

EXPERIMENT NO-8

CN-L32-2103164

Aim :- Use basic networking commands in Linux
(ping, traceroute, nslookup, netstat, ARP,
RARP, ip, config, dig, route).

Theory :-

1) Ping :-

The 'ping' command is used to test network connectivity between two devices. It sends ICMP Echo Request message to target host and wait for ICMP Echo Reply.

2) traceroute or tracert :-

'traceroute' is used to trace route taken by packet to destination. It shows the path packet follows through various routers and network to reach the target host.

Example :- 'traceroute google.com'

3) nslookup :-

'nslookup' is tool for querying DNS server to resolve domain name to corresponding IP address. It also provides information about DNS servers and domain records.

Example :- 'nslookup google.com'.

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4.) 'netstat' :- 'netstat' is command for displaying network statistics, it can show information about active network connection, listening port, routing tables and various network interfaces.

Example :- 'netstat -tuln' to display listening TCP|UDP ports.

5.) 'arp' :- The 'arp' command allows you to view and manipulate the Address Resolution protocol (ARP) cache. ARP maps IP address to MAC addresses on local network.

Example "arp -a" to list ARP cache entries.

6.) "rarp" : Reverse Address Resolution is rarely used today and has been replaced by other method for IP address assignments.

7.) 'ip' :-

The 'ip' command is versatile tool for configuring and managing network interfaces, routing tables and other networking parameters. You can use to assign IP address, set up routes, and more.

Example :- 'ip address show' to display .

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information about network interfaces.

'ifconfig' :- 'ifconfig' is used for configuring and displaying network interface while it is still present in many Linux distributions, it is considered somewhat deprecated and replaced by the 'ip' command.

Eg :- 'ifconfig eth0' to show information about the "eth0" interface.

'dig' :-

dig is powerful DNS query tool that allows you to retrieve detailed information from DNS servers. You can use it to query DNS records, find authoritative name servers and more.

Example 'dig google.com'.

10.) 'route'

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The route command helps you view or manipulate the IP routing table. You can use it to add or remove routes, which determine how data packets are forwarded through a network.

Example :- 'route -n' to display the routing table in numeric format.

Conclusion :- These commands are essential for network diagnosis and configuration on Linux system, helping administrators & users troubleshoot & manage network related issues.

1. ifconfig

```
Activities Terminal Oct 4 13:38 • practicalalexampc10@complab304pc21: ~
practicalalexampc10@complab304pc21:~$ ifconfig
en0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.31.11 netmask 255.255.255.0 broadcast 192.168.31.255
    inet6 fe80::6aa4:fd01:d68b:4d4a prefixlen 64 scopeid 0x20<link>
        ether d8:bb:c1:e4:ef:8f txqueuelen 1000 (Ethernet)
            RX packets 13469 bytes 19289538 (19.2 MB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 4017 bytes 369889 (369.8 KB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
            device interrupt 16 memory 0xb1200000-0xb1220000

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 241 bytes 22249 (22.2 KB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 241 bytes 22249 (22.2 KB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
        ether 52:54:00:94:23:e0 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

practicalalexampc10@complab304pc21:~$ 
```

2. ping without count

```
Activities Terminal Oct 4 13:46 • practicalalexampc10@complab304pc21: ~
practicalalexampc10@complab304pc21:~$ ping 192.168.31.10
PING 192.168.31.10 (192.168.31.10) 56(84) bytes of data.
64 bytes from 192.168.31.10: icmp_seq=1 ttl=128 time=0.786 ms
64 bytes from 192.168.31.10: icmp_seq=2 ttl=128 time=1.37 ms
64 bytes from 192.168.31.10: icmp_seq=3 ttl=128 time=1.65 ms
64 bytes from 192.168.31.10: icmp_seq=4 ttl=128 time=2.71 ms
64 bytes from 192.168.31.10: icmp_seq=5 ttl=128 time=1.27 ms
64 bytes from 192.168.31.10: icmp_seq=6 ttl=128 time=2.03 ms
64 bytes from 192.168.31.10: icmp_seq=7 ttl=128 time=1.01 ms
64 bytes from 192.168.31.10: icmp_seq=8 ttl=128 time=1.65 ms
64 bytes from 192.168.31.10: icmp_seq=9 ttl=128 time=1.59 ms
64 bytes from 192.168.31.10: icmp_seq=10 ttl=128 time=1.25 ms
64 bytes from 192.168.31.10: icmp_seq=11 ttl=128 time=1.51 ms
64 bytes from 192.168.31.10: icmp_seq=12 ttl=128 time=1.61 ms
64 bytes from 192.168.31.10: icmp_seq=13 ttl=128 time=0.971 ms
64 bytes from 192.168.31.10: icmp_seq=14 ttl=128 time=1.42 ms
64 bytes from 192.168.31.10: icmp_seq=15 ttl=128 time=0.574 ms
64 bytes from 192.168.31.10: icmp_seq=16 ttl=128 time=0.676 ms
64 bytes from 192.168.31.10: icmp_seq=17 ttl=128 time=1.03 ms
64 bytes from 192.168.31.10: icmp_seq=18 ttl=128 time=1.79 ms
64 bytes from 192.168.31.10: icmp_seq=19 ttl=128 time=1.96 ms
64 bytes from 192.168.31.10: icmp_seq=20 ttl=128 time=1.57 ms
64 bytes from 192.168.31.10: icmp_seq=21 ttl=128 time=1.23 ms
64 bytes from 192.168.31.10: icmp_seq=22 ttl=128 time=1.14 ms
64 bytes from 192.168.31.10: icmp_seq=23 ttl=128 time=1.81 ms
64 bytes from 192.168.31.10: icmp_seq=24 ttl=128 time=1.67 ms
^C
--- 192.168.31.10 ping statistics ---
24 packets transmitted, 24 received, 0% packet loss, time 23110ms
rtt min/avg/max/mdev = 0.574/1.427/2.705/0.466 ms
practicalalexampc10@complab304pc21:~$ 
```

