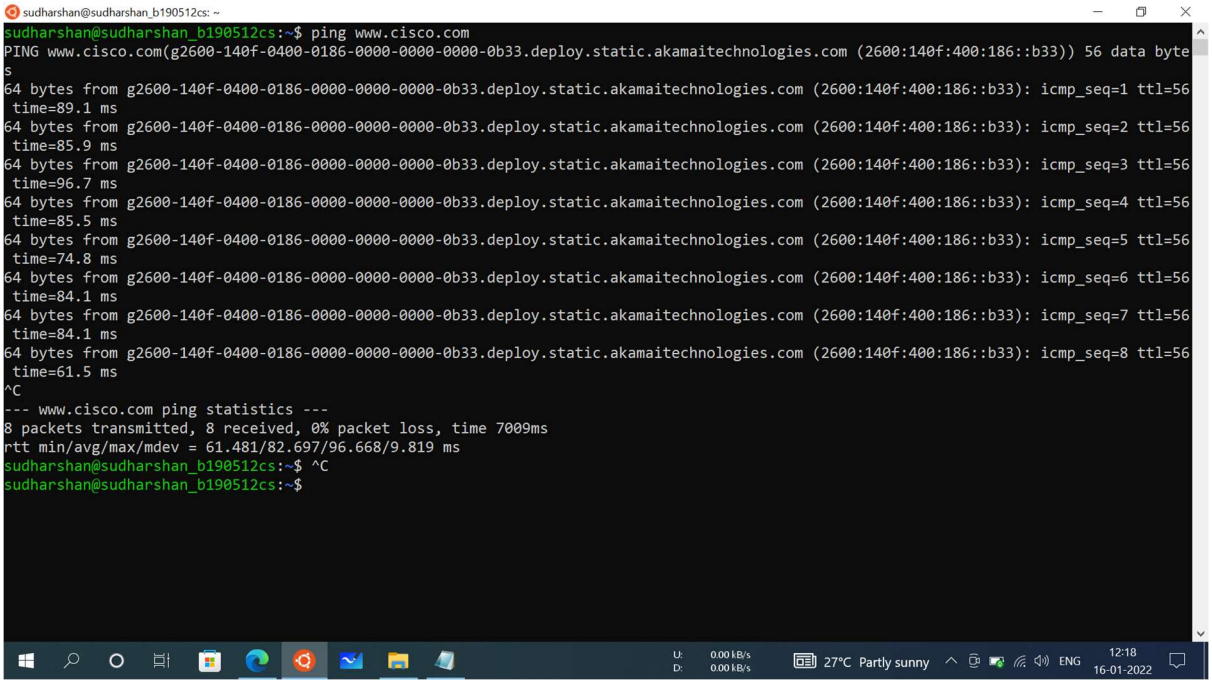
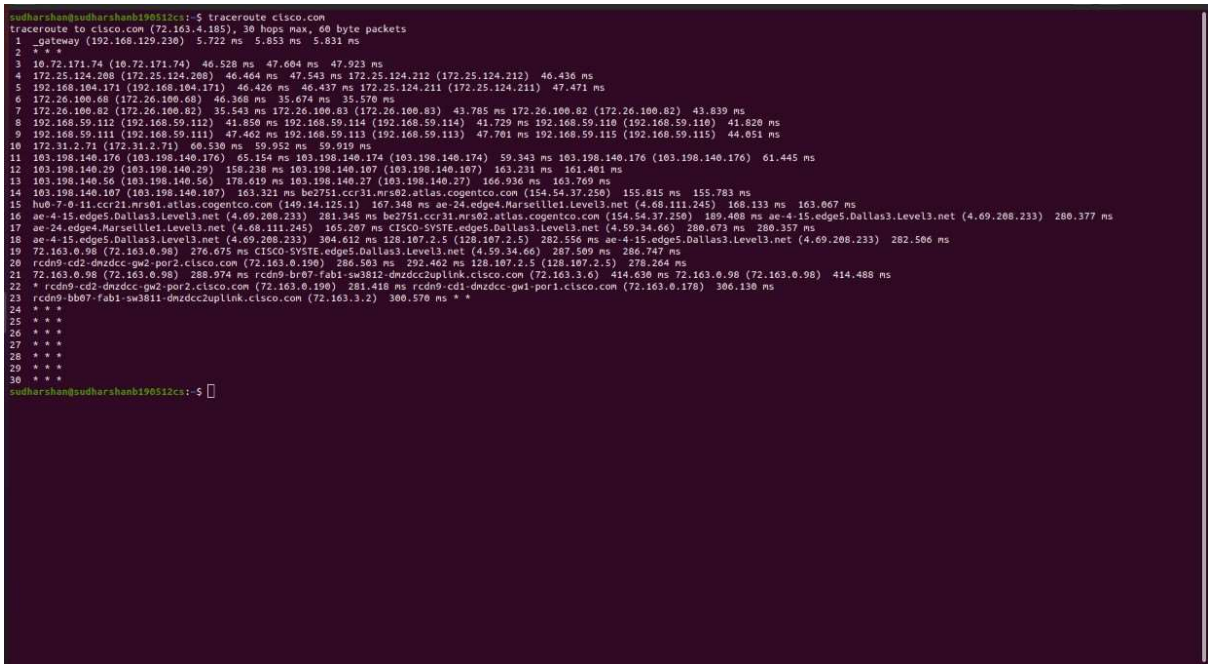
1)ping

PING (Packet Internet Groper) command is used to check the network connectivity between host and server/host.



