

**REPORT ON**  
**KALI LINUX ESSENTIALS COMMAND**

**By**

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## 1. pwd

1. **Purpose:** Identifies the current directory location within the filesystem hierarchy.
2. **Command:** pwd
3. **Description:** Prints the full absolute path of the current working directory to the standard output.

## 2. ls

1. **Purpose:** Enumerates files and directories within the current or specified location.
2. **Command:** ls
3. **Description:** Lists the names of files and subdirectories contained within the active directory.

## 3. cd

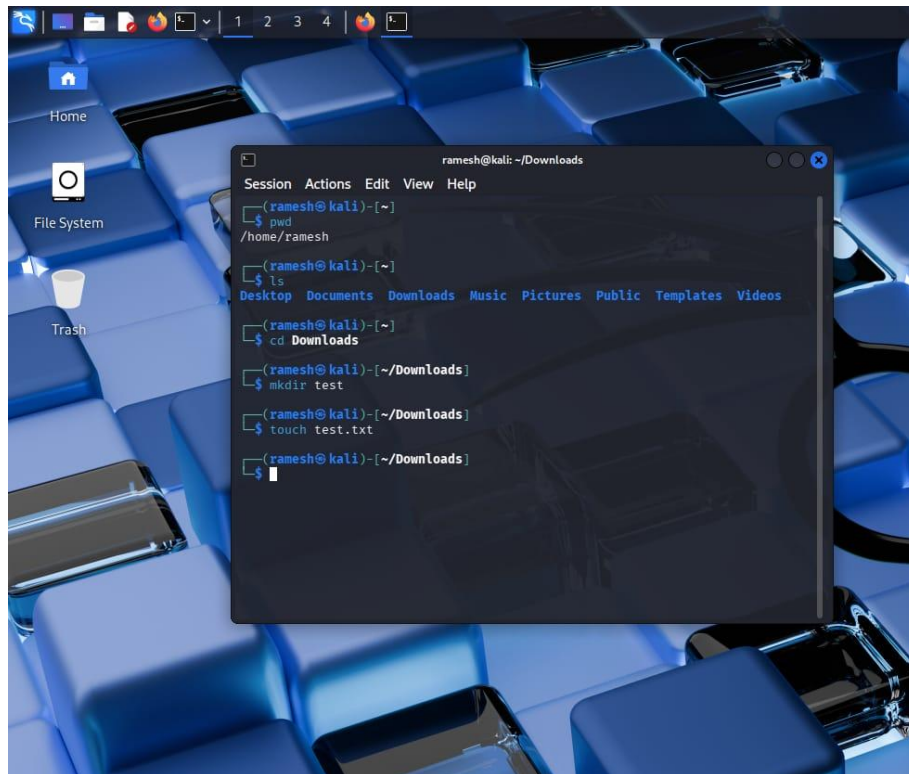
1. **Purpose:** Navigates between different directories in the filesystem.
2. **Command:** cd
3. **Description:** Changes the shell's current working directory to the path specified.

## 4. mkdir

1. **Purpose:** Creates new folders to organize files and data.
2. **Command:** mkdir
3. **Description:** Generates a new, empty directory with the specified name at the target location.

## 5. touch

1. **Purpose:** Updates file timestamps or creates new empty files.
2. **Command:** touch
3. **Description:** Creates a new zero-byte file if it does not exist or updates the modification time if it does.



## 6. rm

1. **Purpose:** Removes files from the filesystem.
2. **Command:** rm
3. **Description:** Unlinks and deletes the specified file from the disk storage.

## 7. rm -r

1. **Purpose:** Removes directories and their contents recursively.
2. **Command:** rm -r
3. **Description:** Deletes a directory along with all files and subdirectories contained inside it.

## 8. nano

1. **Purpose:** Edits text files directly within the terminal interface.
2. **Command:** nano
3. **Description:** Launches a simple, modeless command-line text editor for modifying file contents.

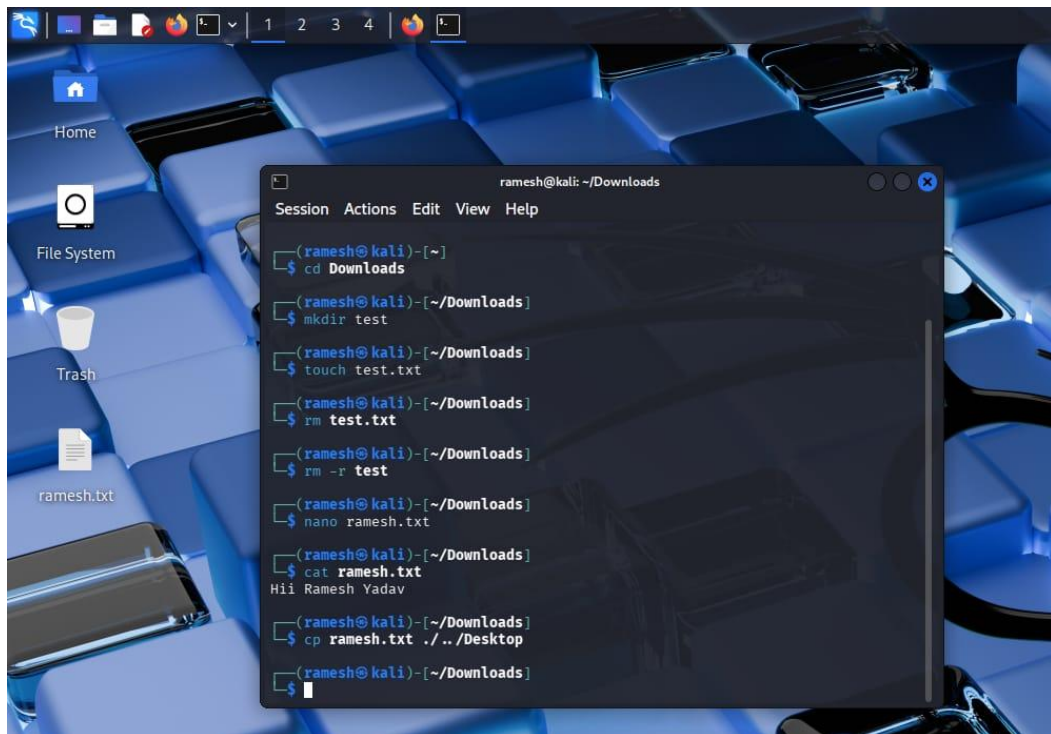
## 9. cat

1. **Purpose:** Displays file contents or concatenates multiple files.
2. **Command:** cat

3. **Description:** Reads data from a file and outputs it directly to the terminal screen.