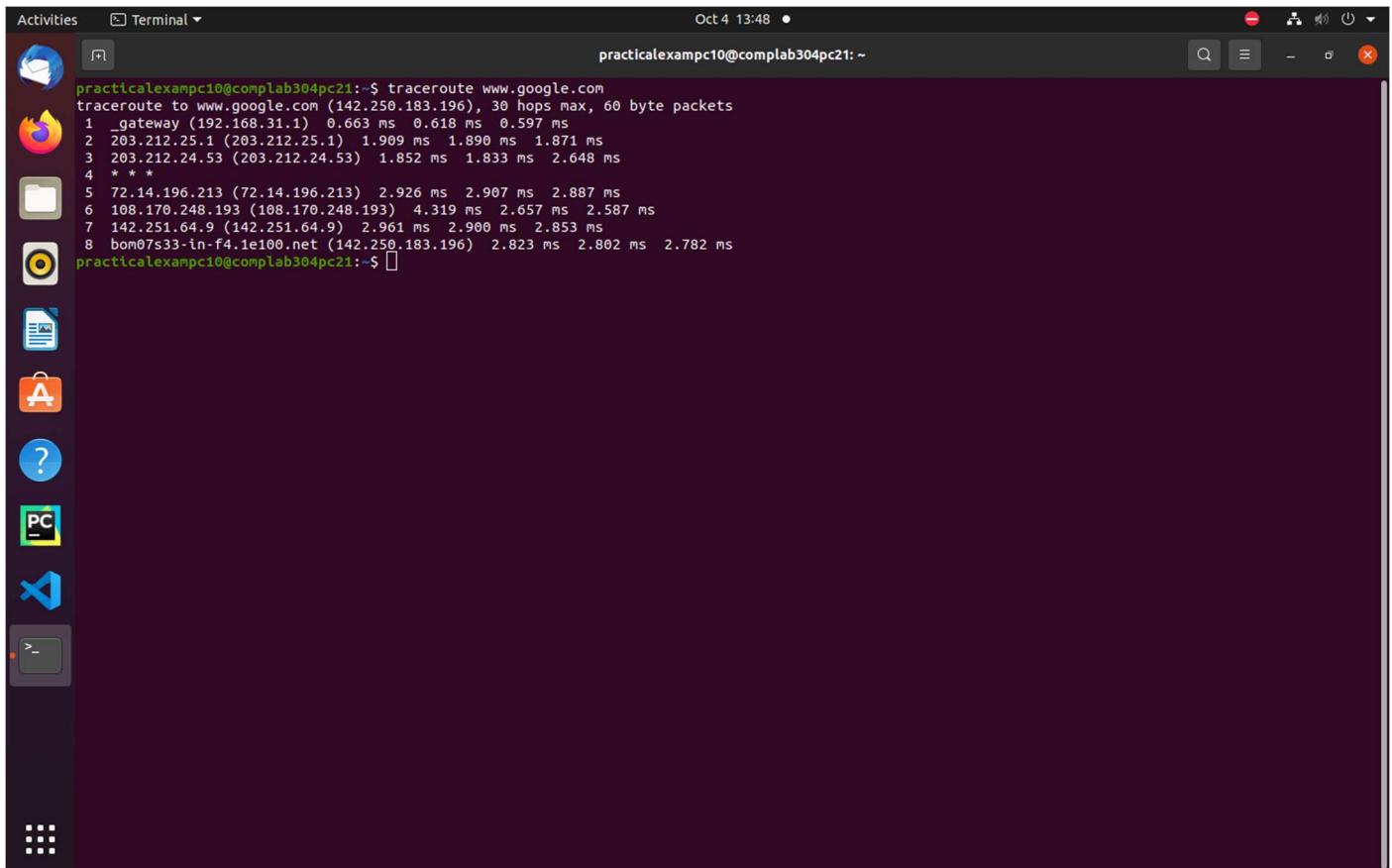
3. ping with count

```
Activities Terminal Oct 4 13:48 •
practicalexamplepc10@complab304pc21:~$ ping -c 5 192.168.31.10
PING 192.168.31.10 (192.168.31.10) 56(84) bytes of data.
64 bytes from 192.168.31.10: icmp_seq=1 ttl=128 time=1.53 ms
64 bytes from 192.168.31.10: icmp_seq=2 ttl=128 time=1.41 ms
64 bytes from 192.168.31.10: icmp_seq=3 ttl=128 time=1.59 ms
64 bytes from 192.168.31.10: icmp_seq=4 ttl=128 time=0.884 ms
64 bytes from 192.168.31.10: icmp_seq=5 ttl=128 time=2.19 ms
--- 192.168.31.10 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4007ms
rtt min/avg/max/mdev = 0.884/1.519/2.189/0.416 ms
practicalexamplepc10@complab304pc21:~$
```

4. dig

```
Activities Terminal Oct 4 13:59 •
practicalexamplepc10@complab304pc21:~$ dig www.google.com
; <>> DiG 9.16.1-Ubuntu <>> www.google.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<- opcode: QUERY, status: NOERROR, id: 56532
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;www.google.com.           IN      A
;; ANSWER SECTION:
www.google.com.        187     IN      A      142.250.183.196
;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Wed Oct 04 13:59:11 IST 2023
;; MSG SIZE  rcvd: 59
practicalexamplepc10@complab304pc21:~$
```

