Tutorial

50+ Essential Linux Commands: A Comprehensive Guide

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UNIX/Linux   Linux Commands   Linux Basics

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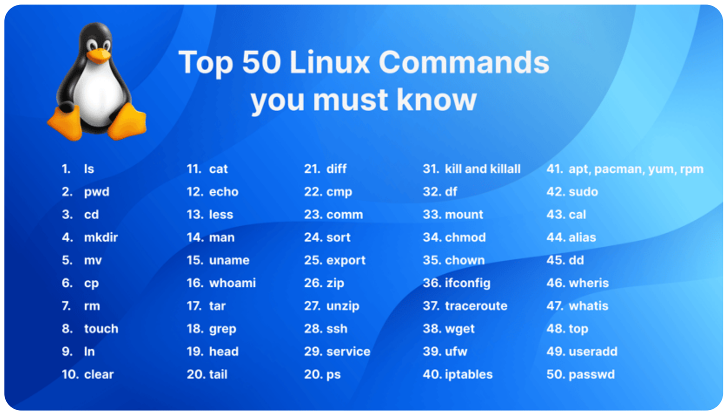

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Introduction

Unlock the full potential of your Linux system with this comprehensive guide to essential Linux commands. Whether you're a seasoned administrator or just starting out, mastering these commands is crucial for efficient server management, script writing, and troubleshooting. In this tutorial, you will learn the most frequently used and powerful commands for file management, process control, user access, network configuration, and system debugging.

You will learn over **50+ must-know Linux commands** that will transform you into a Linux power user. From basic to advanced, these commands will become your go-to tools for tackling any task that comes your way.

Prerequisites

We will be running these commands on a Ubuntu server, but you can follow along on any modern Linux distribution. You can set up a Ubuntu server for this tutorial by following our guide to Initial Server Setup on Ubuntu.

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Let's get right into it!

Top 50 Linux Commands You Must Know as a Regular User

1. **ls** - The most frequently used command in Linux to list directories
2. **pwd** - Print working directory command in Linux
3. **cd** - Linux command to navigate through directories
4. **mkdir** - Command used to create directories in Linux
5. **mv** - Move or rename files in Linux
6. **cp** - Similar usage as mv but for copying files in Linux
7. **rm** - Delete files or directories
8. **touch** - Create blank/empty files
9. **ln** - Create symbolic links (shortcuts) to other files
10. **clear** - Clear the terminal display
11. **cat** - Display file contents on the terminal
12. **echo** - Print any text that follows the command
13. **less** - Linux command to display paged outputs in the terminal
14. **man** - Access manual pages for all Linux commands
15. **uname** - Linux command to get basic information about the OS
16. **whoami** - Get the active username
17. **tar** - Command to extract and compress files in linux
18. **grep** - Search for a string within an output
19. **head** - Return the specified number of lines from the top
20. **tail** - Return the specified number of lines from the bottom
21. **diff** - Find the difference between two files
22. **cmp** - Allows you to check if two files are identical
23. **comm** - Combines the functionality of diff and cmp
24. **sort** - Linux command to sort the content of a file while outputting
25. **export** - Export environment variables in Linux
26. **zip** - Zip files in Linux
27. **unzip** - Unzip files in Linux
28. **ssh** - Secure Shell command in Linux
29. **service** - Linux command to start and stop services
30. **ps** - Display active processes
31. **kill and killall** - Kill active processes by process ID or name
32. **df** - Display disk filesystem information
33. **mount** - Mount file systems in Linux
34. **chmod** - Command to change file permissions
35. **chown** - Command for granting ownership of files or folders
36. **ifconfig** - Display network interfaces and IP addresses
37. **traceroute** - Trace all the network hops to reach the destination
38. **wget** - Direct download files from the internet
39. **ufw** - Firewall command
40. **iptables** - Base firewall for all other firewall utilities to interface with
41. **apt, pacman, yum, rpm** - Package managers depending on the distribution
42. **sudo** - Command to escalate privileges in Linux
43. **cal** - View a command-line calendar
44. **alias** - Create custom shortcuts for your regularly used commands
45. **dd** - Majorly used for creating bootable USB sticks
46. **whereis** - Locate the binary, source, and manual pages for a command
47. **whatis** - Find what a command is used for
48. **top** - View active processes live with their system usage
49. **useradd and usermod** - Add a new user or change existing user data
50. **passwd** - Create or update passwords for existing users

File and Directory Commands

Command	Description	Example

ls	List directory contents.	`ls`
cd	Change directory.	`cd /path/to/directory`
pwd	Show current directory.	`pwd`
mkdir	Create a new directory.	`mkdir new_directory`
rmdir	Remove an empty directory.	`rmdir empty_directory`
rm	Delete files or directories.	`rm file.txt`
touch	Create an empty file.	`touch new_file.txt`
cp	Copy files or directories.	`cp file.txt /path/to/destination`
mv	Move or rename files.	`mv file.txt /path/to/new_location`
cat	Display file contents.	`cat file.txt`
nano / vim	Edit files in terminal.	`nano file.txt`
find	Search for files in a directory hierarchy.	`find . -name "file.txt"`
grep	Search text using patterns.	`grep "pattern" file.txt`
tar	Archive and compress files.	`tar -cvf archive.tar file1.txt file2.txt`
df	Show disk usage of file systems.	`df`
du	Show directory/file size.	`du -sh /path/to/directory`
chmod	Change file permissions.	`chmod 755 file.txt`
chown	Change file owner.	`chown user:group file.txt`
mount	Mount a filesystem.	`mount /dev/sdb1 /mnt`
umount	Unmount a filesystem.	`umount /mnt`

