

Kali Linux - Command Line Essentials

by

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1. **pwd**: The pwd command in Kali Linux, which stands for print working directory, is used to display the full, absolute path of your current location in the filesystem.

```
(vibhuti14@vibhuti)-[~]  
$ pwd  
/home/vibhuti14
```

2. **ls**: The ls command in Kali Linux, like in all Unix-like operating systems, is used to list the contents of a directory, including files and subdirectories.

```
(vibhuti14@vibhuti)-[~]  
$ ls  
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
```

3. **cd**: The cd command (change directory) is used in Kali Linux, and all other Linux distributions, to navigate between directories (folders) in the file system.

```
(vibhuti14@vibhuti)-[~]  
$ cd Desktop/  
  
(vibhuti14@vibhuti)-[~/Desktop]  
$
```

4. **mkdir**: The mkdir command in Kali Linux, like in all other Linux distributions, stands for "make directory" and is used to create new directories (folders).

```
(vibhuti14@vibhuti)-[~/Desktop]  
$ mkdir dir1  
  
(vibhuti14@vibhuti)-[~/Desktop]  
$ ls  
dir1
```

5. **rmdir**: The rmdir command in Kali Linux is used to remove empty directories. It will not delete a directory that contains any files or subdirectories.

```
(vibhuti14@vibhuti)-[~/Desktop]  
$ rmdir dir1  
  
(vibhuti14@vibhuti)-[~/Desktop]  
$ ls
```

6. **cat:** The cat command in Kali Linux is a standard command-line utility used to concatenate and display file contents. It is used for viewing small text files, creating new files, combining multiple files, and redirecting output.

```
(vibhuti14@vibhuti)-[~/Desktop]
$ cat > fil1.txt
Hello Everyone!!
Welcome to Kali Linux
Kali Linux is advanced Penetration Testing Linux Dist.
Have a good day!!
```

7. **grep:** The grep command in Kali Linux is a powerful command-line utility used to search for specific text patterns within files or command output.

```
(vibhuti14@vibhuti)-[~/Desktop]
$ cat fil1.txt
Hello Everyone!!
Welcome to Kali Linux
Kali Linux is advanced Penetration Testing Linux Dist.
Have a good day!!

(vibhuti14@vibhuti)-[~/Desktop]
$ grep Kali fil1.txt
Welcome to Kali Linux
Kali Linux is advanced Penetration Testing Linux Dist.
```

8. **mv:** The mv command in Kali Linux is a standard Linux utility used to move or rename files and directories. It does not create a copy of the data; instead, it changes the location or name within the filesystem.

```
(vibhuti14@vibhuti)-[~/Desktop]
$ ls
dir1  fil1.txt

(vibhuti14@vibhuti)-[~/Desktop]
$ mv fil1.txt dir1/

(vibhuti14@vibhuti)-[~/Desktop]
$ ls
dir1
```

9. **cp:** The cp command in Kali Linux is used to copy files and directories from a source location to a destination.

```
(vibhuti14@vibhuti)-[~/Desktop]
$ ls
dir1  fil2.txt

(vibhuti14@vibhuti)-[~/Desktop]
$ cp fil2.txt dir1/

(vibhuti14@vibhuti)-[~/Desktop]
$ ls dir1/
fil1.txt  fil2.txt
```

10. **rm:** The rm (remove) command in Kali Linux, like in all Linux distributions, is used to permanently delete files and directories from the filesystem.

```
(vibhuti14@vibhuti)-[~/Desktop]
$ cd dir1

(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ rm fil2.txt

(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ ls
fil1.txt
```

11. **touch:** The touch command in Kali Linux is a standard utility used for creating empty files: If the specified file does not exist, touch creates a new, empty file.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ ls
fil1.txt

