Chapter 11

Overview of text editors in linux

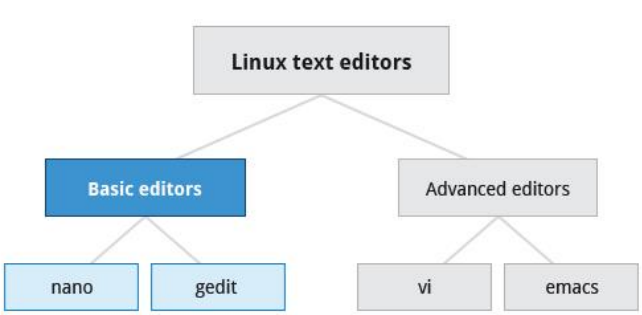
At some point, you will need to manually edit text files. You might be composing an email off-line, writing a script to be used for **bash** or other command interpreters, altering a system or application configuration file, or developing source code for a programming language such as C, Python or Java.

Linux administrators may sidestep using a text editor, instead employing graphical utilities for creating and modifying system configuration files. However, this can be more laborious than directly using a text editor, and be more limited in capability. Note that word processing applications (including those that are part of common office application suites) are not really basic text editors; they add a lot of extra (usually invisible) formatting information that will probably render system administration configuration files unusable for their intended purpose. So, knowing how to confidently use one or more text editors is really an essential skill to have for Linux.

By now, you have certainly realized Linux is packed with choices; when it comes to text editors, there are many choices, ranging from quite simple to very complex, including:

- **nano**
- **gedit**
- **vi**
- **emacs**.

In this section, we learn first about the **nano** and **gedit** editors, which are relatively simple and easy to learn, and then later the more complicated choices, **vi** and **emacs**. Before we start, let us take a look at some cases where an editor is not needed.



Text Editors in Linux

Creating Files without using an editor

Sometimes, you may want to create a short file and don't want to bother invoking a full text editor. In addition, doing so can be quite useful when used from within scripts, even when creating longer files. You will no doubt find yourself using this method when you start on the later chapters that cover shell scripting!

If you want to create a file without using an editor, there are two standard ways to create one from the command line and fill it with content.

The first is to use **echo** repeatedly:

```
$ echo line one > myfile
$ echo line two >> myfile
$ echo line three >> myfile
```

Note that while a single greater-than sign (**>**) will send the output of a command to a file, two of them (**>>**) will append the new output to an existing file.

The second way is to use **cat** combined with redirection:

```
$ cat << EOF > myfile
> line one
> line two
> line three
> EOF
$
```

Both techniques produce a file with the following lines in it:

```
line one
```

line two
line three

and are extremely useful when employed by scripts.

nano and gedit

There are some text editors that are pretty obvious; they require no particular experience to learn and are actually quite capable, even robust. A particularly easy to use one is the text terminal-based editor **nano**. Just invoke **nano** by giving a file name as an argument. All the help you need is displayed at the bottom of the screen, and you should be able to proceed without any problem.

As a graphical editor, **gedit** is part of the GNOME desktop system (**kwrite** is associated with KDE). The **gedit** and **kwrite** editors are very easy to use and are extremely capable. They are also very configurable. They look a lot like Notepad in Windows. Other variants such as **kate** are also supported by KDE.

nano

nano is easy to use, and requires very little effort to learn. To open a file, type **nano <filename>** and press **Enter**. If the file does not exist, it will be created.

nano provides a two line shortcut bar at the bottom of the screen that lists the available commands. Some of these commands are:

- **CTRL-G**
  Display the help screen.
- **CTRL-O**
  Write to a file.
- **CTRL-X**
  Exit a file.
- **CTRL-R**
  Insert contents from another file to the current buffer.
- **CTRL-C**
  Cancels previous commands.

gedit

gedit (pronounced 'g-edit') is a simple-to-use graphical editor that can only be run within a Graphical Desktop environment. It is visually quite similar to the Notepad text editor in Windows, but is actually far more capable and very configurable and has a wealth of plugins available to extend its capabilities further.

To open a new file find the program in your desktop's menu system, or from the command line type **gedit <filename>**. If the file does not exist, it will be created.

