

Top 60 Linux commands: What they are and how to use them effectively



The top Linux command-line tools are utilities that enable you to manage various aspects of your operating system. They are commonly used in Linux servers where the absence of a graphical user interface means you can only use a terminal.

There are various Linux utilities available in the command-line interface that send instructions to the system to perform different tasks. In general, they can be categorized into:

- **Filesystem browsing commands.** Utilities for navigating directories and paths.
- **File and directory handling commands.** Tools for organizing and processing files and folders.
- **User and access control commands.** Command-line instructions for managing accounts and their permissions.
- **System and process monitoring commands.** Tools for analyzing system performance and processes like services.
- **Network management commands.** Utilities for adjusting network settings.

Let's review each category first, and then we'll explore the commands in more detail, along with their examples.

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File and folder navigation commands

Command	Function
<code>ls</code>	List the content of a directory
<code>pwd</code>	Check a directory's path
<code>cd</code>	Change directory
<code>locate</code>	Search for a file and its path
<code>find</code>	Find a file within the current directory

File and folder operations commands

Command	Function
<code>mkdir</code>	Make a directory
<code>rmdir</code>	Remove a directory
<code>rm</code>	Delete a file
<code>cp</code>	Copy a file to another location
<code>mv</code>	Move or rename a file or a folder
<code>touch</code>	Create an empty file
<code>file</code>	Check a file type
<code>zip and unzip</code>	Compress or extract a ZIP archive
<code>tar</code>	Bundle files into a tarball
<code>nano, vi, and jed</code>	Open up a text editor
<code>cat</code>	Print a file's content
<code>grep</code>	Find a specific line from a file
<code>sed</code>	Search and replace a pattern in a file
<code>head</code>	Print the first few entries of a file
<code>tail</code>	Print the last few entries of a file
<code>awk</code>	Search and manipulate a pattern in a file
<code>sort</code>	Rearrange a file's content
<code>cut</code>	Select and print specific parts of a file
<code>diff</code>	Compare file content
<code>tee</code>	Print a command's output into a file and shell
<code>echo</code>	Print text in the shell
<code>ln</code>	Link files or folders
<code>alias and unalias</code>	Set or remove another name for a file or program
<code>apt and dnf</code>	Manage system repository and packages

User and permission management commands

Command	Function
<code>sudo</code>	Run a command as a superuser
<code>su</code>	Change user
<code>whoami</code>	Check the current user
<code>chmod</code>	Change an item's permission
<code>chown</code>	Change an item's ownership
<code>useradd and userdel</code>	Add or remove a new user
<code>passwd</code>	Set a new password for a user

System monitoring and processes commands

Command	Function
<code>df</code>	Check disk usage
<code>du</code>	Check the size of a folder and its content
<code>top</code>	Display running processes and their hardware consumption
<code>htop</code>	List and manage processes
<code>ps</code>	Summarize processes at a specific time
<code>uname</code>	Print system information
<code>time</code>	Measure command or program execution time
<code>systemctl</code>	Manage services
<code>watch</code>	Run a command indefinitely
<code>jobs</code>	Check running programs in the current shell
<code>kill</code>	Terminate a process
<code>shutdown</code>	Turn off your system
<code>history</code>	Check previously run commands
<code>man</code>	Displays the manual of another command
<code>cal</code>	Opens a calendar

Networking commands

Command	Function
<code>hostname</code>	Check system hostname
<code>ping</code>	Send packets to a destination
<code>wget</code>	Download files from a URL
<code>curl</code>	Transfer data to and from a URL
<code>ip</code>	Manage the system network
<code>netstat</code>	Display network information
<code>traceroute</code>	Track the packet during transmission
<code>nslookup</code>	Check DNS information
<code>dig</code>	Check information about a domain
<code>scp</code>	Copy items over a network
<code>rsync</code>	Sync items between two systems over a network

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1. ls command

The **ls** command lists the content of a folder, including files and directories. Here's the syntax:
`ls [options] [directory_or_path]`

If you omit the path, the **ls** command will check the content of your current directory. To list items inside subfolders, add the **-R** option. Meanwhile, use **-a** to show hidden content. For example:

```
ls -Ra /path/to/dir
```

2. pwd command

Use the **pwd** command to check the full path of your current working directory. Its syntax is as follows:
`pwd [options]`

The **pwd** command has only two options. The **-L** option prints **environment variable** content, like shortcuts, instead of the actual path of your current location. Meanwhile, **-P** outputs the exact location.

For example, **/shortcut/folder** is a shortcut for **/actual/path**, and you are currently in **/actual/path/dir**. If you use the **-L** option, the output will be:
`/shortcut/folder/dir`

Meanwhile, the **-P** option will print the exact canonical path:
`/actual/path/dir`

3. cd command

Use **cd** to navigate between directories in your Linux VPS. It doesn't have any options, and the syntax is simple:
`cd [path_or_directory]`

Depending on your location, you might only need to specify the parent directory. For example, omit **path** from **path/to/directory** if you are already inside one. The **cd** command has several shortcuts:

- **cd** – returns to the current user's home directory.
- **cd ..** – moves a directory up.
- **cd --** goes back to the previous directory.