(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ touch test.txt

(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ ls
fil1.txt test.txt
```

12. **man:** The man command (short for manual) in Kali Linux, like in other Linux distributions, is used to display the built-in reference documentation (manual pages) for commands, tools, and system components.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ man ls
```

```
LS(1) User Commands LS(1)
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 specified.
  Mandatory arguments to long options are mandatory for short options too.
  -a, --all
    do not ignore entries starting with .
  -A, --almost-all
    do not list implied . and ..
  --author
    with -l, print the author of each file
  -b, --escape
    print C-style escapes for nongraphic characters
  --block-size=SIZE
    with -l, scale sizes by SIZE when printing them; e.g., '--block-size=M'; see SIZE format below
  -B, --ignore-backups
    do not list implied entries ending with ~
  -c with -lt: sort by, and show, ctime (time of last change of file status information); with -l: show ctime and sort by name; otherwise: sort by
Manual page ls(1) line 1 (press h for help or q to quit)
```

13. **ping:** The ping command in Kali Linux is used to test network connectivity and diagnose network issues by sending ICMP (Internet Control Message Protocol) packets to a target host and waiting for a response.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ ping google.com
PING google.com (142.250.207.238) 56(84) bytes of data:
64 bytes from lcboma-bi-in-f14.1e100.net (142.250.207.238): icmp_seq=1 ttl=255 time=7.82 ms
64 bytes from lcboma-bi-in-f14.1e100.net (142.250.207.238): icmp_seq=2 ttl=255 time=7.56 ms
64 bytes from lcboma-bi-in-f14.1e100.net (142.250.207.238): icmp_seq=3 ttl=255 time=8.79 ms
64 bytes from lcboma-bi-in-f14.1e100.net (142.250.207.238): icmp_seq=4 ttl=255 time=9.88 ms
64 bytes from lcboma-bi-in-f14.1e100.net (142.250.207.238): icmp_seq=5 ttl=255 time=7.44 ms
64 bytes from lcboma-bi-in-f14.1e100.net (142.250.207.238): icmp_seq=6 ttl=255 time=7.91 ms
^C
--- google.com ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5008ms
rtt min/avg/max/mdev = 7.443/8.232/9.879/0.853 ms
```

14. **ifconfig:** The ifconfig command is a legacy networking utility used in Kali Linux to configure, manage, and query network interface parameters. It displays network interface details.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::a00:27ff:fed4:b568 prefixlen 64 scopeid 0x20<link>
    inet6 fd17:625c:f037:2:247:c4e3:9111:ecc6 prefixlen 64 scopeid 0x0<global>
    inet6 fd17:625c:f037:2:a00:27ff:fed4:b568 prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:d4:b5:68 txqueuelen 1000 (Ethernet)
    RX packets 1442 bytes 1871670 (1.7 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 378 bytes 32608 (31.8 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 12 bytes 720 (720.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 12 bytes 720 (720.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

15. **wget:** The wget command in Kali Linux is a powerful, non-interactive command-line utility used to download files from the internet using HTTP, HTTPS, and FTP protocols

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ wget https://cdn.pixabay.com/photo/2023/01/11/08/05/humboldt-penguin-7711121_960_720.jpg
--2025-12-28 15:45:21-- https://cdn.pixabay.com/photo/2023/01/11/08/05/humboldt-penguin-7711121_960_720.jpg
Resolving cdn.pixabay.com (cdn.pixabay.com)... 172.64.147.160, 104.18.40.96, 2606:4700:4400::ac40:93a0, ...
Connecting to cdn.pixabay.com (cdn.pixabay.com)|172.64.147.160|443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 115005 (112K) [image/jpeg]
Saving to: 'humboldt-penguin-7711121_960_720.jpg'

humboldt-penguin-7711121_960_720.jpg 100%[=====] 112.31K --.-KB/s in 0.03s

2025-12-28 15:45:22 (3.23 MB/s) - 'humboldt-penguin-7711121_960_720.jpg' saved [115005/115005]

(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ ls
fil1.txt humboldt-penguin-7711121_960_720.jpg test.txt
```


16. **sudo apt update:** This command retrieves the latest package information from the repositories defined in your sources list, but does not install any new package versions.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ sudo apt update
Hit:1 http://http.kali.org/kali kali-rolling InRelease
822 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

