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Kali Linux – Command Line Essentials

- **Kali Linux –**

  Kali Linux is a Debian-based open-source Linux distribution specially designed for cybersecurity professionals and ethical hackers. Developed and maintained by Offensive Security, Kali Linux is one of the most popular platforms for ethical hacking and information security training.

- **Command Line Essentials –**

  1. **pwd –** Used to display current working directory.

  2. **ls –** Used to list the directories and files in the current directory.

  3. **cd –** Used to change the current working directory.

  4. **mkdir –** Used to create a new directory.

  5. **rmdir –** Used to remove directory.

6. **mv source –** Used to move a file.

7. **cp source destination –** Used to copy a file.

8. **touch filename –** Used to create a new file.

9. **man ls** – Used to display manual of a command.

```
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 speci-
       fied.

       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 ctime, newest first
```

10. **ping google.com** – Used to check the internet connection or to check whether the host is active or not.

```
  ┌──(riyaa㉿kali)-[~]
  └─$ ping google.com
PING google.com (142.250.207.142) 56(84) bytes of data.
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=1 ttl=25
5 time=1136 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=1 ttl=25
5 time=1136 ms (DUP!)
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=3 ttl=25
5 time=721 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=4 ttl=25
5 time=1779 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=4 ttl=25
5 time=1780 ms (DUP!)
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=5 ttl=25
5 time=1345 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=6 ttl=25
5 time=1551 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=7 ttl=255 time=1653 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=8 ttl=255 time=1794 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=12 ttl=255 time=1717 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=12 ttl=255 time=1717 ms (DUP!)
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=12 ttl=255 time=1717 ms (DUP!)
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=12 ttl=255 time=1717 ms (DUP!)
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=14 ttl=255 time=810 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=15 ttl=255 time=1186 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=15 ttl=255 time=1186 ms (DUP!)
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=17 ttl=255 time=593 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=18 ttl=255 time=723 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=19 ttl=255 time=934 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=20 ttl=255 time=857 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=22 ttl=255 time=770 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=22 ttl=255 time=770 ms (DUP!)
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=23 ttl=255 time=886 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=24 ttl=255 time=1057 ms
64 bytes from pnbomb-bb-in-f14.1e100.net (142.250.207.142): icmp_seq=24 ttl=255 time=1057 ms (DUP!)
```

11. **ifconfig** – Used to display network interface details.

12. **wget link_to_file** – Used to download a file.

13. **sudo apt install netcat** – Used to intsall a package

14. **sudo apt remove netcat** - Used to remove a package

15. **sudo apt upgrade** – Used to upgrade packages in the system.

```
┌──(riyaa㉿kali)-[~]
└─$ sudo apt upgrade
The following packages were automatically installed and are no longer required:
  dnsmap              libavformat61           libswscale8              python3-git              python3-pyshodan         python3-wapiti-swagger  unicornscan
  figlet              libconfig-inifiles-perl medusa                   python3-gitdb            python3-qasync           python3-yaswfp          urlscan
  finger              libpocketsphinx3        pocketsphinx-en-us       python3-httpx-ntlm       python3-serial-asyncio   rsh-redone-client       wapiti
  imagemagick         libpostproc58           python3-aiocache         python3-jeepney          python3-smmap            smtp-user-enum
  imagemagick-7.q16   libsmb2-6               python3-aiomcache        python3-pyexploitdb      python3-tld              sparta-scripts
  libavfilter10       libsphinxbase3t64       python3-browser-cookie3  python3-pyfiglet         python3-wapiti-arsenic   toilet-fonts
Use 'sudo apt autoremove' to remove them.

Upgrading:
  alsa-ucm-conf        libctf0                    libquadmath0          python3-cups
  amd64-microcode      libcups2t64                librav1e0.8           python3-dbus
  apparmor             libcurl3t64-gnutls         libre2-11             python3-dev
  at-spi2-common       libcurl4t64                librpm-sequoia-1      python3-django
  at-spi2-core         libdatrie1                 librpm10              python3-ephem
  binutils             libdb5.3t64                librpmbuild10         python3-faraday-plugins
  binutils-common      libdconf1                  librpmio10            python3-fonttools
  binutils-mingw-w64-i686  libde265-0             librpmsign10          python3-frozenlist
  binutils-mingw-w64-x86-64 libdebconfclient0     librsvg2-2            python3-gdal
  binutils-x86-64-linux-gnu libdlt2               librsvg2-common       python3-gevent
  burpsuite            libdouble-conversion3      libsdl2-2.0-0         python3-gi
  cadaver              libdrm-amdgpu1             libsdl2-classic       python3-gi-cairo
  certipy-ad           libdrm-common             libsdl2-image-2.0-0   python3-greenlet
  chromium             libdrm-intel1             libsdl2-mixer-2.0-0   python3-gssapi
  chromium-common      libdrm-nouveau2           libsdl2-ttf-2.0-0     python3-gvm
  chromium-sandbox     libdrm-radeon1            libsdl3-0             python3-html5lib
  clang-18             libdrm2                    libseccomp2           python3-ipwhois
  clang-19             libdvdnav4                 libselinux1           python3-jq
  clang-tools-19       libdvdread8t64             libsemanage2         python3-jsonschema-specifications
  comerr-dev           libebackend-1.2-11t64      libsframe2           python3-kiwisolver
  commix               libebook-1.2-21t64         libslang2            python3-kombu
  console-setup        libebook-contacts-1.2-4t64 libsmbclient0        python3-ldb
  console-setup-linux  libedata-book-1.2-27t64    libsmi2t64           python3-louis
```