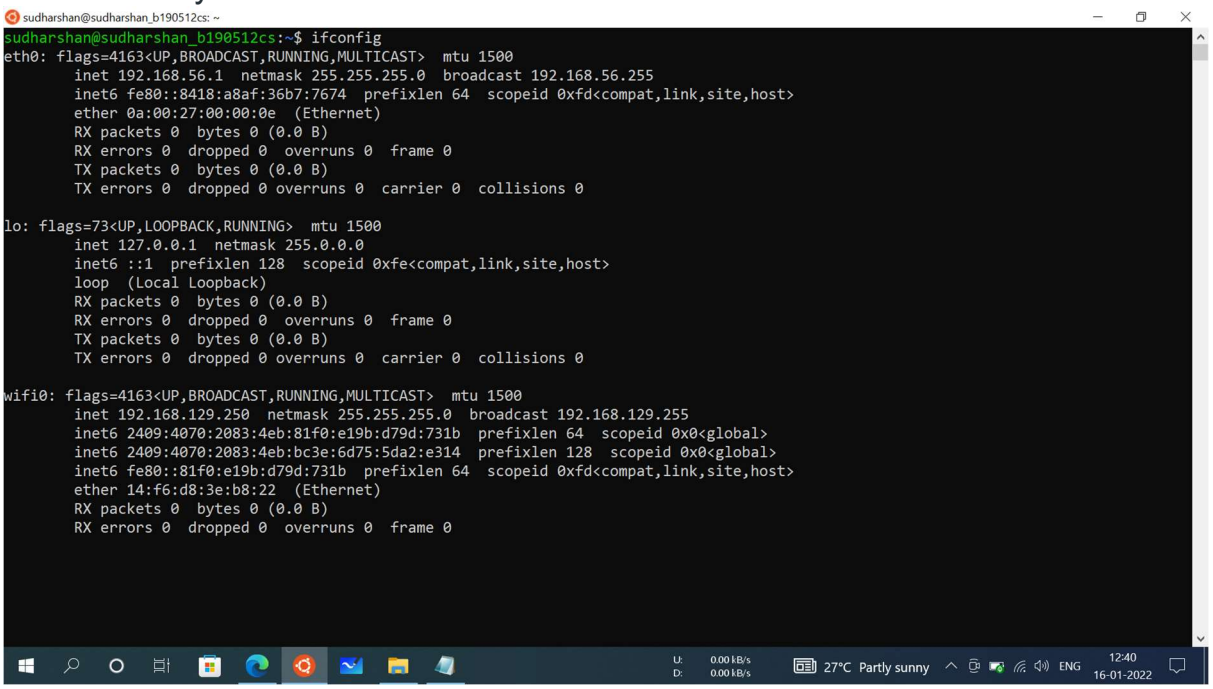
2)traceroute

This command in Linux prints the route that a packet takes to reach the host. This command is useful when you want to know about the route and about all the hops that a packet takes.



