

Name: Preyash

Date: 20-01-2022

Registration Number: 20BPS1022

## LAB-03

### Networking Commands

#### IFCONFIG COMMANDS:

ifconfig

```
preyash-20bps1022@Preyash-20BPS1022:~$ ifconfig
enp0s3: 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::2b5d:d30:1632:b8f prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:8e:96:8a txqueuelen 1000 (Ethernet)
    RX packets 83959 bytes 124527661 (124.5 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 7032 bytes 510587 (510.5 KB)
    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 602 bytes 51015 (51.0 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 602 bytes 51015 (51.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig -a

```
preyash-20bps1022@Preyash-20BPS1022:~$ ifconfig -a
enp0s3: 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::2b5d:d30:1632:b8f prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:8e:96:8a txqueuelen 1000 (Ethernet)
    RX packets 83959 bytes 124527661 (124.5 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 7032 bytes 510587 (510.5 KB)
    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 602 bytes 51015 (51.0 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 602 bytes 51015 (51.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig -s

```
preyash-20bps1022@Preyash-20BPS1022:~$ ifconfig -s
Iface      MTU      RX-OK RX-ERR RX-DRP RX-OVR    TX-OK  TX-ERR  TX-DRP  TX-OVR  Flg
enp0s3     1500     83959    0      0      0       7032    0       0       0    BMRU
lo         65536     602      0      0      0        602    0       0       0    LRU
preyash-20bps1022@Preyash-20BPS1022:~$
```

ifconfig [interface-name] down

```
preyash-20bps1022@Preyash-20BPS1022:~$ sudo ifconfig enp0s3 down
[sudo] password for preyash-20bps1022:
preyash-20bps1022@Preyash-20BPS1022:~$ ifconfig -a
enp0s3: flags=4098<BROADCAST,MULTICAST> mtu 1500
        ether 08:00:27:8e:96:8a txqueuelen 1000 (Ethernet)
        RX packets 215 bytes 62787 (62.7 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 337 bytes 37967 (37.9 KB)
        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 218 bytes 18134 (18.1 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 218 bytes 18134 (18.1 KB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

preyash-20bps1022@Preyash-20BPS1022:~$ ifconfig
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 218 bytes 18134 (18.1 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 218 bytes 18134 (18.1 KB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig [interface-name] promisc

```
preyash-20bps1022@Preyash-20BPS1022:~$ sudo ifconfig enp0s3 promisc
[sudo] password for preyash-20bps1022:
preyash-20bps1022@Preyash-20BPS1022:~$ ifconfig
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 244 bytes 20019 (20.0 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 244 bytes 20019 (20.0 KB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig [interface-name] -promisc

```
preyash-20bps1022@Preyash-20BPS1022:~$ sudo ifconfig lo -arp
preyash-20bps1022@Preyash-20BPS1022:~$ ifconfig
lo: flags=201<UP,LOOPBACK,RUNNING,NOARP> 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 258 bytes 21079 (21.0 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 258 bytes 21079 (21.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

## PING COMMANDS:

ping -V

```
preyash-20bps1022@Preyash-20BPS1022:~$ ping -V
ping from iputils s20190709
preyash-20bps1022@Preyash-20BPS1022:~$ █
```

ping [Domain Name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ ping www.google.com
PING www.google.com (142.250.183.4) 56(84) bytes of data.
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=1 ttl=59 time=150 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=2 ttl=59 time=40.8 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=3 ttl=59 time=49.4 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=4 ttl=59 time=42.2 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=5 ttl=59 time=40.8 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=6 ttl=59 time=41.3 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=7 ttl=59 time=48.3 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=8 ttl=59 time=71.1 ms
^C
--- www.google.com ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7012ms
rtt min/avg/max/mdev = 40.766/60.555/150.468/35.279 ms
preyash-20bps1022@Preyash-20BPS1022:~$ S█
```