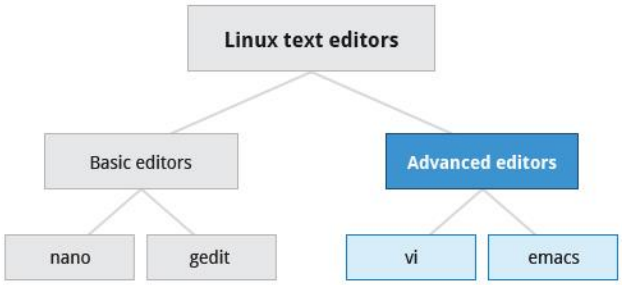
Using **gedit** is pretty straightforward and does not require much training. Its interface is composed of quite familiar elements.

vi and emacs

Developers and administrators experienced in working on UNIX-like systems almost always use one of the two venerable editing options: vi and emacs. Both are present or easily available on all distributions and are completely compatible with the versions available on other operating systems.

Both vi and emacs have a basic purely text-based form that can run in a non-graphical environment. They also have one or more graphical interface forms with extended capabilities; these may be friendlier for a less experienced user.
While **vi** and **emacs** can have significantly steep learning curves for new users, they are extremely efficient when one has learned how to use them.

You need to be aware that fights among seasoned users over which editor is better can be quite intense and are often described as a holy war.



Introduction to vi

Usually, the actual program installed on your system is **vim**, which stands for **V**i **IM**proved, and is aliased to the name **vi**. The name is pronounced as “vee-eye”.

Even if you do not want to use **vi**, it is good to gain some familiarity with it: it is a standard tool installed on virtually all Linux distributions. Indeed, there may be times where there is no other editor available on the system.

GNOME extends **vi** with a very graphical interface known as **gvim** and **KDE** offers **kvim**. Either of these may be easier to use at first.

When using **vi**, all commands are entered through the keyboard. You do not need to keep moving your hands to use a pointer device such as a mouse or touchpad, unless you want to do so when using one of the graphical versions of the editor.

vimtutor

Typing **vimtutor** launches a short but very comprehensive tutorial for those who want to learn their first **vi** commands. Even though it provides only an introduction and just seven lessons, it has enough material to make you a very proficient **vi** user, because it covers a large number of commands. After learning these basic ones, you can look up new tricks to incorporate into your list of vi commands because there are always more optimal ways to do things in **vi** with less typing.

Modes in vi

vi provides three modes, as described in the table below. It is vital to not lose track of which mode you are in. Many keystrokes and commands behave quite differently in different modes.

Mode	Feature
Command	• By default, **vi** starts in Command mode. • Each key is an editor command. • Keyboard strokes are interpreted as commands that can modify file contents.
Insert	• Type **`i`** to switch to Insert mode from Command mode. • Insert mode is used to enter (insert) text into a file. • Insert mode is indicated by an "**`? INSERT ?`**" indicator at the bottom of the screen. • Press **`Esc`** to exit Insert mode and return to Command mode.
Line	• Type **`:`** to switch to the Line mode from Command mode. Each key is an external command, including operations such as writing the file contents to disk or exiting. • Uses line editing commands inherited from older line editors. Most of these commands are actually no longer used. Some line editing commands are very powerful. • Press **`Esc`** to exit Line mode and return to Command mode.

Working with files in vi

Command	Usage
`vi myfile`	Start the editor and edit `myfile`
`vi -r myfile`	Start and edit `myfile` in recovery mode from a system crash
`:r file2`	Read in `file2` and insert at current position
`:w`	Write to the file
`:w myfile`	Write out to `myfile`
`:w! file2`	Overwrite `file2`
`:x or :wq`	Exit and write out modified file
`:q`	Quit
`:q!`	Quit even though modifications have not been saved

Changing cursor positions in vi

Key	Usage
arrow keys	To move up, down, left and right
j or **<ret>**	To move one line down
k	To move one line up
h or Backspace	To move one character left
l or Space	To move one character right
0	To move to beginning of line
$	To move to end of line
w	To move to beginning of next word
:0 or **1G**	To move to beginning of file
:n or **nG**	To move to line n
:$ or **G**	To move to last line in file
CTRL-F or **Page Down**	To move forward one page
CTRL-B or **Page Up**	To move backward one page
^l	To refresh and center screen

Searching for text in vi

Command	Usage
/pattern	Search forward for pattern
?pattern	Search backward for pattern

Key	Usage
n	Move to next occurrence of search pattern
N	Move to previous occurrence of search pattern

