## GNU Emacs Reference Card

(for version 19)

## Starting Emacs

To enter GNU Emacs 19, just type its name: emacs
To read in a file to edit, see Files, below.

## Leaving Emacs

| suspend Emacs (or iconify it under X) | $\mathrm{C}-\mathbf{z}$ |
| :--- | :--- |
| exit Emacs permanently | $\mathrm{C}-\mathrm{x} \mathrm{C}-\mathrm{c}$ |

## Files

| read a file into Emacs | $C-x ~ C-f$ |
| :--- | :--- |
| save a file back to disk | $C-x$ C-s |
| save all files | $C-x ~ s$ |
| insert contents of another file into this buffer | $C-x$ i |
| replace this file with the file you really want | $C-x ~ C-v$ |
| write buffer to a specified file | $C-x \quad C-w$ |
| version control checkin/checkout | $C-x \quad C-q$ |

## Getting Help

The Help system is simple. Type C-h (or F1) and follow the directions. If you are a first-time user, type $\mathrm{C}-\mathrm{h} \mathrm{t}$ for a tutorial.

| remove Help window | $C-x 1$ |
| :--- | :--- |
| scroll Help window | $\mathrm{C}-\mathrm{M}-\mathrm{v}$ |
| apropos: show commands matching a string | $\mathrm{C}-\mathrm{h}$ a |
| show the function a key runs | $\mathrm{C}-\mathrm{h} \mathrm{c}$ |
| describe a function | $\mathrm{C}-\mathrm{h}$ |
| f |  |
| get mode-specific information | $\mathrm{C}-\mathrm{h} \mathrm{m}$ |

## Error Recovery

abort partially typed or executing command $\quad$ C-g recover a file lost by a system crash $\quad \mathrm{M}-\mathrm{x}$ recover-file
undo an unwanted change
restore a buffer to its original contents $\quad M-x$ revert-buffer
redraw garbaged screen
C-1

## Incremental Search

| search forward | $\mathrm{C}-\mathrm{s}$ |
| :--- | :--- |
| search backward | $\mathrm{C}-\mathrm{r}$ |
| regular expression search | $\mathrm{C}-\mathrm{M}-\mathrm{s}$ |
| reverse regular expression search | $\mathrm{C}-\mathrm{M}-\mathrm{r}$ |
| select previous search string | $\mathrm{M}-\mathrm{p}$ |
| select next later search string | $\mathrm{M}-\mathrm{n}$ |
| exit incremental search | RET |
| undo effect of last character | DEL |
| abort current search | $\mathrm{C}-\mathrm{g}$ |

Use C-s or C-r again to repeat the search in either direction. If Emacs is still searching, $\mathrm{C}-\mathrm{g}$ cancels only the part not done.

## Motion

| entity to move over | backward | forward |
| :--- | :--- | :--- |
| character | $\mathrm{C}-\mathrm{b}$ | $\mathrm{C}-\mathrm{f}$ |
| word | $\mathrm{M}-\mathrm{b}$ | $\mathrm{M}-\mathrm{f}$ |
| line | $\mathrm{C}-\mathrm{p}$ | $\mathrm{C}-\mathrm{n}$ |
| go to line beginning (or end) | $\mathrm{C}-\mathrm{a}$ | $\mathrm{C}-\mathrm{e}$ |
| sentence | $\mathrm{M}-\mathrm{a}$ | $\mathrm{M}-\mathrm{e}$ |
| paragraph | $\mathrm{M}-\{$ | $\mathrm{M}-\}$ |
| page | $\mathrm{C}-\mathrm{x}[$ | $\mathrm{C}-\mathrm{x}]$ |
| sexp | $\mathrm{C}-\mathrm{M}-\mathrm{b}$ | $\mathrm{C}-\mathrm{M}-\mathrm{f}$ |
| function | $\mathrm{C}-\mathrm{M}-\mathrm{a}$ | $\mathrm{C}-\mathrm{M}-\mathrm{e}$ |
| go to buffer beginning (or end) | $\mathrm{M}-<$ | $\mathrm{M}-\mathrm{c}$ |
| scroll to next screen |  | $\mathrm{C}-\mathrm{v}$ |
| scroll to previous screen |  | $\mathrm{M}-\mathrm{v}$ |
| scroll left | $\mathrm{C}-\mathrm{x}<$ |  |
| scroll right |  | $\mathrm{C}-\mathrm{x}>$ |
| scroll current line to center of screen |  | $\mathrm{C}-\mathrm{ul} \mathrm{C}-\mathrm{l}$ |

