

GNU nano

a small and friendly text editor
version 4.5

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This manual documents the GNU `nano` editor.

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1 Introduction

GNU **nano** is a small and friendly text editor. Besides basic text editing, **nano** offers features like undo/redo, syntax coloring, interactive search-and-replace, auto-indentation, line numbers, word completion, file locking, backup files, and internationalization support.

The original goal for **nano** was to be a complete bug-for-bug emulation of Pico. But currently the goal is to be as compatible as is reasonable while offering a superset of Pico's functionality. See Chapter 9 [Pico Compatibility], page 30, for more details on how **nano** and Pico differ.

Starting with version 4.0, **nano** no longer hard-wraps an overlong line by default. It further uses smooth scrolling by default, and by default includes the line below the title bar into the editing area.

If you want the old, Pico behavior back, you can use the following options: `--breaklonglines`, `--jumpscrolling`, and `--emptyline` (or `-bje` for short).

Please report bugs via <https://savannah.gnu.org/bugs/?group=nano>.

2 Invoking

The usual way to invoke `nano` is:

```
nano [FILE]
```

But it is also possible to specify one or more options (see the next section), and to edit several files in a row. Additionally, the cursor can be put on a specific line of a file by adding the line number with a plus sign before the filename, and even in a specific column by adding it with a comma. The cursor can also be put on the first or last occurrence of a specific string by specifying that string after `+/` or `+/?` before the filename. The string can be made case sensitive and/or caused to be interpreted as a regular expression by inserting a `c` and/or `r` after the plus sign. These search modes can be explicitly disabled by using the uppercase variant of those letters: `C` and/or `R`. When the string contains spaces, it needs to be enclosed in quotes. A more complete command synopsis thus is:

```
nano [OPTION]... [[+LINE[,COLUMN] |+[crCR] (/|?)STRING] FILE]... ■
```

Normally, however, you set your preferred options in a `nanorc` file (see Chapter 7 [Nanorc Files], page 14). And when using `set positionlog` (making `nano` remember the cursor position when you close a file), you will rarely need to specify a line number.

As a special case: when instead of a filename a dash is given, `nano` will read data from standard input. This means you can pipe the output of a command straight into a buffer, and then edit it.

3 Command-line Options

nano takes the following options from the command line:

- A
- smarthome
 Make the Home key smarter. When Home is pressed anywhere but at the very beginning of non-whitespace characters on a line, the cursor will jump to that beginning (either forwards or backwards). If the cursor is already at that position, it will jump to the true beginning of the line.
- B
- backup When saving a file, back up the previous version of it, using the current filename suffixed with a tilde (~).
- C *directory*
- backupdir=*directory*
 Make and keep not just one backup file, but make and keep a uniquely numbered one every time a file is saved — when backups are enabled. The uniquely numbered files are stored in the specified directory.
- D
- boldtext
 Use bold text instead of reverse video text.
- E
- tabstospaces
 Convert typed tabs to spaces.
- F
- multibuffer
 Read a file into a new buffer by default.
- G
- locking
 Enable vim-style file locking when editing files.
- H
- historylog
 Save the last hundred search strings and replacement strings and executed commands, so they can be easily reused in later sessions.
- I
- ignorercfiles
 Don't look at the system's nanorc file nor at the user's nanorc.

- J**
--guidestripe
Draw a vertical stripe at the given column, to help judge the width of the text. (The color of the stripe can be changed with `set stripecolor` in your `nanorc` file.)
- K**
--rawsequences
Interpret escape sequences directly (instead of asking `ncurses` to translate them). If you need this option to get your keyboard to work properly, please report a bug. Using this option disables `nano`'s mouse support.
- L**
--nonewlines
Don't automatically add a newline when a text does not end with one. (This can cause you to save non-POSIX text files.)
- M**
--trimblanks
Snip trailing whitespace from the wrapped line when automatic hard-wrapping occurs or when text is justified.
- N**
--noconvert
Disable automatic conversion of files from DOS/Mac format.
- O**
--morespace
Obsolete and ignored option, since the line below the title bar is included into the editing space by default. If you prefer to keep this line blank, use `-e` or `--emptyline`.
- P**
--positionlog
For the 200 most recent files, log the last position of the cursor, and place it at that position again upon reopening such a file.
- Q "regex"**
--quotestr="regex"
Set the regular expression for matching the quoting part of a line. The default value is `"^([\t]*([!#%:;>|}]|/))+"`. (Note that `\t` stands for a literal Tab character.) This makes it possible to rejustify blocks of quoted text when composing email, and to rewrap blocks of line comments when writing source code.
- R**
--restricted
Restricted mode: don't read or write to any file not specified on the command line. This means: don't read or write history

files; don't allow suspending; don't allow spell checking; don't allow a file to be appended to, prepended to, or saved under a different name if it already has one; and don't make backup files. Restricted mode can also be activated by invoking `nano` with any name beginning with `r` (e.g. `rnano`).

`-S`

`--smooth` Obsolete and ignored option, since smooth scrolling has become the default. If you prefer the chunk-by-chunk scrolling behavior, use `-j` or `--jumpyscrolling`.

`-T number`

`--tabsize=number`

Set the displayed tab length to *number* columns. The value of *number* must be greater than 0. The default value is 8.

`-U`

`--quickblank`

Do quick status-bar blanking: status-bar messages will disappear after 1 keystroke instead of 25. Note that option `-c` (`--constantshow`) overrides this.

`-V`

`--version`

Show the current version number and exit.

`-W`

`--wordbounds`

Detect word boundaries differently by treating punctuation characters as parts of words.

`-X "characters"`

`--wordchars="characters"`

Specify which other characters (besides the normal alphanumeric ones) should be considered as parts of words. This overrides option `-W` (`--wordbounds`).

`-Y name`

`--syntax=name`

Specify the syntax to be used for highlighting. See Section 7.2 [Syntax Highlighting], page 19, for more info.

`-Z`

`--zap`

Let an unmodified `Backspace` or `Delete` erase the marked region (instead of a single character, and without affecting the cutbuffer).

