




















Emacs support for Unix Shell Scripting

Description	Keystroke	Function	Note
UNIX-like Shell Script Editing See: <ul style="list-style-type: none"> comparison of command shells ShellCheck Wiki ShellCheck on-line 			Emacs provides the built-in sh-mode to support UNIX-style shell script programming. <ul style="list-style-type: none"> It supports several shell variants including: <ul style="list-style-type: none"> bash - see Bash Reference Manual csh - see An Introduction to C shell , csh OpenBSD man page, csh NetBSD Man page. ksh. sh, the Bourne shell zsh - see zsh Manual Several other shell types are supported . Use the sh-set-shell command to force the use of a specific shell type, with C-c :
<ul style="list-style-type: none"> PEL sh support activation  Activate sh-mode on files 			PEL activates Unix shell-script support with the  pel-use-sh user-options. <ul style="list-style-type: none"> When pel-use-sh on: the <f11> SPC H <f1> prefix is made available. In a shell script buffer these commands are accessible via the <f12> key. The auto-mode-alist user-option identifies path patterns files that must use the sh-mode or shell-script-mode (which is an alias for sh-mode). pel-auto-mode-alist: identifies extra entries that PEL automatically adds to the auto-mode-alist. <ul style="list-style-type: none"> Add <code>/bin/[^.]+\'</code> to sh-mode to automatically activate sh-mode for your shell scripts stored inside your <code>~/bin</code> directory. PEL also activate extra minor modes in shell-script-mode through the PEL pel-sh-activates-minor-modes user-option.
<ul style="list-style-type: none"> Make script executable  Distinguish script from sourced scripts  Script extensions  Indentation control  shellcheck syntax check  			<ul style="list-style-type: none"> pel-make-script-executable : when turned on (set to t), Emacs makes the saved shell script file executable. PEL provides the ability to automatically identify shell scripts that must be sourced and are therefore not executables: <ul style="list-style-type: none"> pel-shell-sourced-script-file-name-prefix: use a regexp to identify the base name of files that are meant to be sourced. For example, if all shell files that are sourced have a file name that begins with an underscore, use the following regexp: <code>\`_</code> <ul style="list-style-type: none"> pel-shell-script-extensions: identifies file extensions of files that PEL must not identify as sourced files. Use of hard tab for indentation is set by pel-sh-use-tabs. The number of columns used for indentation is controlled by pel-sh-tab-width. Set pel-use-shellcheck to activate shellcheck-based syntax checking. Values allow activating flycheck or flymake manually or automatically. Recommendation: select 'use flycheck automatically': it will activate it and will provide key bindings automatically. PEL also provide specialized code templates that are taking the above user-options into account. The commands distinguish a shell script file that must be executable from one that must be sourced and generates different text. PEL activates the superword-mode automatically in shell script buffers. See Text Modes for more info.
Open this PDF file. See also: Text Help/Info	<f11> SPC H <f1> <f12> <f1>	(pel-help-pdf &optional OPEN-WEB-PAGE)	Open the  - UNIX Shell local PDF. If the prefix argument (like C-u or M--) is used, then it opens the remote GitHub hosted raw PDF instead. If the pel-flip-help-pdf-arg user-option is set it's the other way around.
Customize PEL UNIX Shell support	<f11> SPC H <f2> <f12> <f2>	(pel-customize-pel &optional OTHER-WINDOW)	Customize PEL UNIX Shell support. <ul style="list-style-type: none"> If OTHER-WINDOW is non-nil (use C-u), display in another window.
Customize Emacs UNIX Shell support	<f11> SPC H <f3> <f12> <f3>	(pel-customize-library &optional OTHER-WINDOW)	Customize Emacs UNIX Shell support: sh, sh-script, sh-indentation. <ul style="list-style-type: none"> If OTHER-WINDOW is non-nil (use C-u), display in another window.