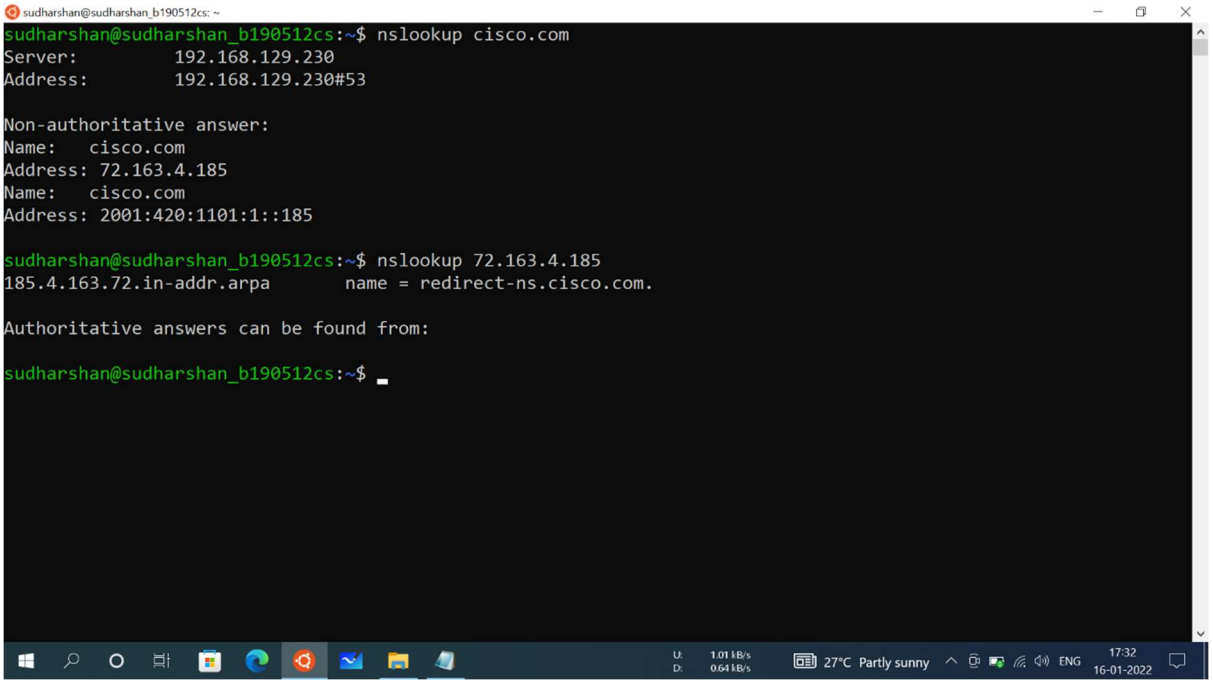
3)ifconfig

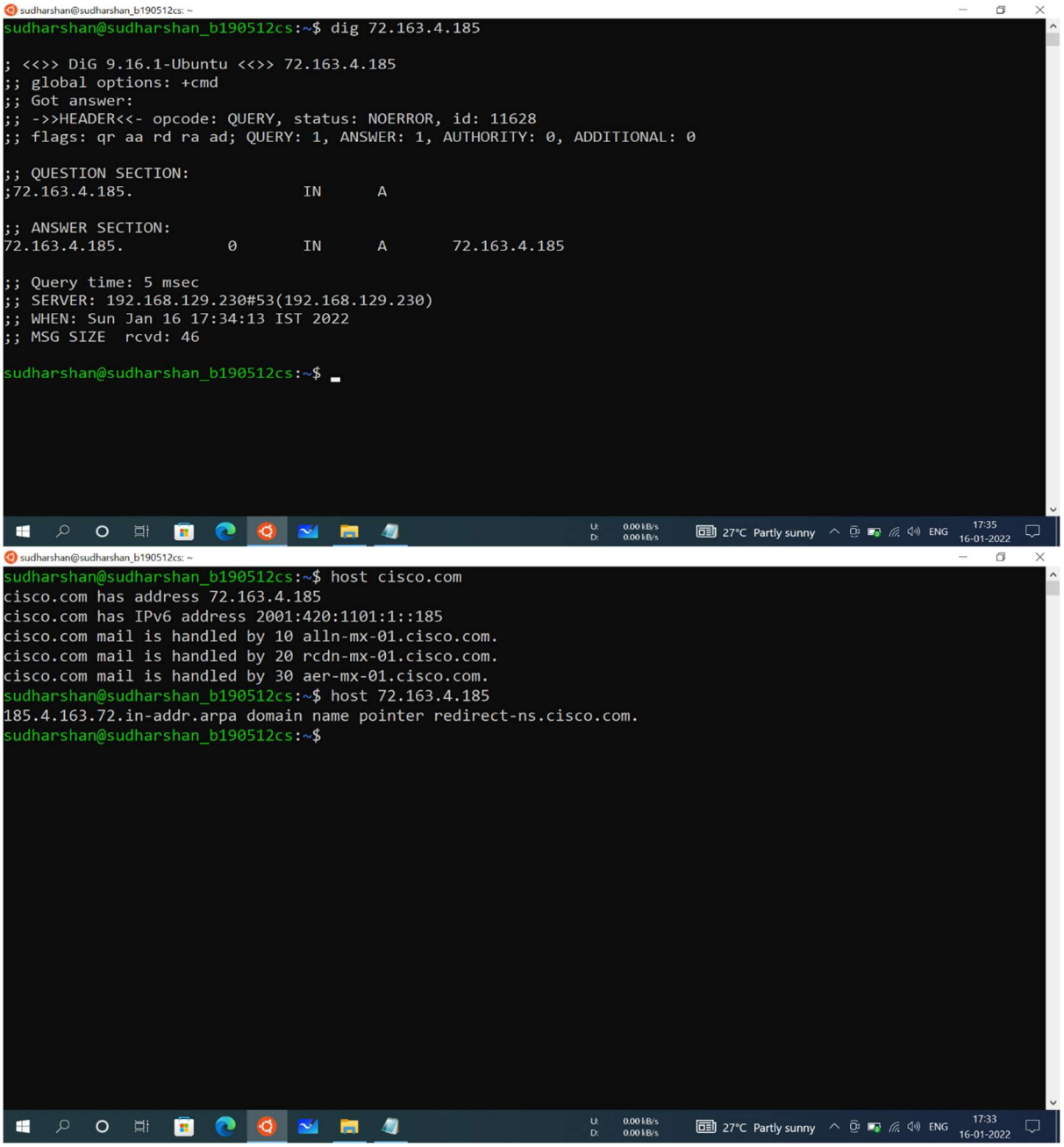
ifconfig(interface configuration) command is used to configure the kernel-resident network interfaces. It is used at the boot time to set up the interfaces as necessary.