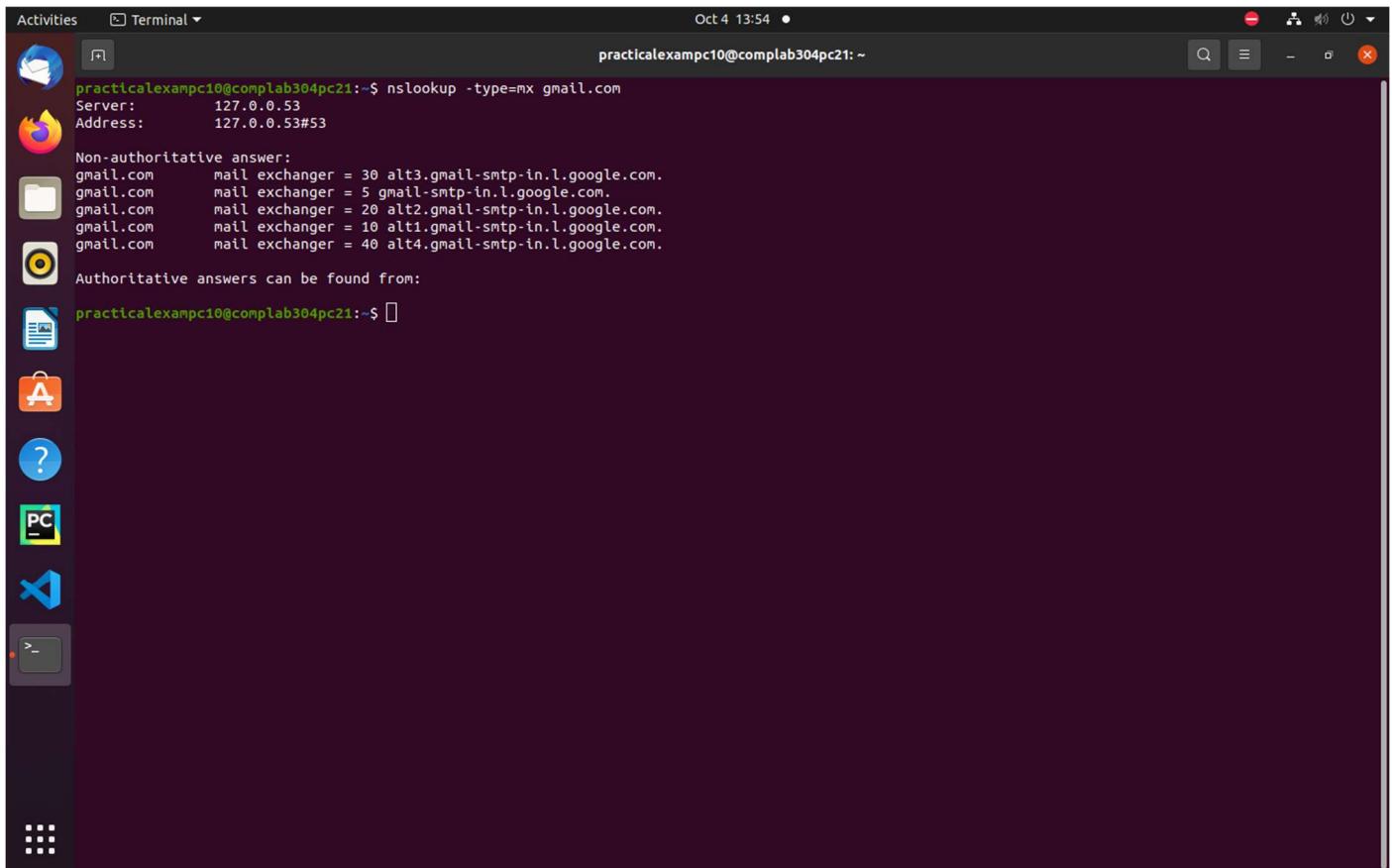
5. traceroute



Activities Terminal Oct 4 13:48 ● practicalexampc10@complab304pc21: ~

```
practicalexampc10@complab304pc21: $ traceroute www.google.com
traceroute to www.google.com (142.250.183.196), 30 hops max, 60 byte packets
 1 _gateway (192.168.31.1)  0.663 ms  0.618 ms  0.597 ms
 2 203.212.25.1 (203.212.25.1)  1.909 ms  1.890 ms  1.871 ms
 3 203.212.24.53 (203.212.24.53)  1.852 ms  1.833 ms  2.648 ms
 4 * * *
 5 72.14.196.213 (72.14.196.213)  2.926 ms  2.907 ms  2.887 ms
 6 108.170.248.193 (108.170.248.193)  4.319 ms  2.657 ms  2.587 ms
 7 142.251.64.9 (142.251.64.9)  2.961 ms  2.900 ms  2.853 ms
 8 bon07s33-in-f4.1e100.net (142.250.183.196)  2.823 ms  2.802 ms  2.782 ms
practicalexampc10@complab304pc21: $
```

6. nslookup



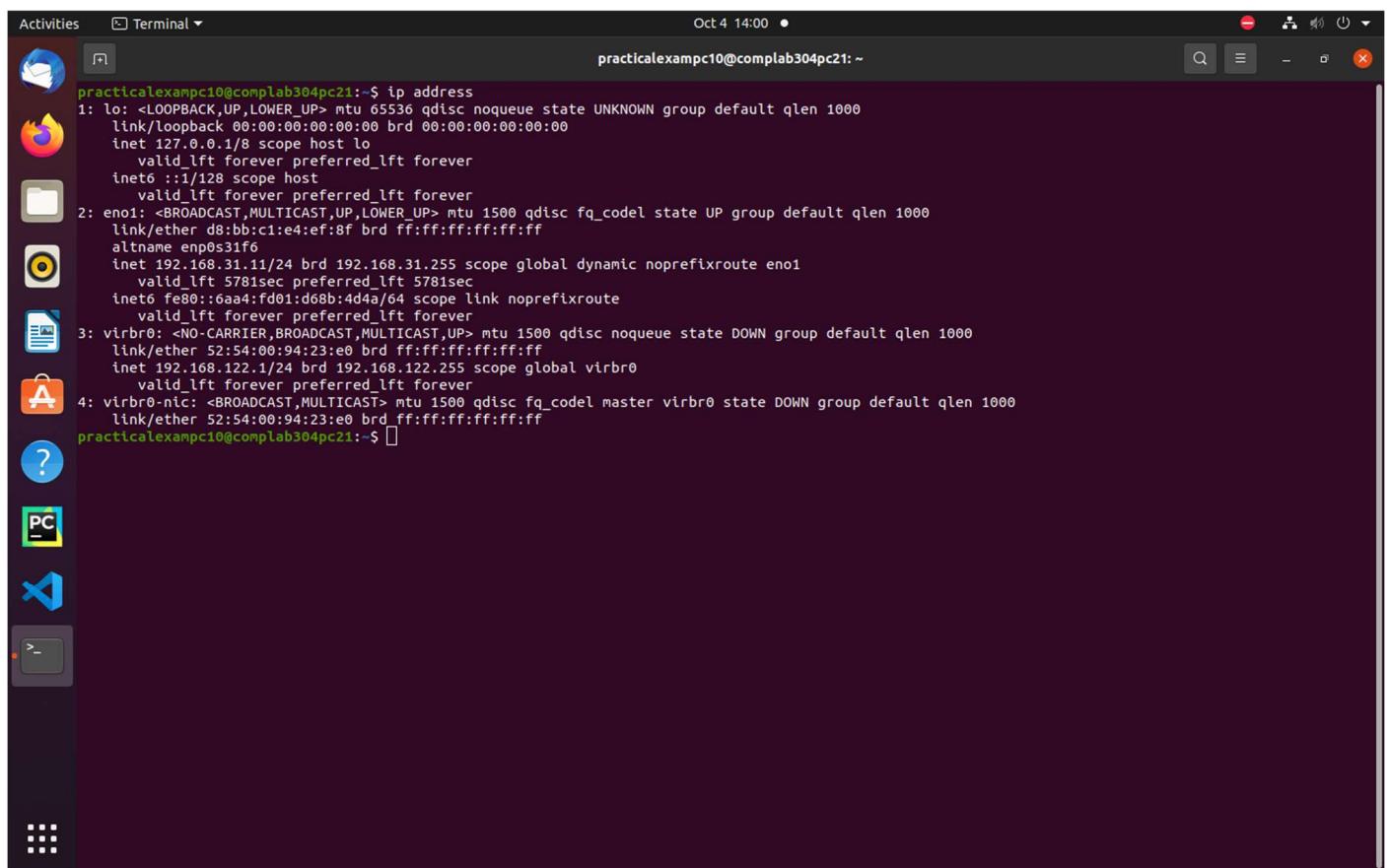
Activities Terminal Oct 4 13:54 ● practicalexampc10@complab304pc21: ~

```
practicalexampc10@complab304pc21: $ nslookup -type=mx gmail.com
Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
gmail.com      mail exchanger = 30 alt3.gmail-smtp-in.l.google.com.
gmail.com      mail exchanger = 5 gmail-smtp-in.l.google.com.
gmail.com      mail exchanger = 20 alt2.gmail-smtp-in.l.google.com.
gmail.com      mail exchanger = 10 alt1.gmail-smtp-in.l.google.com.
gmail.com      mail exchanger = 40 alt4.gmail-smtp-in.l.google.com.

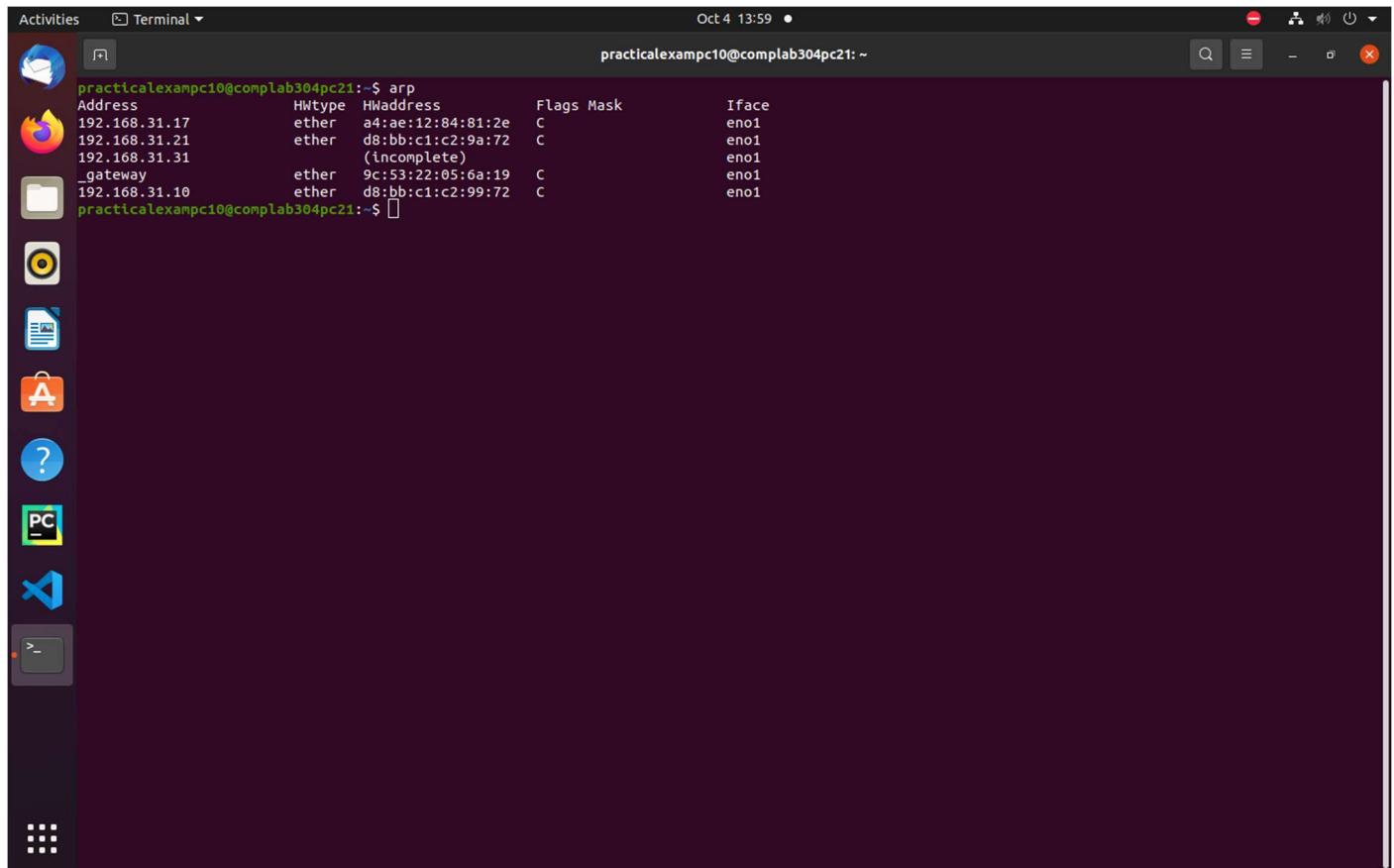
Authoritative answers can be found from:
practicalexampc10@complab304pc21: $
```