ping [ipaddress]

```
preyash-20bps1022@Preyash-20BPS1022:~$ ping 127.0.0.1
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.018 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.049 ms
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.049 ms
64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.049 ms
64 bytes from 127.0.0.1: icmp_seq=5 ttl=64 time=0.050 ms
64 bytes from 127.0.0.1: icmp_seq=6 ttl=64 time=0.036 ms
64 bytes from 127.0.0.1: icmp_seq=7 ttl=64 time=0.035 ms
64 bytes from 127.0.0.1: icmp_seq=8 ttl=64 time=0.032 ms
64 bytes from 127.0.0.1: icmp_seq=9 ttl=64 time=0.050 ms
64 bytes from 127.0.0.1: icmp_seq=10 ttl=64 time=0.054 ms
64 bytes from 127.0.0.1: icmp_seq=11 ttl=64 time=0.060 ms
64 bytes from 127.0.0.1: icmp_seq=12 ttl=64 time=0.032 ms
64 bytes from 127.0.0.1: icmp_seq=13 ttl=64 time=0.081 ms
64 bytes from 127.0.0.1: icmp_seq=14 ttl=64 time=0.037 ms
64 bytes from 127.0.0.1: icmp_seq=15 ttl=64 time=0.051 ms
64 bytes from 127.0.0.1: icmp_seq=16 ttl=64 time=0.081 ms
64 bytes from 127.0.0.1: icmp_seq=17 ttl=64 time=0.051 ms
64 bytes from 127.0.0.1: icmp_seq=18 ttl=64 time=0.040 ms
64 bytes from 127.0.0.1: icmp_seq=19 ttl=64 time=0.032 ms
64 bytes from 127.0.0.1: icmp_seq=20 ttl=64 time=0.046 ms
^C
--- 127.0.0.1 ping statistics ---
20 packets transmitted, 20 received, 0% packet loss, time 19445ms
rtt min/avg/max/mdev = 0.018/0.046/0.081/0.015 ms
```

ping -c number [Domain name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ ping -c 1 www.google.com
PING www.google.com (142.250.183.4) 56(84) bytes of data.
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=1 ttl=59 time=41.1 ms

--- www.google.com ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 41.147/41.147/41.147/0.000 ms
preyash-20bps1022@Preyash-20BPS1022:~$
```

ping -c number -q [Domain name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ ping -c 2 -q www.google.com
PING www.google.com (142.250.183.4) 56(84) bytes of data.

--- www.google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 40.244/40.637/41.031/0.393 ms
preyash-20bps1022@Preyash-20BPS1022:~$
```

ping -i time [Domain name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ ping -i 2 www.google.com
PING www.google.com (142.250.183.4) 56(84) bytes of data.
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=1 ttl=59 time=40.5 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=2 ttl=59 time=41.8 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=3 ttl=59 time=40.8 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=4 ttl=59 time=39.9 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=5 ttl=59 time=45.2 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=6 ttl=59 time=41.4 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=7 ttl=59 time=40.5 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=8 ttl=59 time=40.6 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=9 ttl=59 time=40.7 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=10 ttl=59 time=1200 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=11 ttl=59 time=817 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=12 ttl=59 time=113 ms
^C
--- www.google.com ping statistics ---
12 packets transmitted, 12 received, 0% packet loss, time 22028ms
rtt min/avg/max/mdev = 39.878/208.379/1199.531/366.684 ms
preyash-20bps1022@Preyash-20BPS1022:~$
```

ping -s size(bytes) [Domain Name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ ping -s 11 www.google.com
PING www.google.com (142.250.183.4) 11(39) bytes of data.
19 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=1 ttl=59
19 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=2 ttl=59
19 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=3 ttl=59
19 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=4 ttl=59
19 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=5 ttl=59
19 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=6 ttl=59
19 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=7 ttl=59
19 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=8 ttl=59
^C
--- www.google.com ping statistics ---
9 packets transmitted, 8 received, 11.1111% packet loss, time 8600ms
pipe 2
preyash-20bps1022@Preyash-20BPS1022:~$
```