Working with text in vi

Key	Usage
a	Append text after cursor; stop upon **Escape** key
A	Append text at end of current line; stop upon **Escape** key
i	Insert text before cursor; stop upon **Escape** key
I	Insert text at beginning of current line; stop upon **Escape** key
o	Start a new line below current line, insert text there; stop upon **Escape** key
O	Start a new line above current line, insert text there; stop upon **Escape** key
r	Replace character at current position
R	Replace text starting with current position; stop upon **Escape** key
x	Delete character at current position
Nx	Delete N characters, starting at current position
dw	Delete the word at the current position

`D`	Delete the rest of the current line
`dd`	Delete the current line
`Ndd` or `dNd`	Delete N lines
`u`	Undo the previous operation
`yy`	Yank (copy) the current line and put it in buffer
`Nyy` or `yNy`	Yank (copy) N lines and put it in buffer
`p`	Paste at the current position the yanked line or lines from the buffer.

Using external commands in vi

Typing **sh command** opens an external command shell. When you exit the shell, you will resume your editing session.

Typing **!** executes a command from within **vi**. The command follows the exclamation point. This technique is best suited for non-interactive commands, such as **: ! wc %**. Typing this will run the **wc** (word count) command on the file; the character **%** represents the file currently being edited.

Introduction to emacs

The **emacs** editor is a popular competitor for **vi**. Unlike **vi**, it does not work with modes. **emacs** is highly customizable and includes a large number of features. It was initially designed for use on a console, but was soon adapted to work with a GUI as well. **emacs** has many other capabilities other than simple text editing. For example, it can be used for email, debugging, etc.

Rather than having different modes for command and insert, like vi, **emacs** uses the **CTRL** and Meta **(Alt** or **Esc)** keys for special commands.

Working with emacs

Key	Usage
`emacs myfile`	Start **emacs** and edit `myfile`
`CTRL-x i`	Insert prompted for file at current position
`CTRL-x s`	Save all files
`CTRL-x CTRL-w`	Write to the file giving a new name when prompted
`CTRL-x CTRL-s`	Saves the current file
`CTRL-x CTRL-c`	Exit after being prompted to save any modified files

The **emacs** tutorial is a good place to start learning basic commands. It is available any time when in **emacs** by simply typing **CTRL-h** (for help) and then the letter **t** for tutorial.

Changing cursor positions in emacs

Key	Usage
Arrow keys	Use the arrow keys for up, down, left and right
CTRL-n	One line down
CTRL-p	One line up
CTRL-f	One character forward/right
CTRL-b	One character back/left
CTRL-a	Move to beginning of line
CTRL-e	Move to end of line
Meta-f	Move to beginning of next word
Meta-b	Move back to beginning of preceding word
Meta-<	Move to beginning of file
Meta-g-g-n	Move to line n (can also use '**Esc-x Goto-line n**')
Meta->	Move to end of file
CTRL-v or **Page Down**	Move forward one page
Meta-v or **Page Up**	Move backward one page
CTRL-l	Refresh and center screen

Searching for text in emacs

Key	Usage
`CTRL-s`	Search forward for prompted pattern, or for next pattern
`CTRL-r`	Search backwards for prompted pattern, or for next pattern

Working with text in emacs

Key	Usage
`CTRL-o`	Insert a blank line
`CTRL-d`	Delete character at current position
`CTRL-k`	Delete the rest of the current line
`CTRL-_`	Undo the previous operation
`CTRL-` (space or `CTRL-@`)	Mark the beginning of the selected region. The end will be at the cursor position
`CTRL-w`	Delete the current marked text and write it to the buffer
`CTRL-y`	Insert at current cursor location whatever was most recently deleted

Summary

- Text editors (rather than word processing programs) are used quite often in Linux, for tasks such as creating or modifying system configuration files, writing scripts, developing source code, etc.

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- nano is an easy-to-use text-based editor that utilizes on-screen prompts.
- gedit is a graphical editor, very similar to Notepad in Windows.
- The vi editor is available on all Linux systems and is very widely used. Graphical extension versions of vi are widely available as well.
- emacs is available on all Linux systems as a popular alternative to vi. emacs can support both a graphical user interface and a text mode interface.
- To access the vi tutorial, type **vimtutor** at a command line window.
- To access the emacs tutorial type **Ctl-h** and then **t** from within emacs**.**
- **vi** has three modes: *Command*, *Insert*, and *Line*. emacs has only one, but requires use of special keys, such as **Control** and **Escape**.
- Both editors use various combinations of keystrokes to accomplish tasks. The learning curve to master these can be long, but once mastered using either editor is extremely efficient.