## 10. cp

1. **Purpose:** Duplicates files or directories to a new location.
2. **Command:** cp
3. **Description:** Creates an exact copy of the source file at the specified destination path.



```
Session Actions Edit View Help
(ramesh@kali)-[~]
$ cd Downloads
(ramesh@kali)-[~/Downloads]
$ mkdir test
(ramesh@kali)-[~/Downloads]
$ touch test.txt
(ramesh@kali)-[~/Downloads]
$ rm test.txt
(ramesh@kali)-[~/Downloads]
$ rm -r test
(ramesh@kali)-[~/Downloads]
$ nano ramesh.txt
(ramesh@kali)-[~/Downloads]
$ cat ramesh.txt
Hi! Ramesh Yadav
(ramesh@kali)-[~/Downloads]
$ cp ramesh.txt ../Desktop
(ramesh@kali)-[~/Downloads]
$
```

## 11. mv


1. **Purpose:** Moves files to a new location or renames them.
2. **Command:** mv
3. **Description:** Relocates a file to a new directory or changes its filename in place.

## 12. ls -la

1. **Purpose:** Lists all files including hidden ones with detailed permission information.
2. **Command:** ls -la
3. **Description:** Displays a detailed long-format list of all files, including those starting with a dot.

### 13. chmod

1. **Purpose:** Modifies file access permissions for users and groups.
2. **Command:** chmod
3. **Description:** Changes the read, write, and execute permissions of a specific file or directory.

A screenshot of a Kali Linux desktop environment. The background is a blue keyboard. On the desktop, there are icons for 'Home', 'File System', and 'Trash'. A terminal window is open, showing the following commands and output:

```
ramesh@kali: ~/Downloads
Session Actions Edit View Help
$ cat ramesh.txt
Hii Ramesh Yadav

(ramesh@kali) - [~/Downloads]
$ cp ramesh.txt ../Desktop

(ramesh@kali) - [~/Downloads]
$ mv ../Desktop/ramesh.txt ../Documents

(ramesh@kali) - [~/Downloads]
$ ls -la
total 12
drwxr-xr-x  2 ramesh ramesh 4096 Dec 31 16:26 .
drwx----- 17 ramesh ramesh 4096 Dec 31 16:03 ..
-rw-rw-r--  1 ramesh ramesh  17 Dec 31 16:26 ramesh.txt

(ramesh@kali) - [~/Downloads]
$ chmod 755 ramesh.txt

(ramesh@kali) - [~/Downloads]
$ ls -la
total 12
drwxr-xr-x  2 ramesh ramesh 4096 Dec 31 16:26 .
drwx----- 17 ramesh ramesh 4096 Dec 31 16:03 ..
-rwxr-xr-x  1 ramesh ramesh  17 Dec 31 16:26 ramesh.txt

(ramesh@kali) - [~/Downloads]
$
```

### 14. chown

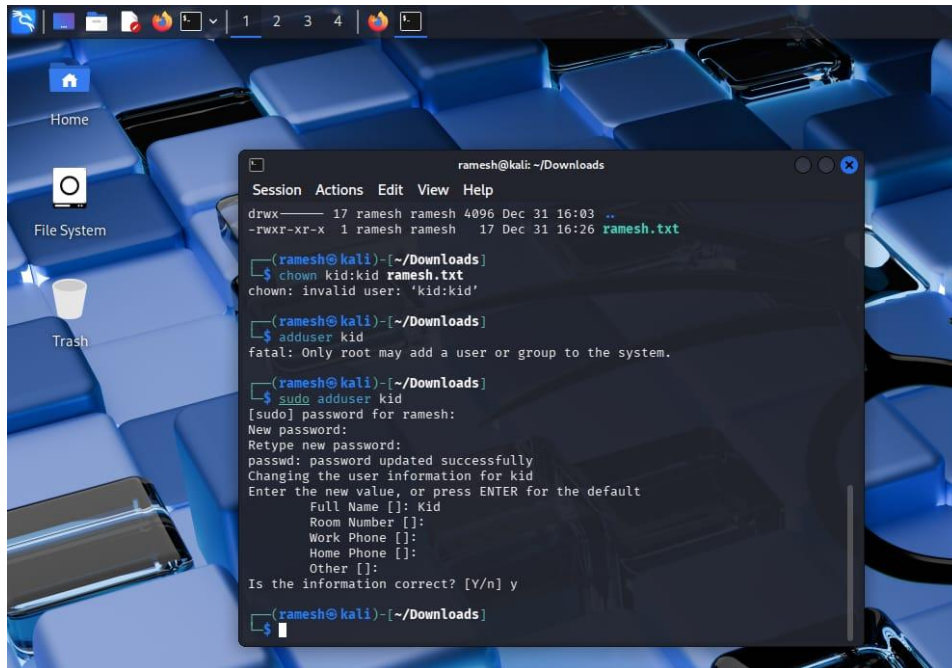
1. **Purpose:** Changes the user and group ownership of a file.
2. **Command:** chown
3. **Description:** Reassigns the ownership rights of a file or directory to a different user or group.

### 15. adduser

1. **Purpose:** Creates a new user account on the system.
2. **Command:** adduser
3. **Description:** Adds a new user to the system and creates their home directory and configuration.