. ping -w number [Domain name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ ping -w 10 www.google.com
PING www.google.com (142.250.183.4) 56(84) bytes of data.
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=1 ttl=59 time=257 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=2 ttl=59 time=584 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=3 ttl=59 time=1169 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=4 ttl=59 time=151 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=5 ttl=59 time=486 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=6 ttl=59 time=40.0 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=7 ttl=59 time=40.9 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=8 ttl=59 time=40.6 ms
^C
--- www.google.com ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7026ms
rtt min/avg/max/mdev = 39.989/346.037/1168.681/367.218 ms, pipe 2
preyash-20bps1022@Preyash-20BPS1022:~$
```



## TRACEROUTE COMMANDS:

tracert -I [Domain name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ tracert -I www.google.com
tracert to www.google.com (142.250.183.4), 30 hops max, 60 byte packets
 1  10.0.2.2 (10.0.2.2)  0.226 ms  0.326 ms  0.210 ms
 2  192.168.1.1 (192.168.1.1)  5.434 ms  6.479 ms  6.244 ms
 3  10.195.0.1 (10.195.0.1)  6.591 ms  7.566 ms  9.806 ms
 4  103.241.47.113 (103.241.47.113)  40.677 ms  40.441 ms  41.533 ms
 5  142.250.47.236 (142.250.47.236)  41.256 ms  41.968 ms  42.063 ms
 6  142.251.76.23 (142.251.76.23)  44.411 ms  43.208 ms  43.183 ms
 7  142.250.214.109 (142.250.214.109)  40.532 ms  41.029 ms  41.109 ms
 8  bom07s30-in-f4.1e100.net (142.250.183.4)  41.625 ms  41.396 ms  41.718 ms
preyash-20bps1022@Preyash-20BPS1022:~$
```

```
preyash-20bps1022@Preyash-20BPS1022:~$ tracert -I www.vit.ac.in
tracert to www.vit.ac.in (136.233.9.13), 30 hops max, 60 byte packets
 1  10.0.2.2 (10.0.2.2)  4.287 ms  4.013 ms  3.609 ms
 2  192.168.1.1 (192.168.1.1)  4114.663 ms  *  *
 3  *  *  *
 4  *  *  *
 5  *  *  *
 6  *  *  *
 7  * 172.16.2.48 (172.16.2.48)  251.678 ms  60.230 ms
 8  136.232.3.190.static.jio.com (136.232.3.190)  1227.322 ms  1252.582 ms  1252.369 ms
 9  *  *  *
10  *  *  *
11  136.233.9.13.static.jio.com (136.233.9.13)  1251.705 ms  1250.897 ms  1252.588 ms
preyash-20bps1022@Preyash-20BPS1022:~$ host vit.ac.in
vit.ac.in has address 136.233.9.13
vit.ac.in mail is handled by 1 aspmx.l.google.com.
vit.ac.in mail is handled by 10 alt3.aspmx.l.google.com.
vit.ac.in mail is handled by 10 alt4.aspmx.l.google.com.
vit.ac.in mail is handled by 5 alt1.aspmx.l.google.com.
vit.ac.in mail is handled by 5 alt2.aspmx.l.google.com.
preyash-20bps1022@Preyash-20BPS1022:~$
```

tracert [Domain name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ tracert www.vit.ac.in
tracert to www.vit.ac.in (136.233.9.13), 30 hops max, 60 byte packets
 1  10.0.2.2 (10.0.2.2)  4.262 ms  3.832 ms  0.189 ms
 2  10.0.2.2 (10.0.2.2)  4199.760 ms  4200.254 ms  4199.347 ms
preyash-20bps1022@Preyash-20BPS1022:~$
```

## HOSTNAME COMMANDS:

```
preyash-20bps1022@Preyash-20BPS1022:~$ hostname
Preyash-20BPS1022
```

## NSLOOKUP COMMANDS:

nslookup [Domain name]

```
preyash-20bps1022@Preyash-20BPS1022:~$ nslookup www.vit.ac.in
Server:      8.8.8.8
Address:     8.8.8.8#53