4. mkdir command

The **mkdir** command lets you create one or multiple directories. The syntax looks like this:
`mkdir [options] directory_name1 directory_name2`

To create a folder in another location, specify the full path. Otherwise, this command will make the new item in your current working directory.

For example, enter the following to create **new_folder** in **/path/to/target_folder**:
`mkdir path/to/target_folder/new_folder`

By default, **mkdir** allows the current user to read, write, and execute files in the new folder. You can set custom privileges during the creation by adding the **-m** option. To learn more about permission management, read the **chmod** section below.

5. rmdir command

Run **rmdir** to **delete empty directories in your Linux system**. The command syntax looks like this:
`rmdir [options] directory_name`

The **rmdir** command won't work if the directory contains subfolders. To force the deletion, add the **-p** option. Note that you must own the item you want to remove or use **sudo** instead. Here's an example of how to use this command:
`rmdir -p folder-name`

6. rm command

The **rm** command deletes files from a directory. You must have the write permission for the folder or use **sudo**. Here's the syntax:
`rm [options] file1 file2`

You can add the **-r** option to remove a folder and its contents, including subdirectories. Use the **-i** flag to display a confirmation message before the removal or **-f** to deactivate it completely:

```
rm -rf folder-name
```

Warning! Avoid using **-r** and **-f** unless necessary. Instead, add **-i** option to prevent accidental deletion.

7. cp command

Use the **cp** command to copy files from your current directory to another folder. The syntax looks like this:

```
cp file1 file2 [target_path]
```

You can also use **cp** to duplicate the content of one file to another using this syntax. If the target is in another location, specify the full path like so:

```
cp source_file /path/to/target_file
```

Additionally, **cp** lets you duplicate a directory and its content to another folder using the **-R** option:

```
cp -R /path/to/folder /target/path/to/folder_copy
```

8. mv command

The main usage of the **mv** command is to move a file or folder to another location. Here's the syntax:

```
mv file_or_directory [target_directory]
```

For example, we will move **file1.txt** from another location to the **/new/file/directory** path using this command:

```
mv /original/path/file1.txt the/target/path
```

You can also use the **mv** command to [rename files in your Linux system](#). Here's an example:

```
mv old_name.txt new_name.txt
```

If you specify the full path, you can simultaneously rename files and move them to a new location, like this example:

```
mv old/location/of/old_name.txt new/path/for/new_name.txt
```

9. touch command

Run the **touch** command to create a new empty file in a specific directory. The syntax is as follows:

```
touch [options] [path_and_file_name]
```

If you omit the path, the **touch** command will create a new file in your current working directory. Here's an example:

```
touch file.txt
```

10. file command

The **file** command checks a file type, such as TXT, PDF, or others. The syntax is as follows:

```
file [file_name]
```

If you use this command on a [symbolic link](#), it will output the actual file connected to the shortcut. For example, this command will check which file **hostinger_sym.txt** points to:

```
file hostinger_sym.txt
```

```
vps-admin@srv515631:~$ file hostinger_sym.txt  
hostinger_sym.txt: symbolic link to hostinger1.txt
```

You can add the **-k** option to print more detailed information about the item.

11. zip and unzip commands

The **zip** command compresses one or multiple files into a **ZIP** archive, reducing their size. Here's the syntax:

```
zip [options] zip_file_name file1 file2
```

To [extract a compressed file](#) into your current working directory, use the **unzip** command like so:

```
unzip [options] zip_file_name
```

12. tar command

The **tar** command bundles multiple files or directories into an archive without compression. The syntax looks as follows:

```
tar [options] tar_file_name file1 file2
```

To create a new **TAR** file, you must add the **-c** option. Then, use the **-f** flag to specify the archive's name.

If you want to enable compression, add a specific option based on your preferred method. For example, the following will bundle **file1.txt** and **file2.txt** with the **gzip** compression:

```
tar -cfz archive.tar.gz file1.txt file2.txt
```

Remember that the archive's file format will differ depending on the compression method. Regardless of the extension, you can unpack a **TAR** file using this syntax:

```
tar [options] tar_file_name
```

13. nano, vi, and jed command

nano, **vi**, and **jed** commands let you edit files. They have the same syntax, except at the beginning, where you specify the name of the tool:

```
nano/vi/jed file_name
```

If the target file doesn't exist, these commands will create a new one. Since your system might not have these text processing utilities pre-installed, configure them using your package manager.

We will explain the command in the **apt and dnf command** section.