Specialized Execution	The following commands can be used to change the scripting dialect and to execute a portion of the code in the buffer.		
Set the buffer shell type	C-c :	(sh-set-shell SHELL &optional NO-QUERY-FLAG INSERT-FLAG)	Set this buffer's shell to SHELL (a string). Prompts, support tab-completion. <ul style="list-style-type: none"> When used interactively, insert the proper starting <code>#!/</code>-line, and make the visited file executable via 'executable-set-magic', perhaps querying depending on the value of 'executable-query'. Calls the value of 'sh-set-shell-hook' if set. Shell script files can cause this function be called automatically when the file is visited by having a 'sh-shell' file-local variable whose value is the shell name (don't quote it).
Execute region in a sub-shell	C-M-x	(sh-execute-region START END &optional FLAG)	Pass optional header and region to a subshell for noninteractive execution. <ul style="list-style-type: none"> The working directory is that of the buffer, and only environment variables are already set which is why you can mark a header within the script. With a positive prefix ARG, instead of sending region, define header from beginning of buffer to point. With a negative prefix ARG, instead of sending region, clear header. Print result on the echo area if it fits, otherwise into the "Shell Command Output" buffer.
Syntax checking with shellcheck	Emacs shell script buffer syntax checking is done by shellcheck . It can be provided by the built-in flymake or the flycheck external package.  With PEL, the pel-use-shellcheck user-option determines which one is supported, if any. Defaults to no support.		
Flycheck pel-use-shellcheck := <ul style="list-style-type: none"> flycheck-manual flycheck-automatic 	Flycheck is a minor mode for on-the-fly syntax checking.  The flycheck external package  is activated by PEL when pel-use-shellcheck is set to either flycheck-manual or flycheck-automatic. <ul style="list-style-type: none"> It is also activated when the pel-use-flycheck user-option is turned on when another major mode specific user-option requires it.  Aside from the following 2 key bindings that PEL provides to toggle the flycheck mode, flycheck key prefix is C-c ! as set by its flycheck-keymap-prefix user-option. You can change it for a different key prefix.		
Toggle flycheck mode for current buffer	<f11> ! !	(flycheck-mode &optional ARG)	Toggle flycheck minor-mode for the current buffer.
Toggle flycheck mode for all buffers	<f11> ! M-!	(global-flycheck-mode &optional ARG)	Toggle Flycheck mode in all buffers. <ul style="list-style-type: none"> Flycheck mode is enabled in all buffers where 'flycheck-mode-on-safe' would do it.
Info about Flycheck	The following extra key bindings are available when flycheck is active.		
Open Flycheck manual	C-c ! i	(flycheck-manual)	Open the Flycheck manual.
Display Flycheck version	C-c ! v	(flycheck-version &optional SHOW-VERSION)	Get the Flycheck version as string. <ul style="list-style-type: none"> If called interactively or if SHOW-VERSION is non-nil, show the version in the echo area and the messages buffer. The returned string includes both, the version from package.el and the library version, if both a present and different. If the version number could not be determined, signal an error, if called interactively, or if SHOW-VERSION is non-nil, otherwise just return nil.
Flycheck setup	The following extra key bindings are available when flycheck is active.		
Display documentation about syntax checker	C-c ! ?	(flycheck-describe-checker CHECKER)	Display the documentation of CHECKER. <ul style="list-style-type: none"> CHECKER is a checker symbol. Pop up a help buffer with the documentation of CHECKER.
Select Flycheck Checker for current buffer	C-c ! s	(flycheck-select-checker CHECKER)	Select CHECKER for the current buffer. <ul style="list-style-type: none"> CHECKER is a syntax checker symbol (see 'flycheck-checkers') or nil. In the former case, use CHECKER for the current buffer, otherwise deselect the current syntax checker (if any) and use automatic checker selection via 'flycheck-checkers'. If called interactively prompt for CHECKER. With prefix arg deselect the current syntax checker and enable automatic selection again. Set 'flycheck-checker' to CHECKER and automatically start a new syntax check if the syntax checker changed. CHECKER will be used, even if it is not contained in 'flycheck-checkers', or if it is disabled via 'flycheck-disabled-checkers'.