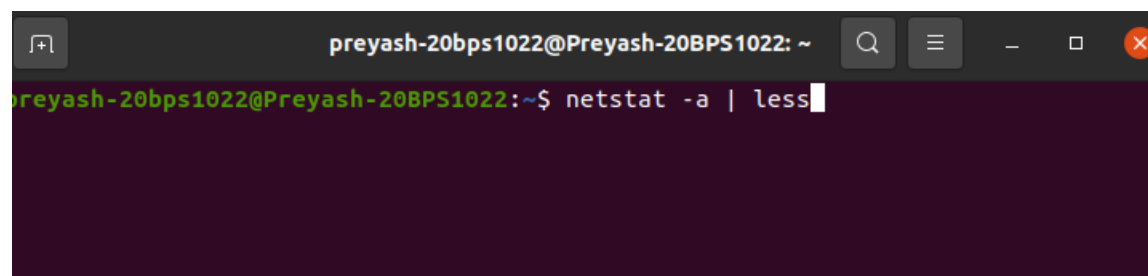
Non-authoritative answer:
www.vit.ac.in canonical name = vit.ac.in.
Name:   vit.ac.in
Address: 136.233.9.13
```

## NETSTAT COMMANDS:

netstat -a | more/less (list all listening ports)

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -a | more
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 127.0.0.53:domain      0.0.0.0:*               LISTEN
tcp        0      0 localhost:ipp           0.0.0.0:*               LISTEN
tcp6       0      0 ip6-localhost:ipp      [::]:*                  LISTEN
udp        0      0 0.0.0.0:37230          0.0.0.0:*               *
udp        0      0 127.0.0.53:domain      0.0.0.0:*               *
udp        0      0 10.0.2.15:bootpc       10.0.2.2:bootps        ESTABLISHED
udp        0      0 0.0.0.0:631            0.0.0.0:*               *
udp        0      0 0.0.0.0:mdns            0.0.0.0:*               *
udp6       0      0 [::]:46233             [::]:*                  *
udp6       0      0 [::]:mdns               [::]:*                  *
raw6       0      0 [::]:ipv6-icmp          [::]:*                  7

Active UNIX domain sockets (servers and established)
Proto RefCnt Flags               Type               State              I-Node   Path
unix  2      [ ] DGRAM              31841              /run/user/1000/systemd/notify
unix  2      [ ACC ] STREAM            LISTENING          31844          /run/user/1000/systemd/private
unix  2      [ ACC ] STREAM            LISTENING          31883          /run/user/1000/bus
unix  2      [ ACC ] STREAM            LISTENING          31884          /run/user/1000/gnupg/S.dirmngr
unix  2      [ ACC ] STREAM            LISTENING          31885          /run/user/1000/gnupg/S.gpg-agent.br
owser
unix  2      [ ACC ] STREAM            LISTENING          31886          /run/user/1000/gnupg/S.gpg-agent.ex
tra
unix  2      [ ACC ] STREAM            LISTENING          31887          /run/user/1000/gnupg/S.gpg-agent.ss
h
unix  2      [ ACC ] STREAM            LISTENING          31888          /run/user/1000/gnupg/S.gpg-agent
unix  2      [ ACC ] STREAM            LISTENING          31889          /run/user/1000/pk-debconf-socket
unix  2      [ ACC ] STREAM            LISTENING          31890          /run/user/1000/pulse/native
unix  2      [ ACC ] STREAM            LISTENING          31891          /run/user/1000/snapd-session-agent.
socket
unix  2      [ ACC ] STREAM            LISTENING          33954          @/tmp/.ICE-unix/1533
unix  2      [ ACC ] STREAM            LISTENING          32077          /run/user/1000/keyring/control
unix  2      [ ACC ] STREAM            LISTENING          32601          @/tmp/.X11-unix/X0
unix  2      [ ACC ] STREAM            LISTENING          103534         @/dbus-vfs-daemon/socket-tHDkoFt2
unix  2      [ ACC ] STREAM            LISTENING          33894          /run/user/1000/keyring/pkcs11
unix  2      [ ACC ] STREAM            LISTENING          34070          /run/user/1000/keyring/ssh
unix  2      [ ACC ] STREAM            LISTENING          33521          @/tmp/dbus-tjzc0BhoKd
unix  2      [ ACC ] STREAM            LISTENING          34290          @/home/preyash-20bps1022/.cache/ibu
s/dbus-ITp2awAn
unix  2      [ ACC ] STREAM            LISTENING          21363          /run/acpid.socket
unix  2      [ ACC ] STREAM            LISTENING          21369          /run/avahi-daemon/socket
unix  2      [ ACC ] STREAM            LISTENING          21373          /run/cups/cups.sock
unix  2      [ ACC ] STREAM            LISTENING          21377          /run/dbus/system_bus_socket
unix  2      [ ACC ] STREAM            LISTENING          21384          /run/snapd.socket
--More--