4)dig/nslookup/host

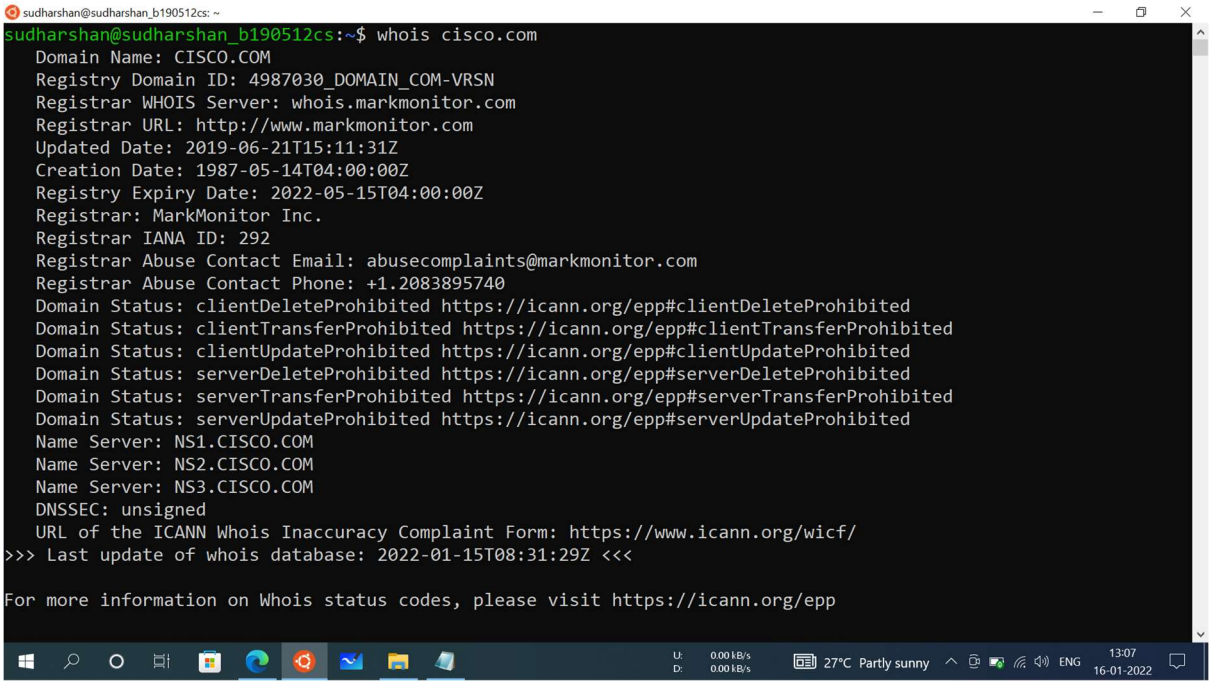
These are used for retrieving information about DNS name servers. These are used for verifying and troubleshooting DNS problems and to perform DNS lookups.





