ifconfig:

ifconfig displays the status of the currently active interfaces, used to configure network interfaces

example:

```
ak@ak-Latitude-E4300:~$ ifconfig
enp0s25: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
       ether 00:26:b9:d1:5a:ba txqueuelen 1000 (Ethernet)
       RX packets 0 bytes 0 (0.0 B)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 0 bytes 0 (0.0 B)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
       device interrupt 22 memory 0xf6ae0000-f6b00000
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 3931 bytes 329367 (329.3 KB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 3931 bytes 329367 (329.3 KB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
       inet 192.168.0.17 netmask 255.255.255.0 broadcast 192.168.0.255
       inet6 fe80::a412:549c:7b4f:704f prefixlen 64 scopeid 0x20<link>
       ether 00:26:5e:27:25:40 txqueuelen 1000 (Ethernet)
       RX packets 25497 bytes 19084747 (19.0 MB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 21579 bytes 3940576 (3.9 MB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig -a:

it displays the status of all interfaces, even those that are down

example:

```
ak@ak-Latitude-E4300:~$ ifconfig -a
enp0s25: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
       ether 00:26:b9:d1:5a:ba txqueuelen 1000 (Ethernet)
       RX packets 0 bytes 0 (0.0 B)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 0 bytes 0 (0.0 B)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
       device interrupt 22 memory 0xf6ae0000-f6b00000
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 3988 bytes 334396 (334.3 KB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 3988 bytes 334396 (334.3 KB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
       inet 192.168.0.17 netmask 255.255.255.0 broadcast 192.168.0.255
       inet6 fe80::a412:549c:7b4f:704f prefixlen 64 scopeid 0x20<link>
       ether 00:26:5e:27:25:40 txqueuelen 1000 (Ethernet)
       RX packets 26203 bytes 19245117 (19.2 MB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 21824 bytes 3975937 (3.9 MB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig <specific adapter>:

displays the status of specif network adapter

example

```
ak@ak-Latitude-E4300:~$ ifconfig wlan0
wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.0.17 netmask 255.255.255.0 broadcast 192.168.0.255
    inet6 fe80::a412:549c:7b4f:704f prefixlen 64 scopeid 0x20<link>
    ether 00:26:5e:27:25:40 txqueuelen 1000 (Ethernet)
    RX packets 26363 bytes 19260876 (19.2 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 21844 bytes 3978283 (3.9 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig <interface name> <ip address>

To Assign a IP Address to Network Interface

example:

```
ak@ak-Latitude-E4300:~$ sudo ifconfig lo 172.16.25.125
[sudo] password for ak:
ak@ak-Latitude-E4300:~$ ifconfig lo
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
       inet 172.16.25.125 netmask 255.255.0.0
                  prefixlen 128 scopeid 0x10<host>
       inet6 ::1
       loop txqueuelen 1000 (Local Loopback)
       RX packets 630 bytes 55246 (55.2 KB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 630 bytes 55246 (55.2 KB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig <network interface> netmask <ip>

To Assign a Netmask to Network Interface

example:

```
ak@ak-Latitude-E4300:~$ sudo ifconfig lo netmask 255.255.255.224
ak@ak-Latitude-E4300:~$ ifconfig lo
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
       inet 172.16.25.125 netmask 255.255.255.224
                  prefixlen 128 scopeid 0x10<host>
       inet6 ::1
       loop txqueuelen 1000 (Local Loopback)
       RX packets 656 bytes 59013 (59.0 KB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 656 bytes 59013 (59.0 KB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig <network interface> broadcast <IP>

To Assign a Broadcast to Network Interface

```
example:
ak@ak-Latitude-E4300:~$ sudo ifconfig wlan0 broadcast 172.16.25.65
ak@ak-Latitude-E4300:~$ ifconfig wlan0
wlano: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu  1500
       inet 192.168.0.17 netmask 255.255.25 broadcast 172.16.25.65
       inet6 fe80::a412:549c:7b4f:704f prefixlen 64 scopeid 0x20<link>
       ether 00:26:5e:27:25:40 txqueuelen 1000
                                                (Ethernet)
       RX packets 6776 bytes 3944968 (3.9 MB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 5261 bytes 760052 (760.0 KB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig <interface name> promiscTo Enable Promiscuous Modeifconfig <interface name> -promiscTo Disable Promiscuous Mode

example:

```
ak@ak-Latitude-E4300:~$ sudo ifconfig wlan0 promisc
ak@ak-Latitude-E4300:~$ ifconfig wlan0
wlan0: flags=4419<UP,BROADCAST,RUNNING,PROMISC,MULTICAST> mtu 1500
    inet 192.168.0.17 netmask 255.255.255.0 broadcast 192.168.0.255
    inet6 fe80::a412:549c:7b4f:704f prefixlen 64 scopeid 0x20<link>
    ether 00:26:5e:27:25:40 txqueuelen 1000 (Ethernet)
    RX packets 7060 bytes 3986721 (3.9 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 5281 bytes 764183 (764.1 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

2. ifdown:

To take a network interface down

ifup:

To bring a network interface up

example:

```
ak@ak-Latitude-E4300:~$ sudo ifdown lo
ifdown: interface lo not configured
ak@ak-Latitude-E4300:~$ sudo ifup lo
ak@ak-Latitude-E4300:~$ ifconfig
enp0s25: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
       ether 00:26:b9:d1:5a:ba txqueuelen 1000 (Ethernet)
       RX packets 0 bytes 0 (0.0 B)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 0 bytes 0 (0.0 B)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
       device interrupt 22 memory 0xf6ae0000-f6b00000
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 4071 bytes 342700 (342.7 KB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 4071 bytes 342700 (342.7 KB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
       inet 192.168.0.17 netmask 255.255.255.0 broadcast 192.168.0.255
       inet6 fe80::a412:549c:7b4f:704f prefixlen 64 scopeid 0x20<link>
       ether 00:26:5e:27:25:40 txqueuelen 1000 (Ethernet)
       RX packets 27013 bytes 19346759 (19.3 MB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 22043 bytes 4014198 (4.0 MB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

route:

To show tor manipulate the IP routing table

example:

```
ak@ak-Latitude-E4300:~$ route
Kernel IP routing table
Destination
               Gateway
                                Genmask
                                                Flags Metric Ref
                                                                    Use Iface
default
                _gateway
                                0.0.0.0
                                                                      0 wlan0
                                                UG
                                                      600
                                                             0
link-local
               0.0.0.0
                                255.255.0.0
                                               U
                                                      1000
                                                             0
                                                                      0 wlan0
192.168.0.0
                                255.255.255.0
                                               U
                                                      600
                                                             0
                                                                      0 wlan0
               0.0.0.0
```

route add -net 10.10.10.0/24 gw <IP>

To add new route

route del -net 10.10.10.0/24 gw <IP>

To delete a route

route add default gw <IP>

Set a default gateway

host:

DNS look up utility, give domain name gets ip address

example:

```
ak@ak-Latitude-E4300:~$ host www.google.com
www.google.com has address 172.217.163.132
www.google.com has IPv6 address 2404:6800:4007:80d::2004
```

5.

netstat:

Print network connections, routing tables, interface statistics, masquerade connections, and multicast memberships

netstat -r:

Display the kernel routing tables

example:

```
ak@ak-Latitude-E4300:~$ netstat -r
Kernel IP routing table
Destination
                Gateway
                                 Genmask
                                                  Flags
                                                           MSS Window
                                                                        irtt Iface
default
                 gateway
                                 0.0.0.0
                                                  UG
                                                             0 0
                                                                           0 wlan0
link-local
                                                                           0 wlan0
                0.0.0.0
                                  255.255.0.0
                                                  U
                                                             0 0
192.168.0.0
                0.0.0.0
                                  255.255.255.0
                                                             0 0
                                                                           0 wlan0
```

6.

ping:

Packet Internet Groper, send ICMP ECHO REQUEST to network hosts

ping -c 5 <domain name>

exist after 5 number of requests

example:

```
ak@ak-Latitude-E4300:~$ ping www.cet.ac.in
PING www.cet.ac.in (14.139.171.166) 56(84) bytes of data.
```

7.

ip addr:

gives the ip address of each network interface

example:

```
ak@ak-Latitude-E4300:~$ ip addr
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: enp0s25: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
        link/ether 00:26:b9:d1:5a:ba brd ff:ff:ff:ff:ff
4: wlan0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
        link/ether 00:26:5e:27:25:40 brd ff:ff:ff:ff:ff
    inet 192.168.0.17/24 brd 192.168.0.255 scope global dynamic noprefixroute wlan0
        valid_lft 2047sec preferred_lft 2047sec
    inet6 fe80::a412:549c:7b4f:704f/64 scope link noprefixroute
    valid_lft forever_preferred_lft forever
```

ifconfig <interface name> 192.168.50.5 netmask 255.255.255.0

Assigning an IP Address and Gateway to interface

example:

```
ak@ak-Latitude-E4300:~$ sudo ifconfig lo 192.168.50.5 netmask 255.255.255.0
ak@ak-Latitude-E4300:~$ ifconfig lo
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
        inet 192.168.50.5 netmask 255.255.255.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
        loop txqueuelen 1000 (Local Loopback)
        RX packets 4861 bytes 410333 (410.3 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 4861 bytes 410333 (410.3 KB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig <interface name> mtu <size>

changing mtu size

example:

```
ak@ak-Latitude-E4300:~$ sudo ifconfig lo mtu 1501
ak@ak-Latitude-E4300:~$ ifconfig lo
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 1501
    inet 192.168.50.5 netmask 255.255.255.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 4865 bytes 411009 (411.0 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 4865 bytes 411009 (411.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

9.

hostname:

gives hostname

example:

```
ak@ak-Latitude-E4300:~$ hostname
ak-Latitude-E4300
```

RESULT:

familiarized network interface commands and their uses by using ifconfig.