Networking Commands

Command	**Description**	**Sample Usage**
ping	Test connectivity to a host.	`ping google.com`

ifconfig / ip a	Display network interfaces.	`ifconfig` or `ip a`
netstat / ss	Show network connections.	`netstat -tuln` or `ss -tuln`
wget	Download files via HTTP/FTP.	`wget http://example.com/file.zip`
curl	Transfer data using URL syntax.	`curl -O http://example.com/file.zip`
nc (Netcat)	Network debugging and data transfer.	`nc -zv 192.168.1.1 80`
tcpdump	Capture and analyze network packets.	`tcpdump -i eth0`
iptables	Configure firewall rules.	`iptables -A INPUT -p tcp --dport 22 -j ACCEPT`
traceroute	Trace the path packets take to a network host.	`traceroute example.com`
nslookup	Query DNS to obtain domain name or IP address mapping.	`nslookup example.com`
ssh	Securely connect to a remote host.	`ssh user@example.com`

Process and System Monitoring Commands

Command	Description	Example Command
ps	Show running processes.	`ps aux`
top	Dynamic process viewer.	`top`
htop	Enhanced version of top.	`htop`
kill	Send a signal to a process.	`kill <PID>`
killall	Kill processes by name.	`killall <process_name>`
uptime	System uptime and load.	`uptime`
whoami	Current logged-in user.	`whoami`
env	Display environment variables.	`env`
strace	Trace system calls of a process.	`strace -p <PID>`
systemctl	Manage systemd services.	`systemctl status <service_name>`

journalctl	View system logs.	`journalctl -xe`
free	Display memory usage.	`free -h`
vmstat	Report virtual memory statistics.	`vmstat 1`
iostat	Report CPU and I/O statistics.	`iostat`
lsof	List open files by processes.	`lsof`
dmesg	Print kernel ring buffer messages.	`dmesg`

User and Permission Management Commands

Command	Description	Example Command
passwd	Change user password.	`passwd <username>`
adduser / useradd	Add a new user.	`adduser <username>` or `useradd <username>`
deluser / userdel	Delete a user.	`deluser <username>` or `userdel <username>`
usermod	Modify user account.	`usermod -aG <group> <username>`
groups	Show group memberships.	`groups <username>`
sudo	Execute commands as root.	`sudo <command>`
chage	Change user password expiry information.	`chage -l <username>`
id	Display user identity information.	`id <username>`
newgrp	Log in to a new group.	`newgrp <group>`

File Transfer and Synchronization Commands

Command	Description	Example Command
scp	Securely copy files over SSH.	`scp user@remote:/path/to/file /local/destination`
rsync	Efficiently sync files and directories.	`rsync -avz /local/directory/ user@remote:/path/to/destination`
ftp	Transfer files using the File Transfer Protocol.	`ftp ftp.example.com`

sftp	Securely transfer files using SSH File Transfer Protocol.	`sftp user@remote:/path/to/file`
wget	Download files from the web.	`wget http://example.com/file.zip`
curl	Transfer data from or to a server.	`curl -O http://example.com/file.zip`

Text Processing Commands

Command	Description	Example Command
awk	Pattern scanning and processing.	`awk '{print $1}' file.txt`
sed	Stream editor for filtering/modifying text.	`sed 's/old/new/g' file.txt`
cut	Remove sections from lines of text.	`cut -d':' -f1 /etc/passwd`
sort	Sort lines of text.	`sort file.txt`
grep	Search for patterns in text.	`grep 'pattern' file.txt`
wc	Count words, lines, and characters.	`wc -l file.txt`
paste	Merge lines of files.	`paste file1.txt file2.txt`
join	Join lines of two files on a common field.	`join file1.txt file2.txt`
head	Output the first part of files.	`head -n 10 file.txt`
tail	Output the last part of files.	`tail -n 10 file.txt`

Shell Utilities and Shortcuts Commands

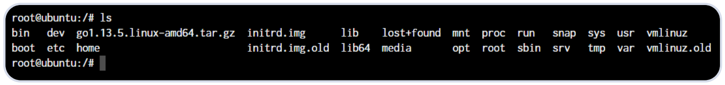
Command	Description	Example Command
alias	Create shortcuts for commands.	`alias ll='ls -la'`
unalias	Remove an alias.	`unalias ll`
history	Show previously entered commands.	`history`
clear	Clear the terminal screen.	`clear`
reboot	Reboot the system.	`reboot`
shutdown	Power off the system.	`shutdown now`

date	Display or set the system date and time.	`date`
echo	Display a line of text.	`echo "Hello, World!"`
sleep	Delay for a specified amount of time.	`sleep 5`
time	Measure the duration of command execution.	`time ls`
watch	Execute a program periodically, showing output fullscreen.	`watch -n 5 df -h`

Now let's dive a little deeper into each of these commands and understand them in more detail. We already have a lot of existing articles for each of those individual commands. For your convenience, we'll add links to all the existing articles, and continue to update the article as new topics are covered.

The `ls` command in Linux

The `ls` command is used to list files and directories in the current working directory. This is going to be one of the most frequently used Linux commands you must know of.



```
root@ubuntu:/# ls
bin   dev  go1.13.5.linux-amd64.tar.gz  initrd.img      lib    lost+found  mnt  proc  run   snap  sys  usr  vmlinuz
boot  etc  home                         initrd.img.old  lib64  media       opt  root  sbin  srv   tmp  var  vmlinuz.old
root@ubuntu:/#
```

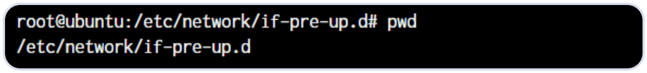
As you can see in the above image, using the command by itself without any arguments will give us an output with all the files and directories in the directory. The command offers a lot of flexibility in terms of displaying the data in the output.