Verify Flycheck setup	C-c ! v	(flycheck-verify-setup)	Check whether Flycheck can be used in this buffer. <ul style="list-style-type: none"> Display a new buffer listing all syntax checkers that could be applicable in the current buffer. For each syntax checkers, possible problems are shown.
Disable Flycheck checker	C-c ! x	(flycheck-disable-checker CHECKER &optional ENABLE)	Interactively disable CHECKER for the current buffer. <ul style="list-style-type: none"> Prompt for a syntax checker to disable, and add the syntax checker to the buffer-local value of 'flycheck-disabled-checkers'. With non-nil ENABLE or with prefix arg, prompt for a disabled syntax checker and re-enable it by removing it from the buffer-local value of 'flycheck-disabled-checkers'.

Description	Keystroke	Function	Note
• Flycheck buffer/file	The following extra key bindings are available when flycheck is active.		
Syntax Check current buffer	C-c ! c	(flycheck-buffer)	Start checking syntax in the current buffer. <ul style="list-style-type: none"> Get a syntax checker for the current buffer with ‘flycheck-get-checker-for-buffer’, and start it.
Check syntax of current file	C-c ! C-c	(flycheck-compile CHECKER)	Run CHECKER via ‘compile’. <ul style="list-style-type: none"> Prompt for a syntax checker to run. Instead of highlighting errors in the buffer, this command pops up a separate buffer with the entire output of the syntax checker tool, just like ‘compile’.
• Manage Errors	The following extra key bindings are available when flycheck is active.		
Show error list for current buffer	<ul style="list-style-type: none"> C-c ! 1 <f12> e 	(flycheck-list-errors)	Show the error list for the current buffer.
Display all errors at point	C-c ! h	(flycheck-display-error-at-point)	Display all the error messages at point.
Explain error at point	<ul style="list-style-type: none"> C-c ! e <f12> / 	(flycheck-explain-error-at-point)	Display an explanation for the first explainable error at point. <ul style="list-style-type: none"> In a shell script buffer this opens the shellcheck wiki page for the identified error.
Copy errors	C-c ! C-w	(flycheck-copy-errors-as-kill POS &optional FORMATTER)	Copy each error at POS into kill ring, using FORMATTER. <ul style="list-style-type: none"> FORMATTER is a function to turn an error into a string, defaulting to ‘flycheck-error-message’. Interactively, use ‘flycheck-error-format-message-and-id’ as FORMATTER with universal prefix arg, and ‘flycheck-error-id’ with normal prefix arg, i.e. copy the message and the ID with universal prefix arg, and only the id with normal prefix arg.
Clear all errors	C-c ! C	(flycheck-clear &optional SHALL-INTERRUPT)	Clear all errors in the current buffer. <ul style="list-style-type: none"> With prefix arg or SHALL-INTERRUPT non-nil, also interrupt the current syntax check.
Move point to next error	<ul style="list-style-type: none"> C-c ! n M-n 	(flycheck-next-error &optional N RESET)	Visit the N-th error from the current point. <ul style="list-style-type: none"> N is the number of errors to advance by, where a negative N advances backwards. With non-nil RESET, advance from the beginning of the buffer, otherwise advance from the current position.
Move point to prior error	<ul style="list-style-type: none"> C-c ! p M-p 	(flycheck-previous-error &optional N)	Visit the N-th previous error. <ul style="list-style-type: none"> If given, N specifies the number of errors to move backwards by. If N is negative, move forwards instead.
Specialized Navigation	The following commands override normal key bindings and provide specialized navigation key bindings in shell scripts buffers.		
Go to beginning of command	M-a	(sh-beginning-of-command)	Move point to successive beginnings of commands.