`-a`

`--atblanks`

When doing soft line wrapping, wrap lines at whitespace instead of always at the edge of the screen.

- b**
--breaklonglines
Automatically hard-wrap the current line when it becomes over-long. (This option is the opposite of **-w** (**--nowrap**) — the last one given takes effect.)

- c**
--constantshow
Constantly display the cursor position (line number, column number, and character number) on the status bar. Note that this overrides option **-U** (**--quickblank**).

- d**
--rebinddelete
Interpret the Delete and Backspace keys differently so that both Backspace and Delete work properly. You should only use this option when on your system either Backspace acts like Delete or Delete acts like Backspace.

- e**
--emptyline
Do not use the line below the title bar, leaving it entirely blank.

- g**
--showcursor
Make the cursor visible in the file browser (putting it on the highlighted item) and in the help viewer. Useful for braille users and people with poor vision.

- h**
--help Show a summary of command-line options and exit.

- i**
--autoindent
Automatically indent a newly created line to the same number of tabs and/or spaces as the previous line (or as the next line if the previous line is the beginning of a paragraph).

- j**
--jumpscrolling
Scroll the buffer contents per half-screen instead of per line.

- k**
--cutfromcursor
Make the 'Cut Text' command (normally **^K**) cut from the current cursor position to the end of the line, instead of cutting the entire line.

- l**
--linenumbers
Display line numbers to the left of the text area.

- m**
--mouse Enable mouse support, if available for your system. When enabled, mouse clicks can be used to place the cursor, set the mark (with a double click), and execute shortcuts. The mouse will work in the X Window System, and on the console when `gpm` is running. Text can still be selected through dragging by holding down the Shift key.
- n**
--nored Treat any name given on the command line as a new file. This allows `nano` to write to named pipes: it will start with a blank buffer, and will write to the pipe when the user saves the "file". This way `nano` can be used as an editor in combination with for instance `gpg` without having to write sensitive data to disk first.
- o *directory***
--operatingdir=*directory* Set the operating directory. This makes `nano` set up something similar to a chroot.
- p**
--preserve Preserve the `^Q` (XON) and `^S` (XOFF) sequences so data being sent to the editor can be stopped and started.
- r *number***
--fill=*number* Set the target width for justifying and automatic hard-wrapping at this *number* of columns. If the value is 0 or less, wrapping will occur at the width of the screen minus *number* columns, allowing the wrap point to vary along with the width of the screen if the screen is resized. The default value is `-8`.
- s "*program* [*arg* ...]"**
--speller="*program* [*arg* ...]" Use the given program to do spell checking and correcting. By default, `nano` uses the command specified in the `SPELL` environment variable. If `SPELL` is not set, and `--speller` is not specified either, then `nano` uses its own interactive spell corrector, which requires the GNU `spell` program to be installed.
- t**
--tempfile Don't ask whether to save a modified buffer when exiting with `^X`, but assume yes. This option is useful when `nano` is used as the composer of a mailer program.
- u**

- `--unix` Save a file by default in Unix format. This overrides nano's default behavior of saving a file in the format that it had. (This option has no effect when you also use `--noconvert`.)
- `-v`
- `--view` Don't allow the contents of the file to be altered: read-only mode. This mode allows the user to open also other files for viewing, unless `--restricted` is given too. (Note that this option should NOT be used in place of correct file permissions to implement a read-only file.)
- `-w`
- `--nowrap` Do not automatically hard-wrap the current line when it becomes overlong. This is the default. (This option is the opposite of `-b` (`--breaklonglines`) — the last one given takes effect.)
- `-x`
- `--nohelp` Expert Mode: don't show the Shortcut List at the bottom of the screen. This affects the location of the status bar as well, as in Expert Mode it is located at the very bottom of the editor.
Note: When accessing the help system, Expert Mode is temporarily disabled to display the help-system navigation keys.
- `-y`
- `--afterends` Make Ctrl+Right stop at word ends instead of beginnings.
- `-z`
- `--suspend` Enable the ability to suspend nano using the system's suspend keystroke (usually ^Z).
- `-$`
- `--softwrap` Enable 'soft wrapping'. This will make nano attempt to display the entire contents of any line, even if it is longer than the screen width, by continuing it over multiple screen lines. Since \$ normally refers to a variable in the Unix shell, you should specify this option last when using other options (e.g. `nano -wS$`) or pass it separately (e.g. `nano -wS -$`).

4 Editor Basics

4.1 Entering Text

`nano` is a "modeless" editor. This means that all keystrokes, with the exception of Control and Meta sequences, enter text into the file being edited.

Characters not present on the keyboard can be entered in two ways:

- For characters with a single-byte code, pressing the `Esc` key twice and then typing a three-digit decimal number (from `000` to `255`) will make `nano` behave as if you typed the key with that value.
- For any possible character, pressing `M-V` (`Alt+V`) and then typing a six-digit hexadecimal number (starting with `0` or `1`) will enter the corresponding Unicode character into the buffer.

For example, typing `Esc Esc 2 3 4` will enter the character "ê" — useful when writing about a French party. Typing `M-V 0 0 2 2 c 4` will enter the symbol "◊", a little diamond.

4.2 Commands

Commands are given by using the Control key (`Ctrl`, shown as `^`) or the Meta key (`Alt` or `Cmd`, shown as `M-`).

- A control-key sequence is entered by holding down the `Ctrl` key and pressing the desired key.
- A meta-key sequence is entered by holding down the Meta key (normally the `Alt` key) and pressing the desired key.

If for some reason on your system the combinations with `Ctrl` or `Alt` do not work, you can generate them by using the `Esc` key. A control-key sequence is generated by pressing the `Esc` key twice and then pressing the desired key, and a meta-key sequence by pressing the `Esc` key once and then pressing the desired key.

4.3 The Cutbuffer

Text can be cut from a file, a whole line at a time, by using the 'Cut Text' command (default key binding: `^K`). The cut line is stored in the cutbuffer. Consecutive strokes of `^K` will add each cut line to this buffer, but a `^K` after any other keystroke will overwrite the entire cutbuffer.

