





Diff & Merge

Operation	Keystroke	Function	Note
Diff, Merge & Patch Files within Emacs See also: 🔗 Customize	Emacs has complete support to perform text file diff , 2-way merge and 3-way merge operations. This nicely compares to what's available outside Emacs . <ul style="list-style-type: none">Emacs has two built-in packages that support comparing files: diff and ediff.<ul style="list-style-type: none">ediff is more powerful than diff and more visual, using one buffer per file. ediff supports 3-way merge and supports diff of directory trees.For 3-way merge operations Emacs provides the built-in<ul style="list-style-type: none">ediffsmerge.<ul style="list-style-type: none">The smerge system is quite useful: if activated by pel-use-smerge set to auto, Emacs will automatically launch smerge when it detects a (D)VCS merge markup inside a file, similar to what Git or Mercurial will do when they cannot automatically complete a merge operation themselves.smerge provides all the commands to perform the merge. If you prefer to use 3 buffers you can invoke ediff directly from smerge.smerge inherit from the older but still supported Emerge built-in package.PEL does not provide key bindings for Emerge as ediff commands are easier to use and more powerful. PEL also provides support for the following extra external packages:  The ztree external package provides a tree-view directory diff.  PEL activates it when pel-use-ztree is set to t.		
Open this PDF file. See also: 🔗 Help/Info	<div><f11> d <f1></div> <div><f12> <f1></div>	(pel-help-pdf &optional OPEN-WEB-PAGE)	Open the 🔗 Diff & Merge 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 support for diff	<div><f11> d <f2></div> <div><f12> <f2></div>	(pel-customize-pel &optional OTHER-WINDOW)	Customize PEL support for diff: smerge, ztree <ul style="list-style-type: none">If OTHER-WINDOW is non-nil (use C-u) , display in other window.
Customize Emacs for specify diff mode <ul style="list-style-type: none">Adjusted for the current diff mode being used	<f12> <f3>	(b)pel-customize-library &optional OTHER-WINDOW)	Customize Emacs support for currently active diff mode. For this & following: If OTHER-WINDOW non-nil (C-u) , display in other window.
	<f11> d <f3>		Customize Emacs support for diff, ediff, emerge, smerge, ztree.
	<f11> d e <f3>		Customize Emacs ediff.
	<f11> d s <f3>		Customize Emacs smerge
Diff	The diff-mode provides a set of commands to compare files and buffers. This mode is used when the buffer holds a patch file created by various tools. Use the following commands to compare files and buffers and enter the diff-mode. See the commands provided by the diff-mode below.		
Compare 2 files	<f11> d f	(diff OLD NEW &optional SWITCHES NO-ASYNC)	Find and display the differences between OLD and NEW files. <ul style="list-style-type: none">Prompt for NEW, then OLD files.
Compare file with its backup	<f11> d k	(diff-backup FILE &optional SWITCHES)	Diff this file with its backup file or vice versa. <ul style="list-style-type: none">Uses the latest backup, if there are several numerical backups.If this file is a backup, diff it with its original.The backup file is the first file given to 'diff'.With prefix arg, prompt for diff switches.
Compare buffer and associated file	<f11> d b	(diff-buffer-with-file &optional BUFFER)	View the differences between BUFFER and its associated file.
Compare current and other window	<f11> d w	(compare-windows IGNORE-WHITESPACE)	Compare text in current window with text in another window.
	<ul style="list-style-type: none">The compare-windows-get-window-function user option defines how to get another window. Set to compare-windows-get-recent-window by default.Compares the text starting at point in each window, moving over text in each one as far as they match.This command pushes the mark in each window at the prior location of point in that window.If both windows display the same buffer, the mark is pushed twice in that buffer: first in the other window, then in the selected window.  Use this for simple comparison between 2 windows just to see if they have the same content. <ul style="list-style-type: none">Split your frame in 2 windows, loaded with the buffer of the files you want to compare.Place point at the top of each buffer and issue the command.Point will be moved to the first difference in both window. If there is no difference point will be moved at the end of each window.		
diff-mode commands	Use the following commands in a buffer using the diff-mode major mode to manipulate the patch diff file and the diff hunks .  The following commands are also available from the Diff menu on the menu-bar accessible via the <f10> key. See 🔗 Menus		
diff-mode setup	<f12> <f4> ?	(pel-ediff-show-status)	Display diff-mode status information.