7. ip address



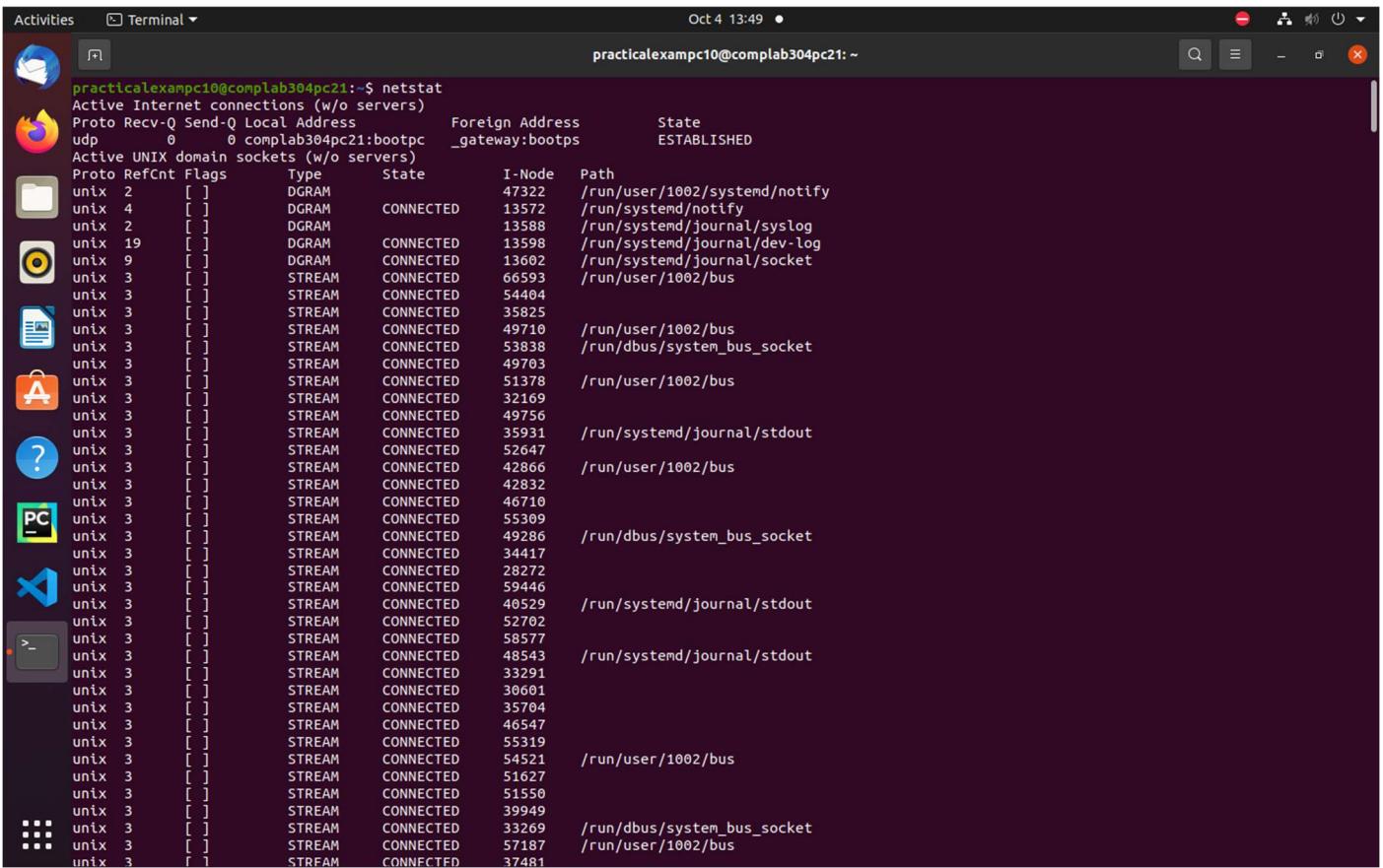
```
practicalexampc10@complab304pc21:~$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
        inet 127.0.0.1/8 scope host lo
            valid_lft forever preferred_lft forever
            inet6 ::1/128 scope host
                valid_lft forever preferred_lft forever
2: eno1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether d8:bb:c1:e4:ef:8f brd ff:ff:ff:ff:ff:ff
        altname enp0s31f6
        inet 192.168.31.11/24 brd 192.168.31.255 scope global dynamic noprefixroute eno1
            valid_lft 5781sec preferred_lft 5781sec
            inet6 fe80::6aa4:fd01:d68b:4d4a/64 scope link noprefixroute
                valid_lft forever preferred_lft forever
3: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000
    link/ether 52:54:00:94:23:e0 brd ff:ff:ff:ff:ff:ff
        inet 192.168.122.1/24 brd 192.168.122.255 scope global virbr0
            valid_lft forever preferred_lft forever
4: virbr0-nic: <BROADCAST,MULTICAST> mtu 1500 qdisc fq_codel master virbr0 state DOWN group default qlen 1000
    link/ether 52:54:00:94:23:e0 brd ff:ff:ff:ff:ff:ff
practicalexampc10@complab304pc21:~$
```