## 16. sudo adduser

1. **Purpose:** Executes a command with superuser (root) privileges.
2. **Command:** sudo
3. **Description:** Temporarily grants administrative rights to a standard user for command execution.



```
ramesh@kali: ~/Downloads
Session Actions Edit View Help
drwx----- 17 ramesh ramesh 4096 Dec 31 16:03 ..
-rwxr-xr-x 1 ramesh ramesh 17 Dec 31 16:26 ramesh.txt

(ramesh@kali)-[~/Downloads]
$ chown kid:kid ramesh.txt
chown: invalid user: 'kid:kid'

(ramesh@kali)-[~/Downloads]
$ adduser kid
fatal: Only root may add a user or group to the system.

(ramesh@kali)-[~/Downloads]
$ sudo adduser kid
[sudo] password for ramesh:
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for kid
Enter the new value, or press ENTER for the default
Full Name []: Kid
Room Number []:
Work Phone []:
Home Phone []:
Other []:
Is the information correct? [Y/n] y

(ramesh@kali)-[~/Downloads]
$
```

## 17. sudo chown

1. **Purpose:** Changes file ownership using administrative privileges.
2. **Command:** sudo chown
3. **Description:** Forces a change in file ownership that a standard user permission would normally deny.

## 18. df -h

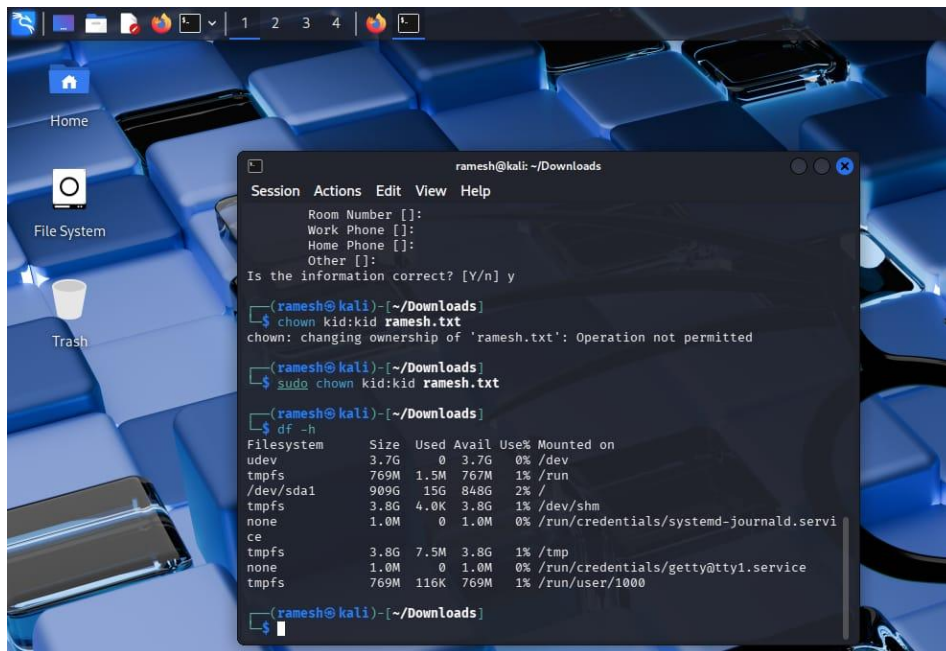
1. **Purpose:** Displays disk space usage in a human-readable format.
2. **Command:** df -h
3. **Description:** Shows available and used disk space on mounted filesystems using units like GB and MB.

## 19. ps aux

1. **Purpose:** precise snapshot of all running processes on the system.
2. **Command:** ps aux



3. **Description:** Lists detailed information for all active processes from all users.

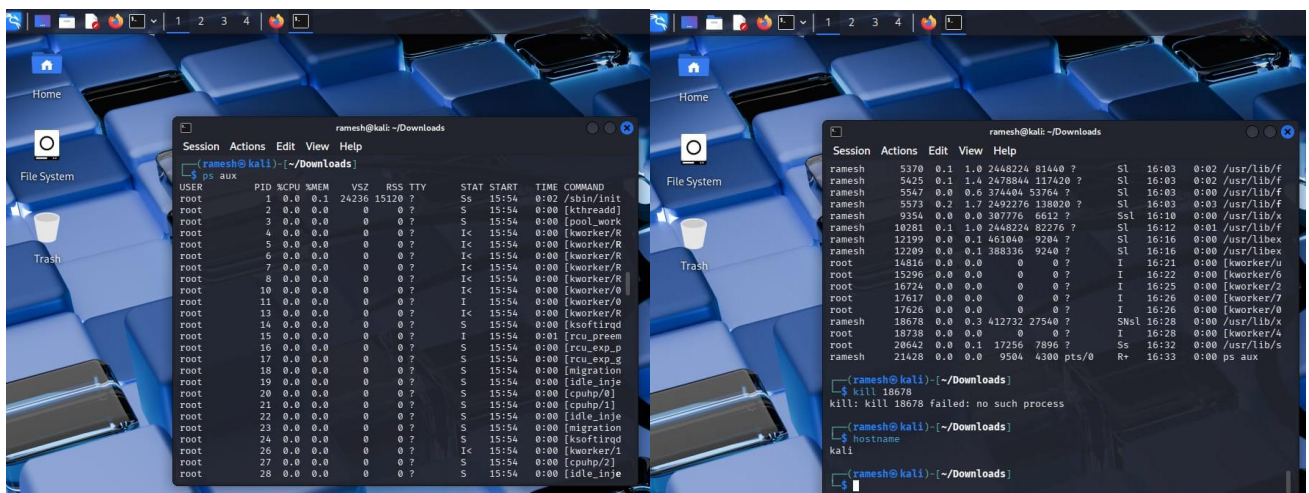


## 20. kill

1. **Purpose:** Terminates a specific running process.
2. **Command:** kill
3. **Description:** Sends a signal to a process ID (PID) instructing it to stop or exit.