The contents of the cutbuffer can be pasted back into the file with the 'Uncut Text' command (default key binding: `^U`).

A line of text can be copied into the cutbuffer (without cutting it) with the 'Copy Text' command (default key binding: `M-6`).

4.4 The Mark

Text can be selected by first 'setting the Mark' (default key bindings: \^6 and $M\text{-}A$) and then moving the cursor to the other end of the portion to be selected. The selected portion of text will be highlighted. This selection can now be cut or copied in its entirety with a single $\text{\^}K$ or $M\text{-}6$. Or the selection can be used to limit the scope of a search-and-replace ($\text{\^}\backslash$) or spell-checking session ($\text{\^}T$).

On some terminals, text can be selected also by holding down *Shift* while using the cursor keys. Holding down the *Ctrl* or *Alt* key too will increase the stride. Such a selection is cancelled upon any cursor movement where *Shift* isn't held.

Cutting or copying selected text will toggle the mark off automatically. If necessary, it can be toggled off manually with another \^6 or $M\text{-}A$.

4.5 Screen Layout

The default screen of nano consists of five areas. From top to bottom these are: the title bar, a blank line, the edit window, the status bar, and two help lines.

The title bar consists of three sections: left, center and right. The section on the left displays the version of nano being used. The center section displays the current filename, or "New Buffer" if the file has not yet been named. The section on the right displays "Modified" if the file has been modified since it was last saved or opened.

The status bar is the third line from the bottom of the screen. It shows important and informational messages. Any error messages that occur from using the editor will appear on the status bar. Any questions that are asked of the user will be asked on the status bar, and any user input (search strings, filenames, etc.) will be input on the status bar.

The two help lines at the bottom of the screen show some of the most essential functions of the editor. These two lines are called the Shortcut List.

4.6 Search and Replace

One can search the current buffer for the occurrence of any string with the Search command (default key binding: $\text{\^}W$). The default search mode is forward, case-insensitive, and for literal strings. But one can search backwards by pressing $M\text{-}B$, search case sensitively with $M\text{-}C$, and interpret regular expressions in the search string with $M\text{-}R$.

A regular expression in a search string always covers just one line; it cannot span multiple lines. And when replacing (with $\text{\^}\backslash$ or $M\text{-}R$) the replacement string cannot contain a newline (LF).

4.7 Using the Mouse

When mouse support has been configured and enabled, a single mouse click places the cursor at the indicated position. Clicking a second time in the same position toggles the mark. Clicking in the shortcut list executes the selected shortcut. To be able to select text with the left button, or paste text with the middle button, hold down the Shift key during those actions.

The mouse will work in the X Window System, and on the console when gpm is running.

4.8 Limitations

The recording and playback of keyboard macros works correctly only on a terminal emulator, not on a Linux console (VT), because the latter does not by default distinguish modified from unmodified arrow keys.

5 Built-in Help

The built-in help system in **nano** is available by pressing ^G . It is fairly self-explanatory. It documents the various parts of the editor and the available keystrokes. Navigation is via the ^Y (Page Up) and ^V (Page Down) keys. ^X exits from the help system.

6 Feature Toggles

Toggles allow you to change on-the-fly certain aspects of the editor which would normally be specified via command-line options. They are invoked via Meta-key sequences (see Section 4.2 [Commands], page 9, for more info). The following global toggles are available:

Constant Cursor Position Display

Meta-C toggles the `-c` (`--constantshow`) command-line option.

Smart Home Key

Meta-H toggles the `-A` (`--smarthome`) command-line option.

Auto Indent

Meta-I toggles the `-i` (`--autoindent`) command-line option.

Cut From Cursor To End-of-Line

Meta-K toggles the `-k` (`--cutfromcursor`) command-line option.

Long-Line Wrapping

Meta-L toggles the `-b` (`--breaklonglines`) command-line option.

Mouse Support

Meta-M toggles the `-m` (`--mouse`) command-line option.

Line Numbers

Meta-N toggles the `-l` (`--linenumbers`) command-line option.

Tabs To Spaces

Meta-O toggles the `-E` (`--tabstospaces`) command-line option.

Whitespace Display

Meta-P toggles the displaying of whitespace (see [Whitespace], page 19).

Soft Wrapping

Meta-S toggles the `-$` (`--softwrap`) command-line option.

Expert/No Help

Meta-X toggles the `-x` (`--nohelp`) command-line option.

Color Syntax Highlighting

Meta-Y toggles color syntax highlighting (if your nanorc defines syntaxes — see Section 7.2 [Syntax Highlighting], page 19).

Suspension

Meta-Z toggles the `-z` (`--suspend`) command-line option.

7 Nanorc Files

The nanorc files contain the default settings for **nano**. They should be in Unix format, not in DOS or Mac format. During startup, **nano** will first read the system-wide settings, from `/etc/nanorc` (the exact path might be different), and then the user-specific settings, either from `~/.nanorc` or from `$XDG_CONFIG_HOME/nano/nanorc` or from `.config/nano/nanorc`, whichever exists first.

A nanorc file accepts a series of "set" and "unset" commands, which can be used to configure **nano** on startup without using command-line options. Additionally, there are some commands to define syntax highlighting and to rebind keys — see Section 7.2 [Syntax Highlighting], page 19, and Section 7.3 [Rebinding Keys], page 22. **nano** will read one command per line.

Options in nanorc files take precedence over **nano**'s defaults, and command-line options override nanorc settings. Also, options that do not take an argument are unset by default. So using the **unset** command is only needed when wanting to override a setting of the system's nanorc file in your own nanorc. Options that take an argument cannot be unset.

Quotes inside the *characters* parameters below should not be escaped. The last double quote on the line will be seen as the closing quote.