## Killing and Deleting

entity to kill
character (delete, not kill)
word
line (to end of)
sentence
sexp
kill region
copy region to kill ring
kill through next occurrence of char
yank back last thing killed
replace last yank with previous kill

| backward DEL | forward $\mathrm{C}-\mathrm{d}$ |
| :---: | :---: |
| M-DEL | M-d |
| M-0 C-k | $\mathrm{C}-\mathrm{k}$ |
| C-x DEL | M-k |
| M-- C-M-k | $\mathrm{C}-\mathrm{M}-\mathrm{k}$ |
| C-w |  |
| M-w |  |
| M-z | char |
| C-y |  |
| M-y |  |

## Marking

| set mark here | $\mathrm{C}-@$ or C-SPC |
| :--- | :--- |
| exchange point and mark | $\mathrm{C}-\mathrm{x} \mathrm{C-x}$ |
| set mark arg words away | $\mathrm{M}-@$ |
| mark paragraph | $\mathrm{M}-\mathrm{h}$ |
| mark page | $\mathrm{C}-\mathrm{x} \mathrm{C-p}$ |
| mark sexp | $\mathrm{C}-\mathrm{M}-@$ |
| mark function | $\mathrm{C}-\mathrm{M}-\mathrm{h}$ |
| mark entire buffer | $\mathrm{C}-\mathrm{x} \mathrm{h}$ |

## Query Replace

interactively replace a text string

```
M-\%
M-x query-replace-regexp
```

using regular expressions
Valid responses in query-replace mode are
replace this one, go on to next SPC
replace this one, don't move
skip to next without replacing
,
replace all remaining matches
!
back up to the previous match
exit query-replace
RET
enter recursive edit ( $\mathrm{C}-\mathrm{M}-\mathrm{c}$ to exit)
$\mathrm{C}-\mathrm{r}$

## Multiple Windows

When two commands are shown, the second is for "other frame."
delete all other windows
split window in two vertically delete this window
split window in two horizontally
scroll other window
switch cursor to another window select buffer in other window display buffer in other window find file in other window find file read-only in other window run Dired in other window find tag in other window grow window taller shrink window narrower grow window wider

C-x 1
$C-x 2 \quad C-x 52$
$C-x \quad 0 \quad C-x 50$
C-x 3
C-M-v
$C-x \circ \quad C-x 5 \circ$
$\mathrm{C}-\mathrm{x} 4 \mathrm{~b} \quad \mathrm{C}-\mathrm{x} 5 \mathrm{~b}$
C-x 4 C-o C-x 5 C-o
C-x 4 f C-x 5 f
$C-x 4$ r C-x 5 r
$C-x 4 d \quad C-x 5 d$
$C-x 4$. C-x 5 .
C-x -
C-x \{
C-x \}