8. arp



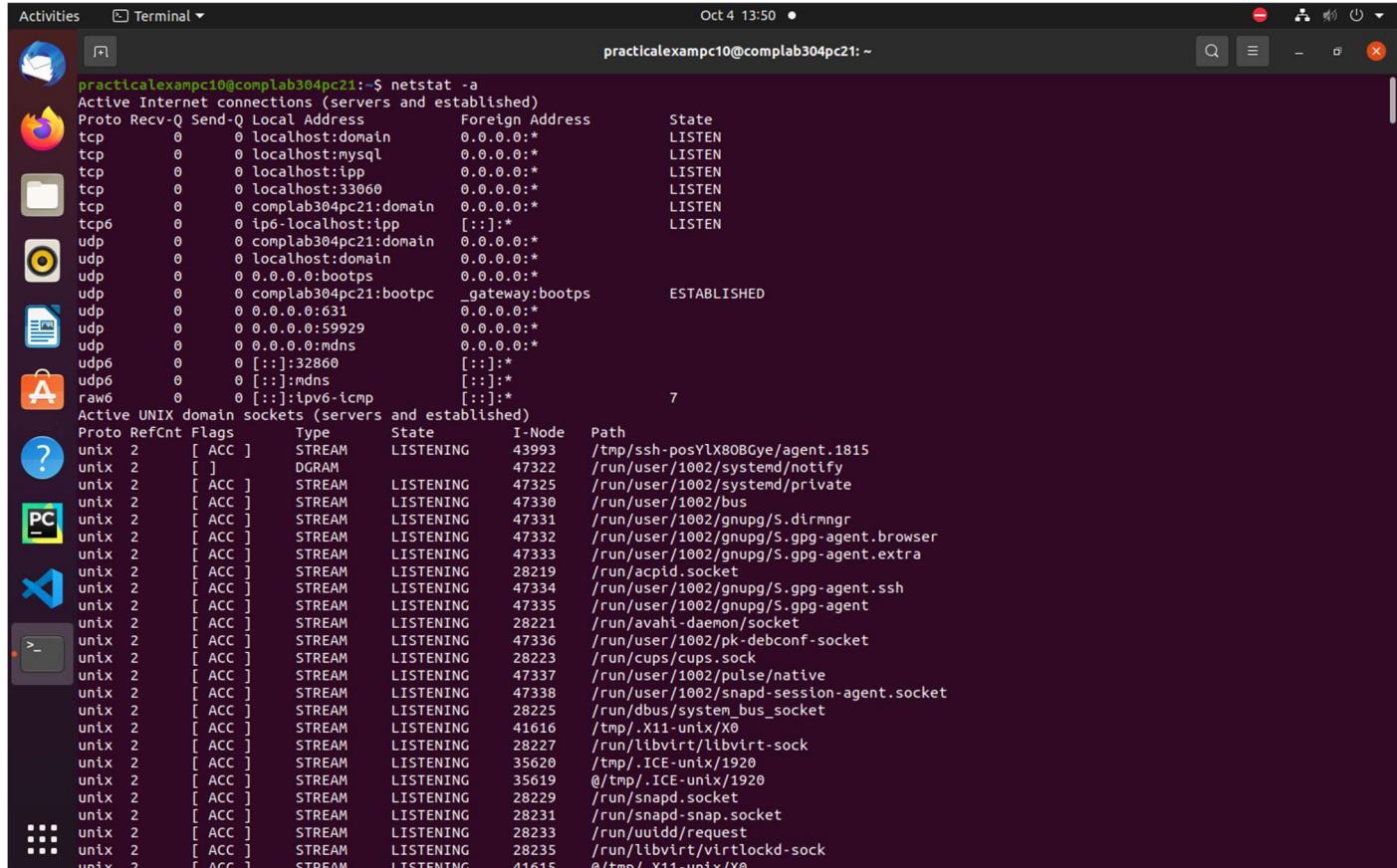
```
practicalexampc10@complab304pc21:~$ arp
Address      HWtype  HWaddress          Flags Mask   Iface
192.168.31.17  ether   a4:a:e:12:84:81:2e  C      eno1
192.168.31.21  ether   d8:bb:c1:c2:9a:72  C      eno1
192.168.31.31          (incomplete)
_gateway       ether   9c:53:22:05:6a:19  C      eno1
192.168.31.10  ether   d8:bb:c1:c2:99:72  C      eno1
practicalexampc10@complab304pc21:~$
```