Toggle Next-Error-Follow minor mode	C-c C-f	(next-error-follow-minor-mode &optional ARG)	Minor mode for compilation, occur and diff modes. <ul style="list-style-type: none">With a prefix argument ARG, enable mode if ARG is positive, and disable it otherwise. If called from Lisp, enable mode if ARG is omitted or nil.When turned on, cursor motion in the compilation, grep, occur or diff buffer causes automatic display of the corresponding source code location.
Jump to source file <ul style="list-style-type: none">open source of current hunk in a new window	C-c C-c	(diff-goto-source &optional OTHER-FILE EVENT)	Jump to the corresponding source line. <ul style="list-style-type: none">'diff-jump-to-old-file' (or its opposite if the OTHER-FILE prefix arg is given) determines whether to jump to the old or the new file.If the prefix arg is bigger than 8 (for example with C-u C-u) then 'diff-jump-to-old-file' is also set, for the next invocations.
To next hunk	<ul style="list-style-type: none">M-nC-M-i	(diff-hunk-next &optional COUNT)	Go to the next COUNT`th hunk.
To previous hunk	<ul style="list-style-type: none">M-p<Esc> <backtab>	(diff-hunk-prev &optional COUNT)	Go to the previous COUNT`th hunk
To next file	<ul style="list-style-type: none">M-}M-N<f6> <down>	(diff-file-next &optional COUNT)	Go to the next COUNT`th file.
To previous file	<ul style="list-style-type: none">M-{M-P<f6> <up>	(diff-file-prev &optional COUNT)	Go to the previous COUNT`th file
Show all files present in diff inside an occur buffer	<f6> o	(pel-c-preproc-conditionals-occur &optional NLINES)	Show the names of all files inside an occur buffer. <ul style="list-style-type: none">Each line shown with NLINES before & after, or -NLINES before if NLINES < 0.NLINES defaults to 1, overriding `list-matching-lines-default-context-lines'.If a region is defined the search is restricted to the region.
Restrict view to current hunk or file See 🔗 Narrowing	C-c C-n	(diff-restrict-view &optional ARG)	Restrict the view to the current hunk. <ul style="list-style-type: none">If the prefix ARG is given, restrict the view to the current file instead.This is a buffer narrowing type of command.Use C-x n w to widen the buffer back.
Apply current hunk to source file	C-c C-a	(diff-apply-hunk &optional REVERSE)	Apply current hunk (<i>not all hunks for the file!</i>) to the source file and go to the next. <ul style="list-style-type: none">By default, the new source file is patched, but if the variable 'diff-jump-to-old-file' is non-nil, then the old source file is patched instead (some commands, such as 'diff-goto-source' can change the value of this variable when given an appropriate prefix argument). With a prefix argument, REVERSE the hunk.
Apply diff with Ediff	C-c C-e	(diff-ediff-patch)	Call 'ediff-patch-file' on the current buffer: Query for a file name, and then run Ediff by patching that file. <ul style="list-style-type: none">If optional PATCH-BUF is given, use the patch in that buffer & don't ask user.If prefix argument ARG, then: if even argument, assume that the patch is in a buffer. If odd -- assume it is in a file.
Highlight changes in hunk	C-c C-b	(diff-refine-hunk)	Highlight changes of hunk at point at a finer granularity.

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Test if hunk can be applied	C-c C-t	(diff-test-hunk &optional REVERSE)	See whether it's possible to apply the current hunk. With a prefix argument, try to REVERSE the hunk.
Convert unified diff to context diff	C-c C-d	(diff-unified->context START END)	Convert unified diffs to context diffs. <ul style="list-style-type: none"> START and END are either taken from the region (if a prefix arg is given) or else cover the whole buffer.
Reverse direction of diff	C-c C-r	(diff-reverse-direction START END)	Reverse the direction of the diffs. <ul style="list-style-type: none"> START and END are either taken from the region (if a prefix arg is given) or else cover the whole buffer.
Split hunk	C-c C-s	(diff-split-hunk)	Split the current (unified diff) hunk at point into two hunks.
Convert context diff to unified diff	C-c C-u	(diff-context->unified START END &optional TO-CONTEXT)	Convert context diffs to unified diffs. <ul style="list-style-type: none"> START and END are either taken from the region (when it is highlighted) or else cover the whole buffer. With a prefix argument, convert unified format to context format.