```





```
preyash-20bps1022@Preyash-20BPS1022: ~  
Active Internet connections (servers and established)  
Proto Recv-Q Send-Q Local Address           Foreign Address         State  
tcp        0      0 127.0.0.53:domain      0.0.0.0:*               LISTEN  
tcp        0      0 localhost:ipp           0.0.0.0:*               LISTEN  
tcp6       0      0 ip6-localhost:ipp      [::]:*                  LISTEN  
udp        0      0 0.0.0.0:37230          0.0.0.0:*               LISTEN  
udp        0      0 127.0.0.53:domain      0.0.0.0:*               LISTEN  
udp        0      0 10.0.2.15:bootpc       10.0.2.2:bootps         ESTABLISHED  
udp        0      0 0.0.0.0:631            0.0.0.0:*               LISTEN  
udp        0      0 0.0.0.0:mdns            0.0.0.0:*               LISTEN  
udp6       0      0 [::]:46233             [::]:*                   LISTEN  
udp6       0      0 [::]:mdns               [::]:*                   LISTEN  
raw6       0      0 [::]:ipv6-icmp          [::]:*                   LISTEN  
7  
Active UNIX domain sockets (servers and established)  
Proto RefCnt Flags     Type       State      I-Node  Path  
unix    2      [ ]       DGRAM      LISTENING  31841   /run/user/1000/systemd/notify  
unix    2      [ ACC ]   STREAM     LISTENING  31844   /run/user/1000/systemd/private  
unix    2      [ ACC ]   STREAM     LISTENING  31883   /run/user/1000/bus  
unix    2      [ ACC ]   STREAM     LISTENING  31884   /run/user/1000/gnupg/S.dirmngr  
unix    2      [ ACC ]   STREAM     LISTENING  31885   /run/user/1000/gnupg/S.gpg-agent.brower  
unix    2      [ ACC ]   STREAM     LISTENING  31886   /run/user/1000/gnupg/S.gpg-agent.extra  
unix    2      [ ACC ]   STREAM     LISTENING  31887   /run/user/1000/gnupg/S.gpg-agent.ssh  
unix    2      [ ACC ]   STREAM     LISTENING  31888   /run/user/1000/gnupg/S.gpg-agent  
unix    2      [ ACC ]   STREAM     LISTENING  31889   /run/user/1000/pk-debconf-socket  
unix    2      [ ACC ]   STREAM     LISTENING  31890   /run/user/1000/pulse/native  
unix    2      [ ACC ]   STREAM     LISTENING  31891   /run/user/1000/snapd-session-agent.socket  
unix    2      [ ACC ]   STREAM     LISTENING  33954   @/tmp/.ICE-unix/1533  
unix    2      [ ACC ]   STREAM     LISTENING  32077   /run/user/1000/keyring/control  
unix    2      [ ACC ]   STREAM     LISTENING  32601   @/tmp/.X11-unix/X0  
unix    2      [ ACC ]   STREAM     LISTENING  103534  @/dbus-vfs-daemon/socket-tHdkofT2  
unix    2      [ ACC ]   STREAM     LISTENING  33894   /run/user/1000/keyring/pkcs11  
unix    2      [ ACC ]   STREAM     LISTENING  34070   /run/user/1000/keyring/ssh  
unix    2      [ ACC ]   STREAM     LISTENING  33521   @/tmp/dbus-tjzc0BhoKd  
unix    2      [ ACC ]   STREAM     LISTENING  34290   @/home/preyash-20bps1022/.cache/ibus/dbus-ITp2awAn  
unix    2      [ ACC ]   STREAM     LISTENING  21363   /run/acpid.socket  
unix    2      [ ACC ]   STREAM     LISTENING  21369   /run/avahi-daemon/socket  
unix    2      [ ACC ]   STREAM     LISTENING  21373   /run/cups/cups.sock  
unix    2      [ ACC ]   STREAM     LISTENING  21377   /run/dbus/system_bus_socket  
unix    2      [ ACC ]   STREAM     LISTENING  21384   /run/snapd.socket  
unix    2      [ ACC ]   STREAM     LISTENING  21386   /run/snapd-snap.socket  
unix    2      [ ACC ]   STREAM     LISTENING  33408   /tmp/ssh-MDUpkJzWfIw/agent.1363  
unix    2      [ ACC ]   STREAM     LISTENING  21388   /run/uidd/request  
unix    2      [ ACC ]   STREAM     LISTENING  33955   /tmp/.ICE-unix/1533  
unix    3      [ ]       DGRAM      LISTENING  15517   /run/systemd/notify  
unix    2      [ ACC ]   STREAM     LISTENING  15520   /run/systemd/private  
:
```