16. **sudo apt update** – Used to fetch the packages updates.

```
┌──(riyaa㉿kali)-[~]
└─$ sudo apt update
Hit:1 http://http.kali.org/kali kali-rolling InRelease
752 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

17. **whoami** – Used to get the current username.

```
┌──(riyaa㉿kali)-[~]
└─$ whoami
riyaa
```

18. **sudo su** – Used to change the current user to superuser or root.

```
┌──(riyaa㉿kali)-[~]
└─$ sudo su
┌──(root㉿kali)-[/home/riyaa]
└─#
```

19. **echo** – used to print text on the terminal.

```
┌──(riyaa㉿kali)-[~/dir1]
└─$ echo "kali linux is a debain based open source"
kali linux is a debain based open source
```

20. **cat filename** – Displays file content.

```
┌──(riyaa☉kali)-[~/dir]
└─$ echo "kali linux" > filename

┌──(riyaa☉kali)-[~/dir]
└─$ cat filename
kali linux
```

21. **ip a** – Displays IP address information.

```
┌──(riyaa☉kali)-[~]
└─$ ip a
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 noprefixroute
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:57:68:4f brd ff:ff:ff:ff:ff:ff
    inet6 2401:4900:52b2:b4f4:945f:683d:6d64:cb68/64 scope global temporary dynamic
       valid_lft 6894sec preferred_lft 6894sec
    inet6 2401:4900:52b2:b4f4:a00:27ff:fe57:684f/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 6894sec preferred_lft 6894sec
    inet6 2401:4900:79f9:f4cc:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 4668sec preferred_lft 0sec
    inet6 2401:4900:79e4:e718:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 4706sec preferred_lft 0sec
    inet6 2401:4900:79e5:c829:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5102sec preferred_lft 0sec
    inet6 2401:4900:79e5:cd6b:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5112sec preferred_lft 0sec
    inet6 2401:4900:79e5:d1a2:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5128sec preferred_lft 0sec
    inet6 2401:4900:79e5:fb09:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5205sec preferred_lft 0sec
    inet6 2401:4900:79e7:b7b:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5705sec preferred_lft 0sec
    inet6 2401:4900:79e7:2751:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5745sec preferred_lft 0sec
    inet6 2401:4900:79e7:2de6:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5769sec preferred_lft 0sec
    inet6 2401:4900:79e7:379b:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5774sec preferred_lft 0sec
    inet6 2401:4900:79e7:3e39:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5789sec preferred_lft 0sec
    inet6 2401:4900:79e7:48d3:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5807sec preferred_lft 0sec
    inet6 2401:4900:79e7:4b3e:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5814sec preferred_lft 0sec
    inet6 2401:4900:79e7:4fb4:a00:27ff:fe57:684f/64 scope global deprecated dynamic mngtmpaddr noprefixroute
       valid_lft 5819sec preferred_lft 0sec
```

22. **ip route** – Shows routing table.

```
┌──(riyaa☉kali)-[~]
└─$ ip route
default via 10.0.2.2 dev eth0 proto dhcp src 10.0.2.15 metric 100
10.0.2.0/24 dev eth0 proto kernel scope link src 10.0.2.15 metric 100
```

23. **head filename** – Displays first 10 lines of a file.

```
┌──(riyaa☉kali)-[~/dir]
└─$ cat > filename
1 Linux operating system
2 kali linux
3 cyber security
4 ethical hacking
5 Malicious
6 operating system

┌──(riyaa☉kali)-[~/dir]
└─$ head -n 3 filename
1 Linux operating system
2 kali linux
3 cyber security
```

24. **tail filename** – Displays last 10 lines of a file.

```
┌──(riyaa㉿kali)-[~/dir]
└─$ tail -n 2 filename
5 Malicious
6 operating system
```

25. **traceroute domain** – Traces network path to a host.

```
┌──(riyaa㉿kali)-[~]
└─$ traceroute google.com
traceroute to google.com (142.250.205.206), 30 hops max, 60 byte packets
 1  10.0.2.2 (10.0.2.2)  2.001 ms  1.883 ms  1.730 ms
 2  10.0.2.2 (10.0.2.2)  13.599 ms  13.139 ms  13.055 ms
```

26. **groups** – Shows groups the user belongs to.