7.1 Settings

The supported settings in a nanorc file are:

set afterends

Make Ctrl+Right stop at word ends instead of beginnings.

set allow_insecure_backup

When backing up files, allow the backup to succeed even if its permissions can't be (re)set due to special OS considerations. You should NOT enable this option unless you are sure you need it.

set atblanks

When soft line wrapping is enabled, make it wrap lines at blank characters (tabs and spaces) instead of always at the edge of the screen.

set autoindent

Automatically indent a newly created line to the same number of tabs and/or spaces as the previous line (or as the next line if the previous line is the beginning of a paragraph).

set backup

When saving a file, back up the previous version of it, using the current filename suffixed with a tilde (~).

set backupdir "directory"

Make and keep not just one backup file, but make and keep a uniquely numbered one every time a file is saved — when backups are enabled with **set backup** or **--backup** or **-B**. The uniquely numbered files are stored in the specified directory.

set boldtext

Use bold instead of reverse video for the title bar, status bar, key combos, function tags, line numbers, and selected text. This can be overridden by setting the options **titlecolor**, **statuscolor**, **keycolor**, **functioncolor**, **numbercolor**, and **selectedcolor**.

set brackets "characters"

Set the characters treated as closing brackets when justifying paragraphs. This may not include blank characters. Only closing punctuation (see **set punct**), optionally followed by the specified closing brackets, can end sentences. The default value is `""')>]}"`.

set breaklonglines

Automatically hard-wrap the current line when it becomes overlong.

set casesensitive

Do case-sensitive searches by default.

set constantshow

Constantly display the cursor position on the status bar. Note that this overrides **quickblank**.

set cutfromcursor

Use cut-from-cursor-to-end-of-line by default, instead of cutting the whole line.

set emptyline

Do not use the line below the title bar, leaving it entirely blank.

set errorcolor fgcolor,bgcolor

Use this color combination for the status bar when an error message is displayed. The default value is **brightwhite,red**. See **[set functioncolor]**, page 15, for valid color names.

set fill number

Set the target width for justifying and automatic hard-wrapping at this *number* of columns. If the value is 0 or less, wrapping will occur at the width of the screen minus *number* columns, allowing the wrap point to vary along with the width of the screen if the screen is resized. The default value is **-8**.

set functioncolor fgcolor,bgcolor

Use this color combination for the concise function descriptions in the two help lines at the bottom of the screen. Valid

names for foreground and background color are: **white**, **black**, **blue**, **green**, **red**, **cyan**, **yellow**, **magenta**, and **normal** — where **normal** means the default foreground or background color. The name of the foreground color may be prefixed with **bright**. And either *fgcolor* or *bgcolor* may be left out.

set guidestripe *number*

Draw a vertical stripe at the given column, to help judge the width of the text. (The color of the stripe can be changed with **set stripecolor**.)

set historylog

Save the last hundred search strings and replacement strings and executed commands, so they can be easily reused in later sessions.

set jumpyscrolling

Scroll the buffer contents per half-screen instead of per line.

set keycolor *fgcolor, bgcolor*

Use this color combination for the shortcut key combos in the two help lines at the bottom of the screen. See [**set functioncolor**], page 15, for valid color names.

set linenumbers

Display line numbers to the left of the text area.

set locking

Enable vim-style lock-files for when editing files.

set matchbrackets "*characters*"

Set the opening and closing brackets that can be found by bracket searches. This may not include blank characters. The opening set must come before the closing set, and the two sets must be in the same order. The default value is "**(<[{}]>)**".

set morespace

Deprecated option since it has become the default setting. When needed, use **unset emptyline** instead.

set mouse Enable mouse support, so that mouse clicks can be used to place the cursor, set the mark (with a double click), or execute short-cuts.

set multibuffer

When reading in a file with **~R**, insert it into a new buffer by default.

set noconvert

Don't convert files from DOS/Mac format.

set nohelp

Don't display the help lists at the bottom of the screen.

set nonewlines

Don't automatically add a newline when a text does not end with one. (This can cause you to save non-POSIX text files.)

set nopauses

Don't pause between warnings at startup. This means that only the last one will be visible (when there are multiple ones).

set nowrap

Deprecated option since it has become the default setting. When needed, use **unset breaklonglines** instead.

set numbercolor *fgcolor*,*bgcolor*

Use this color combination for line numbers. See [**set functioncolor**], page 15, for valid color names.

set operatingdir "*directory*"

nano will only read and write files inside "*directory*" and its subdirectories. Also, the current directory is changed to here, so files are inserted from this directory. By default, the operating directory feature is turned off.

set positionlog

Save the cursor position of files between editing sessions. The cursor position is remembered for the 200 most-recently edited files.

set preserve

Preserve the XON and XOFF keys ($\sim Q$ and $\sim S$).

set punct "*characters*"

Set the characters treated as closing punctuation when justifying paragraphs. This may not include blank characters. Only the specified closing punctuation, optionally followed by closing brackets (see **set brackets**), can end sentences. The default value is "!.?".

set quickblank

Do quick status-bar blanking: status-bar messages will disappear after 1 keystroke instead of 25. Note that **constantshow** overrides this.

set quotestr "*regex*"

Set the regular expression for matching the quoting part of a line. The default value is " $\sim([\ \t]*([!#\%:;>|}]|/|/))\sim$ ". (Note that $\backslash t$ stands for a literal Tab character.) This makes it possible to rejustify blocks of quoted text when composing email, and to rewrap blocks of line comments when writing source code.

set rawsequences

Interpret escape sequences directly (instead of asking **ncurses** to translate them). If you need this option to get your keyboard

to work properly, please report a bug. Using this option disables nano's mouse support.

set rebinddelete

Interpret the Delete and Backspace keys differently so that both Backspace and Delete work properly. You should only use this option when on your system either Backspace acts like Delete or Delete acts like Backspace.

set regexp

Do regular-expression searches by default. Regular expressions in nano are of the extended type (ERE).

set selectedcolor *fgcolor*,*bgcolor*

Use this color combination for selected text. See [set functioncolor], page 15, for valid color names.

set showcursor

Put the cursor on the highlighted item in the file browser, and show the cursor in the help viewer, to aid braille users and people with poor vision.

set smarthome

Make the Home key smarter. When Home is pressed anywhere but at the very beginning of non-whitespace characters on a line, the cursor will jump to that beginning (either forwards or backwards). If the cursor is already at that position, it will jump to the true beginning of the line.

set smooth

Deprecated option since it has become the default setting. When needed, use `unset jumpyscrolling` instead.

set softwrap

Enable soft line wrapping for easier viewing of very long lines.

set speller "*program* [*arg* ...]"