14. cat command

The **concatenate**, or **cat** command, has various usages. The most basic one is printing the content of a file. Here's the syntax:

```
cat file_name
```

To print the content in reverse order, use **tac** instead. If you add the standard output operator symbol (>), the **cat** command will create a new file. For example, the following will make **file.txt**:

```
cat > file.txt
```

You can also use **cat** with the operator to combine the content of multiple files into a new item. In this command, **file1.txt** and **file2.txt** will merge into **target.txt**:

```
cat file1.txt file2.txt > target.txt
```

15. grep command

Global regular expression **print** or **grep** lets you search specific lines from a file using keywords. It is useful for filtering large data, like logs. The syntax looks as follows:

```
grep [options] keyword [file]
```

You can also filter data from another utility by piping it to the **grep** command. For example, the following searches **file.txt** from the **ls** command's output:

```
[vps-admin@srv515631:~$ ls
1423  2.txt      hostinger1.txt      hostinger.tdt  terraria-server-1423.zip
1.txt  file.txt  hostinger_sym.txt  hostinger.txt  tutorial
[vps-admin@srv515631:~$ ls | grep "file.txt"
file.txt
```

16. sed command

Use the **sed** command to search and replace patterns in files quickly. The basic syntax looks like this:

```
sed [options] 'subcommand/new_pattern/target_pattern' input_file
```

You can replace a string in multiple files simultaneously by listing them. Here's an example of a **sed** command that changes **red** in **colors.txt** and **hue.txt** with **blue**:

```
sed 's/red/blue' colors.txt hue.txt
```

17. head command

Use the **head** command to print the first few entries of a file. The basic syntax is as follows:

```
head [options] file_name
```

You can also print the first few lines of another command's output by piping it like so:

```
command | head [options]
```

By default, **head** will show the **first ten lines**. However, you can change this setting using the **-n** option followed by your desired number. Meanwhile, use **-c** to print the first few entries based on the byte size instead of the line. For example, this command prints the first two bytes of a file:

```
head -c 2 file.txt
```

18. tail command

The **tail** command is the opposite of **head**, allowing you to print the last few lines from files or another utility's output. Here are the syntaxes:

```
tail [options] file_name
```

```
command | tail [options]
```

The **tail** utility also has the same option as **head**. For example, we will extract the **last five lines** from the **ping** command's output:

```
ping -c 10 8.8.8.8 | tail -n 5
```

```
[vps-admin@srv515631:~$ ping -c 10 8.8.8.8 | tail -n 5
64 bytes from 8.8.8.8: icmp_seq=10 ttl=57 time=1.09 ms

--- 8.8.8.8 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9014ms
rtt min/avg/max/mdev = 0.905/1.032/1.328/0.113 ms
```

19. awk command

The **awk** command searches and manipulates regular expression patterns in a file. Here's the basic syntax:
awk '/regex pattern/{action}' input_file.txt

Although similar to **sed**, **awk** offers more operations beyond substitution, including printing, mathematical calculation, and deletion. It also lets you run a complex task with an **if** statement.

You can run multiple actions by listing them according to their execution order, separated by a semicolon (;). For example, this **awk** command calculates the average student score and print names that are above that threshold:

```
awk -F':' '{ total += $2; students[$1] = $2 } END { average = total / length(students); print "Average:", average; print "Above average:"; for (student in students) if (students[student] > average) print student }' score.txt
```

```
vps-admin@srv515631:~$ awk -F':' '{ total += $2; students[$1] = $2 } END { average = total / length(students); print "Average:", average; print "Above average:"; for (student in students) if (students[student] > average) print student }' score.txt
Average: 75
Above average:
Student C
Student E
```

Need help with a command?

Ask **Kodee**, Hostinger's AI assistant, to break down and explain complex commands.

20. sort command

Use the **sort** command to rearrange a file's content in a specific order. Its syntax looks as follows:
sort [options] [file_name]

An actual command would look like this:
sort file.txt

Note that this utility doesn't modify the actual file and only prints the rearranged content as an output.

By default, the **sort** command uses alphabetical order from **A** to **Z**, but you can add the **-r** option to reverse the order. You can also sort files numerically using the **-n** flag.

21. cut command

The **cut** command selects specific sections from a file and prints them as Terminal output. The syntax looks like this:
cut options file

Unlike other Linux utilities, the **cut** command's options are mandatory for file sectioning. Here are some of the flags:

- **-f** – selects a specific row field.
- **-b** – cuts the line by a specified byte size.
- **-c** – sections the line using a specified character.
- **-d** – separates lines based on delimiters.

You can combine multiple options for a more specific output. For example, this command extracts the **third** to **fifth** field from a comma-separated list:
cut -d',' -f3-5 list.txt

```
[vps-admin@srv515631:~$ cut -d',' -f3-5 list.txt
item3, item4, item5
item3, item4, item5
```

22. diff command

The **diff** command compares two files and prints their differences. Here's the syntax:
diff file_name1 file_name2

By default, the **diff** command only shows the differences between the two files. To print all the content and highlight the discrepancies, enable the context format using the **-c** option. You can also ignore case sensitivity by adding **-i**.