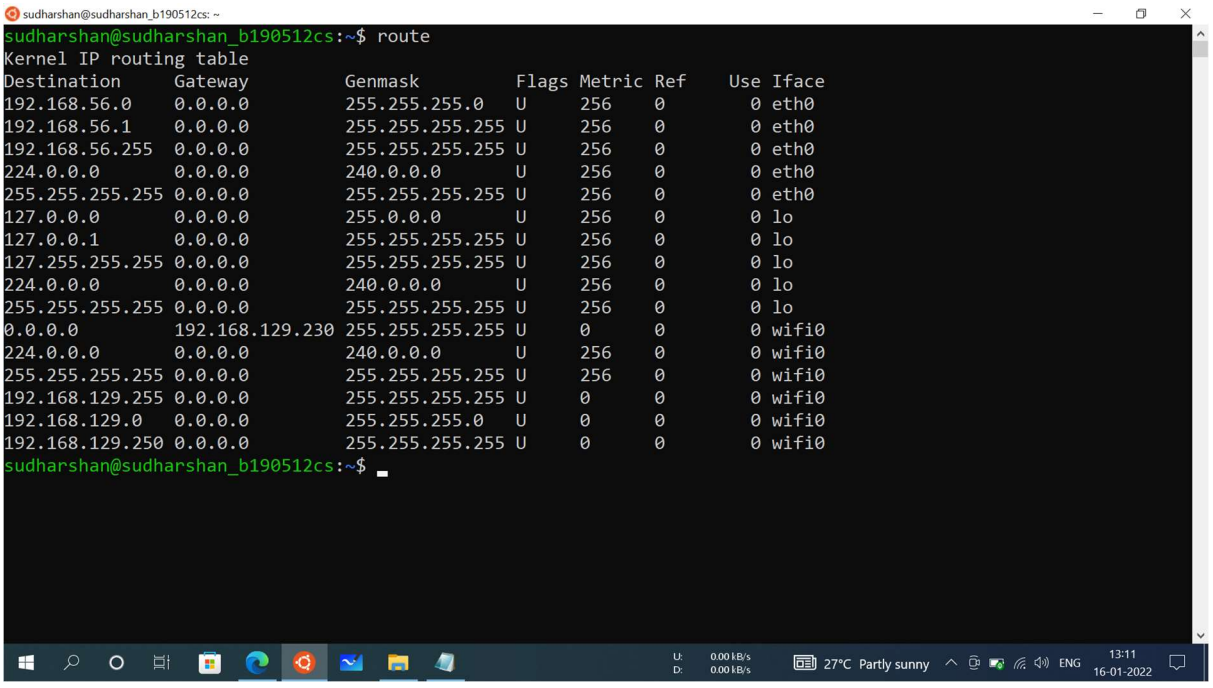
5)whois

Used to know all info about given ip address.



6)route

route command in Linux is used when we want to work with the IP/kernel routing table. It is mainly used to set up static routes to specific hosts or networks via an interface. It is used for showing or update the IP/kernel routing table.



7)tcpdump

It is used to capture, filter, and analyze network traffic such as TCP/IP packets going through our system.

```
sudharshan@sudharshanb190512cs:~$ sudo tcpdump
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on enp0s3, link-type EN10MB (Ethernet), capture size 262144 bytes
18:23:49.190173 IP 192.168.129.250.52732 > 239.255.255.250.1900: UDP, length 174
18:23:49.192157 IP sudharshanb190512cs.49562 > _gateway.domain: 16820+ PTR? 250.255.255.239.in-addr.arpa. (46)
18:23:49.387383 IP _gateway.domain > sudharshanb190512cs.49562: 16820 NXDomain 0/1/0 (103)
18:23:49.388848 IP sudharshanb190512cs.36367 > _gateway.domain: 14297+ PTR? 250.129.168.192.in-addr.arpa. (46)
18:23:49.436246 IP _gateway.domain > sudharshanb190512cs.36367: 14297 NXDomain* 0/1/0 (105)
18:23:49.437764 IP sudharshanb190512cs.58365 > _gateway.domain: 59766+ PTR? 230.129.168.192.in-addr.arpa. (46)
18:23:49.495142 IP _gateway.domain > sudharshanb190512cs.50365: 59766 NXDomain* 0/1/0 (105)
18:23:49.496787 IP sudharshanb190512cs.58758 > _gateway.domain: 61321+ PTR? 183.129.168.192.in-addr.arpa. (46)
18:23:49.553118 IP _gateway.domain > sudharshanb190512cs.58758: 61321 NXDomain* 0/1/0 (105)
18:23:50.191325 IP 192.168.129.250.52732 > 239.255.255.250.1900: UDP, length 174
18:23:51.191905 IP 192.168.129.250.52732 > 239.255.255.250.1900: UDP, length 174
18:23:51.638558 ARP, Request who-has 192.168.129.250 tell _gateway, length 46
18:23:52.192840 IP 192.168.129.250.52732 > 239.255.255.250.1900: UDP, length 174