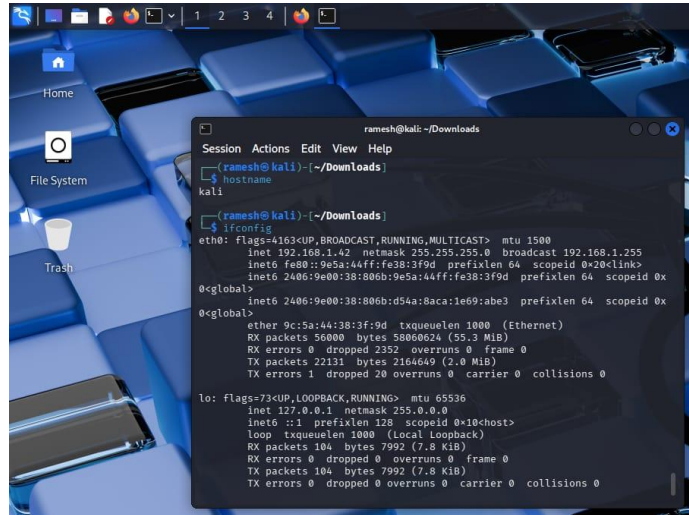
## 21. hostname

1. **Purpose:** Displays or sets the system's network name.
2. **Command:** hostname
3. **Description:** specific command to show or change the name of the host machine.



## 22. ifconfig

1. **Purpose:** Configures or displays network interface parameters.
2. **Command:** ifconfig
3. **Description:** specific legacy tool to view IP addresses, MAC addresses, and active network interfaces.

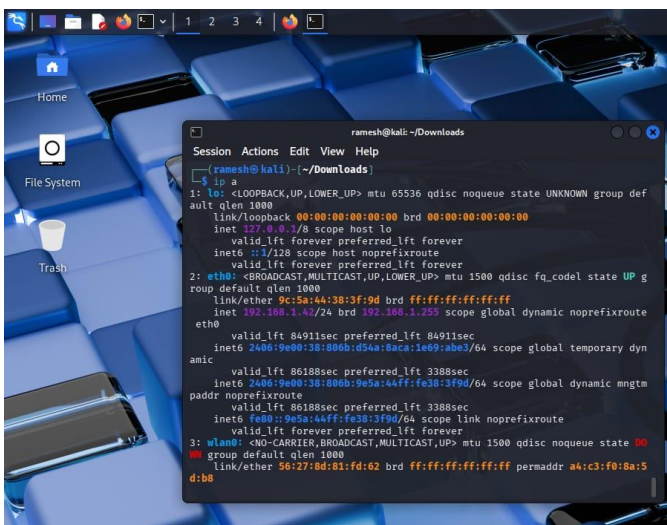


```
Session Actions Edit View Help
(ramesh@kali) (~/.Downloads)
$ hostname
kali
(ramesh@kali) (~/.Downloads)
$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.42 netmask 255.255.0.0 broadcast 192.168.1.255
    inet6 fe80::9e5a:44ff:fe38:3f9d prefixlen 64 scopeid 0x20<link>
    inet6 2406:9e00:38:806b:9e5a:44ff:fe38:3f9d prefixlen 64 scopeid 0x
    0global>
    inet6 2406:9e00:38:806b:d54a:8aca:1e69:abe3 prefixlen 64 scopeid 0x
    0global>
    ether 9c:5a:44:38:3f:9d txqueuelen 1000 (Ethernet)
    RX packets 56000 bytes 58060624 (55.3 MiB)
    RX errors 0 dropped 2352 overruns 0 frame 0
    TX packets 22131 bytes 2164649 (2.0 MiB)
    TX errors 1 dropped 20 overruns 0 carrier 0 collisions 0

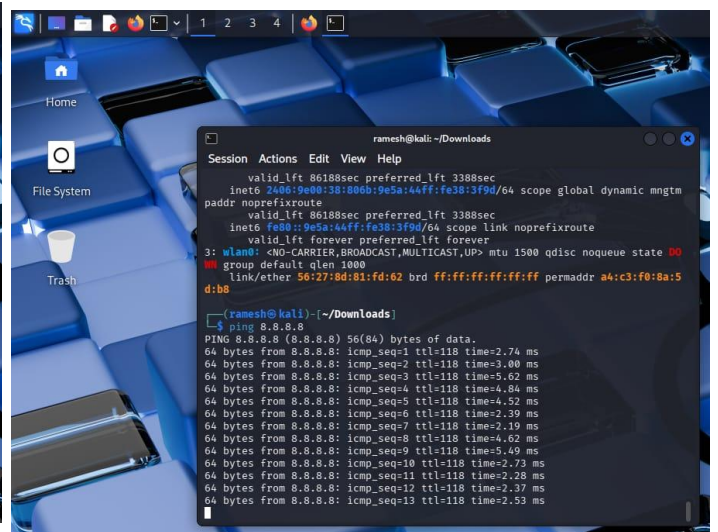
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (local loopback)
    RX packets 104 bytes 7992 (7.8 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 104 bytes 7992 (7.8 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

## 23. ip

1. **Purpose:** Manages network routing, devices, and tunnels.
2. **Command:** ip
3. **Description:** Modern and powerful utility for configuring network interfaces and viewing routing tables.