```
┌──(riyaa㉿kali)-[~]
└─$ groups
riyaa adm dialout cdrom floppy sudo audio dip video plugdev users netdev scanner bluetooth lpadmin wireshark vboxsf kaboxer
┌──(riyaa㉿kali)-[~]
```

27. **passwd** – Changes user password.

```
┌──(riyaa㉿kali)-[~/dir]
└─$ passwd
Changing password for riyaa.
Current password:
New password:
Retype new password:
passwd: password updated successfully
```

28. **uptime** – Shows system running time.

```
┌──(riyaa㉿kali)-[~]
└─$ uptime
 19:28:33 up  1:54,  1 user,  load average: 0.02, 0.13, 0.23
┌──(riyaa㉿kali)-[~]
```

29. **free -h** – Displays memory usage.

```
connect: Network is unreachable

┌──(riyaa㉿kali)-[~]
└─$ free -h
               total        used        free      shared  buff/cache   available
Mem:           5.3Gi       969Mi       2.9Gi        10Mi       1.7Gi       4.4Gi
Swap:          1.3Gi          0B       1.3Gi

┌──(riyaa㉿kali)-[~]
```

30. **history** – Shows previously used commands.

```
┌──(riyaa⊕ kali)-[~/dir]
└─$ history
    1  sudo apt update && sudo apt upgrade-y
    2  sudo apt update && sudo apt upgrade -y
    3  cat /etc/os-release
    4  pwd
    5  ls
    6  cd Desktop
    7  ls
    8  cat filename
    9  pwd
   10  ls
   11  cd Documents
   12  pwd
   13  mkdir test1
   14  ls
   15  rmdir test1
   16  mkdir file1
   17  mv file1.txt Documents/
   18  cd ~
   19  ls
   20  ip a
   21  ip route
   22  ping google.com
   23  weget http://site.com
   24  wget http://site.com
   25  wget https://example.com/file.txt
   26  sudo apt update
   27  sudo apt upgrade
   28  sudo apt update
   29  sudo apt -- upgradable
   30  sudo apt list -- upgradable
   31  sudo apt list --upgradable
   32  traceroute google.com
   33  ls
   34  cd dir
   35  ls
   36  cat > filename
   37  head -n 3 filename
   38  tail -n 2 filename
   39  passwd
```

31. **uname -a** – Used to display system and kernel info.

```
┌──(riyaa⊕ kali)-[~/dir]
└─$ uname -a
Linux kali 6.16.8+kali-amd64 #1 SMP PREEMPT_DYNAMIC Kali 6.16.8-1kali1 (2025-09-24) x86_64 GNU/Linux
```

32. **tree** – used to displays directories and files in a tree structure

```
┌──(riyaa⊕ kali)-[~]
└─$ tree
.
├── Desktop
├── dir
│   └── filename.gz
├── Documents
├── Downloads
├── Music
├── Pictures
├── Public
├── Templates
└── Videos

10 directories, 1 file
```

33. **gzip filename** – Compresses a file.

```
┌──(riyaa⊕ kali)-[~/dir]
└─$ gzip filename
```

34. **nano filename** – Opens file in nano editor

35. **awk '{print $1}' file** – Pattern scanning & processing

```
┌──(riyaa⊛kali)-[~/dir]
└─$ cat > file
Abc 24 developer
Bob 29 Designer

┌──(riyaa⊛kali)-[~/dir]
└─$ awk '{print $1}' file
Abc
Bob

┌──(riyaa⊛kali)-[~/dir]
└─$ awk '{print $2}' file
24
29
```

36. **wc filename** – Counts lines, words, characters.

```
┌──(riyaa⊛kali)-[~/dir]
└─$ wc file
 2  6 33 file
```

37. **gunzip filename.gz** – Decompresses a file.

```
┌──(riyaa⊛kali)-[~/dir]
└─$ gunzip filename.gz
```

38. **df -h** – Displays available disk space on the system.

```
┌──(riyaa⊛kali)-[~]
└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            2.6G     0  2.6G   0% /dev
tmpfs           546M  996K  545M   1% /run
/dev/sda1        24G   16G  6.5G  71% /
tmpfs           2.7G  4.0K  2.7G   1% /dev/shm
none            1.0M     0  1.0M   0% /run/credentials/systemd-journald.service
tmpfs           2.7G  1.8M  2.7G   1% /tmp
none            1.0M     0  1.0M   0% /run/credentials/getty@tty1.service
tmpfs           546M  104K  546M   1% /run/user/1000
```

39. **clear** – Clears the terminal screen.

```
┌──(riyaa⊛kali)-[~]
└─$
```