18:23:56.157199 IP sudharshanb190512cs.51408 > server-99-86-14-107.blr50.r.cloudfront.net.https: Flags [.], ack 2931192366, win 501, options [nop,nop,TS val 3932293814 ecr 734706404], length 0
18:23:56.158590 IP sudharshanb190512cs.44922 > _gateway.domain: 58170+ PTR? 107.14.86.99.in-addr.arpa. (43)
18:23:56.244363 IP server-99-86-14-107.blr50.r.cloudfront.net.https > sudharshanb190512cs.51408: Flags [.], ack 1, win 7, options [nop,nop,TS val 734716654 ecr 3932242809], length 0
18:23:56.328758 IP _gateway.domain > sudharshanb190512cs.44922: 58170 1/0/0 PTR server-99-86-14-107.blr50.r.cloudfront.net. (99)
18:23:57.833751 IP6 sudharshanb190512cs.39758 > whatsapp-cdn6-shv-01-maa2.fbcdn.net.https: Flags [P.], seq 2802812060:2802812100, ack 3200177375, win 13954, options [nop,nop,TS val 3155923438 ecr 1572421
03], length 40
18:23:57.835545 IP sudharshanb190512cs.42343 > _gateway.domain: 55117+ PTR? 7.6.1.0.0.0.0.0.c.0.0.b.e.c.a.f.6.c.0.0.7.3.2.f.0.8.8.2.3.0.a.2.ip6.arpa. (90)
18:23:57.916662 IP6 whatsapp-cdn6-shv-01-maa2.fbcdn.net.https > sudharshanb190512cs.39758: Flags [.], ack 40, win 542, options [nop,nop,TS val 157266069 ecr 3155923438], length 0
18:23:57.966227 IP _gateway.domain > sudharshanb190512cs.42343: 55117 1/0/0 PTR whatsapp-cdn6-shv-01-maa2.fbcdn.net. (139)
18:23:57.968116 IP sudharshanb190512cs.40231 > _gateway.domain: 41213+ PTR? c.f.8.e.6.f.6.0.8.1.8.b.5.4.6.e.b.e.4.0.3.8.0.2.0.7.0.4.9.0.4.2.ip6.arpa. (90)
18:23:58.016252 IP _gateway.domain > sudharshanb190512cs.40231: 41213 NXDomain 0/1/0 (178)
18:23:58.190359 IP6 whatsapp-cdn6-shv-01-maa2.fbcdn.net.https > sudharshanb190512cs.39758: Flags [P.], seq 1:48, ack 40, win 542, options [nop,nop,TS val 157266281 ecr 3155923438], length 47
18:23:58.190410 IP6 sudharshanb190512cs.39758 > whatsapp-cdn6-shv-01-maa2.fbcdn.net.https: Flags [.], ack 48, win 13954, options [nop,nop,TS val 3155923795 ecr 157266281], length 0
^C
25 packets captured
25 packets received by filter
0 packets dropped by kernel
sudharshan@sudharshanb190512cs:~$
```