Learn more about using the `ls` command

Jump back to commands list ↑

The `pwd` command in Linux

The `pwd` command allows you to print the current working directory on your terminal. It's a very basic command and solves its purpose very well.



```
root@ubuntu:/etc/network/if-pre-up.d# pwd
/etc/network/if-pre-up.d
```

Now, your terminal prompt should usually have the complete directory anyway. But in case it doesn't, this can be a quick command to see the directory that you're in. Another application of this command is when creating scripts where this command can allow us to find the directory where the script has been saved.

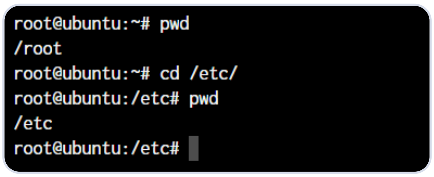
Jump back to commands list ↑

The `cd` command in Linux

While working within the terminal, moving around within directories is pretty much a necessity. The cd command is one of the important Linux commands you must know, and it will help you navigate through directories. Just type `cd` followed by directory, as shown below.

Copy

```
root@ubuntu:~# cd <directory path>
```



```
root@ubuntu:~# pwd
/root
root@ubuntu:~# cd /etc/
root@ubuntu:/etc# pwd
/etc
root@ubuntu:/etc#
```

As you can see in the above command, I simply typed `cd /etc/` to get into the /etc directory. We used the `pwd` command to print the current working directory.

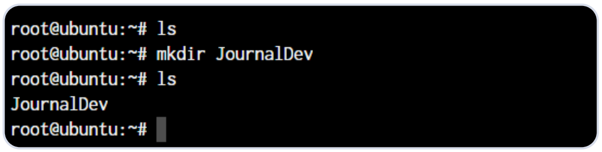
Jump back to commands list ↑

The `mkdir` command in Linux

The `mkdir` command allows you to create directories from within the terminal.

Copy

```
root@ubuntu:~# mkdir <folder name>
```



```
root@ubuntu:~# ls
root@ubuntu:~# mkdir JournalDev
root@ubuntu:~# ls
JournalDev
root@ubuntu:~#
```

As you can see in the above screenshot, we created the JournalDev directory with just this simple command.

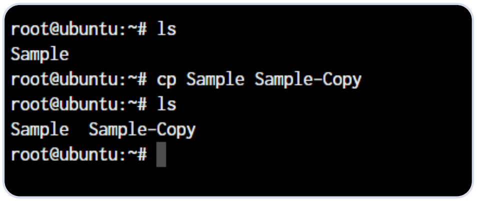
Jump back to commands list ↑

The `cp` and `mv` commands

The `cp` and `mv` commands are equivalent to the copy-paste and cut-paste commands in Windows. But since Linux doesn't really have a command for renaming files, we also use the `mv` command to rename files and folders.

Copy

```
root@ubuntu:~# cp <source> <destination>
```

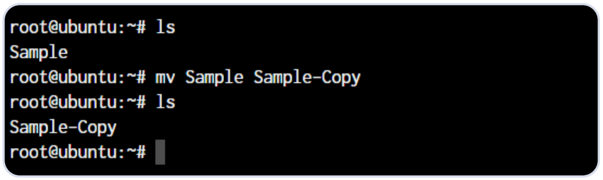


```
root@ubuntu:~# ls
Sample
root@ubuntu:~# cp Sample Sample-Copy
root@ubuntu:~# ls
Sample  Sample-Copy
root@ubuntu:~#
```

In the above command, we created a copy of the file named Sample. Let's see how what happens if we use the `mv` command in the same manner.

Copy

```
root@ubuntu:~# mv <source> <destination
```



```
root@ubuntu:~# ls
Sample
root@ubuntu:~# mv Sample Sample-Copy
root@ubuntu:~# ls
Sample-Copy
root@ubuntu:~#
```

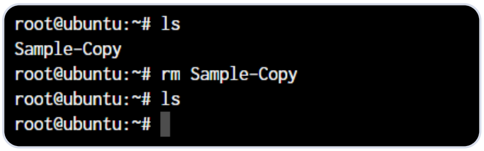
In the above case, since we were moving the file within the same directory, it acted as a rename. The file name is now changed.

Jump back to commands list ↑

The `rm` command in Linux

In the previous section, we deleted the Sample-Copy file. The rm command is used to delete files and folders and is one of the important Linux commands you must know.

```
root@ubuntu:~# rm <file name>
```



```
root@ubuntu:~# ls
Sample-Copy
root@ubuntu:~# rm Sample-Copy
root@ubuntu:~# ls
root@ubuntu:~#
```

To delete a directory, you must add the `-r` argument to it. Without the `-r` argument, the `rm` command won't delete directories.

```
root@ubuntu:~# rm -r <folder/directory name>
```

The `-r` flag in the `rm` command in Linux stands for "**recursive**". When used with the `rm` command, it will remove not only the specified file but also all of its subdirectories and the files within those subdirectories recursively.

Note: It's important to be careful when using the `rm` command with the `-r` flag, as it can quickly and permanently delete a large number of files and directories. It's a good idea to use the `-i` flag in conjunction with the `-r` flag, which will prompt you for confirmation before deleting each file and directory.

For example, to remove the `mydir` directory and its contents with confirmation, you can use this command:

```
root@ubuntu:~# rm -ri mydir
```

This will prompt you for confirmation before deleting each file and directory within the `mydir` directory.

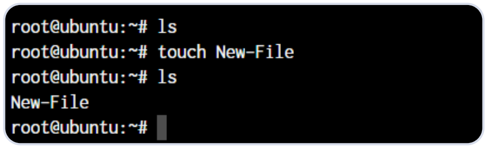
Jump back to commands list ↑

The `touch` command in Linux

The `touch` command in Linux creates an empty file or updates the timestamp of an existing file.