For example, run the following to show only the differences between **1.txt** and **2.txt**:
diff -c 1.txt 2.txt

```
[vps-admin@srv515631:~$ diff -c 1.txt 2.txt
*** 1.txt      2024-07-30 04:59:41.015519052 +0000
--- 2.txt      2024-08-06 10:36:44.771006073 +0000
*****
*** 1,6 ****
 HOSTINGER
! hostinger
 HSTNGR
 hstngr
! HSTR
 hstr
--- 1,6 ----
 HOSTINGER
! hostingers
 HSTNGR
 hstngr
! HSTRS
 hstr
```

23. tee command

The **tee** command outputs another command's results to both the Terminal and a file. It's helpful if you want to use the data for further processing or backups. Here's the syntax:

```
command | tee [options] file_name
```

If the specified file doesn't exist, **tee** will create it. Be careful when using this command since it will overwrite the existing content. To preserve and append existing data, add the **-a** option.

For example, we will save the ping command's output as new entries in the **test_network.txt** file:

```
ping 8.8.8.8 | tee -a test_network.txt
```

```
vps-admin@srv515631:~$ ping 8.8.8.8 | tee -a test_network.txt
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=57 time=0.919 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=57 time=0.974 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=57 time=0.934 ms
^Cvps-admin@srv515631:~$ cat test_network.txt
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=57 time=0.919 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=57 time=0.974 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=57 time=0.934 ms
```

24. locate command

The **locate** command searches for a file and prints its location path. Here's the syntax:

```
locate [options] [keyword]
```

If you use the **-r** option to search files using regular expressions, omit the **[keyword]** argument. The **locate** command is case-sensitive by default, but you can turn off this behavior using the **-i** flag, like so:

```
locate -i filename.txt
```

Note that **locate** will look for files from its database. While this behavior speeds up the search process, you must wait for the list to refresh before finding newly created items. Alternatively, enter the following to reload the data manually:

```
updatedb
```

25. find command

The **find** command searches for a file within a specific directory. Here's the syntax:

```
find [path] [options] expression
```

If you don't specify the path, the **find** command will search your current working directory. To find files using their name, add the **-name** option followed by the keyword.

You can specify the type of item you are looking for using the **-type** flag. The **-type f** option will search files only, while **-type d** will find directories. For example, we will check **file.txt** in **path/to/folder**:

```
find path/to/folder -type f -name "file"
```

Unlike locate, the **find** command searches through folders in real time. While it slows down the process, you can look for new items immediately without waiting for the system database to refresh.

26. sudo command

superuser do or sudo enables non-root users who are part of the **sudo group** to execute administrative commands. Simply add it at the beginning of another utility like so:

```
sudo [options] your_command
```

For example, enter the following to open a file using **nano** as an administrator:

```
sudo nano file.txt
```

The Terminal will prompt you to enter the user's password before executing the command. By default, you must re-enter it after five minutes of inactivity.

Typically, you don't add any options to sudo, but you can check them by entering:

```
sudo --help
```

Warning! Since users with **sudo** privileges can change various settings of your system, use this command with caution.

27. su and whoami commands

The **su** command lets you switch to another user in the Terminal session. The syntax looks as follows:

```
su [options] [username]
```

If you don't specify any option or username, this command will switch you to the **root** user. In this case, you must enter the password before changing the account.

You can check the currently logged-in user from the Linux command-line shell. Alternatively, use the **whoami** command:

```
[vps-admin@srv515631:~$ whoami
vps-admin
```

28. chmod command

Chmod lets you **change the permissions of files or directories**. The basic syntax looks as follows:

```
chmod [options] [permission] [file_or_directory]
```

In Linux, there are three folder and file permissions – read (**r**), write (**w**), and execute (**x**). You can assign them to three parties – the **owner**, a **group**, or **other accounts** belonging to neither category. Consider this example:

```
chmod -rwx---r-- file1.txt
```

The spot after the first hyphen (–) specifies the permission for the owner of **file1.txt**. In the previous example, we granted them the **rw** privilege.

The next spot is for groups. Since we won't grant them any privilege, we put three hyphens to indicate emptiness. The last slot is for other users who only have **read** or **r** permission.

29. chown command

The **chown** command lets you change the ownership of files, directories, or symbolic links. Here's the syntax:

```
chown [options] newowner:newgroup file1 file2
```

If you want to assign a user as the new owner of an item, leave the group name empty. For example, we will make **admin-vps** the owner of **file1.txt**:

```
chown admin-vps file1.txt
```

Conversely, omit the username to make all group members the owner. Remember to write the colons (:) like so:

```
chown :newgroup file1.txt
```

30. useradd, passwd, and userdel command

Use the **useradd** command to create a new account in your Linux system. The syntax is as follows:

```
useradd [options] new_username
```

By default, the **useradd** command doesn't prompt you to give the new user a password. You can add or change it manually later with the **passwd command**:

```
passwd new_username
```

To remove a user, use the **userdel** command followed by the account name like the syntax in the example:

```
userdel new_username
```

Since managing other users requires a **superuser** privilege, run these commands as **root** or with the **sudo** prefix.