```
Session Actions Edit View Help
(ramesh@kali) (~/.Downloads)
$ ip netns exec
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group def
    aut 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 g
    roup default qlen 1000
    link/ether 9c:5a:44:38:3f:9d brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.42/24 brd 192.168.1.255 scope global dynamic noprefixroute
        eth0
        valid_lft 84911sec preferred_lft 84911sec
    inet6 2406:9e00:38:806b:d54a:8aca:1e69:abe3/64 scope global temporary dyn
    amic
        valid_lft 86188sec preferred_lft 3388sec
    inet6 2406:9e00:38:806b:9e5a:44ff:fe38:3f9d/64 scope global dynamic mngtm
    paddr noprefixroute
        valid_lft 86188sec preferred_lft 3388sec
    inet6 fe80::9e5a:44ff:fe38:3f9d/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
3: wlan0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DO
    N
    group default qlen 1000
    link/ether 56:27:8d:81:fd:62 brd ff:ff:ff:ff:ff:ff permaddr a4:c3:f0:8a:5
    d:b8
```



```
Session Actions Edit View Help
(ramesh@kali) (~/.Downloads)
$ ping 8.8.8.8
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=118 time=2.74 ms
 64 bytes from 8.8.8.8: icmp_seq=2 ttl=118 time=3.00 ms
 64 bytes from 8.8.8.8: icmp_seq=3 ttl=118 time=5.62 ms
 64 bytes from 8.8.8.8: icmp_seq=4 ttl=118 time=4.84 ms
 64 bytes from 8.8.8.8: icmp_seq=5 ttl=118 time=4.32 ms
 64 bytes from 8.8.8.8: icmp_seq=6 ttl=118 time=2.39 ms
 64 bytes from 8.8.8.8: icmp_seq=7 ttl=118 time=2.19 ms
 64 bytes from 8.8.8.8: icmp_seq=8 ttl=118 time=4.62 ms
 64 bytes from 8.8.8.8: icmp_seq=9 ttl=118 time=5.49 ms
 64 bytes from 8.8.8.8: icmp_seq=10 ttl=118 time=2.73 ms
 64 bytes from 8.8.8.8: icmp_seq=11 ttl=118 time=2.28 ms
 64 bytes from 8.8.8.8: icmp_seq=12 ttl=118 time=2.37 ms
 64 bytes from 8.8.8.8: icmp_seq=13 ttl=118 time=2.53 ms
```

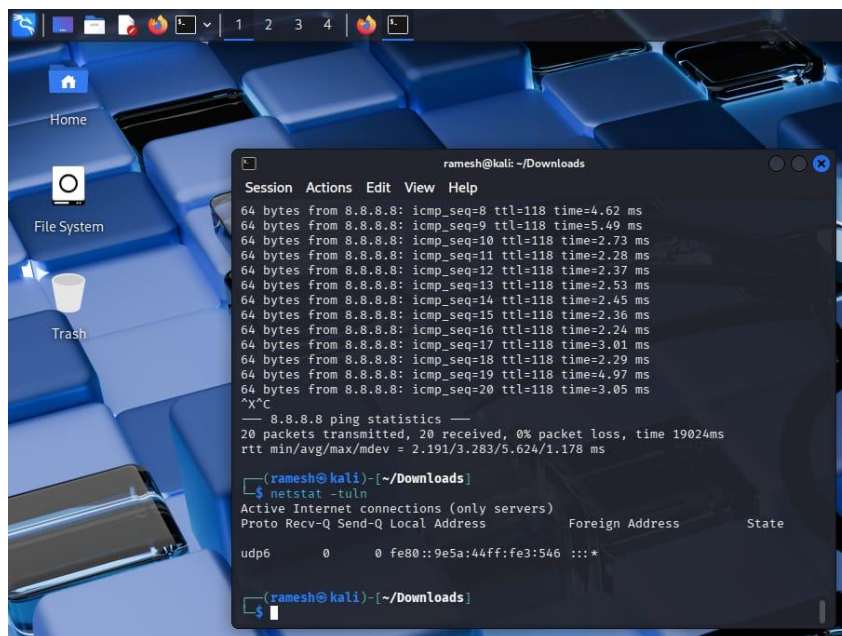


## 24. ping

1. **Purpose:** Tests connectivity to a remote network host.
2. **Command:** ping
3. **Description:** Sends ICMP Echo Request packets to a target to verify reachability and measure latency.

## 25. netstat -tuln

1. **Purpose:** Lists all active listening ports on the system.
2. **Command:** netstat -tuln
3. **Description:** Displays TCP and UDP ports that are currently open and listening for connections.

A screenshot of a Kali Linux desktop environment. The background is a blue keyboard. On the left, there are desktop icons for 'Home', 'File System', and 'Trash'. A terminal window is open in the center, showing the output of a ping command to 8.8.8.8 and the output of the netstat -tuln command. The terminal window title is 'ramesh@kali: ~/Downloads'. The ping output shows 20 successful packets with varying times. The netstat output shows a single UDP port (546) listening on the interface fe80::9e5a:44ff:fe3:546.

```
ramesh@kali: ~/Downloads
Session Actions Edit View Help
64 bytes from 8.8.8.8: icmp_seq=8 ttl=118 time=4.62 ms
64 bytes from 8.8.8.8: icmp_seq=9 ttl=118 time=5.49 ms
64 bytes from 8.8.8.8: icmp_seq=10 ttl=118 time=2.73 ms
64 bytes from 8.8.8.8: icmp_seq=11 ttl=118 time=2.28 ms
64 bytes from 8.8.8.8: icmp_seq=12 ttl=118 time=2.37 ms
64 bytes from 8.8.8.8: icmp_seq=13 ttl=118 time=2.53 ms
64 bytes from 8.8.8.8: icmp_seq=14 ttl=118 time=2.45 ms
64 bytes from 8.8.8.8: icmp_seq=15 ttl=118 time=2.36 ms
64 bytes from 8.8.8.8: icmp_seq=16 ttl=118 time=2.24 ms
64 bytes from 8.8.8.8: icmp_seq=17 ttl=118 time=3.01 ms
64 bytes from 8.8.8.8: icmp_seq=18 ttl=118 time=2.29 ms
64 bytes from 8.8.8.8: icmp_seq=19 ttl=118 time=4.97 ms
64 bytes from 8.8.8.8: icmp_seq=20 ttl=118 time=3.05 ms
^X^C
— 8.8.8.8 ping statistics —
20 packets transmitted, 20 received, 0% packet loss, time 19024ms
rtt min/avg/max/mdev = 2.191/3.283/5.624/1.178 ms