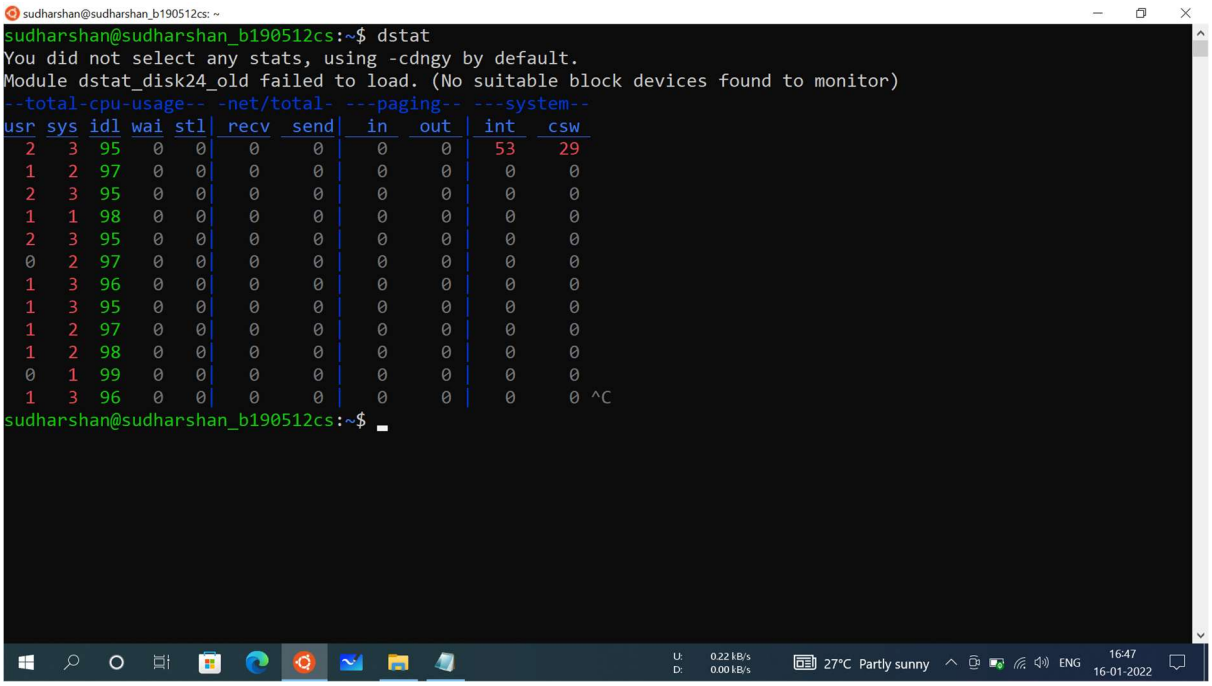
8)netstat

Netstat command displays various network related information such as network connections, routing tables, interface statistics, masquerade connections, multicast memberships etc.,

```
sudharshan@sudharshanb190512cs:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 sudharshanb190512:51408 server-99-86-14-1:https TIME_WAIT
tcp        0      0 sudharshanb190512:38268 201.181.244.35.bc:https ESTABLISHED
tcp        0      0 sudharshanb190512:41296 123.208.120.34.bc:https ESTABLISHED
tcp        0      0 sudharshanb190512:54600 36.75.98.34.bc.go:https ESTABLISHED
tcp        0      1 sudharshanb190512:49286 84.170.224.35.bc.g:http SYN_SENT
tcp        0      0 sudharshanb190512:34528 ec2-44-237-168-23:https ESTABLISHED
tcp        0      0 sudharshanb190512:36228 117.18.237.29:http      ESTABLISHED
tcp6       0      0 sudharshanb190512:39758 whatsapp-cdn6-shv:https ESTABLISHED
tcp6       0      0 sudharshanb190512:51858 2600:9000:215c:4c:https ESTABLISHED
udp        0      0 sudharshanb19051:bootpc _gateway:bootps         ESTABLISHED
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags       Type       State         I-Node   Path
unix  3      [ ]         DGRAM                    16240    /run/systemd/notify
unix  2      [ ]         DGRAM                    34970    /run/user/1000/systemd/notify
unix  2      [ ]         DGRAM                    16254    /run/systemd/journal/syslog
unix  17     [ ]         DGRAM                    16264    /run/systemd/journal/dev-log
unix  8      [ ]         DGRAM                    16268    /run/systemd/journal/socket
unix  3      [ ]         STREAM     CONNECTED     46200    /run/user/1000/bus
unix  3      [ ]         STREAM     CONNECTED     35998
unix  3      [ ]         STREAM     CONNECTED     35954
unix  3      [ ]         STREAM     CONNECTED     28669
unix  3      [ ]         STREAM     CONNECTED     36181
unix  2      [ ]         DGRAM                    34186
unix  3      [ ]         STREAM     CONNECTED     82673
unix  3      [ ]         STREAM     CONNECTED     83795    @/tmp/.X11-unix/X0
unix  3      [ ]         STREAM     CONNECTED     36100    @/tmp/.X11-unix/X0
unix  3      [ ]         STREAM     CONNECTED     36091    /run/systemd/journal/stdout
unix  3      [ ]         STREAM     CONNECTED     37027    /run/systemd/journal/stdout
unix  2      [ ]         DGRAM                    32874
unix  3      [ ]         DGRAM                    18600
unix  3      [ ]         STREAM     CONNECTED     32685
unix  3      [ ]         STREAM     CONNECTED     32326
unix  3      [ ]         STREAM     CONNECTED     36778
unix  3      [ ]         STREAM     CONNECTED     22206
unix  2      [ ]         DGRAM                    21862
unix  3      [ ]         STREAM     CONNECTED     85272    /run/dbus/system_bus_socket
unix  3      [ ]         STREAM     CONNECTED     85641
unix  3      [ ]         STREAM     CONNECTED     22037    /run/systemd/journal/stdout
unix  3      [ ]         SEQPACKET  CONNECTED     85036
unix  3      [ ]         STREAM     CONNECTED     37320
unix  3      [ ]         STREAM     CONNECTED     36962    /run/systemd/journal/stdout
unix  3      [ ]         STREAM     CONNECTED     24362
unix  3      [ ]         STREAM     CONNECTED     26086    /run/dbus/system_bus_socket
unix  3      [ ]         STREAM     CONNECTED     33218    /run/systemd/journal/stdout
unix  3      [ ]         STREAM     CONNECTED     28580    /run/dbus/system_bus_socket
unix  3      [ ]         STREAM     CONNECTED     38184    @/tmp/dbus-OpFCOLs1sl
unix  3      [ ]         STREAM     CONNECTED     21409
unix  3      [ ]         STREAM     CONNECTED     41215    /run/user/1000/bus
unix  3      [ ]         STREAM     CONNECTED     32453
unix  3      [ ]         STREAM     CONNECTED     33136    /run/systemd/journal/stdout
unix  3      [ ]         STREAM     CONNECTED     48407
unix  3      [ ]         STREAM     CONNECTED     39369
unix  3      [ ]         STREAM     CONNECTED     38160
```