Pro Tip

To set up a password and other details during the account creation process, use the **adduser** command instead.

31. df command

The **df** command [checks your Linux system's disk usage](#), displaying the used space in percentage and **kilobyte (KB)**. The syntax looks like this:
df [options] [file system]

Note that the **df** command operates at the [file system](#) level. If you don't specify one, the utility will display all the active file systems.

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
udev	2003732	0	2003732	0%	/dev
tmpfs	402852	424	402428	1%	/run
/dev/sda1	51432064	1477952	47826264	3%	/
tmpfs	2014244	0	2014244	0%	/dev/shm
tmpfs	5120	0	5120	0%	/run/lock
/dev/sda15	126678	10900	115778	9%	/boot/efi
tmpfs	402848	0	402848	0%	/run/user/1001

32. du command

To check the size of a directory and its content, use the **du** command. Here's the syntax:
du [directory]

The command will check your working directory if you don't specify a path or folder. By default, it breaks down each subfolder's disk usage, but you can add the **-s** option to summarize the total usage in one output.

You can also use the **-M** option to change the information from **KB** to **MB**.

33. top command

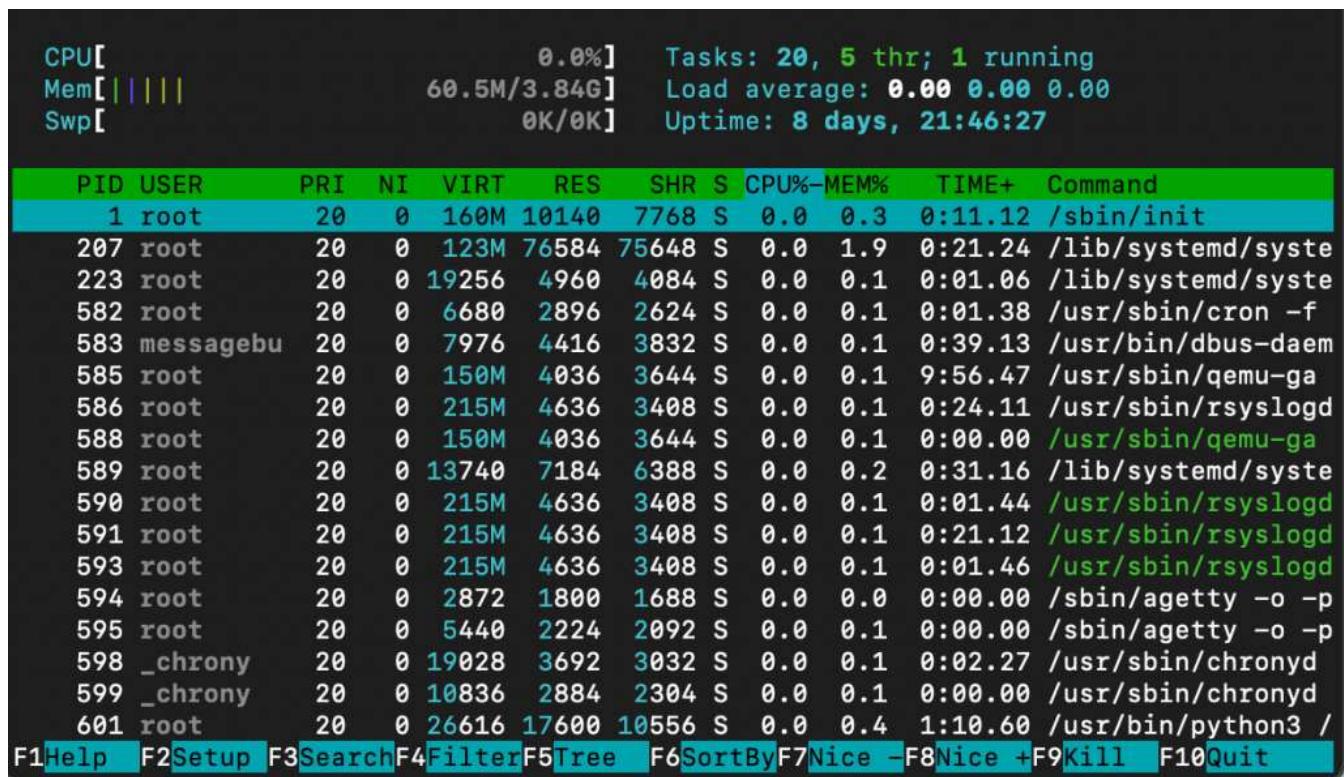
The **top** command displays all running processes in your system and their hardware consumption. The syntax looks like this:
top [options]

The **top** command has various options. For example, **-p** lets you check a specific process by specifying its ID. Meanwhile, add the **-d** flag to change the delay between screen updates.