## Formatting

| indent current line (mode-dependent) | TAB |
| :--- | :--- |
| indent region (mode-dependent) | $\mathrm{C}-\mathrm{M}-\mathrm{\}$ |
| indent sexp (mode-dependent) | $\mathrm{C}-\mathrm{M}-\mathrm{q}$ |
| indent region rigidly arg columns | $\mathrm{C}-\mathrm{x}$ TAB |
| insert newline after point | $\mathrm{C}-\mathrm{o}$ |
| move rest of line vertically down | $\mathrm{C}-\mathrm{M}-\mathrm{o}$ |
| delete blank lines around point | $\mathrm{C}-\mathrm{x} \mathrm{C}-\mathrm{o}$ |
| join line with previous (with arg, next) | $\mathrm{M}--$ |
| delete all white space around point | $\mathrm{M}-\backslash$ |
| put exactly one space at point | $\mathrm{M}-\mathrm{SPC}$ |
| fill paragraph | $\mathrm{M}-\mathrm{q}$ |
| set fill column | $\mathrm{C}-\mathrm{x} f$ |
| set prefix each line starts with | $\mathrm{C}-\mathrm{x}$. |
| set face | $\mathrm{M}-\mathrm{g}$ |

## Case Change

| uppercase word | $\mathrm{M}-\mathrm{u}$ |
| :--- | :--- |
| lowercase word | $\mathrm{M}-1$ |
| capitalize word | $\mathrm{M}-\mathrm{C}$ |
| uppercase region | $\mathrm{C}-\mathrm{x} \mathrm{C-u}$ |
| lowercase region | $\mathrm{C}-\mathrm{x} \mathrm{C-l}$ |

## The Minibuffer

The following keys are defined in the minibuffer.

| complete as much as possible | TAB |
| :--- | :--- |
| complete up to one word | SPC |
| complete and execute | RET |
| show possible completions | $?$ |
| fetch previous minibuffer input | $\mathrm{M}-\mathrm{p}$ |
| fetch next later minibuffer input | $\mathrm{M}-\mathrm{n}$ |
| regexp search backward through history | $\mathrm{M}-\mathrm{r}$ |
| regexp search forward through history | $\mathrm{M}-\mathrm{s}$ |
| abort command | $\mathrm{C}-\mathrm{g}$ |

Type C-x ESC ESC to edit and repeat the last command that used the minibuffer. Type F10 to activate the menu bar using the minibuffer.

## GNU Emacs Reference Card

## Buffers

| select another buffer | C-x b |
| :---: | :---: |
| list all buffers | $\mathrm{C}-\mathrm{x} \mathrm{C}-\mathrm{b}$ |
| kill a buffer | C-x k |

## Transposing

| transpose characters | $\mathrm{C}-\mathrm{t}$ |
| :--- | :--- |
| transpose words | $\mathrm{M}-\mathrm{t}$ |
| transpose lines | $\mathrm{C}-\mathrm{x} \mathrm{C}-\mathrm{t}$ |
| transpose $\mathbf{~ s e x p s}$ | $\mathrm{C}-\mathrm{M}-\mathrm{t}$ |

## Spelling Check

| check spelling of current word | $M-\$$ |
| :--- | :---: |
| check spelling of all words in region | $M-x$ ispell-region |
| check spelling of entire buffer | $M-x$ ispell-buffer |

## Tags

| find a tag (a definition) | M-. |
| :--- | :---: |
| find next occurrence of tag | C-u M-. |
| specify a new tags file | $M-x$ visit-tags-table |
| regexp search on all files in tags table | $M-x$ tags-search |
| run query-replace on all the files | $M-x$ tags-query-replace |
| continue last tags search or query-replace | $M-$, |

## Shells

| execute a shell command | $\mathrm{M}-\mathrm{l}$ |
| :--- | :---: |
| run a shell command on the region | $\mathrm{M}-\mathrm{I}$ |
| filter region through a shell command | $\mathrm{C}-\mathrm{u} \mathrm{M}-\mid$ |
| start a shell in window *shell* | $\mathrm{M}-\mathrm{x}$ shell |