17. **sudo apt upgrade:** To upgrade packages in Kali Linux, first run sudo apt update to refresh the package lists, then use sudo apt upgrade (or the more comprehensive sudo apt full-upgrade) to install the available updates.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ sudo apt upgrade
The following packages were automatically installed and are no longer required:
curlftpfs libavformat61 libfuse2t64 libpostproc58 libswscale8
libavfilter10 libconfig-inifiles-perl libpocketsphinx3 libsphinxbase3t64 pocketsphinx-en-us
Use 'sudo apt autoremove' to remove them.

Upgrading:
alsa-ucm-conf libaudit1 libproxy1v5 python3-bleach
amd64-microcode libbinutils libptexenc1 python3-bottleneck
apparmor libbrlapi0.8 libpython3-dev python3-brlapi
at-spi2-common libbrotli1 libpython3-stdlib python3-brotli
at-spi2-core libbson2-2 libpython3.13 python3-bs4
binutils libbytesize-common libpython3.13-dev python3-cairo
binutils-common libbytesize1 libpython3.13-minimal python3-cbor
binutils-mingw-w64-i686 libc-bin libpython3.13-stdlib python3-celery
binutils-mingw-w64-x86_64 libc-dev-bin libqt5core5t64 python3-censys
```

18. **whoami:** The whoami command in Kali Linux, like in other Unix-like operating systems, is used to display the effective username of the current user

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ whoami
vibhuti14
```

19. **id:** The id command in Kali Linux is a fundamental utility used to display the User ID (UID) and Group IDs (GIDs) for the current user or a specified user account.

```
(vibhuti14@vibhuti)-[~]
$ id
uid=1000(vibhuti14) gid=1000(vibhuti14) groups=1000(vibhuti14),4(adm),20(dialout),24(cdrom),25(floppy),27(sudo),29(audio),30(dip),44(video),46(plugdev),100(users),101(netdev),103(scanner),116(bluetooth),121(lpadmin),124(wireshark),130(vboxsf),131(kaboxer)
```

20. **sudo su:** The sudo su command in Kali Linux is used to launch a new interactive shell as the root user, using your *current* user's password for authentication

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ sudo su
(root@vibhuti)-[/home/vibhuti14/Desktop/dir1]
#
```

21. **echo:** The echo command in Kali Linux, like in other Linux distributions, is a built-in utility used to display a line of text or string as output to the terminal or a file.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ echo "Hello Eveyone"
Hello Eveyone
```

22. **gzip:** The gzip command in Kali Linux is a standard utility used for compressing single files, which reduces their size and appends a .gz extension.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ gzip test.txt

(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ ls
fil1.txt  humboldt-penguin-7711121_960_720.jpg  test.txt.gz
```

23. **gunzip:** The gunzip command in Kali Linux is used to decompress files that were compressed using the gzip command, which typically have a .gz or .z extension.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ gunzip test.txt.gz

(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ ls
fil1.txt  humboldt-penguin-7711121_960_720.jpg  test.txt
```