34. htop command

Like **top**, the **htop** command lets you display and [manage processes in your Linux server](#). It also shares the same syntax:
htop [options]

htop has options similar to **top**, but you can add additional ones. For example, **-C** enables the monochrome mode, while **--tree** shows processes in a hierarchical view.



35. ps command

The **ps** command summarizes the status of all running processes in your Linux system at a specific time. Unlike **top** and **htop**, it doesn't update the information automatically. Here's the syntax:

```
ps [options]
```

You can print a more detailed report by adding other options. For example, use **-A** to list all processes in your system, **-r** to check only the running ones, or **-u** username to query those associated with a particular account.

36. uname command

The **unix name** or **uname** command displays detailed information about your Linux machine, including hardware, name, and [operating system kernel](#). Its basic syntax looks as follows:

```
uname [options]
```

Without any option, the command will print your system's kernel name. To check all information about your machine, add the **-a** option.

37. hostname command

Use the **hostname** command to check your VPS hostname and other related information. Here is the syntax:

```
hostname [options]
```

If you leave the option empty, the command will print your hostname. Add **-i** to check your server's IP address, **-a** to print the hostname alias, and **-A** to output the system's fully qualified domain name (FQDN).

Check VPS information using Kodee

You can check detailed information about your VPS, including its hostname, by simply asking **Kodee**. It can also directly change several settings of your server, like its hostname.

38. time command

The **time** command measures the execution time of commands or scripts to gain insights into your system performance. The basic syntax looks as follows:

```
time command_or_script
```

You can measure a series of commands by separating them using double ampersands (**&&**) or semicolons (**;**) like so:

```
time command; command
```

39. systemctl command

The **systemctl** command is used to manage services in your Linux system. Here's the basic syntax:

```
systemctl subcommand [service_name][options]
```

The subcommands represent your task, like listing, restarting, terminating, or enabling the services. For example, we will [list Linux services](#) using this:

```
sudo systemctl list-unit-files --type service --all
```

Note that this command might not work with older distributions since they use another service manager.

UNIT FILE	STATE	VENDOR PRESET
apparmor.service	enabled	enabled
apt-daily-upgrade.service	static	-
apt-daily.service	static	-
autovt@.service	alias	-
chrony-dnssrv@.service	static	-
chrony.service	enabled	enabled
chronyd.service	alias	-
cloud-config.service	enabled	enabled
cloud-final.service	enabled	enabled
cloud-init-local.service	enabled	enabled
cloud-init.service	enabled	enabled
console-getty.service	disabled	disabled
container-getty@.service	static	-
cron.service	enabled	enabled
cryptdisks-early.service	masked	enabled
cryptdisks.service	masked	enabled

40. watch command

The **watch** command lets you continuously run a utility at a specific interval to monitor changes in the output. Here's the basic syntax:

```
watch [options] command_name
```

An actual **watch** command would look like this:

```
watch netstat
```

By default, **watch** will run your command every **two seconds**, but you can change the interval using the **-n** option followed by the delay. If you want to highlight changes in the output, add the **-d** flag.

41. jobs command

Jobs are tasks or commands that are running in your current shell. To check them, use the **jobs** command with the following syntax:

```
jobs [options] [Job_ID]
```

Running this command without any arguments will show all jobs running in the Terminal's foreground and background. If you don't have any ongoing tasks, it will return an empty output.

You can display more detailed information about each job by adding the **-l** option. Meanwhile, use **-n** to show only tasks whose status has changed since the last notification.

42. kill command

Use the **kill** command to terminate a process using its ID. Here's the basic syntax:

```
kill [signal_option] Process_ID
```

To obtain the process ID, run the following command:

```
ps ux
```

The **kill** command has 64 termination signals. By default, it uses the **SIGTERM** method that lets the program save its progress before closing.

43. shutdown command

The **shutdown** command lets you turn off or restart your Linux system at a specific time. Here's the syntax:

```
shutdown [option] [time] [message]
```

If you run the command without any arguments, your system will shut down immediately. You can specify the schedule using a 24-hour format or a relative one. For example, enter **+5** to shut down the system after **five minutes**. To restart the machine, add the **-r** option.

The **message** argument specifies the notification that other users in your system will receive before the server shuts down.

44. ping command

The **ping** command sends packets to a target server and fetches the responses. It is helpful for network diagnostics. The basic syntax looks like the following:

```
ping [option] [hostname_or_IP_address]
```

By default, **ping** sends infinite packets until the user manually stops it by pressing **Ctrl + C**.

However, you can specify a custom number using the **-c** option. You can also change the interval between transfers by adding **-i**.