Copy

```
root@ubuntu:~# touch <file name>
```



```
root@ubuntu:~# ls
root@ubuntu:~# touch New-File
root@ubuntu:~# ls
New-File
root@ubuntu:~#
```

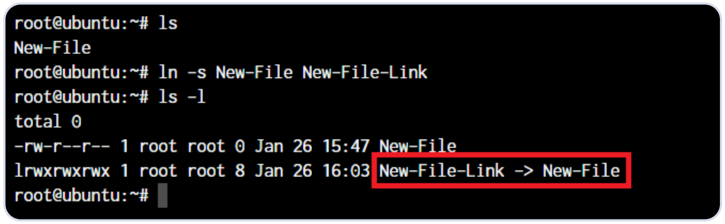
Jump back to commands list ↑

The `ln` command in Linux

To create a link to another file, we use the `ln` command. This is one of the most important Linux commands that you should know if you're planning to work as a Linux administrator.

Copy

```
root@ubuntu:~# ln -s <source path> <link name>
```



```
root@ubuntu:~# ls
New-File
root@ubuntu:~# ln -s New-File New-File-Link
root@ubuntu:~# ls -l
total 0
-rw-r--r-- 1 root root 0 Jan 26 15:47 New-File
lrwxrwxrwx 1 root root 8 Jan 26 16:03 New-File-Link -> New-File
root@ubuntu:~#
```

The `-s` flag creates a **symbolic link** (also known as a symlink or soft link) to a file or directory. A symbolic link is a special type of file that acts as a shortcut or pointer to another file or directory.

By default, the `ln` command will make *hard links* instead of symbolic or soft links.

Note: Say you have a text file. If you make a **symbolic link** to that file, the link is only a pointer to the original file. If you delete the original file, the link will be broken, as it no longer has anything to point to.

A **hard link** is a mirror copy of an original file with the exact same contents. Like symbolic links, if you edit the contents of the original file, those changes will be reflected in the hard link. If you delete the original file, though, the hard link will still work, and you can view and edit it as you would a normal copy of the original file.

Learn more about Soft and Hard Links.

Jump back to commands list ↑

The `clear` command in Linux

The `clear` command in Linux clears the terminal screen. It removes all the text and output currently displayed on the terminal and gives you a clean slate to work with.

Here is an example of how to use the `clear` command:

Copy

```
root@ubuntu:~# clear
```

This will clear the terminal screen and move the cursor to the top-left corner of the screen.

You can also use the `clear` command in combination with other commands, like this:

Copy

```
root@ubuntu:~# ls -l; clear
```

This will list the files and directories in the current directory, and then clear the terminal screen.

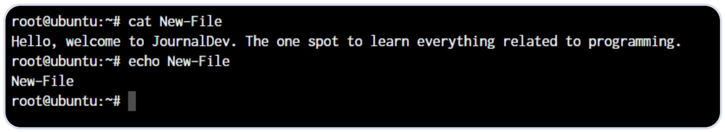
Note: The `clear` command does not delete any files or data from your system. It only affects the display of the terminal.

The `cat`, `echo`, and `less` commands

When you want to output the contents of a file or print anything to the terminal output, we use the `cat` or `echo` commands. Let's see their basic usage.

Copy

```
root@ubuntu:~# cat <file name>
root@ubuntu:~# echo <Text to print on terminal>
```



```
root@ubuntu:~# cat New-File
Hello, welcome to JournalDev. The one spot to learn everything related to programming.
root@ubuntu:~# echo New-File
New-File
root@ubuntu:~#
```

As you can see in the above example, the `cat` command, when used on our `New-File`, prints the contents of the file. At the same time, when we use `echo` command, it simply prints whatever follows after the command.

The `less` command is used when the output printed by any command is larger than the screen space and needs scrolling. The `less` command allows the user to break down the output and scroll through it with the use of the enter or space keys.

The simple way to do this is with the use of the pipe operator (`|`).

Copy

```
root@ubuntu:~# cat /boot/grub/grub.cfg  | less
```

Note: Use the `-S` flag with `less` to enable line wrapping. This will allow you to view long lines of text without scrolling horizontally.

Use the `-N` flag with `less` to display line numbers. This can be useful when you need to know the line number of a specific piece of text.

You can use these useful flags in the following way:

Copy

```
root@ubuntu:~# cat /boot/grub/grub.cfg | less -SN
```

Using `less` with the pipe operator can be useful in many different situations. Here are a few examples:

- Viewing the output of a long-running command, such as `top` or `htop`.

- Searching for specific text in the output of a command, such as `grep` or `cat` .

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The `man` command in Linux

The `man` command is a very useful Linux command one must know. When working with Linux, the packages that we download can have a lot of functionality. Knowing it all is impossible.

The `man` command in Linux is used to display the manual page for a specific command. It provides detailed information about the command, including its syntax, options, and examples.

Here's an example of how to use the `man` command:

1. Open a terminal and type `man ls` to display the manual page for the `ls` command.

Copy

```
root@ubuntu:~# man ls
```

This will display a page that looks something like this:

Copy

```
Output
LS(1)                            User Commands                            LS(

NAME
       ls - list directory contents

SYNOPSIS
       ls [OPTION]... [FILE]...

DESCRIPTION
       List information about the FILEs (the current directory by default).

       Sort entries alphabetically if none of -cftuvSUX nor --sort is specif

       Mandatory arguments to long options are mandatory for short options t

       -a, --all
              do not ignore entries starting with .

       -A, --almost-all
              do not list implied . and ..

       -c     with -lt: sort by, and show, ctime (time of last modification
              of file status information) with -l: show ctime and sort
              by name;
...
```

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The `uname` and `whoami` commands

The `uname` and `whoami` commands allow you to access some basic information that comes in handy when you work on multiple systems.

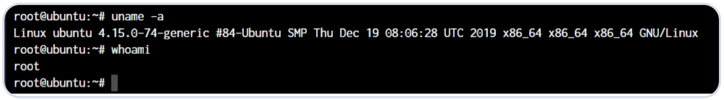
The `uname` command in Linux displays information about the system's kernel, including the kernel name, hostname, kernel release, kernel version, and machine hardware name.