Use the given program to do spell checking and correcting. See [set speller], page 7, for details.

set statuscolor *fgcolor*,*bgcolor*

Use this color combination for the status bar. See [set functioncolor], page 15, for valid color names.

set stripecolor *fgcolor*,*bgcolor*

Use this color combination for the vertical guiding stripe. See [set functioncolor], page 15, for valid color names.

set suspend

Allow nano to be suspended.

- set tabsize** *number*
Use a tab size of *number* columns. The value of *number* must be greater than 0. The default value is 8.
- set tabstospaces**
Convert typed tabs to spaces.
- set tempfile**
Save automatically on exit, don't prompt.
- set titlecolor** *fgcolor, bgcolor*
Use this color combination for the title bar. See [set functioncolor], page 15, for valid color names.
- set trimblanks**
Remove trailing whitespace from wrapped lines when automatic hard-wrapping occurs or when text is justified.
- set unix** Save a file by default in Unix format. This overrides nano's default behavior of saving a file in the format that it had. (This option has no effect when you also use **set noconvert**.)
- set view** Disallow file modification: read-only mode. This mode allows the user to open also other files for viewing, unless **--restricted** is given on the command line.
- set whitespace** "*characters*"
Set the two characters used to indicate the presence of tabs and spaces. They must be single-column characters. The default pair for a UTF-8 locale is ">.", and for other locales ">.".
- set wordbounds**
Detect word boundaries differently by treating punctuation characters as part of a word.
- set wordchars** "*characters*"
Specify which other characters (besides the normal alphanumeric ones) should be considered as parts of words. This overrides the option **wordbounds**.
- set zap** Let an unmodified **Backspace** or **Delete** erase the marked region (instead of a single character, and without affecting the cutbuffer).

7.2 Syntax Highlighting

Coloring the different syntactic elements of a file is done via regular expressions (see the **color** command below). This is inherently imperfect, because regular expressions are not powerful enough to fully parse a file. Nevertheless, regular expressions can do a lot and are easy to make, so they are a good fit for a small editor like **nano**.

All regular expressions in **nano** are POSIX extended regular expressions (ERE). This means that `.`, `?`, `*`, `+`, `^`, `$`, and several other characters are special. The period `.` matches any single character, `?` means the preceding item is optional, `*` means the preceding item may be matched zero or more times, `+` means the preceding item must be matched one or more times, `^` matches the beginning of a line, and `$` the end, `\<` matches the start of a word, and `\>` the end, and `\s` matches a blank. It also means that lookahead and lookbehind are not possible. A complete explanation can be found in the manual of GNU `grep`: `info grep regular`.

A separate syntax can be defined for each kind of file via the following commands in a `nanorc` file:

`syntax name ["fileregex" ...]`

Start the definition of a syntax with this *name*. All subsequent `color` and other such commands will be added to this syntax, until a new `syntax` command is encountered.

When **nano** is run, this syntax will be automatically activated if the current filename matches the extended regular expression *fileregex*. Or the syntax can be explicitly activated by using the `-Y` or `--syntax` command-line option followed by the *name*.

The `default` syntax is special: it takes no *fileregex*, and applies to files that don't match any syntax's regexes. The `none` syntax is reserved; specifying it on the command line is the same as not having a syntax at all.

`header "regex" ...`

If from all defined syntaxes no *fileregex* matched, then compare this *regex* (or regexes) against the first line of the current file, to determine whether this syntax should be used for it.

`magic "regex" ...`

If no *fileregex* matched and no `header` regex matched either, then compare this *regex* (or regexes) against the result of querying the `magic` database about the current file, to determine whether this syntax should be used for it. (This functionality only works when `libmagic` is installed on the system and will be silently ignored otherwise.)

`linter program [arg ...]`

Use the given *program* to do a syntax check on the current buffer.

`comment "string"`

Use the given string for commenting and uncommenting lines. If the string contains a vertical bar or pipe character (`|`), this designates bracket-style comments; for example, `/*|*/` for CSS files. The characters before the pipe are prepended to the line and the characters after the pipe are appended at the end of the line. If no pipe character is present, the full string is prepended;

for example, `"#"` for Python files. If empty double quotes are specified, the `comment/uncomment` functions are disabled; for example, `""` for JSON. The default value is `"#"`.

`tabgives "string"`

Make the `<Tab>` key produce the given *string*. Useful for languages like Python that want to see only spaces for indentation. This overrides the setting of the `tabstospaces` option.

`color fgcolor,bgcolor "regex" ...`

Paint all pieces of text that match the extended regular expression `"regex"` with the given foreground and background colors, at least one of which must be specified. Valid color names are: `white`, `black`, `blue`, `green`, `red`, `cyan`, `yellow`, `magenta`, and `normal` — where `normal` means the default foreground or background color. You may use the prefix `bright` for the foreground color to get a stronger highlight. If your terminal supports transparency, not specifying a `"bgcolor"` tells `nano` to attempt to use a transparent background.

`icolor fgcolor,bgcolor "regex" ...`

Same as above, except that the matching is case insensitive.

`color fgcolor,bgcolor start="fromrx" end="torx"`

Paint all pieces of text whose start matches extended regular expression `"fromrx"` and whose end matches extended regular expression `"torx"` with the given foreground and background colors, at least one of which must be specified. This means that, after an initial instance of `"fromrx"`, all text until the first instance of `"torx"` will be colored. This allows syntax highlighting to span multiple lines.

`icolor fgcolor,bgcolor start="fromrx" end="torx"`

Same as above, except that the matching is case insensitive.

`include "syntaxfile"`

Read in self-contained color syntaxes from `"syntaxfile"`. Note that `"syntaxfile"` may contain only the above commands, from `syntax` to `icolor`.

`extendsyntax name command [arg ...]`

Extend the syntax previously defined as `"name"` with another *command*. This allows you to add a new `color`, `icolor`, `header`, `magic`, `comment`, or `linter` command to an already defined syntax — useful when you want to slightly improve a syntax defined in one of the system-installed files (which normally are not writable).