Go to end of command	M-e	(sh-end-of-command)	Move point to successive ends of commands.
Backward to beginning of block: <ul style="list-style-type: none"> if* ⇐ for while until ⇐ case ⇐ (block backward) See also: Navigation	<ul style="list-style-type: none"> C-M-b C-M-<left> C-[C-b Esc C-b Esc C-<left> 	(backward-sexp &optional ARG)	Move backward across one balanced expression (sexp). <ul style="list-style-type: none"> With ARG, do it that many times. Negative arg -N means move forward across N balanced expressions. This command assumes point is not in a string or comment. C-M-b : ➡ Shift marking is available in graphics mode, not in terminal mode. C-M-<left> : ➡ Shift marking works with this command.
Forward to end of block: <ul style="list-style-type: none"> ⇒ fi ⇒ done ⇒ esac (block forward) See also: Navigation	<ul style="list-style-type: none"> C-M-f C-M-<right> C-[C-f Esc C-f Esc C-<right> 	(forward-sexp &optional ARG)	Move forward across one balanced expression (sexp). <ul style="list-style-type: none"> With ARG, do it that many times. Negative arg -N means move backward across N balanced expressions. This command assumes point is not in a string or comment. C-M-f : ➡ Shift marking is available in graphics mode, not in terminal mode. C-M-<right> : ➡ Shift marking works with this command.
Using Flymake pel-use-shellcheck := <ul style="list-style-type: none"> flymake-manual flymake-automatic 	You can also use Emacs built-in flymake to control shell-check based syntax checking. <p>⚠ Note, however, than using flymake does not provide as many commands as when you use flycheck (as described above).</p> <ul style="list-style-type: none"> Several key bindings are not available when flymake is used. 🔧 Flymake has several customizable variables, which some listed here: The following customization variables determine the exact circumstances whereupon Flymake decides to initiate a check of the buffer: <ul style="list-style-type: none"> flymake-start-on-flymake-mode : t to start checking when flymake-mode is started. nil to prevent check. flymake-no-changes-timeout : time to wait after last change to start checking. Default = 0.5 seconds. flymake-start-syntax-check-on-newline : t to check after insertion or removal of newline char from buffer. nil to prevent check. The following variable control navigation to next or previous error: <ul style="list-style-type: none"> flymake-wrap-around : If non-nil, moving to errors wraps around buffer boundaries. flymake-diagnostic-types-alist : Alist ((KEY . PROPS)*) of properties of Flymake diagnostic types. See Emacs documentation for more info. 		
Toggle Flymake mode on/off	M-x flymake-mode	(flymake-mode &optional ARG)	Toggle Flymake mode on or off. <ul style="list-style-type: none"> With a prefix argument ARG, enable Flymake mode if ARG is positive, and disable it otherwise. Flymake is an Emacs minor mode for on-the-fly syntax checking. Flymake collects diagnostic information from multiple sources, called backends, and visually annotates the buffer with the results.
Go to next flymake diagnostic	M-n	(flymake-goto-next-error &optional N FILTER INTERACTIVE)	Move point to the next Flymake diagnostic. <ul style="list-style-type: none"> With a prefix arg, skip any diagnostics with a severity less than ‘:warning’. Display the error message in the echo line.
Go to previous flymake diagnostic	M-p	(flymake-goto-prev-error &optional N FILTER INTERACTIVE)	Move point to the previous Flymake diagnostic. <ul style="list-style-type: none"> With a prefix arg, skip any diagnostics with a severity less than ‘:warning’. Display the error message in the echo line.

Description	Keystroke	Function	Note
Comments	Insert a comment, comment or un-comment a region with M- ;		
Toggle display of comments in buffer or active region See also: ⌘ Comments	<f11> ; ;	(hide/show-comments-toggle &optional START END)	Toggle hiding/showing of comments in the active region or whole buffer. <ul style="list-style-type: none"> If the region is active then toggle in the region. Otherwise, in the whole buffer.  This requires the hide-comnt.el package (see ⌘ Comments).  PEL activates it when the pel-use-hide-comnt user option is t .