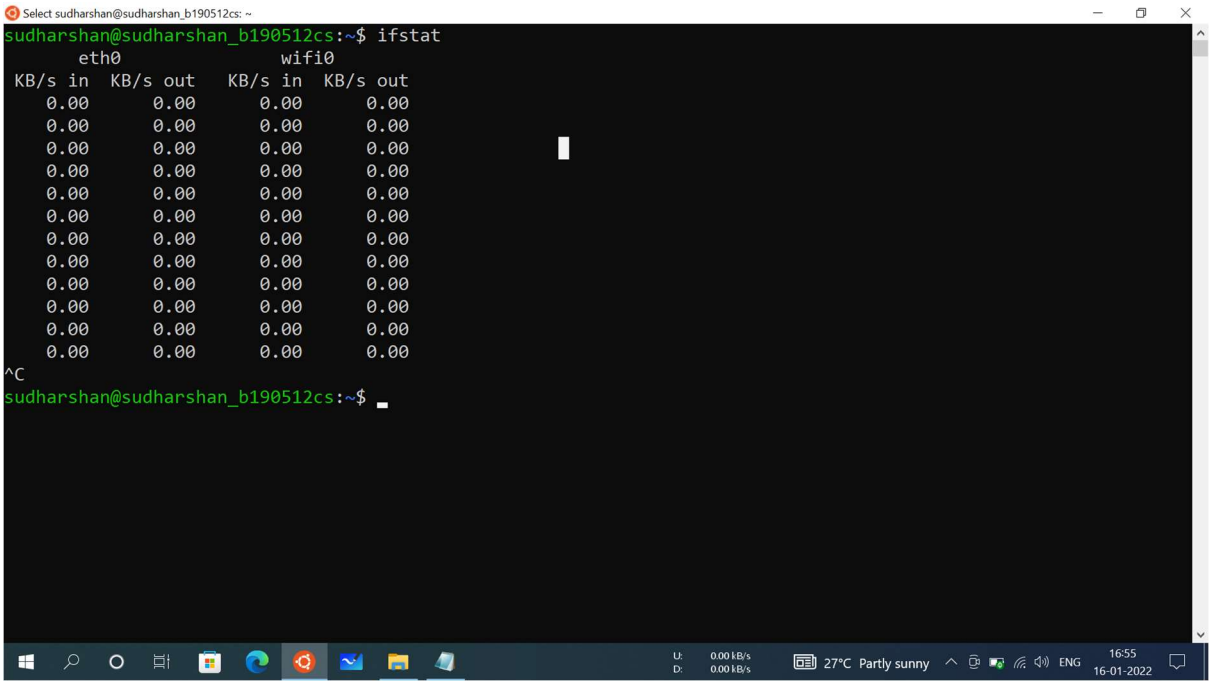
9)dstat

dstat is a tool that is used to retrieve information or statistics form components of the system such as network connections, IO devices, or CPU, etc.



10)ifstat

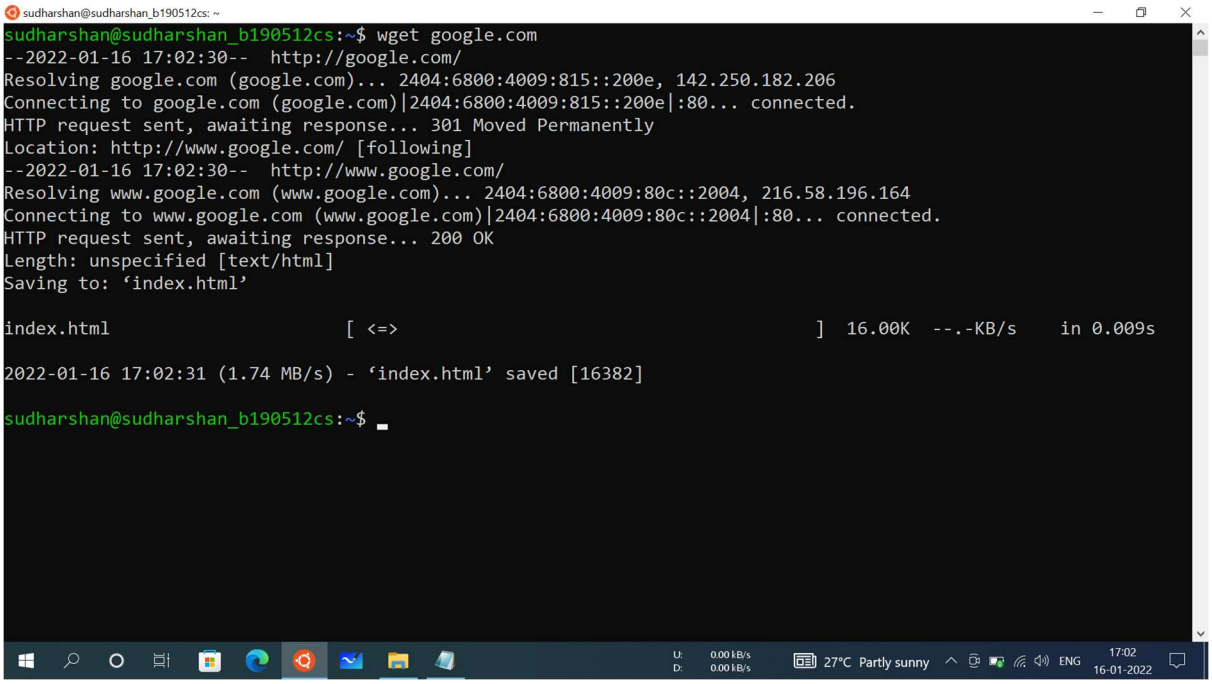
This command prints network interface statistics.



11)wget

Wget is the non-interactive network downloader which is used to download files from the server and it can work in the background without hindering the

current process.



12)tracepath

tracepath command in Linux is used to trace the path to destination discovering MTU along this path.similar to traceroute but don’t require super user priviliges.