(ramesh@kali)~[~/Downloads]
$ netstat -tuln
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp6      0      0 fe80::9e5a:44ff:fe3:546 :::*
```

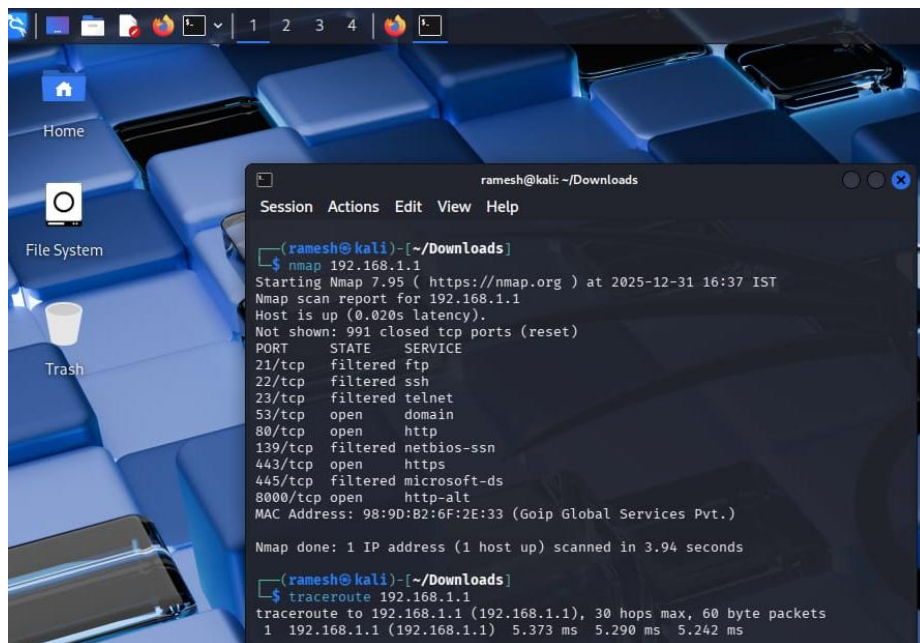
## 26. nmap

1. **Purpose:** Scans networks to discover hosts and open ports.
2. **Command:** nmap
3. **Description:** Probes a target IP to determine active services, operating systems, and vulnerabilities.

## 27. traceroute

1. **Purpose:** Traces the path packets take to reach a destination.
2. **Command:** traceroute

3. **Description:** Shows every router hop between the local system and the target server.



The screenshot shows a Kali Linux desktop environment with a terminal window open. The terminal displays the output of an nmap scan and a traceroute command. The nmap scan is for 192.168.1.1, showing various open ports and services. The traceroute shows the path from the local system to the target IP address.

```
ramesh@kali: ~/Downloads
Session Actions Edit View Help

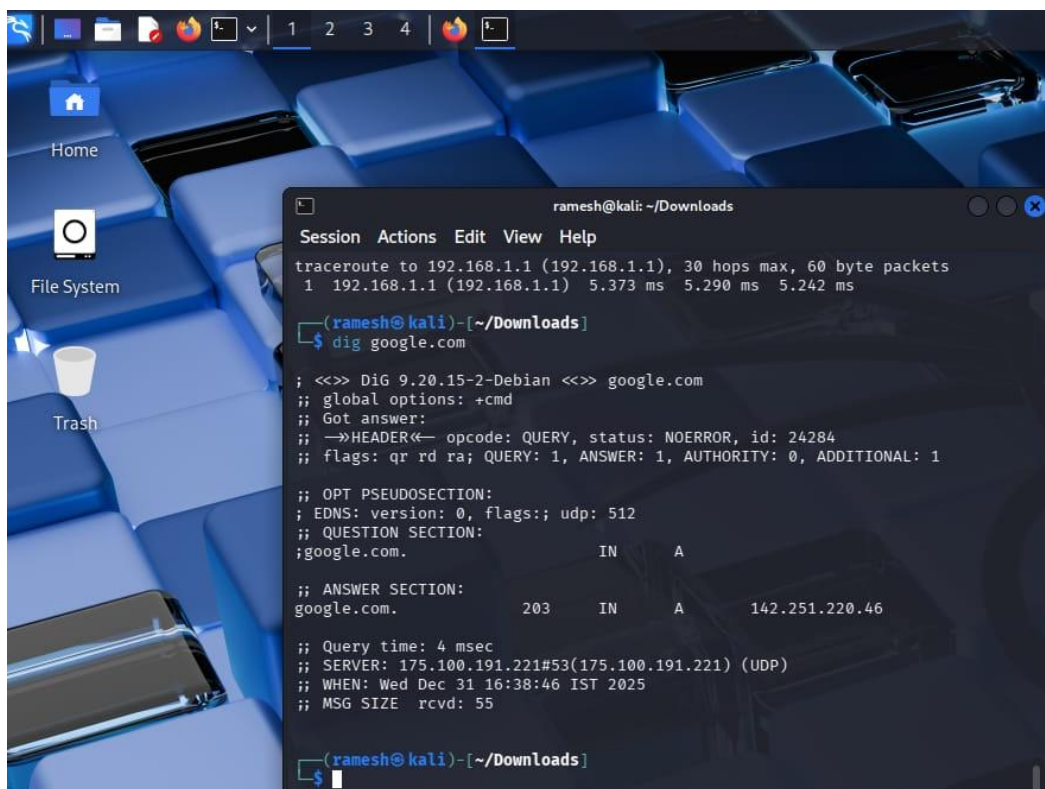
(ramesh@kali)-[~/Downloads]
$ nmap 192.168.1.1
Starting Nmap 7.95 ( https://nmap.org ) at 2025-12-31 16:37 IST
Nmap scan report for 192.168.1.1
Host is up (0.020s latency).
Not shown: 991 closed tcp ports (reset)
PORT      STATE SERVICE
21/tcp    filtered ftp
22/tcp    filtered ssh
23/tcp    filtered telnet
53/tcp    open  domain
80/tcp    open  http
139/tcp   filtered netbios-ssn
443/tcp   open  https
445/tcp   filtered microsoft-ds
8000/tcp  open  http-alt
MAC Address: 98:9D:B2:6F:2E:33 (Goip Global Services Pvt.)