## Rectangles

| copy rectangle to register | $C-x$ | r | r |
| :--- | :--- | :--- | :--- | :--- |
| kill rectangle | $\mathrm{C}-\mathrm{x}$ | r | k |
| yank rectangle | $\mathrm{C}-\mathrm{x}$ | r | y |
| open rectangle, shifting text right | $\mathrm{C}-\mathrm{x}$ | r | 0 |
| blank out rectangle | $\mathrm{C}-\mathrm{x}$ | r | c |
| prefix each line with a string | $\mathrm{C}-\mathrm{x}$ | r | t |

## Abbrevs

| add global abbrev | $C-x$ a |
| :--- | :--- |
| add mode-local abbrev | $C-x$ a |
| add global expansion for this abbrev | $C-x$ a |
| ad |  |
| add mode-local expansion for this abbrev | $C-x$ a |
| explicitly expand abbrev | $C-x$ a |
| expand previous word dynamically | $\mathrm{M}-/$ |

## Regular Expressions

any single character except a newline zero or more repeats
one or more repeats
zero or one repeat
any character in the set
any character not in the set
beginning of line
end of line
quote a special character $c$
alternative ("or")
grouping
$n$th group
beginning of buffer
end of buffer
word break
not beginning or end of word
beginning of word
end of word
any word-syntax character
any non-word-syntax character
character with syntax $c$
character with syntax not $c$

## Registers

save region in register
insert register contents into buffer
save value of point in register
jump to point saved in register

```
. (dot)
*
+
?
[ ...]
[^...]
$
\c
\I
\(...\)
\n
\'
\'
\b
\B
\<
\>
\w
\W
\sc
\Sc
```

$\mathrm{C}-\mathrm{x}$ r s
C-x ri
$C-x$ r SPC
$C-x$ r $j$

## Info

enter the Info documentation reader
Moving within a node:

| scroll forward | SPC |
| :--- | :--- |
| scroll reverse | DEL |
| beginning of node | .$\quad($ dot $)$ |

Moving between nodes:

| next node | n |
| :--- | :--- |
| previous node | p |
| move up | u |
| select menu item by name | m |
| select $n$th menu item by number (1-9) | $n$ |
| follow cross reference (return with $\mathbf{l})$ | $\mathbf{f}$ |
| return to last node you saw | $\mathbf{l}$ |
| return to directory node | d |
| go to any node by name | g |

Other:
run Info tutorial $h$
list Info commands ?
quit Info $q$
search nodes for regexp M-s

## Keyboard Macros

| start defining a keyboard macro | $C-x$ ( |
| :--- | :---: |
| end keyboard macro definition | $C-x$ ) |
| execute last-defined keyboard macro | $C-x$ e |
| append to last keyboard macro | $C-u$ C-x ( |
| name last keyboard macro | $M-x$ name-last-kbd-macro |
| insert Lisp definition in buffer | $M-x$ insert-kbd-macro |

## Commands Dealing with Emacs Lisp

eval sexp before point
eval current defun
eval region
eval entire buffer read and eval minibuffer re-execute last minibuffer command read and eval Emacs Lisp file
load from standard system directory

```
        C-x C-e
        C-M-x
    M-x eval-region
M-x eval-current-buffer
        M-:
        C-x ESC ESC
    M-x load-file
    M-x load-library
```


## Simple Customization

Here are some examples of binding global keys in Emacs Lisp.

```
(global-set-key "\C-cg" 'goto-line)
(global-set-key "\C-x\C-k" 'kill-region)
(global-set-key "\M-#" 'query-replace-regexp)
```

An example of setting a variable in Emacs Lisp:

```
(setq backup-by-copying-when-linked t)
```


## Writing Commands

```
(defun command-name (args)
    "documentation"
    (interactive "template")
    body)
```

An example:

```
(defun this-line-to-top-of-window (line)
    "Reposition line point is on to top of window.
With ARG, put point on line ARG.
Negative counts from bottom."
    (interactive "P")
    (recenter (if (null line)
                            0
            (prefix-numeric-value line))))
```

The argument to interactive is a string specifying how to get the arguments when the function is called interactively. Type C-h f interactive for more information.

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