For instance, let's send 15 packets every **two seconds** to Google's server:

```
ping -c 15 -i 2 google.com
```

```
[vps-admin@srv515631:~$ ping -c 15 -i 2 google.com
PING google.com(sc-in-f139.1e100.net (2404:6800:4003:c02::8b)) 56 data bytes
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=1 ttl=57 time
=1.75 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=2 ttl=57 time
=1.88 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=3 ttl=57 time
=2.08 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=4 ttl=57 time
=2.26 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=5 ttl=57 time
=2.44 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=6 ttl=57 time
=2.62 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=7 ttl=57 time
=2.80 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=8 ttl=57 time
=2.98 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=9 ttl=57 time
=3.16 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=10 ttl=57 time
=3.34 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=11 ttl=57 time
=3.52 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=12 ttl=57 time
=3.70 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=13 ttl=57 time
=3.88 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=14 ttl=57 time
=4.06 ms
64 bytes from sc-in-f139.1e100.net (2404:6800:4003:c02::8b): icmp_seq=15 ttl=57 time
=4.24 ms]
```

45. wget command

The **wget** command lets you download files from the internet via HTTP, HTTPS, or FTP protocols. Here's the syntax:

```
wget [options] [URL]
```

By default, the **wget** command will download an item to your current working directory. For example, run this command to retrieve the latest WordPress installer:

```
wget https://wordpress.org/latest.zip
```

46. cURL command

Use the **cURL** command to transfer data from or to a server by specifying its URL. The basic syntax looks as follows:

```
curl [options] URL
```

Running **cURL** without an option will print the website's HTML content in your Terminal. If you add the **-O** or **-o** option, the command will download files from the specified link.

The **cURL** command is also helpful for testing API or server endpoints. You can do so by adding the **-X** option followed by an **HTTP method**, depending on whether you want to fetch or upload data.

For example, the following command will retrieve data from a specific API endpoint:
curl -X GET https://api.example.com/endpoint

47. scp command

The **scp** command lets you securely copy files and directories between systems over a network. The syntax looks as follows:
scp [option] [source username@IP]:/[directory and file name] [destination username@IP]:/[destination directory]

If you are copying items to or from your local machine, omit the IP and path. When transferring a file or folder from a local machine, specify its name after the options.

For example, we will run the following to copy **file1.txt** to our VPS's **path/to/folder** directory as root:
scp file1.txt root@185.185.185.185:/path/to/folder

You can change the default SCP port by specifying its number after the **-P** option. Meanwhile, use the **-I** flag to limit the transfer bandwidth and add **-C** to enable compression.

48. rsync command

The **rsync** command syncs files or folders between two destinations to ensure they have the same content. The syntax looks as follows:
rsync [options] source destination

The source and destination can be a folder within the same system, a local machine, or a remote server. If you are syncing content with a VPS, specify the username and IP address like so:

rsync /path/to/local/folder/ vps-user@185.185.185.185:/path/to/remote/folder/

You can add the **-a** option to sync the file or folder's attributes as well, including their symbolic links. Meanwhile, use the **-z** flag to enable compression during the transfer.

49. ip command

The **ip** utility lets you list and manage your system's network parameters, similar to the **ifconfig** command in older [Linux distros](#). Here's the syntax:
ip [options] object command

Running this command without any arguments will print the manual, including an explanation about acceptable options and objects.

To manage a network parameter, specify the action in the **command** argument. For example, run this to show your system's IP address:
ip address show

```
vps-admin@srv515631:~$ ip address show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
        inet6 ::1/128 scope host
            valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether b8:24:10:00:00:15 brd ff:ff:ff:ff:ff:ff
    altname enp0s18
    inet 192.168.1.1/24 brd 192.168.1.255 scope global eth0
        valid_lft forever preferred_lft forever
        inet6 fe80::b824:10ff:fe00:15/64 scope link
            valid_lft forever preferred_lft forever
```

50. netstat command

The **netstat** command displays information about your system's network configuration. The syntax is simple:
netstat [options]

Add an option to query specific network information. Here are several flags to use:

- **-a** – displays listening and closed sockets.
- **-t** – shows TCP connections.
- **-u** – lists UDP connections.
- **-r** – displays routing tables.
- **-i** – shows information about network interfaces.
- **-c** – continuously outputs network information for real-time monitoring.

51. traceroute command

The **traceroute** command tracks a packet's path when traveling between hosts, providing information like the transfer time and involved routers. Here's the syntax:

```
traceroute [options] destination
```

You can use a hostname, domain name, or IP address as the destination. If you don't specify an option, traceroute will run the test using the default settings.

Change the maximum packet hops using the **-m** option. To prevent traceroute from resolving IP addresses, add **-n**.

You can also enable a timeout in seconds using the **-w** flag followed by the duration.

52. nslookup command

The **nslookup** command requests a [Domain Name System](#) (DNS) server to check a domain linked to an IP address or vice versa. Here's the syntax:

```
nslookup [options] domain-or-ip [dns-server]
```

If you don't specify a DNS server, **nslookup** will use your internet service provider's default resolver. You can add other options to change how this command queries an IP address or a domain.

For example, use the **-type=** option to specify the information you want to check, such as the DNS records.