Note: the `formatter` command has been removed. It was superseded by a more general mechanism: the filtering of buffer or marked text through

an external command. Such filtering is done by typing `^R^X` and then preceding your formatter command with the pipe symbol (`|`). It has the added advantage that the operation can be undone.

If you use such a formatting command regularly, you could assign the relevant series of keystrokes to a single key in your nanorc:

```
bind M-F "^R^X|yourformatcommand^M" main
```

(Note that the `^R`, `^X`, and `^M` are each a single, literal control character. You can enter them by preceding each with `M-V`.)

7.3 Rebinding Keys

Key bindings can be changed via the following three commands in a nanorc file:

bind key function menu

Rebinds **key** to **function** in the context of **menu** (or in all menus where the function exists by using **all**).

bind key "string" menu

Makes **key** produce **string** in the context of **menu** (or in all menus where the key exists when **all** is used). The **string** can consist of text or commands or a mix of them. (To enter a command into the **string**, precede its keystroke with `M-V`.)

unbind key menu

Unbinds **key** from **menu** (or from all menus where it exists by using **all**).

The format of **key** should be one of:

`^` followed by a Latin letter, by one of several ASCII characters (`@`, `]`, `\`, `^`, or `_`), or by the word "Space". Example: `^C`.

`M-` followed by any ASCII character except `]`, or by the word "Space". Example: `M-C`.

`F` followed by a numeric value from 1 to 16. Example: `F10`.
the word "Ins" or the word "Del".

Valid names for the **function** to be bound are:

help Invokes the help viewer.

cancel Cancels the current command.

exit Exits from the program (or from the help viewer or the file browser).

writeout Writes the current buffer to disk, asking for a name.

savefile Writes the current file to disk without prompting.

- insert** Inserts a file into the current buffer (at the current cursor position), or into a new buffer when option `multibuffer` is set.
- whereis** Starts a forward search for text in the current buffer — or for filenames matching a string in the current list in the file browser.
- wherewas** Starts a backward search for text in the current buffer — or for filenames matching a string in the current list in the file browser.
- findprevious**
Searches the next occurrence in the backward direction.
- findnext** Searches the next occurrence in the forward direction.
- replace** Interactively replaces text within the current buffer.
- cut** Cuts and stores the current line (or the marked region).
- copy** Copies the current line (or the marked region) without deleting it.
- paste** Pastes the currently stored text into the current buffer at the current cursor position.
- zap** Throws away the current line (or the marked region). (This function is bound by default to `<Meta+Delete>`.)
- chopwordleft**
Deletes from the cursor position to the beginning of the preceding word. (This function is bound by default to `<Shift+Ctrl+Delete>`. If your terminal produces `^H` for `<Ctrl+Backspace>`, you can make `<Ctrl+Backspace>` delete the word to the left of the cursor by rebinding `^H` to this function.)
- chopwordright**
Deletes from the cursor position to the beginning of the next word. (This function is bound by default to `<Ctrl+Delete>`.)
- cutrestoffile**
Cuts all text from the cursor position till the end of the buffer.
- mark** Sets the mark at the current position, to start selecting text. Or, when it is set, unsets the mark.
- curpos** Shows the current cursor position: the line, column, and character positions.
- wordcount**
Counts the number of words, lines and characters in the current buffer.
- speller** Invokes a spell-checking program, either the default one, or the one defined by `--speller` or `set speller`.

<code>linter</code>	Invokes a syntax-checking program (if the active syntax defines one).
<code>justify</code>	Justifies the current paragraph. A paragraph is a group of contiguous lines that, apart from possibly the first line, all have the same indentation. The beginning of a paragraph is detected by either this lone line with a differing indentation or by a preceding blank line.
<code>fulljustify</code>	Justifies the entire current buffer.
<code>indent</code>	Indents (shifts to the right) the currently marked text.
<code>unindent</code>	Unindents (shifts to the left) the currently marked text.
<code>comment</code>	Comments or uncomments the current line or marked lines, using the comment style specified in the active syntax.
<code>complete</code>	Completes the fragment before the cursor to a full word found elsewhere in the current buffer.
<code>left</code>	Goes left one position (in the editor or browser).
<code>right</code>	Goes right one position (in the editor or browser).
<code>up</code>	Goes one line up (in the editor or browser).
<code>down</code>	Goes one line down (in the editor or browser).
<code>scrollup</code>	Scrolls the viewport up one row (meaning that the text slides down) while keeping the cursor in the same text position, if possible.
<code>scrolldown</code>	Scrolls the viewport down one row (meaning that the text slides up) while keeping the cursor in the same text position, if possible.
<code>prevword</code>	Moves the cursor to the beginning of the previous word.
<code>nextword</code>	Moves the cursor to the beginning of the next word.
<code>home</code>	Moves the cursor to the beginning of the current line.
<code>end</code>	Moves the cursor to the end of the current line.
<code>beginpara</code>	Moves the cursor to the beginning of the current paragraph.
<code>endpara</code>	Moves the cursor to the end of the current paragraph.
<code>prevblock</code>	Moves the cursor to the beginning of the current or preceding block of text. (Blocks are separated by one or more blank lines.)

nextblock	Moves the cursor to the beginning of the next block of text.
pageup	Goes up one screenful.
pagedown	Goes down one screenful.
firstline	Goes to the first line of the file.
lastline	Goes to the last line of the file.
gotoline	Goes to a specific line (and column if specified). Negative numbers count from the end of the file (and end of the line).
findbracket	Moves the cursor to the bracket (brace, parenthesis, etc.) that matches (pairs) with the one under the cursor.
prevbuf	Switches to editing/viewing the previous buffer when multiple buffers are open.
nextbuf	Switches to editing/viewing the next buffer when multiple buffers are open.
verbatim	Inserts the next keystroke verbatim into the file.
tab	Inserts a tab at the current cursor location.
enter	Inserts a new line below the current one.
delete	Deletes the character under the cursor.
backspace	Deletes the character before the cursor.
recordmacro	Starts the recording of keystrokes — the keystrokes are stored as a macro. When already recording, the recording is stopped.
runmacro	Replays the keystrokes of the last recorded macro.
undo	Undoes the last performed text action (add text, delete text, etc).
redo	Redoes the last undone action (i.e., it undoes an undo).
refresh	Refreshes the screen.
suspend	Suspends the editor (if the suspending function is enabled, see the "suspendenable" entry below).
casesens	Toggles whether searching/replacing ignores or respects the case of the given characters.
regex	Toggles whether searching/replacing uses literal strings or regular expressions.