netstat -at

```
preyash-20bps1022@Preyash-20BPS1022: ~  
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -at  
Active Internet connections (servers and established)  
Proto Recv-Q Send-Q Local Address           Foreign Address         State  
tcp        0      0 127.0.0.53:domain      0.0.0.0:*               LISTEN  
tcp        0      0 localhost:ipp           0.0.0.0:*               LISTEN  
tcp6       0      0 ip6-localhost:ipp      [::]:*                  LISTEN  
preyash-20bps1022@Preyash-20BPS1022:~$
```

## netstat -au

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -au
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp      0      0 0.0.0.0:37230           0.0.0.0:*
udp      0      0 127.0.0.53:domain       0.0.0.0:*
udp      0      0 10.0.2.15:bootpc        10.0.2.2:bootps        ESTABLISHED
udp      0      0 0.0.0.0:631             0.0.0.0:*
udp      0      0 0.0.0.0:mdns             0.0.0.0:*
udp6     0      0 [::]:46233              [::]:*
udp6     0      0 [::]:mdns                [::]:*
```

## netstat -l

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -l
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp      0      0 127.0.0.53:domain       0.0.0.0:*              LISTEN
tcp      0      0 localhost:ipp            0.0.0.0:*              LISTEN
tcp6     0      0 ip6-localhost:ipp       [::]:*                  LISTEN
udp      0      0 0.0.0.0:37230           0.0.0.0:*
udp      0      0 127.0.0.53:domain       0.0.0.0:*
udp      0      0 0.0.0.0:631             0.0.0.0:*
udp      0      0 0.0.0.0:mdns            0.0.0.0:*
udp6     0      0 [::]:46233              [::]:*
udp6     0      0 [::]:mdns                [::]:*
raw6     0      0 [::]:ipv6-icmp           [::]:*                  7

Active UNIX domain sockets (only servers)
Proto RefCnt Flags   Type       State       I-Node   Path
unix  2      [ ACC ] STREAM    LISTENING   31844    /run/user/1000/systemd/private
unix  2      [ ACC ] STREAM    LISTENING   31883    /run/user/1000/bus
unix  2      [ ACC ] STREAM    LISTENING   31884    /run/user/1000/gnupg/S.dirmngr
unix  2      [ ACC ] STREAM    LISTENING   31885    /run/user/1000/gnupg/S.gpg-agent.browser
unix  2      [ ACC ] STREAM    LISTENING   31886    /run/user/1000/gnupg/S.gpg-agent.extra
unix  2      [ ACC ] STREAM    LISTENING   31887    /run/user/1000/gnupg/S.gpg-agent.ssh
unix  2      [ ACC ] STREAM    LISTENING   31888    /run/user/1000/gnupg/S.gpg-agent
unix  2      [ ACC ] STREAM    LISTENING   31889    /run/user/1000/pk-debconf/socket
unix  2      [ ACC ] STREAM    LISTENING   31890    /run/user/1000/pulse/native
unix  2      [ ACC ] STREAM    LISTENING   31891    /run/user/1000/snapd-session-agent.socket
unix  2      [ ACC ] STREAM    LISTENING   33954    @/tmp/.ICE-unix/1533
unix  2      [ ACC ] STREAM    LISTENING   32077    /run/user/1000/keyring/control
unix  2      [ ACC ] STREAM    LISTENING   32601    @/tmp/.X11-unix/X0
unix  2      [ ACC ] STREAM    LISTENING   103534   @/dbus-vfs-daemon/socket-tHDKoFt2
unix  2      [ ACC ] STREAM    LISTENING   33894    /run/user/1000/keyring/pkcs11
unix  2      [ ACC ] STREAM    LISTENING   34070    /run/user/1000/keyring/ssh
unix  2      [ ACC ] STREAM    LISTENING   33521    @/tmp/dbus-tjzc0BhoKd
unix  2      [ ACC ] STREAM    LISTENING   34290    @/home/preyash-20bps1022/.cache/ibus/dbus-ITp2awAn
unix  2      [ ACC ] STREAM    LISTENING   21363    /run/acpid.socket
unix  2      [ ACC ] STREAM    LISTENING   21369    /run/avahi-daemon/socket
unix  2      [ ACC ] STREAM    LISTENING   21373    /run/cups/cups.sock
unix  2      [ ACC ] STREAM    LISTENING   21377    /run/dbus/system_bus_socket
unix  2      [ ACC ] STREAM    LISTENING   21384    /run/snapd.socket
unix  2      [ ACC ] STREAM    LISTENING   21386    /run/snapd-snap.socket
```

```

unix 2 [ ACC ] STREAM LISTENING 31885 /run/user/1000/gnupg/S.gpg-a
gent.browser
unix 2 [ ACC ] STREAM LISTENING 31886 /run/user/1000/gnupg/S.gpg-a
gent.extra
unix 2 [ ACC ] STREAM LISTENING 31887 /run/user/1000/gnupg/S.gpg-a
gent.ssh
unix 2 [ ACC ] STREAM LISTENING 31888 /run/user/1000/gnupg/S.gpg-a
gent
unix 2 [ ACC ] STREAM LISTENING 31889 /run/user/1000/pk-debconf-so
cket
unix 2 [ ACC ] STREAM LISTENING 31890 /run/user/1000/pulse/native
unix 2 [ ACC ] STREAM LISTENING 31891 /run/user/1000/snapd-session
-agent.socket
unix 2 [ ACC ] STREAM LISTENING 33954 @/tmp/.ICE-unix/1533
unix 2 [ ACC ] STREAM LISTENING 32077 /run/user/1000/keyring/contr
ol
unix 2 [ ACC ] STREAM LISTENING 32601 @/tmp/.X11-unix/X0
unix 2 [ ACC ] STREAM LISTENING 103534 @/dbus-vfs-daemon/socket-tHD
koFt2
unix 2 [ ACC ] STREAM LISTENING 33894 /run/user/1000/keyring/pkcs1
1
unix 2 [ ACC ] STREAM LISTENING 34070 /run/user/1000/keyring/ssh
unix 2 [ ACC ] STREAM LISTENING 33521 @/tmp/dbus-tjzc0BhoKd
unix 2 [ ACC ] STREAM LISTENING 34290 @/home/preyash-20bps1022/.ca
che/ibus/dbus-ITp2awAn
unix 2 [ ACC ] STREAM LISTENING 21363 /run/acpid.socket
unix 2 [ ACC ] STREAM LISTENING 21369 /run/avahi-daemon/socket
unix 2 [ ACC ] STREAM LISTENING 21373 /run/cups/cups.sock
unix 2 [ ACC ] STREAM LISTENING 21377 /run/dbus/system_bus_socket
unix 2 [ ACC ] STREAM LISTENING 21384 /run/snapd.socket
unix 2 [ ACC ] STREAM LISTENING 21386 /run/snapd-snap.socket
unix 2 [ ACC ] STREAM LISTENING 33408 /tmp/ssh-MDUpkJzWiFw/agent.
1363
unix 2 [ ACC ] STREAM LISTENING 21388 /run/uidd/request
unix 2 [ ACC ] STREAM LISTENING 33955 /tmp/.ICE-unix/1533
unix 2 [ ACC ] STREAM LISTENING 15520 /run/systemd/private
unix 2 [ ACC ] STREAM LISTENING 65940 @/dbus-vfs-daemon/socket-gqE
4QLBM
unix 2 [ ACC ] STREAM LISTENING 15522 /run/systemd/userdb/io.syste
md.DynamicUser
unix 2 [ ACC ] STREAM LISTENING 15533 /run/systemd/fsck.progress
unix 2 [ ACC ] STREAM LISTENING 15543 /run/systemd/journal/stdout
unix 2 [ ACC ] SEQPACKET LISTENING 15547 /run/udev/control
unix 2 [ ACC ] STREAM LISTENING 27162 @/tmp/dbus-u5RkKvyM
unix 2 [ ACC ] STREAM LISTENING 16143 /run/systemd/journal/io.syst
emd.journal
unix 2 [ ACC ] STREAM LISTENING 32602 /tmp/.X11-unix/X0
unix 2 [ ACC ] STREAM LISTENING 27163 @/tmp/dbus-MAQynump
unix 2 [ ACC ] STREAM LISTENING 32344 @/tmp/dbus-AL0WRd7H
unix 2 [ ACC ] STREAM LISTENING 32345 @/tmp/dbus-WWDbQxNR
preyash-20bps1022@Preyash-20BPS1022:~$ █