9. netstat



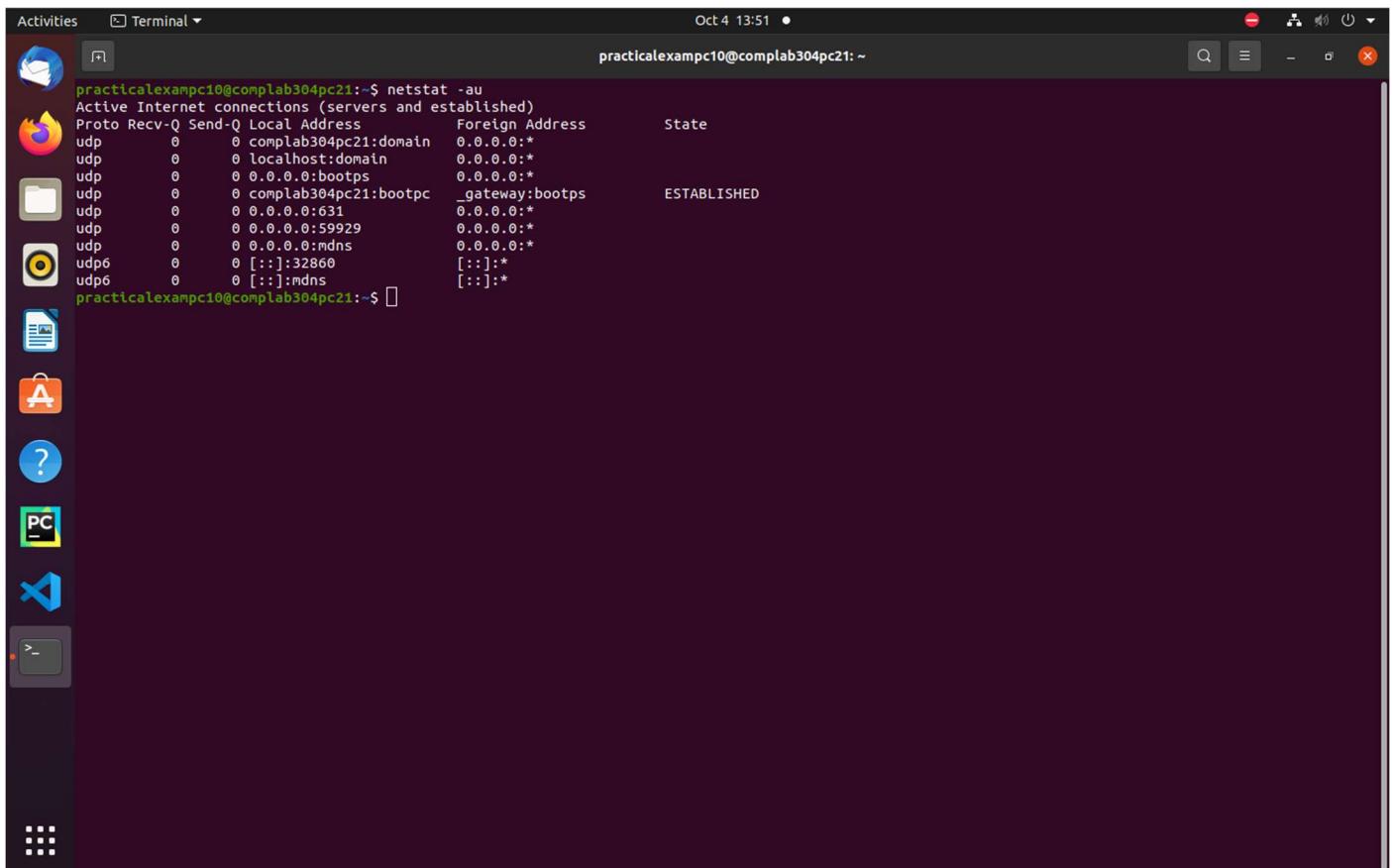
```
practicalexample10@complab304pc21:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
udp      0      0 complab304pc21:bootpc  _gateway:bootps    ESTABLISHED
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags     Type      State       I-Node Path
unix  2      [ ]   DGRAM    CONNECTED  47322  /run/user/1002/systemd/notify
unix  4      [ ]   DGRAM    CONNECTED  13572  /run/systemd/notify
unix  2      [ ]   DGRAM    CONNECTED  13588  /run/systemd/journal/syslog
unix 19      [ ]   DGRAM    CONNECTED  13598  /run/systemd/journal/dev-log
unix  9      [ ]   DGRAM    CONNECTED  13602  /run/systemd/journal/socket
unix  3      [ ]   STREAM   CONNECTED  66593  /run/user/1002/bus
unix  3      [ ]   STREAM   CONNECTED  54404  /
unix  3      [ ]   STREAM   CONNECTED  35825  /
unix  3      [ ]   STREAM   CONNECTED  49710  /run/user/1002/bus
unix  3      [ ]   STREAM   CONNECTED  53838  /run/dbus/system_bus_socket
unix  3      [ ]   STREAM   CONNECTED  49703  /
unix  3      [ ]   STREAM   CONNECTED  51378  /run/user/1002/bus
unix  3      [ ]   STREAM   CONNECTED  32169  /
unix  3      [ ]   STREAM   CONNECTED  49756  /
unix  3      [ ]   STREAM   CONNECTED  35931  /run/systemd/journal/stdout
unix  3      [ ]   STREAM   CONNECTED  52647  /
unix  3      [ ]   STREAM   CONNECTED  42866  /run/user/1002/bus
unix  3      [ ]   STREAM   CONNECTED  42832  /
unix  3      [ ]   STREAM   CONNECTED  46710  /
unix  3      [ ]   STREAM   CONNECTED  55309  /
unix  3      [ ]   STREAM   CONNECTED  49286  /run/dbus/system_bus_socket
unix  3      [ ]   STREAM   CONNECTED  34417  /
unix  3      [ ]   STREAM   CONNECTED  28272  /
unix  3      [ ]   STREAM   CONNECTED  59446  /
unix  3      [ ]   STREAM   CONNECTED  40529  /run/systemd/journal/stdout
unix  3      [ ]   STREAM   CONNECTED  52702  /
unix  3      [ ]   STREAM   CONNECTED  58577  /
unix  3      [ ]   STREAM   CONNECTED  48543  /run/systemd/journal/stdout
unix  3      [ ]   STREAM   CONNECTED  33291  /
unix  3      [ ]   STREAM   CONNECTED  30601  /
unix  3      [ ]   STREAM   CONNECTED  35704  /
unix  3      [ ]   STREAM   CONNECTED  46547  /
unix  3      [ ]   STREAM   CONNECTED  55319  /
unix  3      [ ]   STREAM   CONNECTED  54521  /run/user/1002/bus
unix  3      [ ]   STREAM   CONNECTED  51627  /
unix  3      [ ]   STREAM   CONNECTED  51550  /
unix  3      [ ]   STREAM   CONNECTED  39949  /
unix  3      [ ]   STREAM   CONNECTED  33269  /run/dbus/system_bus_socket
unix  3      [ ]   STREAM   CONNECTED  57187  /run/user/1002/bus
unix  3      [ ]   STREAM   CONNECTED  37481  /
```