<code>backwards</code>	Toggles whether searching/replacing goes forward or backward.
<code>older</code>	Retrieves the previous (earlier) entry at a prompt.
<code>newer</code>	Retrieves the next (later) entry at a prompt.
<code>flipreplace</code>	Toggles between searching for something and replacing something.
<code>flipgoto</code>	Toggles between searching for text and targeting a line number.
<code>flipexecute</code>	Toggles between inserting a file and executing a command.
<code>flippipe</code>	When executing a command, toggles whether the current buffer (or marked region) is piped to the command.
<code>flipnewbuffer</code>	Toggles between inserting into the current buffer and into a new empty buffer.
<code>flipconvert</code>	When reading in a file, toggles between converting and not converting it from DOS/Mac format. Converting is the default.
<code>dosformat</code>	When writing a file, switches to writing a DOS format (CR/LF).
<code>macformat</code>	When writing a file, switches to writing a Mac format.
<code>append</code>	When writing a file, appends to the end instead of overwriting.
<code>prepend</code>	When writing a file, 'prepends' (writes at the beginning) instead of overwriting.
<code>backup</code>	When writing a file, creates a backup of the current file.
<code>discardbuffer</code>	When about to write a file, discard the current buffer without saving. (This function is bound by default only when option <code>--tempfile</code> is in effect.)
<code>browser</code>	Starts the file browser, allowing to select a file from a list.
<code>gotodir</code>	Goes to a directory to be specified, allowing to browse anywhere in the filesystem.
<code>firstfile</code>	Goes to the first file when using the file browser (reading or writing files).
<code>lastfile</code>	Goes to the last file when using the file browser (reading or writing files).

<code>nohelp</code>	Toggles the presence of the two-line list of key bindings at the bottom of the screen.
<code>constantshow</code>	Toggles the constant display of the current line, column, and character positions.
<code>softwrap</code>	Toggles the displaying of overlong lines on multiple screen lines.
<code>linenumbers</code>	Toggles the display of line numbers in front of the text.
<code>whitespacedisplay</code>	Toggles the showing of whitespace.
<code>nosyntax</code>	Toggles syntax highlighting.
<code>smarthome</code>	Toggles the smartness of the Home key.
<code>autoindent</code>	Toggles whether a newly created line will contain the same amount of leading whitespace as the preceding line — or as the next line if the preceding line is the beginning of a paragraph.
<code>cutfromcursor</code>	Toggles whether cutting text will cut the whole line or just from the current cursor position to the end of the line.
<code>nowrap</code>	Toggles whether long lines will be hard-wrapped to the next line.
<code>tabstospaces</code>	Toggles whether typed tabs will be converted to spaces.
<code>mouse</code>	Toggles mouse support.
<code>suspendenable</code>	Toggles whether the suspend shortcut (normally <code>^Z</code>) will suspend the editor.

Valid names for `menu` are:

<code>main</code>	The main editor window where text is entered and edited.
<code>search</code>	The search menu (AKA <code>whereis</code>).
<code>replace</code>	The 'search to replace' menu.
<code>replacewith</code>	The 'replace with' menu, which comes up after 'search to replace'.
<code>yesno</code>	The 'yesno' menu, where the Yes/No/All/Cancel question is asked.

<code>gotoline</code>	The 'goto line (and column)' menu.
<code>writeout</code>	The 'write file' menu.
<code>insert</code>	The 'insert file' menu.
<code>extcmd</code>	The menu for inserting output from an external command, reached from the insert menu.
<code>help</code>	The help-viewer menu.
<code>spell</code>	The interactive spell checker Yes/no menu.
<code>linter</code>	The linter menu.
<code>browser</code>	The file browser, for choosing a file to read from or write to.
<code>whereisfile</code>	The 'search for a file' menu in the file browser.
<code>gotodir</code>	The 'go to directory' menu in the file browser.
<code>all</code>	A special name that encompasses all menus. For <code>bind</code> it means all menus where the specified <code>function</code> exists; for <code>unbind</code> it means all menus where the specified <code>key</code> exists.

8 The File Browser

When in the Read-File ($\text{\textasciitilde}R$) or Write-Out menu ($\text{\textasciitilde}O$), pressing $\text{\textasciitilde}T$ will invoke the file browser. Here, one can navigate directories in a graphical manner in order to find the desired file.

Basic movement in the file browser is accomplished with the arrow and other cursor-movement keys. More targeted movement is accomplished by searching, via $\text{\textasciitilde}W$ or w , or by changing directory, via $\text{\textasciitilde}_$ or g . The behavior of the *Enter* key (or s) varies by what is currently selected. If the currently selected object is a directory, the file browser will enter and display the contents of the directory. If the object is a file, this filename and path are copied to the status bar, and the file browser exits.

9 Pico Compatibility

`nano` emulates Pico quite closely, but there are some differences between the two editors:

Hard-Wrapping

Unlike Pico, `nano` does not automatically hard-wrap the current line when it becomes overlong during typing. This hard-wrapping can be switched on with the `--breaklonglines` option. With that option, `nano` by default breaks lines at screen width minus eight columns, whereas Pico does it at screen width minus six columns. You can make `nano` do as Pico by using `--fill=-6`.

Scrolling

By default, `nano` will scroll just one line (instead of half a screen) when the cursor is moved to a line that is just out of view. And when paging up or down, `nano` keeps the cursor in the same screen position as much as possible, instead always placing it on the first line of the viewport. The Pico-like behavior can be obtained with the `--jumpyscrolling` option.