Specialized Insertion			
Double quote word at point	<f12> “	(pel-sh-double-quote-word)	Surround word at point or selected area with double quotes.
Singe quote word at point	<f12> ’	(pel-sh-single-quote-word)	Surround word at point or selected area with single quotes.
Backtickquote word at point	<f12> `	(pel-sh-backtick-quote-word)	Surround word at point or selected area with back-tick characters.
Generic code skeletons • tempo skeletons See also: <ul style="list-style-type: none"> ⌘ Inserting Text T Templates 	Several mechanisms have been developed to allow easy insertion of predefined text in Emacs. <ul style="list-style-type: none"> Emacs provides the built-in skeleton mechanism and the tempo skeletons. <ul style="list-style-type: none"> PEL supports both. They are used a little bit differently. <ul style="list-style-type: none"> PEL provides key bindings to the tempo skeletons: the generic code templates, accessible via the <f6> prefix key, and the language-specific code templates, accessible via the <f12> key prefix. PEL provides generic tempo skeletons the handle UNIX shell script files. 		
⌘ Customize PEL Text Insertions control	<f6> <f2>	(pel-customize-pel &optional OTHER-WINDOW)	Customize PEL generic tempo skeleton customization groups that control the format of the various skeletons including the generic skeleton used by the <f6> h key (se below). <ul style="list-style-type: none"> If OTHER-WINDOW is non-nil (use C-u) , display in other window.
Insert generic file module header block — Language agnostic After inserting the template, navigate though areas that must be filled with: <ul style="list-style-type: none"> tempo-forward-mark: C-c . tempo-backward-mark: C-c , 	<f6> h	(pel-generic-file-header)	Insert a file header block at the top of the file. Works only for buffer visiting a file.  The command key binding <f6> h is available only 1 second after Emacs has started.
	 Specify the format of the header via the user-options in the pel-pkg-generic-code-style customization group accessible via <f6> <f2> <ul style="list-style-type: none"> Inside a sh-mode buffer, <f12> <f2> provides access to the following customization groups: <ul style="list-style-type: none"> pel-pkg-for-sh for the control of the template format and pel-sh-script-skeleton-control for sh-mode specific user-options. The files that have no extensions are often used in Unix-like OS shell scripts. These files are also supported as Emacs can recognize them if they are stored in a bin directory.  After inserting a template, use tempo-forward-mark and tempo-backward-mark to move to the beginning of each section that must be filled.		
Toggle pel-tempo-mode	<f6> SPC	(pel-tempo-mode &optional ARG)	Toggle PEL tempo mode on/off. PEL tempo mode activates C-c . and C-c , , as well as to C-c C-. and C-c C-, key bindings to navigate across tempo mark hot-spots. When pel-tempo-mode is active the pel-tempo-mode lighter (\$) is shown on the status bar. The second set of keys are only available when Emacs runs in graphics mode.  The pel-generic-file-header command inserts the text using a tempo skeleton: the PEL tempo mode is automatically activated by typing <f6> h .
Jump to next tempo mark	<ul style="list-style-type: none"> C-c M-f C-c . C-c C-. 	(tempo-forward-mark)	Jump to the next mark in ‘tempo-back-mark-list’: the location where code must be updated inside the inserted skeleton. <ul style="list-style-type: none"> These key key bindings are only available when pel-tempo-mode is active.
Jump to previous tempo mark	<ul style="list-style-type: none"> C-c M-b C-c , C-c C-, 	(tempo-backward-mark)	Jump to the previous mark in ‘tempo-back-mark-list’: the location where code must be updated inside the inserted skeleton. <ul style="list-style-type: none"> These key binding are only available when pel-tempo-mode is active.