Re-diff current hunk, ignore whitespace	C-c C-w	(diff-ignore-whitespace-hunk)	Re-diff the current hunk, ignoring whitespace differences.
Ediff	Ediff sessions have several commands, shown in the Ediff Quick Help buffer. <ul style="list-style-type: none"> Type ? to toggle Ediff Quick Help from 1 line to multiple that shows all available commands. For more info about a command, place point on the command character and type RET: Emacs will open the Ediff Quick Help Commands Info buffer. 👉 While showing 2 or 3 buffer/files in windows Ediff provides the v/V keys for scrolling up/down. PEL scroll sync commands can also be used to provide single line scroll synced between the windows. See the <f11> commands in table.		
See also: Scrolling			
Display Ediff Manual	<f11> d e ?	(ediff-documentation &optional NODE)	Display Ediff's manual. <ul style="list-style-type: none"> With optional NODE, goes to that node.
Display registry of active Ediff sessions	<f11> d e R	<ul style="list-style-type: none"> (eregistry) (ediff-show-registry) 	Display registry of all active Ediff sessions.
Ediff file against previous revision	<f11> d r	(pel-ediff-revisions)	Run ediff-revision on the file in the current window. <ul style="list-style-type: none"> Prompts for revisions, default to current copy and last commit.
Ediff 2 files	<f11> d 2	(pel-ediff-2files &optional N)	Run ediff-files on the files of current and the other window. <ul style="list-style-type: none"> Select the current file and the other file without prompting. With numeric argument if N is in [2,8] range, select other window identified by the direction corresponding to the cursor in a numeric keypad: <div> 8 := 'up 4 := 'left 5 := 'current 6 := 'right 2 := 'down </div>
Compare buffer with its file on disk	<f11> d e b f	(ediff-current-file)	Compare the buffer with its file on disk. This function can be used as a safe version of revert-buffer.
Compare 2 buffers	<f11> d e b b	(ediff-buffers BUFFER-A BUFFER-B &optional STARTUP-HOOKS JOB-NAME)	Compare 2 buffers. <ul style="list-style-type: none"> Prompts for buffer A and buffer B
Compare 3 buffers	<f11> d e b 3	(ediff-buffers3 BUFFER-A BUFFER-B BUFFER-C &optional STARTUP-HOOKS JOB-NAME)	Compare 3 buffers. <ul style="list-style-type: none"> Prompts for buffer A, buffer B and buffer C.
Compare file with its backup Autosave/backup	<f11> d e f k	(ediff-backup FILE)	Compare a file with its backup. If there are several numerical backups, use the latest. <ul style="list-style-type: none"> If the file is itself a backup, then compare it with its original.
Compare 2 files	<f11> d e f f	<ul style="list-style-type: none"> (ediff FILE-A FILE-B &optional STARTUP-HOOKS) (ediff-files FILE-A FILE-B &optional STARTUP-HOOKS) 	Compare 2 files. Uses either diff or ediff-files. <ul style="list-style-type: none"> Prompts for file A and B. PEL provide a shortcut function pel-ediff-2files mapped to <f11> d 2 which does not prompt. See above.
Compare 3 files	<f11> d e f 3	<ul style="list-style-type: none"> (ediff3 FILE-A FILE-B FILE-C &optional STARTUP-HOOKS) (ediff-files3 FILE-A FILE-B FILE-C &optional STARTUP-HOOKS) 	Compare 3 files. <ul style="list-style-type: none"> Prompts for file A, B and C.
Compare revision of buffer with file revision	<f11> d e f r	(ediff-revision &optional FILE STARTUP-HOOKS)	Compare versions of the current buffer, if the buffer is visiting a file under VCS. <ul style="list-style-type: none"> Prompts for the file name and each of its revisions. PEL provide a shortcut function pel-ediff-revision mapped to <f11> d r.
Compare versions of files in a given directory	<f11> d e d r	<ul style="list-style-type: none"> (edir-revisions DIR1 REGEXP) (ediff-directory-revisions DIR1 REGEXP) 	Compare versions of files in a given directory. <ul style="list-style-type: none"> Ediff selects only the files that are under version control. Prompts for directory and regexp to identify files: if empty: selects all files.