10. netstat -a



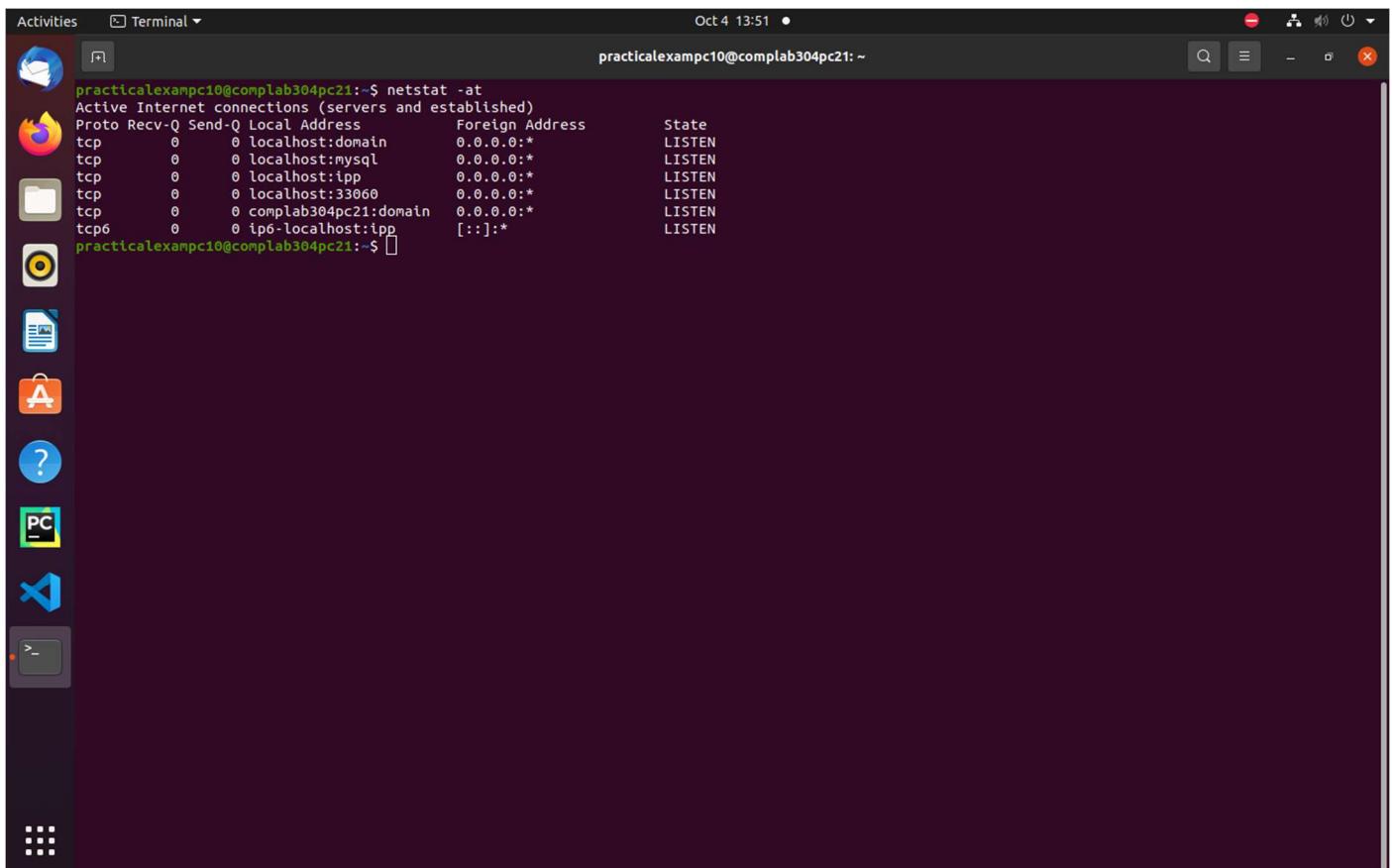
```
practicalexample10@complab304pc21:~$ netstat -a
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
tcp      0      0 localhost:domain        0.0.0.0:*          LISTEN
tcp      0      0 localhost:mysql         0.0.0.0:*          LISTEN
tcp      0      0 localhost:ipp          0.0.0.0:*          LISTEN
tcp      0      0 localhost:33060         0.0.0.0:*          LISTEN
tcp6     0      0 ip6-localhost:ipp       [::]:*            LISTEN
udp      0      0 complab304pc21:domain  0.0.0.0:*
udp      0      0 localhost:domain       0.0.0.0:*
udp      0      0 0.0.0.0:bootps        0.0.0.0:*
udp      0      0 complab304pc21:bootpc  _gateway:bootps    ESTABLISHED
udp      0      0 0.0.0.0:631          0.0.0.0:*
udp      0      0 0.0.0.0:59929         0.0.0.0:*
udp      0      0 0.0.0.0:ndns          0.0.0.0:*
udp6     0      0 [::]:32860           [::]:*
udp6     0      0 [::]:ndns            [::]:*
raw6     0      0 [::]:ipv6-icmp       [::]:*             7
Active UNIX domain sockets (servers and established)
Proto RefCnt Flags     Type      State       I-Node Path
unix  2      [ ACC ]   STREAM   LISTENING  43993  /tmp/ssh-posYlx80BGye/agent.1815
unix  2      [ ]   DGRAM    LISTENING  47322  /run/user/1002/systemd/notify
unix  2      [ ACC ]   STREAM   LISTENING  47325  /run/user/1002/systemd/private
unix  2      [ ACC ]   STREAM   LISTENING  47330  /run/user/1002/bus
unix  2      [ ACC ]   STREAM   LISTENING  47331  /run/user/1002/gnupg/S.dirmngr
unix  2      [ ACC ]   STREAM   LISTENING  47332  /run/user/1002/gnupg/S.gpg-agent.browser
unix  2      [ ACC ]   STREAM   LISTENING  47333  /run/user/1002/gnupg/S.gpg-agent.extra
unix  2      [ ACC ]   STREAM   LISTENING  28219  /run/acpid.socket
unix  2      [ ACC ]   STREAM   LISTENING  47334  /run/user/1002/gnupg/S.gpg-agent.ssh
unix  2      [ ACC ]   STREAM   LISTENING  47335  /run/user/1002/gnupg/S.gpg-agent
unix  2      [ ACC ]   STREAM   LISTENING  28221  /run/avahi-daemon/socket
unix  2      [ ACC ]   STREAM   LISTENING  47336  /run/user/1002/pk-debconf-socket
unix  2      [ ACC ]   STREAM   LISTENING  28223  /run/cups/cups.sock
unix  2      [ ACC ]   STREAM   LISTENING  47337  /run/user/1002/pulse/native
unix  2      [ ACC ]   STREAM   LISTENING  47338  /run/user/1002/snapd-session-agent.socket
unix  2      [ ACC ]   STREAM   LISTENING  28225  /run/dbus/system_bus_socket
unix  2      [ ACC ]   STREAM   LISTENING  41616  /tmp/.X11-unix/X0
unix  2      [ ACC ]   STREAM   LISTENING  28227  /run/libvirt/libvirt-sock
unix  2      [ ACC ]   STREAM   LISTENING  35620  /tmp/.ICE-unix/1920
unix  2      [ ACC ]   STREAM   LISTENING  35619  @/tmp/.ICE-unix/1920
unix  2      [ ACC ]   STREAM   LISTENING  28229  /run/snapd.socket
unix  2      [ ACC ]   STREAM   LISTENING  28231  /run/snapd-snap.socket
unix  2      [ ACC ]   STREAM   LISTENING  28233  /run/uuid/request
unix  2      [ ACC ]   STREAM   LISTENING  28235  /run/libvirt/virtlockd-sock
unix  2      [ F ACC ]  STREAM   LISTENING  41615  @/tmp/.X11-unix/X0
```