The `whoami` command in Linux returns the current user's username. It stands for "who am I?" and it's often used to determine the current user's identity in shell scripts or the terminal.

Let's see the output of both the commands and the way we can use these.

Copy

```
root@ubuntu:~# uname -a
```



```
root@ubuntu:~# uname -a
Linux ubuntu 4.15.0-74-generic #84-Ubuntu SMP Thu Dec 19 08:06:28 UTC 2019 x86_64 x86_64 x86_64 GNU/Linux
root@ubuntu:~# whoami
root
root@ubuntu:~#
```

The parameter `-a` with `uname` command stands for "all". This prints out the complete information. If the parameter is not added, all you will get as the output is "Linux".

Note: Some important flags you can use with the `uname` command.

1. Use `uname -s` to display the kernel name.
2. Use `uname -n` to display the hostname.
3. Use `uname -r` to display the kernel release.
4. Use `uname -v` to display the kernel version.
5. Use `uname -m` to display the machine hardware name.

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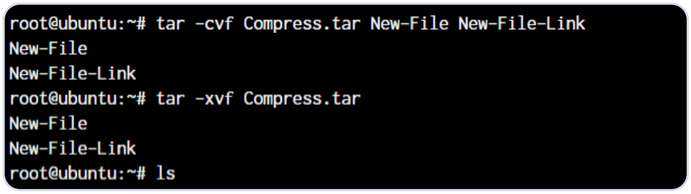
The `tar`, `zip`, and `unzip` commands

The `tar` command in Linux is used to create and extract archived files. We can extract multiple different archive files using the `tar` command.

To create an archive, we use the `-c` parameter, and to extract an archive, we use the `-x` parameter. Let's see how it works.

Copy

```
#Compress
root@ubuntu:~# tar -cvf <archive name> <files separated by space>
#Extract
root@ubuntu:~# tar -xvf <archive name>
```



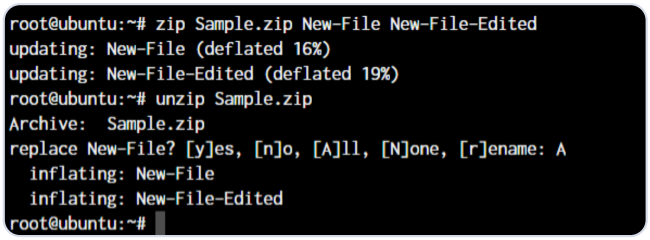
```
root@ubuntu:~# tar -cvf Compress.tar New-File New-File-Link
New-File
New-File-Link
root@ubuntu:~# tar -xvf Compress.tar
New-File
New-File-Link
root@ubuntu:~# ls
```

In the first line, we created an archive named **Compress.tar** with the New-File and New-File-Link. In the next command, we have extracted those files from the archive.

Let's discuss the `zip` and `unzip` commands. Both are very straightforward. You can use them without any parameters, and they'll work as intended. Let's see an example below.

Copy

```
root@ubuntu:~# zip <archive name> <file names separated by space>
root@ubuntu:~# unzip <archive name>
```



```
root@ubuntu:~# zip Sample.zip New-File New-File-Edited
updating: New-File (deflated 16%)
updating: New-File-Edited (deflated 19%)
root@ubuntu:~# unzip Sample.zip
Archive:  Sample.zip
replace New-File? [y]es, [n]o, [A]ll, [N]one, [r]ename: A
  inflating: New-File
  inflating: New-File-Edited
root@ubuntu:~#
```

Since we already have those files in the same directory, the `unzip` command prompts us before overwriting those files.

Jump back to commands list ↑

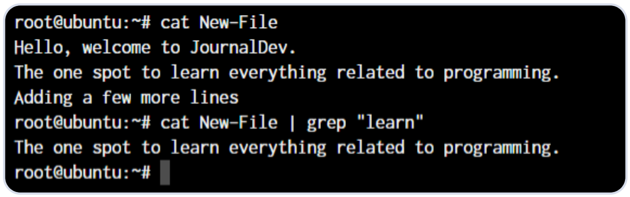
The `grep` command in Linux

The `grep` command is a powerful and versatile text search tool in Linux and Unix-based operating systems. It can search for specific patterns or strings in one or more files and filter the output of other commands.

The `grep` command stands for “global regular expression print,” which reflects its ability to search for regular expressions across multiple lines and files.

Copy

```
root@ubuntu:~# <Any command with output> | grep "<string to find>"
```



```
root@ubuntu:~# cat New-File
Hello, welcome to JournalDev.
The one spot to learn everything related to programming.
Adding a few more lines
root@ubuntu:~# cat New-File | grep "learn"
The one spot to learn everything related to programming.
root@ubuntu:~#
```

This was a simple demonstration of the command. Learn more about the grep command.

Jump back to commands list ↑

The `head` and `tail` commands

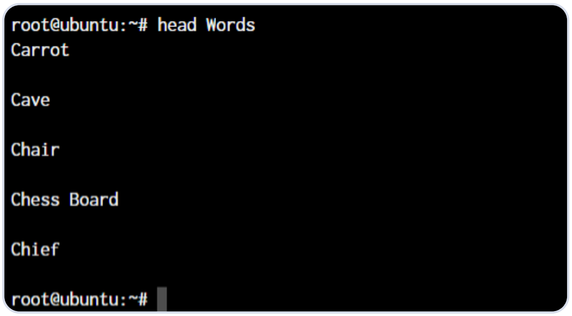
When outputting large files, the `head` and `tail` commands come in handy. These commands display the beginning or end of a file, respectively. They are commonly used to quickly view the contents of a file without having to open it in a text editor.

The `head` and `tail` commands display the first 10 lines of a file by default. To display a different number of lines, you can use the `-n` option, followed by the number of lines you want to display.