Compare text in 2 windows word-by-word	<f11> d e w w	(ediff-windows-wordwise DUMB-MODE &optional WIND-A WIND-B STARTUP-HOOKS)	Compare text visible in 2 windows word-by-word. <ul style="list-style-type: none"> Uses current and other (next) window.
Compare text in 2 windows line-by-line	<f11> d e w l	(ediff-windows-linewise DUMB-MODE &optional WIND-A WIND-B STARTUP-HOOKS)	Compare text visible in 2 windows line-by-line. <ul style="list-style-type: none"> Uses current and other (next) window.
Compare 2 regions word-by-word	<f11> d e r w	(ediff-regions-wordwise BUFFER-A BUFFER-B &optional STARTUP-HOOKS)	Compare text visible in 2 regions word-by-word. <ul style="list-style-type: none"> Prompts for the 2 buffers and regions.
Compare 2 regions line-by-line	<f11> d e r l	(ediff-regions-linewise BUFFER-A BUFFER-B &optional STARTUP-HOOKS)	Compare text visible in 2 regions line-by-line. <ul style="list-style-type: none"> Prompts for the 2 buffers and regions.
Compare Directories	The built-in Ediff can compare 2 or 3 directories. The ztree external package provides a tree-view directory diff. PEL activates it when pel-use-ztree is set to t.		
Compare common files in 2 directories	<f11> d e d d	<ul style="list-style-type: none"> (edirs DIR1 DIR2 REGEXP) (ediff-directories DIR1 DIR2 REGEXP) 	Compare files common to two directories. <ul style="list-style-type: none"> Prompts for directory A & B and a regexp to identify files. If empty: select all files.
Compare common files in 3 directories	<f11> d e d 3	<ul style="list-style-type: none"> (edirs3 DIR1 DIR2 DIR3 REGEXP) (ediff-directories3 DIR1 DIR2 DIR3 REGEXP) 	Compare files common to three directories. <ul style="list-style-type: none"> Prompts for directory A, B and C and a regexp to identify files: if empty: selects all files.
Compare 2 directories with ztree-diff	<f11> d z	(ztree-diff DIR1 DIR2)	Open an interactive buffer with the directory tree of the path given, and highlight of file differences between the directories. DIR1 := left directory. DIR2:=right directory <ul style="list-style-type: none"> Interactively: prompts for the 2 directories. Requires the ztree external package . PEL activates it if pel-use-ztree is t.
Ztree Diff buffer keys: <ul style="list-style-type: none"> Ediff 2 files 	<ul style="list-style-type: none"> <SPACE> : Open/close directory <TAB> : switch between panels <RET> : Open/close directory Ediff 2 files /open orphan file x : Toggle expand/collapse of all nodes of the subtree. <div> 🚨 Use x with care! On large directory trees it may take a long time. I have see Emacs hang when typing x again during that time. </div> <f5> : force full rescan, re-write buffer (useful when changing window size). <ul style="list-style-type: none"> C : copy current file/directory to the directory shown in the other side (prompts) D : delete current file/directory (prompts) h : toggle display of identical files/directories. H : toggle display of filtered files. r : rescan/refresh current file/directory v : visit current file in view-mode . In view-mode the following keys are available (see Buffers for a complete list): <ul style="list-style-type: none"> q: quit view-mode and return to Ztree Diff e: leave view-mode, edit/visit the file normally. 		

Operation	Keystroke	Function	Note
Combine with next	<ul style="list-style-type: none"> C-c ^ C <f6> s C 	(smerge-combine-with-next)	Combine the current conflict with the next one.
Diff base & lower	<ul style="list-style-type: none"> C-c ^ = > <f6> s > 	(smerge-diff-base-lower)	Diff 'base' and 'lower' version in current conflict region.
Diff base & upper	<ul style="list-style-type: none"> C-c ^ = < <f6> s < 	(smerge-diff-base-upper)	Diff 'base' and 'upper' version in current conflict region.
Diff upper & lower	<ul style="list-style-type: none"> C-c ^ = = <f6> s = 	(smerge-diff-upper-lower)	Diff 'upper' and 'lower' version in current conflict region.
Invoke ediff	<ul style="list-style-type: none"> C-c ^ E <f6> s e 	(smerge-ediff &optional NAME-UPPER NAME-LOWER NAME-BASE)	Invoke ediff to resolve the conflicts. NAME-UPPER, NAME-LOWER, and NAME-BASE, if non-nil, are used for the buffer names.