24. **netstat:** The netstat command (network statistics) is a command-line tool in Kali Linux used for monitoring network connections, viewing routing tables, and displaying interface statistics. 'netstat -at' command specifically lists all TCP ports, giving you information about the TCP connections your system is engaged in.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ netstat -at
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 vibhuti:43610           93.243.107.34.bc.:https ESTABLISHED
```

25. **top:** The top command in Kali Linux is a fundamental system monitoring utility that provides a dynamic, real-time view of running processes and overall system performance, similar to a "Task Manager" in Windows.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ top

top - 16:01:58 up 1:13, 1 user, load average: 0.30, 0.57, 0.95
Tasks: 199 total, 2 running, 195 sleeping, 0 stopped, 2 zombie
%Cpu(s): 5.7 us, 3.8 sy, 0.0 ni, 86.6 id, 0.4 wa, 0.0 hi, 3.4 si, 0.0 st
MiB Mem : 1971.4 total, 201.0 free, 1529.0 used, 508.2 buff/cache
MiB Swap: 1101.0 total, 429.5 free, 671.5 used. 442.3 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1424	vibhuti+	20	0	3578024	310952	100832	R	9.3	15.4	7:49.91	gnome-shell
11732	vibhuti+	20	0	559988	34400	25860	S	0.7	1.7	0:08.36	gnome-terminal-
30770	vibhuti+	20	0	10404	5880	3728	R	0.7	0.3	0:00.16	top
30861	vibhuti+	20	0	2688	1816	1708	S	0.7	0.1	0:00.02	sh
132	root	20	0	0	0	0	I	0.3	0.0	0:08.23	kworker/u4:6-events_unbound
18356	vibhuti+	20	0	3596356	362776	171828	S	0.3	18.0	2:17.47	firefox-esr
18813	vibhuti+	20	0	2487368	109956	89420	S	0.3	5.4	0:04.42	Privileged Cont
22847	vibhuti+	20	0	2550304	158856	93544	S	0.3	7.9	0:09.50	Isolated Web Co
29224	root	20	0	0	0	0	I	0.3	0.0	0:00.57	kworker/0:0-events
1	root	20	0	24836	11092	8520	S	0.0	0.5	0:05.12	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.01	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.00	pool_workqueue_release
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-rcu_gp
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-sync_wq
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-kvfree_rcu_reclaim
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-slub_flushwq
8	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-netns
13	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-mm_percpu_wq
14	root	20	0	0	0	0	S	0.0	0.0	0:02.61	ksoftirqd/0
15	root	20	0	0	0	0	I	0.0	0.0	0:02.25	rcu_preempt
16	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_exp_par_gp_kthread_worker/0
17	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_exp_gp_kthread_worker

26. **uptime**: The uptime command in Kali Linux, like in other Linux distributions, is a standard utility used to display information about how long the system has been running since its last boot.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ uptime
16:02:59 up 1:14, 1 user, load average: 0.15, 0.48, 0.89
```

27. **df**: The df command in Kali Linux (like other Linux distributions) is a utility used to display the amount of disk free space available on all currently mounted file systems.

```
(vibhuti14@vibhuti)-[~/Desktop/dir1]
$ df
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
udev	903416	0	903416	0%	/dev
tmpfs	201868	1200	200668	1%	/run
/dev/sda1	19353424	16104376	2240616	88%	/
tmpfs	1009336	8	1009328	1%	/dev/shm
none	1024	0	1024	0%	/run/credentials/systemd-journald.service
tmpfs	1009340	32	1009308	1%	/tmp
tmpfs	201864	4164	197700	3%	/run/user/1000

28. **ps**: The ps (process status) command is used in Kali Linux, as in other Linux distributions, to display a snapshot of the currently running processes


```
(vibhuti14@vibhuti)-[~]  
$ ps  
  PID TTY          TIME CMD  
 11739 pts/0    00:00:07 zsh  
 33822 pts/0    00:00:00 ps
```

29. **date:** The date command in Kali Linux is used to display the current system date and time or to set a new date and time. It is a fundamental Linux utility with many options for formatting output and performing date arithmetic.

```
(vibhuti14@vibhuti)-[~]  
$ date  
Monday 29 December 2025 09:08:08 AM IST
```

30. **history:** The history command in Kali Linux (like other Linux distributions) is a built-in shell tool used to display, manage, and reuse previously executed commands in the terminal session.

```
(vibhuti14@vibhuti)-[~]  
$ history  
 1  pwd  
 2  ls  
 3  cd Documents/  
 4  ls  
 5  cd Desktop/  
 6  cd  
 7  cd Desktop/  
 8  mkdir dir1  
 9  ls  
10  mkdir dir2  
11  ls  
12  rmdir dir2  
13  ls  
14  rmdir dir1  
15  ls  
16  cat filename  
17  cat > fil1.txt
```