Here’s an example of using the `head` and `tail` commands:

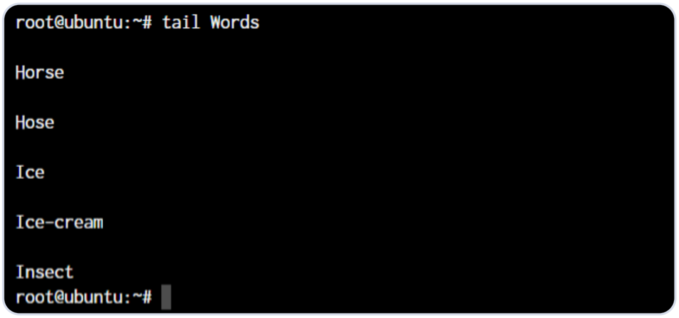
Copy

```
root@ubuntu:~# head <file name>
root@ubuntu:~# tail <file name>
```



```
root@ubuntu:~# head Words
Carrot

Cave

Chair

Chess Board

Chief

root@ubuntu:~#
```

As you can see, the head command showed 10 lines from the top of the file.



```
root@ubuntu:~# tail Words

Horse

Hose

Ice

Ice-cream

Insect
root@ubuntu:~#
```

The tail command outputted the bottom 10 lines from the file.

These commands can be used to quickly view a file's contents, monitor real-time updates for troubleshooting issues, filter output from other commands, and perform log analysis.

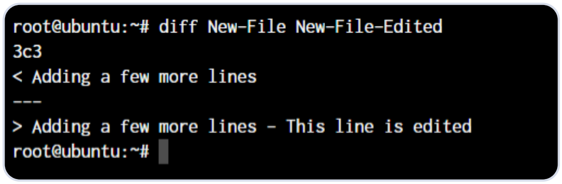
Jump back to commands list ↑

The `diff`, `comm`, and `cmp` commands

The `diff`, `comm`, and `cmp` commands are all used to compare files in Linux and Unix-based operating systems. These commands can be used to identify differences between two files, merge changes, and perform other file comparison tasks.

Copy

```
root@ubuntu:~# diff <file 1> <file 2>
```



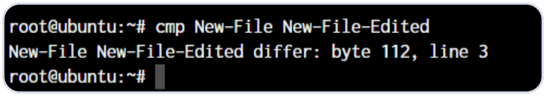
```
root@ubuntu:~# diff New-File New-File-Edited
3c3
< Adding a few more lines
---
> Adding a few more lines - This line is edited
root@ubuntu:~#
```

As you can see above, we have added a small piece of text saying, "This line is edited" to the New-File-Edited file.

The `cmp` command is used to compare two files and display the first byte that is different between them. It can be used to identify differences between binary files or to check for corruption in files.

Copy

```
root@ubuntu:~# cmp <file 1> <file 2>
```



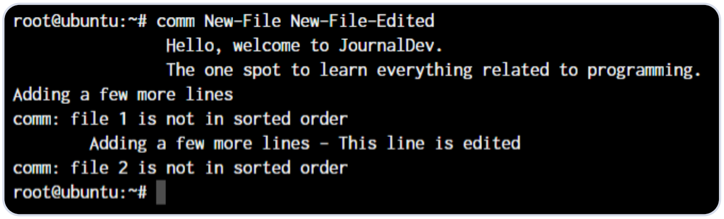
```
root@ubuntu:~# cmp New-File New-File-Edited
New-File New-File-Edited differ: byte 112, line 3
root@ubuntu:~#
```

The `cmp` command only tells us the line number, which is different. Not the actual text.

The `comm` command is used to compare two sorted files and display the lines that are unique to each file, as well as the lines that are common to both files.

Copy

```
root@ubuntu:~# comm <file 1> <file2>
```



```
root@ubuntu:~# comm New-File New-File-Edited
                Hello, welcome to JournalDev.
                The one spot to learn everything related to programming.
Adding a few more lines
comm: file 1 is not in sorted order
        Adding a few more lines - This line is edited
comm: file 2 is not in sorted order
root@ubuntu:~#
```

The text that's aligned to the left is only present in `file 1`. The centre-aligned text is present only in `file 2`. And the right-aligned text is present in both files.

By the looks of it, `comm` command makes the most sense when we're trying to compare larger files and would like to see everything arranged together.

All three of these commands are essential tools for working with files in Linux and Unix-based operating systems. By understanding how to use the `diff`, `comm`, and `cmp` commands effectively, you can identify differences between files, merge changes, and perform other file comparison tasks.

These commands can help you to identify and resolve issues with files, as well as to track changes and maintain version control. Whether you're a developer or a system administrator, these commands are an essential part of your toolkit.

Jump back to commands list ↑

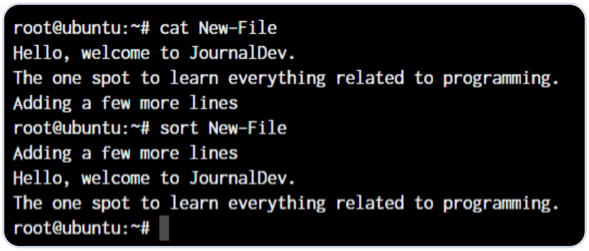
The `sort` command in Linux

The `sort` command is used to sort lines in a text file or standard input in Linux and Unix-based operating systems. It can be used to sort lines in ascending or descending order and to perform other sorting operations, such as sorting by fields or using a custom sorting order.

The basic syntax of the `sort` command is:

Copy

```
root@ubuntu:~# sort <filename>
```



```
root@ubuntu:~# cat New-File
Hello, welcome to JournalDev.
The one spot to learn everything related to programming.
Adding a few more lines
root@ubuntu:~# sort New-File
Adding a few more lines
Hello, welcome to JournalDev.
The one spot to learn everything related to programming.
root@ubuntu:~#
```

By default, the `sort` command sorts lines in **ASCII collating sequence**, which can lead to unexpected results when sorting numbers or special characters. To sort numbers in numerical order, you can use the `-n` option.