Edit Area Pico never uses the line directly below the title bar, leaving it always blank. `nano` includes this line in the editing area, in order to not waste space, and because in this way it is slightly clearer where the text starts. If you are accustomed to this line being empty, you can get it back with the `--emptyline` option.

Interactive Replace

Instead of allowing you to replace either just one occurrence of a search string or all of them, `nano`'s replace function is interactive: it will pause at each found search string and query whether to replace this instance. You can then choose Yes, or No (skip this one), or All (don't ask any more), or Cancel (stop with replacing).

Search and Replace History

When the option `-H` or `--historylog` is given (or set in the `nanorc` file), text entered as search or replace strings is stored. These strings can be accessed with the up/down arrow keys, or you can type the first few characters and then use `Tab` to cycle through the matching strings. A retrieved string can subsequently be edited.

Position History

When the option `-P` or `--positionlog` is given (or set in a `nanorc` file), `nano` will store the position of the cursor when you close a file, and will place the cursor in that position again when you later reopen the file.

Current Cursor Position

The output of the "Display Cursor Position" command (\^C) displays not only the current line and character position of the cursor, but also (between the two) the current column position.

Spell Checking

In the internal spell checker misspelled words are sorted alphabetically and trimmed for uniqueness, such that the words 'apple' and 'Apple' will be prompted for correction separately.

Writing Selected Text to Files

When using the Write-Out key (\^O), text that has been selected using the marking key (\^) can not just be written out to a new (or existing) file, it can also be appended or prepended to an existing file.

Reading Text from a Command

When using the Read-File key (\^R), **nano** can not just read a file, it can also read the output of a command to be run (\^X).

Reading from Working Directory

By default, Pico will read files from the user's home directory (when using \^R), but it will write files to the current working directory (when using \^O). **nano** makes this symmetrical: always reading from and writing to the current working directory — the directory that **nano** was started in.

File Browser

In the file browser, **nano** does not implement the Add, Copy, Rename, and Delete commands that Pico provides. In **nano** the browser is just a file browser, not a file manager.

Toggles

Many options which alter the functionality of the program can be "toggled" on or off using Meta key sequences, meaning the program does not have to be restarted to turn a particular feature on or off. See Chapter 6 [Feature Toggles], page 13, for a list of options that can be toggled. Or see the list at the end of the main internal help text (\^G) instead.

10 Building and Configure Options

Building `nano` from source is fairly straightforward if you are familiar with compiling programs with `autoconf` support:

```
tar xvzf nano-x.y.z.tar.gz
cd nano-x.y.z
./configure
make
make install
```

The possible options to `./configure` are:

- `--disable-browser`
Exclude the mini file browser that can be called with `^T` when wanting to read or write a file.
- `--disable-color`
Exclude support for syntax coloring. This also eliminates the `-Y` command-line option, which allows choosing a specific syntax.
- `--disable-comment`
Exclude the single-keystroke comment/uncomment function (`M-3`).
- `--disable-extra`
Exclude the Easter egg: a crawl of major contributors.
- `--disable-help`
Exclude the help texts (`^G`). This makes the binary much smaller, but also makes it difficult for new users to learn more than very basic things about using the editor.
- `--disable-histories`
Exclude the code for handling the history files: the search and replace strings that were used, and the cursor position at which each file was closed. This also eliminates the `-H` and `-P` command-line options, which switch on the logging of search/replace strings and cursor positions.
- `--disable-justify`
Exclude the justify functions (`^J` and `M-J`).
- `--disable-libmagic`
Exclude the code for using the library of magic-number tests (for determining the file type and thus which syntax to use for coloring — often the regexes for filename and header line will be enough).
- `--disable-linenumbers`
Exclude the line-numbering function (`M-N`). This also eliminates the `-l` command-line option, which turns line numbering on.

- disable-mouse**
Exclude all mouse functionality. This also eliminates the `-m` command-line option, which enables the mouse functionality.
- disable-multibuffer**
Exclude support for opening multiple files at a time and switching between them on the fly. This also eliminates the `-F` command-line option, which causes a file to be read into a separate buffer by default.
- disable-nanorc**
Exclude support for reading the nanorc files at startup. With such support, you can store custom settings in a system-wide and a per-user nanorc file rather than having to pass command-line options to get the desired behavior. See Chapter 7 [Nanorc Files], page 14, for more info. Disabling this also eliminates the `-I` command-line option, which inhibits the reading of nanorc files.
- disable-operatingdir**
Exclude the code for setting the operating directory. This also eliminates the `-o` command-line option, which sets the operating directory.
- disable-speller**
Exclude the code for spell checking. This also eliminates the `-s` command-line option, which allows specifying an alternate spell checker.
- disable-tabcomp**
Exclude tab completion (when nano asks for a filename or a search string).
- disable-wordcomp**
Exclude word completion (`^J`).
- disable-wrapping**
Exclude all hard-wrapping of overlong lines. This also eliminates the `-b` and `-w` command-line options, which switch automatic long-line wrapping on and off, respectively.
- enable-tiny**
This option implies all of the above. It also disables some other internals of the editor, like the marking code, the cut-to-end-of-line code, and the function toggles. By using the enabling counterpart of the above options together with `--enable-tiny`, specific features can be switched back on — but a few cannot.
- enable-debug**
Include some code for runtime debugging output. This can get pretty messy, so chances are you only want this feature when you're working on the nano source.

- `--disable-nls`
Exclude Native Language support. This will disable the use of any available GNU `nano` translations.
- `--enable-utf8`
Include support for reading and writing Unicode files. This will require either a wide version of `curses`, or a UTF-8-enabled version of `Slang`.
- `--disable-utf8`
Exclude support for reading and writing Unicode files. Normally the configure script auto-detects whether to enable UTF-8 support or not. You can use this or the previous option to override that detection.
- `--enable-altrcname=name`
Use the file with the given *name* (in the user's home directory) as `nano`'s settings file, instead of the default `.nanorc`.
- `--with-slang`
Compile `nano` against `Slang` instead of against `ncurses` or other `curses` libraries.

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