Remove current	<f6> s M-k	(smerge-kill-current)	Remove the current (under the cursor) version.
Insert diff3 conflict markers	<f6> s M-C	(smerge-makeup-conflict PT1 PT2 PT3 &optional PT4)	Insert diff3 markers to make a new conflict. <ul style="list-style-type: none"> Uses point and mark for two of the relevant positions and previous marks for the other ones. By default, makes up a 2-way conflict, with a C-u prefix, makes up a 3-way conflict.
Refine highlight	<ul style="list-style-type: none"> C-c ^ R <f6> s R 	(smerge-refine &optional PART)	Highlight the words of the conflict that are different. <ul style="list-style-type: none"> For 3-way conflicts, highlights only two of the three parts. A numeric argument PART can be used to specify which two parts; repeating the command will highlight other two parts.
Resolve conflict at point	<ul style="list-style-type: none"> C-c ^ r <f6> s r 	(smerge-resolve &optional SAFE)	Resolve the conflict at point intelligently. <ul style="list-style-type: none"> This relies on mode-specific knowledge and thus only works in some major modes. Uses 'smerge-resolve-function' to do the actual work.
Resolve all conflicts	<f6> s M-r	(smerge-resolve-all)	Perform automatic resolution on all conflicts.
Swap upper and lower	<f6> s M-s	(smerge-swap)	Swap the "Upper" and the "Lower" chunks. <ul style="list-style-type: none"> Can be used before things like 'smerge-keep-all' or 'smerge-resolve' where the ordering can have some subtle influence on the result, such as preferring the spacing of the "Lower" chunk.
Patch files	Emacs supports merging a patch into a local file or a buffer. <ul style="list-style-type: none"> Patch files can be created by Emacs using diff and other tools. Patch are normally using the unified diff format. See the above sections for commands that can create patch files. The Emacs manual section on Sending Patches on GNU Emacs provides the following useful bit of information: <ul style="list-style-type: none"> Use 'diff -u -F'^[_a-zA-Z0-9\$]\+ *('' when making diffs of C code. This shows the name of the function that each change occurs in. Use 'diff -u' to make your diffs. Diffs without context are hard to install reliably. The Emacs commands you can use to apply a patch to a file are described below. 		
Patch file(s) and compare	<f11> d e p f <f11> d p f	<ul style="list-style-type: none"> (epatch &optional ARG PATCH-BUF) (ediff-patch-file &optional ARG PATCH-BUF) 	Query for a file name, and then run Ediff by patching that file. <ul style="list-style-type: none"> If optional PATCH-BUF is given, use the patch in that buffer and don't ask the user. If prefix argument ARG, then: if even argument, assume that the patch is in a buffer. If odd -- assume it is in a file. If a hunk cannot be applied, describe the problem inside the *ediff-message* buffer. <ul style="list-style-type: none"> It also creates a reject file that describes the hunk that could not be applied. The file is stored inside the same directory as the target file, uses the same file name with '.rej' appended to the file name. This may happen if a hunk describes an addition that is already present inside the target file.
Patch a buffer then compare	<f11> d e p b <f11> d p b	<ul style="list-style-type: none"> (epatch-buffer &optional ARG PATCH-BUF) (ediff-patch-buffer &optional ARG PATCH-BUF) 	Run Ediff by patching the buffer specified at prompt. <ul style="list-style-type: none"> Without the optional prefix ARG, asks if the patch is in some buffer and prompts for the buffer or a file, depending on the answer. With ARG=1, assumes the patch is in a file and prompts for the file. With ARG=2, assumes the patch is in a buffer and prompts for the buffer. PATCH-BUF is an optional argument, which specifies the buffer that contains the patch. If not given, the user is prompted according to the prefix argument.

Diff & Merge — References

emacs vdiff github project	
Using Emacs as a merge program @ Mercurial Wiki	
GNU Emacs Ediff Manual	Describes built-in Ediff: file diff of 2 or 3 files, 3-way merge, diff with backup, directory level diffs, version control aware...
vdiff.el	Github home of vdiff.el, a package that implements a diff tool similar to vimdiff.
Diff Patch	<ul style="list-style-type: none"> patch @ Wikipedia provides a good and concise introduction to the concept of diff and patch
Handling Patch Rejects	