```

netstat -lt (list active TCP listening ports)

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -lt
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 127.0.0.53:domain      0.0.0.0:*               LISTEN
tcp        0      0 localhost:ipp           0.0.0.0:*               LISTEN
tcp6       0      0 ip6-localhost:ipp      [::]:*                  LISTEN
```

netstat -lu (list active UDP listening ports)

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -lu
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 0.0.0.0:37230          0.0.0.0:*               LISTEN
udp        0      0 127.0.0.53:domain      0.0.0.0:*               LISTEN
udp        0      0 0.0.0.0:631            0.0.0.0:*               LISTEN
udp        0      0 0.0.0.0:mdns            0.0.0.0:*               LISTEN
udp6       0      0 [::]:46233             [::]:*                  LISTEN
udp6       0      0 [::]:mdns               [::]:*                  LISTEN
```

netstat -s

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -s
Ip:
  Forwarding: 2
  1753 total packets received
  1 with invalid addresses
  0 forwarded
  0 incoming packets discarded
  1750 incoming packets delivered
  1890 requests sent out
  256 outgoing packets dropped
Icmp:
  685 ICMP messages received
  0 input ICMP message failed
  ICMP input histogram:
    destination unreachable: 581
    timeout in transit: 33
    echo replies: 71
  818 ICMP messages sent
  0 ICMP messages failed
  ICMP output histogram:
    destination unreachable: 572
    echo requests: 246
IcmpMsg:
  InType0: 71
  InType3: 581
  InType11: 33
  OutType3: 572
  OutType8: 246
Tcp:
  53 active connection openings
  0 passive connection openings
  4 failed connection attempts
  1 connection resets received
  0 connections established
  199 segments received
  212 segments sent out
  90 segments retransmitted
  0 bad segments received
  9 resets sent
Udp:
  294 packets received
  572 packets to unknown port received
  0 packet receive errors
  893 packets sent
  0 receive buffer errors
  0 send buffer errors
  IgnoredMulti: 4
UdpLite:
```



```
UdpLite:
TcpExt:
  1 TCP sockets finished time wait in fast timer
  17 packet headers predicted
  37 acknowledgments not containing data payload received
  38 predicted acknowledgments
  TCPLostRetransmit: 54
  TCPTimeouts: 90
  1 connections reset due to early user close
  TCPSynRetrans: 90
  TCPOrigDataSent: 75
  TCPDelivered: 113
  TcpTimeoutRehash: 90
IpExt:
  InMcastPkts: 82
  OutMcastPkts: 84
  InBcastPkts: 4
  OutBcastPkts: 4
  InOctets: 184033
  OutOctets: 136442
  InMcastOctets: 7618
  OutMcastOctets: 7698
  InBcastOctets: 310
  OutBcastOctets: 310
  InNoECTPkts: 1776
MPTcpExt:
preyash-20bps1022@Preyash-20BPS1022:~$
```

netstat -st (TCP Protocol Statistics)

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -st
IcmpMsg:
  InType0: 71
  InType3: 581
  InType11: 33
  OutType3: 572
  OutType8: 246
Tcp:
  53 active connection openings
  0 passive connection openings
  4 failed connection attempts
  1 connection resets received
  0 connections established
  199 segments received
  212 segments sent out
  90 segments retransmitted
  0 bad segments received
  9 resets sent
UdpLite:
TcpExt:
  1 TCP sockets finished time wait in fast timer
  17 packet headers predicted
  37 acknowledgments not containing data payload received
  38 predicted acknowledgments
  TCPLostRetransmit: 54
  TCPTimeouts: 90
  1 connections reset due to early user close
  TCPSynRetrans: 90
  TCPOrigDataSent: 75
  TCPDelivered: 113
  TcpTimeoutRehash: 90
IpExt:
  InMcastPkts: 82
  OutMcastPkts: 84
  InBcastPkts: 4
  OutBcastPkts: 4
  InOctets: 184033
  OutOctets: 136442
  InMcastOctets: 7618
  OutMcastOctets: 7698
  InBcastOctets: 310
  OutBcastOctets: 310
  InNoECTPkts: 1776
MPTcpExt:
```