Nmap done: 1 IP address (1 host up) scanned in 3.94 seconds

(ramesh@kali)-[~/Downloads]
$ traceroute 192.168.1.1
traceroute to 192.168.1.1 (192.168.1.1), 30 hops max, 60 byte packets
 1  192.168.1.1 (192.168.1.1)  5.373 ms  5.290 ms  5.242 ms
```

## 28. dig

1. **Purpose:** Queries DNS servers for domain records.
2. **Command:** dig
3. **Description:** Retrieves detailed DNS information like A, MX, and TXT records for a domain.



The screenshot shows a Kali Linux desktop environment with a terminal window open. The terminal displays the output of a dig command for google.com, showing detailed DNS information including the query, answer, and query time.

```
ramesh@kali: ~/Downloads
Session Actions Edit View Help

(ramesh@kali)-[~/Downloads]
$ dig google.com

; <<>> DiG 9.20.15-2-Debian <<>> google.com
;; global options: +cmd
;; Got answer:
;; -->HEADER<-- opcode: QUERY, status: NOERROR, id: 24284
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;google.com.                IN      A
;; ANSWER SECTION:
google.com.                 203     IN      A      142.251.220.46

;; Query time: 4 msec
;; SERVER: 175.100.191.221#53(175.100.191.221) (UDP)
;; WHEN: Wed Dec 31 16:38:46 IST 2025
;; MSG SIZE rcvd: 55