11. netstat -au



```
practicalexamplepc10@complab304pc21:~$ netstat -au
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp    0      0  complab304pc21:domain     0.0.0.0:*
udp    0      0  localhost:domain          0.0.0.0:*
udp    0      0  0.0.0.0:bootps           0.0.0.0:*
udp    0      0  complab304pc21:bootpc   _gateway:bootps        ESTABLISHED
udp    0      0  0.0.0.0:631              0.0.0.0:*
udp    0      0  0.0.0.0:59929             0.0.0.0:*
udp    0      0  0.0.0.0:ndns              0.0.0.0:*
udp6   0      0  ::1:32860                ::*:*
udp6   0      0  ::1:ndns                 ::*:*
```

12. netstat -at



```
practicalexamplepc10@complab304pc21:~$ netstat -at
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp    0      0  localhost:domain          0.0.0.0:*
tcp    0      0  localhost:mysql            0.0.0.0:*
tcp    0      0  localhost:ipp              0.0.0.0:*
tcp    0      0  localhost:33060             0.0.0.0:*
tcp    0      0  complab304pc21:domain   0.0.0.0:*
tcp6   0      0  ip6-localhost:ipp        ::*:*
practicalexamplepc10@complab304pc21:~$
```

13. netstat -l

```
practicalexampc10@complab304pc21:~$ netstat -l
Active Internet connections (only servers)
Proto Recv-Q Local Address          Foreign Address        State
tcp      0    0 localhost:domain      0.0.0.0:*           LISTEN
tcp      0    0 localhost:mysql       0.0.0.0:*           LISTEN
tcp      0    0 localhost:ipp        0.0.0.0:*           LISTEN
tcp      0    0 localhost:33060      0.0.0.0:*           LISTEN
tcp      0    0 complab304pc21:domain 0.0.0.0:*           LISTEN
tcp6     0    0 ip6-localhost:ipp     [::]:*              LISTEN
udp      0    0 complab304pc21:domain 0.0.0.0:*           LISTEN
udp      0    0 localhost:domain      0.0.0.0:*           LISTEN
udp      0    0 0.0.0.0:bootps       0.0.0.0:*           LISTEN
udp      0    0 0.0.0.0:631         0.0.0.0:*           LISTEN
udp      0    0 0.0.0.0:59929       0.0.0.0:*           LISTEN
udp      0    0 0.0.0.0:mdns        0.0.0.0:*           LISTEN
udp6     0    0 [::]:32860          [::]:*              LISTEN
udp6     0    0 [::]:mdns          [::]:*              LISTEN
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  43993   /tmp/ssh-posylX80BGye/agent.1815
unix  2      [ ACC ]     STREAM   LISTENING  47325   /run/user/1002/systemd/private
unix  2      [ ACC ]     STREAM   LISTENING  47330   /run/user/1002/bus
unix  2      [ ACC ]     STREAM   LISTENING  47331   /run/user/1002/gnupg/S.dirmngr
unix  2      [ ACC ]     STREAM   LISTENING  47332   /run/user/1002/gnupg/S.gpg-agent.browser
unix  2      [ ACC ]     STREAM   LISTENING  47333   /run/user/1002/gnupg/S.gpg-agent.extra
unix  2      [ ACC ]     STREAM   LISTENING  28219   /run/acpid.socket
unix  2      [ ACC ]     STREAM   LISTENING  47334   /run/user/1002/gnupg/S.gpg-agent.ssh
unix  2      [ ACC ]     STREAM   LISTENING  47335   /run/user/1002/gnupg/S.gpg-agent
unix  2      [ ACC ]     STREAM   LISTENING  28221   /run/avahi-daemon/socket
unix  2      [ ACC ]     STREAM   LISTENING  47336   /run/user/1002/pk-debconf-socket
unix  2      [ ACC ]     STREAM   LISTENING  28223   /run/cups/cups.sock
unix  2      [ ACC ]     STREAM   LISTENING  47337   /run/user/1002/pulse/native
unix  2      [ ACC ]     STREAM   LISTENING  47338   /run/user/1002/snapd-session-agent.socket
unix  2      [ ACC ]     STREAM   LISTENING  28225   /run/dbus/system_bus_socket
unix  2      [ ACC ]     STREAM   LISTENING  41616   /tmp/.X11-unix/X0
unix  2      [ ACC ]     STREAM   LISTENING  28227   /run/libvirt/libvirt-sock
unix  2      [ ACC ]     STREAM   LISTENING  35620   /tmp/.ICE-unix/1920
unix  2      [ ACC ]     STREAM   LISTENING  35619   @/tmp/.ICE-unix/1920
unix  2      [ ACC ]     STREAM   LISTENING  28229   /run/snapd.socket
unix  2      [ ACC ]     STREAM   LISTENING  28231   /run/snapd-snap.socket
unix  2      [ ACC ]     STREAM   LISTENING  28233   /run/uuid/request
unix  2      [ ACC ]     STREAM   LISTENING  28235   /run/libvirt/virtlockd-sock
unix  2      [ ACC ]     STREAM   LISTENING  41615   @/tmp/.X11-unix/X0
unix  2      [ ACC ]     STREAM   LISTENING  28237   /run/libvirt/virtlockd-admin-sock
unix  2      [ ACC ]     STREAM   LISTENING  28239   /run/libvirt/virtlockd-sock
```

14. netstat -s

```
practicalexampc10@complab304pc21:~$ netstat -s
Ip:
Forwarding: 1
10154 total packets received
0 forwarded
0 incoming packets discarded
10118 incoming packets delivered
4796 requests sent out
20 outgoing packets dropped
1 dropped because of missing route

Icmp:
272 ICMP messages received
0 input ICMP message failed
ICMP input histogram:
destination unreachable: 103
timeout in transit: 18
echo replies: 151
508 ICMP messages sent
0 ICMP messages failed
ICMP output histogram:
destination unreachable: 92
echo requests: 416

IcmpMsg:
InType0: 151
InType3: 103
InType11: 18
OutType3: 92
OutType8: 416

Tcp:
32 active connection openings
0 passive connection openings
4 failed connection attempts
0 connection resets received
0 connections established
8296 segments received
3965 segments sent out
18 segments retransmitted
0 bad segments received
35 resets sent

Udp:
993 packets received
44 packets to unknown port received
0 packet receive errors
469 packets sent
0 receive buffer errors
0 send buffer errors
```