Here's an example of using the `-n` option:

Copy

```
root@ubuntu:~# sort -n file.txt
```

The above command will sort the lines in `file.txt` in numerical order.

The `sort` command can also be used to sort lines based on specific fields using the `-k` option.

Here's an example of using the `-k` option:

Copy

```
root@ubuntu:~# sort -k 2 file.txt
```

This command will sort the lines in `file.txt` based on the second field.

The `sort` command is a powerful and flexible tool for working with text files in Linux and Unix-based operating systems. By understanding how to use the `sort` command effectively, you can sort lines in text files, sort lines based on specific fields, and perform other sorting operations.

These commands can help you organize and analyze data and perform other file manipulation tasks. Whether you're a developer or a system administrator, the `sort` command is an essential part of your toolkit.

Jump back to commands list ↑

The `export` command in Linux

The `export` command in Linux and Unix-based operating systems is used to set environment variables. Environment variables are used to store information that can be used by processes or commands.

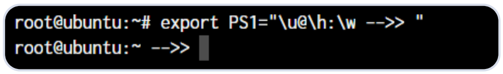
Once an environment variable is set, it can be accessed by any process or command that is running in the same shell.

Environment variables can be used to store a wide range of information, such as configuration settings, user preferences, or system information.

Here's an example of using the `export` command:

Copy

```
root@ubuntu:~# export <variable name>=<value>
```



```
root@ubuntu:~# export PS1="\u@\h:\w -->> "
root@ubuntu:~ -->> 
```

Learn more about the `export` command

Jump back to commands list ↑

The `ssh` command in Linux

The `ssh` command in Linux and Unix-based operating systems establishes a secure shell connection to a remote server. The command provides a secure encrypted connection between the local and remote servers, allowing users to run commands and transfer files securely.

The basic syntax of the `ssh` command is:

Copy

```
root@ubuntu:~ ssh username@remote-server
```

This command establishes an `ssh` connection to the `remote-server` using the `username` account.

The `ssh` command supports a wide range of options and configurations, including:

- Configuring authentication methods (password, public key, etc.)
- Configuring encryption algorithms
- Configuring compression
- Configuring port forwarding
- Configuring X11 forwarding
- Configuring SSH keys

The `service` command in Linux

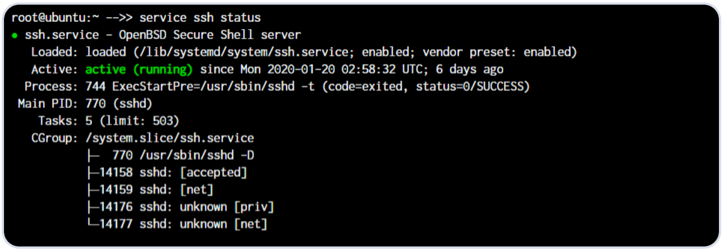
The `service` command in Linux is used to manage system services, which are long-running processes that are started at boot time and run in the background. These services are responsible for providing various system functionalities, such as networking, database management, and user authentication.

The `service` command is used to start, stop, restart, and check the status of these services. It is a front-end to the `systemctl` command, which is used to manage the `systemd` service manager.

The basic syntax of the command is as below.

Copy

```
root@ubuntu:~ service ssh status
root@ubuntu:~ service ssh stop
root@ubuntu:~ service ssh start
```



```
root@ubuntu:~ -->> service ssh status
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2020-01-20 02:58:32 UTC; 6 days ago
  Process: 744 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
 Main PID: 770 (sshd)
    Tasks: 5 (limit: 503)
   CGroup: /system.slice/ssh.service
           ├─  770 /usr/sbin/sshd -D
           ├─14158 sshd: [accepted]
           ├─14159 sshd: [net]
           ├─14176 sshd: unknown [priv]
           └─14177 sshd: unknown [net]
```

As you can see in the image, the `ssh` server is running on our system.

Jump back to commands list ↑

The `ps`, `kill`, and `killall` commands

The `ps`, `kill`, and `killall` commands are all used to manage processes in Linux.

The `ps` command is used to display information about the current running processes on the system. Here are some examples of using the `ps` command:

Display a list of all running processes:

Copy

```
root@ubuntu:~ ps -ef
```

Display a list of all processes for a specific process ID (PID):

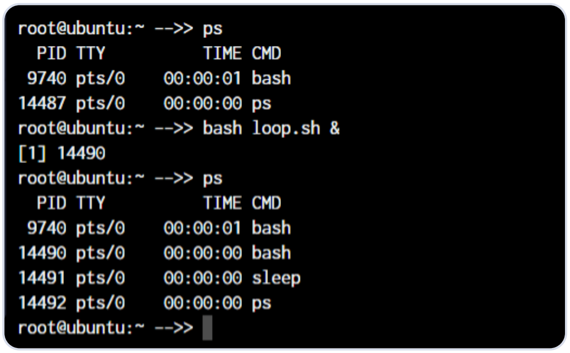
```
root@ubuntu:~ ps -p PID
```

Let's see all of this in action:

```
root@ubuntu:~ ps
root@ubuntu:~ kill <process ID>
root@ubuntu:~ killall <process name>
```

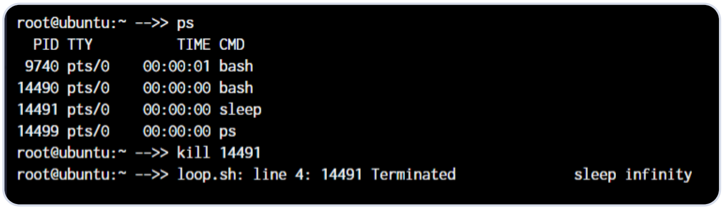
For demonstration purposes, we will create a shell script with an infinite loop and will run it in the background.