(ramesh@kali)-[~/Downloads]
$
```

## 29. route

1. **Purpose:** Viewing and manipulating the IP routing table.
2. **Command:** route
3. **Description:** Displays or modifies the table that controls where network traffic is directed.

## 30. curl

1. **Purpose:** Transfers data from or to a server using URLs.
2. **Command:** curl
3. **Description:** command line tool to send HTTP requests or download files from the web.

## 31. scp

1. **Purpose:** Securely copies files between hosts over a network.
2. **Command:** scp
3. **Description:** Transfers files using the SSH protocol to ensure data is encrypted during transit.

## 32. ssh

1. **Purpose:** Log into a remote machine securely.
2. **Command:** ssh
3. **Description:** Establishes an encrypted remote command-line session with another computer.

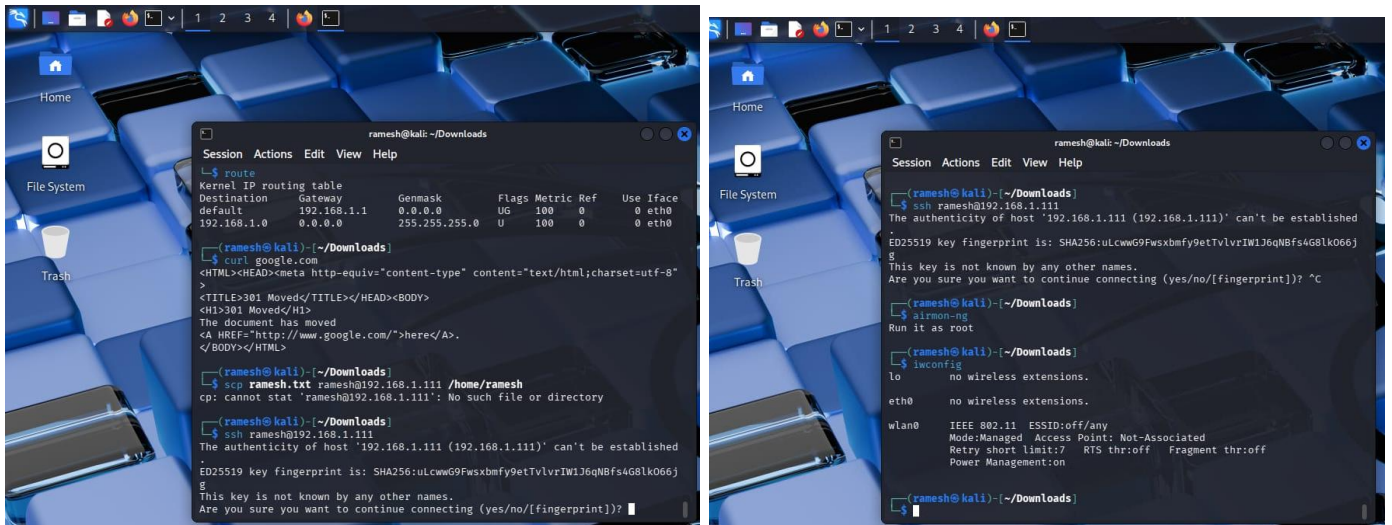
## 33. airmon-ng

1. **Purpose:** Enables monitor mode on wireless network interfaces.
2. **Command:** airmon-ng
3. **Description:** Configures a Wi-Fi card to capture all traffic rather than just packets sent to it.

## 34. iwconfig

1. **Purpose:** Configures wireless network interface parameters.
2. **Command:** iwconfig

3. **Description:** Sets specific wireless settings like frequency, channel, and transmission power.



## 35. nikto -h

1. **Purpose:** Scans web servers for dangerous files and configurations.
2. **Command:** nikto -h
3. **Description:** Performs a comprehensive test against a specified web host for known vulnerabilities.

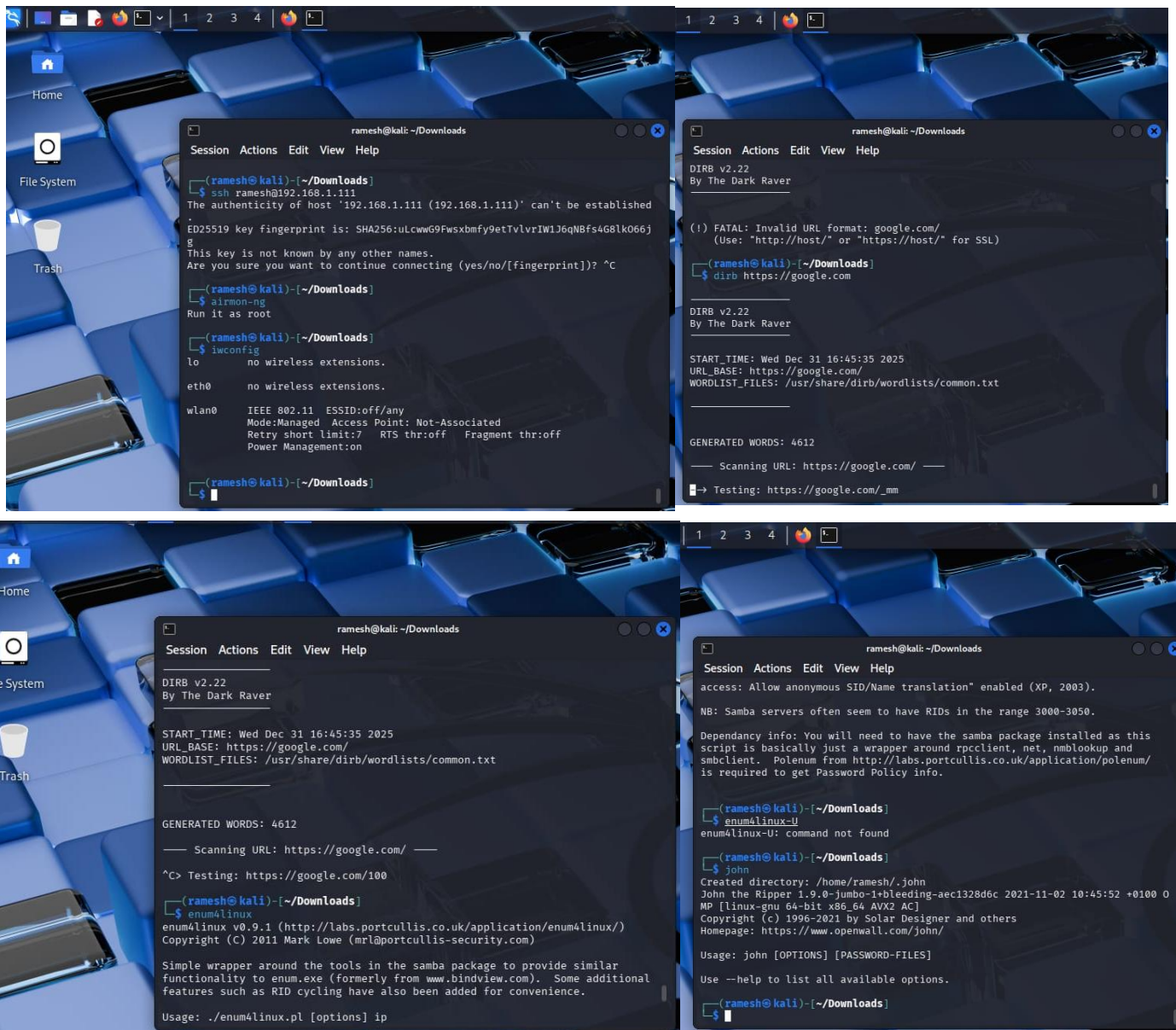
## 36. dirb

1. **Purpose:** Brute-forces hidden web directories and files.
2. **Command:** dirb
3. **Description:** Scans a website using a wordlist to find unlinked or hidden content.

## 37. john

1. **Purpose:** Cracks password hashes offline.
2. **Command:** john
3. **Description:** Detects weak passwords by processing stolen hash files against dictionary lists.

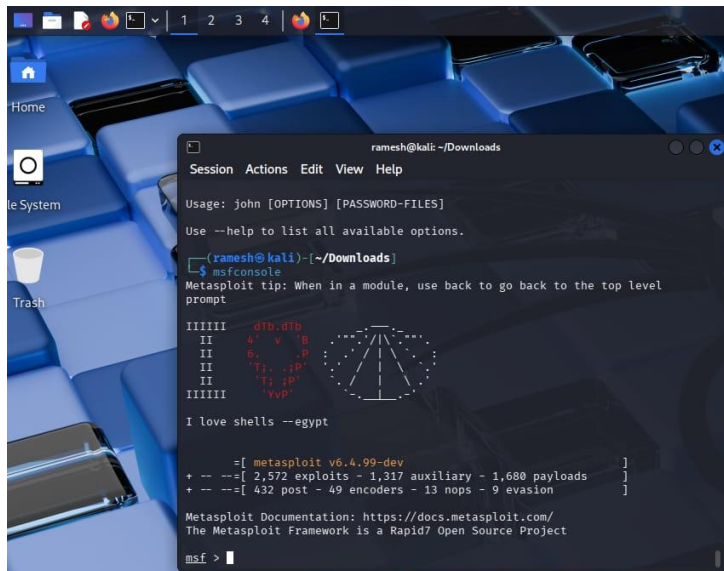




## 38. msfconsole

1. **Purpose:** Provides a centralized interface for the Metasploit Framework.
2. **Command:** msfconsole
3. **Description:** Manages and executes exploits, payloads, and auxiliary modules from a unified console.





### 39. sslscan

1. **Purpose:** Assesses SSL/TLS server configuration.
2. **Command:** sslscan
3. **Description:** Identifies supported ciphers and protocols to detect weak encryption settings.

### 40. dnsrecon

1. **Purpose:** Performs advanced DNS enumeration and scanning.
2. **Command:** dnsrecon
3. **Description:** Maps domain infrastructure by checking for zone transfers, subdomains, and records.