You can also set up automatic retry with the **-retry=** flag and add **-port=** to use a specific port.

```
[vps-admin@srv515631:~$ nslookup google.com
Server:          217.21.75.10
Address:         217.21.75.10#53

Non-authoritative answer:
Name:   google.com
Address: 74.125.24.139
```

Since some Linux distros don't have this utility pre-installed, you might encounter the "**command not found**" error. You can configure it by downloading **bind-utils** or **dnsutils** via your package manager.

53. dig command

The **domain information groper** or **dig** command displays information about a domain. It is similar to **nslookup** but more comprehensive. The syntax looks as follows:

```
dig [options] [server] [type] name-or-ip
```

Running **dig** without an argument will check **A records** of the specified domain using the operating system's default resolver. You can query a particular record by specifying it in the **[type]** argument like the following example:

```
dig MX domain.com
```

To run a reverse DNS lookup, add the **-x** option and use an IP address as the target.

54. history command

Run the **history** command to check previously run utilities. Here's its syntax:

```
history [options]
```

Add the **-r** option if you want to clear the Terminal history. To rerun a specific utility from the list, enter an exclamation mark followed by its ID.

```
[vps-admin@srv515631:~$ history
 1  su
 2  cd
 3  sudo nano /etc/pam.d/common-password
```

55. man command

The **man** or **manual** command displays a comprehensive guide of another utility. The syntax looks like the following:

```
man [options] [section_number] command_name
```

If you specify only the command name, **man** will display the entire manual. Alternatively, you can select one of the [nine sections](#) using their IDs to print more specific information.

For example, run the following to check the **library call** section of the **ls** command's manual:

```
man 3 ls
```

56. echo command

Use **echo** to print text in your command as a Terminal output. Here's the syntax:

```
echo [options] [text]
```

Note that if the text you want to print using **echo** contains a whitespace, it has to be enclosed in double quotation marks, like so. Otherwise, it will be treated as two separate arguments:

```
echo "This will be printed in one line"
```

You can also add the redirection symbol (>) to print the text in a file instead of the terminal. If you use two symbols (>>), it will append the existing content. The command syntax looks like this:

```
echo [options] [text] > [file_name]
```

If your text contains an environment or **shell variable** like \$var, **echo** will display the actual value. This command is commonly used for testing and **bash scripting**.

57. ln command

The **ln** command links files or directories with a shortcut. The syntax looks as follows:

```
ln [options] source target
```

This command will automatically create the shortcut, meaning you don't need to make one manually. For example, the following will enable you to open **file.txt** using **shortcut.txt**:

```
ln target.txt shortcut.txt
```

By default, **ln** creates a hard link, meaning changes in the source will be reflected in the linked item and vice versa. To set up a soft or symbolic link, add the **-s** option.

58. alias and unalias command

The **alias** command lets you set another name for a string that belongs to a file, text, program, or command name. Here's the syntax:

```
alias name='string'
```

For example, the following will assign **k** as the alias for the **kill** command, allowing you to use the letter instead of the full name.

```
alias k='kill'
```

To check a command's alias, run **alias** followed by an alternative name. For example, we will check the previous snippet:

```
alias k
```

```
[vps-admin@srv515631:~$ alias k
alias k='kill'
```

You can remove an alias by running this syntax:

```
unalias [name]
```

59. cal command

The **cal** command displays a calendar in your Linux command-line interface. Here's the syntax:

```
cal [options] [month] [year]
```

If you don't add any argument, the command will show the current date. Alternatively, you can enter a specific month and year in a numerical format.

You can also add the **-3** option to show the current, previous, and next month.

60. apt and dnf command

The **apt** command lets you manage **advanced package tool** (APT) libraries in Debian-based operating systems such as Ubuntu and **Kali Linux**. The syntax looks like this:

```
apt [options] subcommand
```

The subcommands define the action, like updating the library, upgrading software, installing an application, or removing a package. For example, we will install the **Vim** text editor:

```
apt install vim
```

In Linux, package management commands differ across distributions. For example, Red Hat Enterprise Linux-based distros like CentOS and AlmaLinux use **dnf**. It has the same syntax and options as **apt**.

Running both **apt** and **dnf** requires **superuser** privileges, which you can only obtain with **sudo** or via **root**.

Pro Tip

If you want to check a command's usage, syntax, and options, use the **-help** flag. For example, enter **ls -help** to display the **ls** utility guide.

What should you learn next after mastering Linux commands?

Mastering Linux commands allows you to manage a remote **virtual private server platform** from the terminal efficiently. While these utilities are sufficient by themselves, learning **how to write Bash scripts** can further improve your workflow, given the benefits:

- **Automation and efficiency.** A Bash script combines multiple commands into a single executable file, allowing you to automate multi-step tasks using a single execution.
- **Consistency and reduced human error.** Commands in a Bash script always run and behave consistently across executions, which significantly reduces human error.
- **Reusability.** Developers can easily copy and transport Bash scripts to different UNIX operating systems, making it easy to replicate tasks in other environments.

Given its importance, learning how to create a Bash script is the natural next step for aspiring system administrators after mastering various Linux commands.

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