Shell statement Insertion	The sh-mode provides the following commands to insert shell scripts code elements with templates defined with the Emacs skeleton language . All of these statement insertion command share the same extra description: <ul style="list-style-type: none"> This is a skeleton command (see ‘skeleton-insert’). Normally the skeleton text is inserted at point, with nothing "inside". If there is a highlighted region, the skeleton text is wrapped around the region text. A prefix argument ARG says to wrap the skeleton around the next ARG words. A prefix argument of -1 says to wrap around region, even if not highlighted. A prefix argument of zero says to wrap around zero words---that is, nothing. This is a way of overriding the use of a highlighted region. 		
Insert a case/switch	C-c C-c	(sh-case &optional STR ARG)	Insert a case/switch statement.
Insert a for loop	C-c C-f	(sh-for &optional STR ARG)	Insert a for loop.
Insert function definition	C-c ((sh-function &optional STR ARG)	Insert a function definition.
Insert a if statement	<ul style="list-style-type: none"> C-c <tab> C-c C-i 	(sh-if &optional STR ARG)	Insert a if statement.
Insert an indexed loop from 1 to n.	C-c C-1	(sh-indexed-loop &optional STR ARG)	Insert an indexed loop from 1 to n.
Insert a getopt loop	C-c C-o	(sh-while-getopts &optional STR ARG)	Insert a while getopt loop. <ul style="list-style-type: none"> Prompts for an options string which consists of letters for each recognized option followed by a colon ‘:’ if the option accepts an argument.
Insert a repeat loop definition	C-c C-r	(sh-repeat &optional STR ARG)	Insert a repeat loop definition.
Insert a select statement	C-c C-s	(sh-select &optional STR ARG)	Insert a select statement.
Insert an until loop	C-c C-u	(sh-until &optional STR ARG)	Insert an until loop.
Insert a while loop	C-c C-w	(sh-while &optional STR ARG)	Insert a while loop.
Show indentation	C-c ?	(sh-show-indent ARG)	Show how the current line would be indented. <ul style="list-style-type: none"> This tells you which variable, if any, controls the indentation of this line. If optional arg ARG is non-null (called interactively with a prefix), a pop up window describes this variable. If variable ‘sh-blink’ is non-nil then momentarily go to the line we are indenting relative to, if applicable.
Set indentation for current line	C-c =	(sh-set-indent)	Set the indentation for the current line. If the current line is controlled by an indentation variable, prompt for a new value for it.
Learn indentation from current line	C-c <	(sh-learn-line-indent ARG)	Learn how to indent a line as it currently is indented. <ul style="list-style-type: none"> If there is an indentation variable which controls this line’s indentation, then set it to a value which would indent the line the way it presently is. If the value can be represented by one of the symbols then do so unless optional argument ARG (the prefix when interactive) is non-nil.

Description	Keystroke	Function	Note
Learn indentation from buffer	C-c >	(sh-learn-buffer-indent &optional ARG)	<p>Learn how to indent the buffer the way it currently is.</p> <ul style="list-style-type: none">• If 'sh-use-smie' is non-nil, call 'smie-config-guess'. Otherwise, run the sh-script specific indent learning command, as described below.• Output in buffer "**indent*" shows any lines which have conflicting values of a variable, and the final value of all variables learned.• When called interactively, pop to this buffer automatically if there are any discrepancies.• If no prefix ARG is given, then variables are set to numbers.• If a prefix arg is given, then variables are set to symbols when applicable -- e.g. to symbol '+' if the value is that of the basic indent.• If a positive numerical prefix is given, then 'sh-basic-offset' is set to the prefix's numerical value.• Otherwise, sh-basic-offset may or may not be changed, according to the value of variable 'sh-learn-basic-offset'.• Abnormal hook 'sh-learned-buffer-hook' if non-nil is called when the function completes. The function is abnormal because it is called with an alist of variables learned. <p>⚠️ This command can often take a long time to run.</p>