With the use of the `&` symbol, we can pass a process into the background. As you can see, a new bash process with PID 14490 is created.



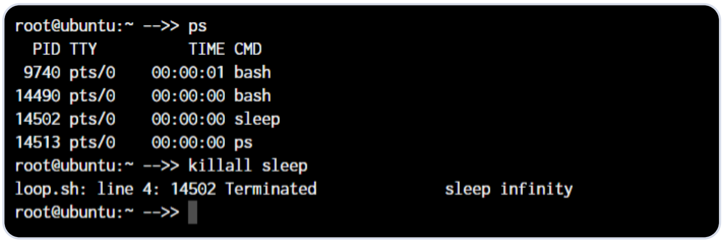
```
root@ubuntu:~ -->> ps
  PID TTY          TIME CMD
 9740 pts/0    00:00:01 bash
14487 pts/0    00:00:00 ps
root@ubuntu:~ -->> bash loop.sh &
[1] 14490
root@ubuntu:~ -->> ps
  PID TTY          TIME CMD
 9740 pts/0    00:00:01 bash
14490 pts/0    00:00:00 bash
14491 pts/0    00:00:00 sleep
14492 pts/0    00:00:00 ps
root@ubuntu:~ -->>
```

Now, to kill a process with the `kill` command, you can type `kill` followed by the PID(Process Id) of the process.



```
root@ubuntu:~ -->> ps
  PID TTY          TIME CMD
 9740 pts/0    00:00:01 bash
14490 pts/0    00:00:00 bash
14491 pts/0    00:00:00 sleep
14499 pts/0    00:00:00 ps
root@ubuntu:~ -->> kill 14491
root@ubuntu:~ -->> loop.sh: line 4: 14491 Terminated              sleep infinity
```

But if you do not know the process ID and just want to kill the process with the name, you can make use of the killall command.



```
root@ubuntu:~ -->> ps
  PID TTY          TIME CMD
 9740 pts/0    00:00:01 bash
14490 pts/0    00:00:00 bash
14502 pts/0    00:00:00 sleep
14513 pts/0    00:00:00 ps
root@ubuntu:~ -->> killall sleep
loop.sh: line 4: 14502 Terminated              sleep infinity
root@ubuntu:~ -->>
```

You will notice that PID `14490` stayed active. That is because, both times, we killed the sleep process.

Learn more about the `ps` command and the `kill` command.

Jump back to commands list ↑

The `df` and `mount` commands

When working with Linux, the `df` and `mount` commands are very efficient utilities to mount filesystems and get details of the file system.

The `df` command is used to display the amount of disk space used and available on the file systems, and the `mount` command is used to mount a file system or device to a specific directory.

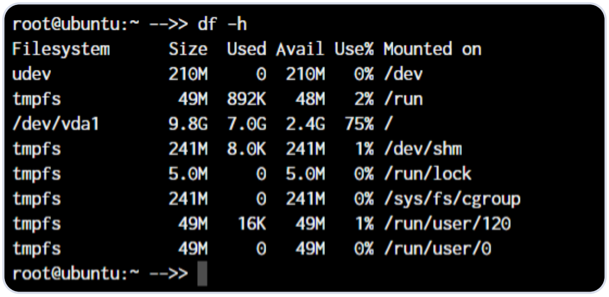
When we say `mount`, it means that we'll connect the device to a folder so we can access the files from our filesystem. The default syntax to mount a filesystem is below:

Copy

```
root@ubuntu:~ mount /dev/cdrom /mnt
root@ubuntu:~ df -h
```

In the above case, `/dev/cdrom` is the device that needs to be mounted. Usually, a mountable device is found inside the `/dev` folder. `mnt` is the destination folder to which to mount the device. You can change it to any folder you want, but we have used `/mnt` as it's the system's default folder for mounting devices.

To see the mounted devices and get more information about them, we use the df command. Just typing `df` will give us the data in bytes, which is not readable. So, we'll use the `-h` parameter to make the data human-readable.



```
root@ubuntu:~ -->> df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            210M     0  210M   0% /dev
tmpfs            49M  892K   48M   2% /run
/dev/vda1       9.8G  7.0G  2.4G  75% /
tmpfs           241M  8.0K  241M   1% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           241M     0  241M   0% /sys/fs/cgroup
tmpfs            49M   16K   49M   1% /run/user/120
tmpfs            49M     0   49M   0% /run/user/0
root@ubuntu:~ -->>
```

Jump back to commands list ↑

The `chmod` and `chown` commands

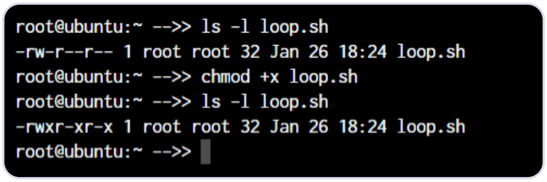
The `chmod` and `chown` commands are used to modify file permissions and ownership in Linux.

The `chmod` command is used to change the permissions of a file or directory, and the `chown` command is used to change the ownership of a file or directory

The default syntax for both the commands is `chmod <parameter> filename` and `chown <user:group> filename`

Copy

```
root@ubuntu:~ chmod +x loop.sh
root@ubuntu:~ chmod root:root loop.sh
```



```
root@ubuntu:~ -->> ls -l loop.sh
-rw-r--r-- 1 root root 32 Jan 26 18:24 loop.sh
root@ubuntu:~ -->> chmod +x loop.sh
root@ubuntu:~ -->> ls -l loop.sh
-rwxr-xr-x 1 root root 32 Jan 26 18:24 loop.sh
root@ubuntu:~ -->>
```

In the above example, we're adding executable permissions to the `loop.sh` file with the `chmod` command. In addition, with the `chown` command, we've made it accessible only to the root user and users within the root group.