## netstat -su (UDP Protocol Statistics)

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -su
IcmpMsg:
  InType0: 71
  InType3: 581
  InType11: 33
  OutType3: 572
  OutType8: 246
Udp:
  295 packets received
  572 packets to unknown port received
  0 packet receive errors
  894 packets sent
  0 receive buffer errors
  0 send buffer errors
  IgnoredMulti: 4
UdpLite:
IpExt:
  InMcastPkts: 82
  OutMcastPkts: 84
  InBcastPkts: 4
  OutBcastPkts: 4
  InOctets: 184512
  OutOctets: 136824
  InMcastOctets: 7618
  OutMcastOctets: 7698
  InBcastOctets: 310
  OutBcastOctets: 310
  InNoECTPkts: 1782
MPTcpExt:
preyash-20bps1022@Preyash-20BPS1022:~$
```

## netstat -i (Interface statistics)

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -i
Kernel Interface table
Iface      MTU      RX-OK RX-ERR RX-DRP RX-OVR      TX-OK TX-ERR TX-DRP TX-OVR Flg
enp0s3     1500      592    0      0 0          795    0      0    0 BMRU
lo         65536     1200    0      0 0         1200    0      0    0 LRU
```

netstat -p (list service by PID)

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -p
(Not all processes could be identified, non-owned process info
 will not be shown, you would have to be root to see it all.)
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
udp        0      0 10.0.2.15:bootpc        10.0.2.2:bootps        ESTABLISHED -

Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags       Type       State         I-Node  PID/Program name      Path
unix   2      [ ]         DGRAM      -            31841    1253/systemd          /run/user/1000/systemd/notify
unix   3      [ ]         DGRAM      -            15517    -                    /run/systemd/notify
unix   2      [ ]         DGRAM      -            15531    -                    /run/systemd/journal/syslog
unix   15     [ ]         DGRAM      -            15541    -                    /run/systemd/journal/dev-log
unix   8      [ ]         DGRAM      -            15545    -                    /run/systemd/journal/socket
unix   3      [ ]         STREAM     CONNECTED    37697    -                    /run/systemd/journal/stdout
unix   3      [ ]         STREAM     CONNECTED    35552    1672/gsd-color
unix   3      [ ]         STREAM     CONNECTED    35208    1671/gsd-a11y-setti
unix   3      [ ]         STREAM     CONNECTED    32593    1268/dbus-daemon      /run/user/1000/bus
unix   3      [ ]         STREAM     CONNECTED    31137    -
unix   3      [ ]         STREAM     CONNECTED    25338    -
unix   3      [ ]         STREAM     CONNECTED    23710    -
unix   3      [ ]         STREAM     CONNECTED    54301    -                    /run/systemd/journal/stdout
unix   3      [ ]         STREAM     CONNECTED    32931    1353/tracker-store
unix   3      [ ]         STREAM     CONNECTED    32746    1268/dbus-daemon      /run/user/1000/bus

```

netstat -r (routing table info)

```
preyash-20bps1022@Preyash-20BPS1022:~$ netstat -r
Kernel IP routing table
Destination Gateway Genmask Flags MSS Window irtt Iface
default 10.0.2.2 0.0.0.0 UG 0 0 0 enp0s3
10.0.2.0 0.0.0.0 255.255.255.0 U 0 0 0 enp0s3
link-local 0.0.0.0 255.255.0.0 U 0 0 0 enp0s3

```

## ARP COMMANDS:

```
preyash-20bps1022@Preyash-20BPS1022:~$ arp
Address HWtype HWaddress Flags Mask Iface
10.0.2.2 ether 52:54:00:12:35:02 C enp0s3
preyash-20bps1022@Preyash-20BPS1022:~$

```