zj zk zl zm zn zo zr zs zsh.vim zt zuG zuW zug zuw zv zw zx zz {
{Visual} {address} {arglist} {bufname} {char1-char2} {event} {file}
{group-name} {lhs} {motion} {move-around} {offset} {pat} {rhs} {subject} {} }
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The text of this document is taken from the Vim help pages and the Vim FAQ.

The files are converted to pdf using XeLaTeXwith the hyperref package. The conversion script is written by Nathan Grigg, based on the HTML conversion script written by Carlo Teubner.

For more information, see http://nathangrigg.net/vimhelp.