```
student@complab304pc14:~$ sudo su root
[sudo] password for student:
root@complab304pc14:/home/student# apt install nmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  gir1.2-goa-1.0 libxmlb1
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libblas3 liblinear4 lua-lpeg nmap-common
Suggested packages:
  liblinear-tools liblinear-dev ncat ndiff zenmap
The following NEW packages will be installed:
  libblas3 liblinear4 lua-lpeg nmap nmap-common
0 upgraded, 5 newly installed, 0 to remove and 20 not upgraded.
Need to get 5,553 kB of archives.
After this operation, 26.3 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Err:1 http://in.archive.ubuntu.com/ubuntu focal/main amd64 libblas3 amd64 3.9.0-1build1
  Could not resolve 'in.archive.ubuntu.com'
Err:2 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 liblinear4 amd64 2.3.0+dfsg-3build1
  Could not resolve 'in.archive.ubuntu.com'
Err:3 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 lua-lpeg amd64 1.0.2-1
  Could not resolve 'in.archive.ubuntu.com'
Ign:4 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 nmap-common all 7.80+dfsg1-2build1
Err:5 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 nmap amd64 7.80+dfsg1-2build1
  Could not resolve 'in.archive.ubuntu.com'
Err:4 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 nmap-common all 7.80+dfsg1-2build1
  Could not resolve 'in.archive.ubuntu.com'
E: Failed to fetch http://in.archive.ubuntu.com/ubuntu/pool/main/l/lapack/libblas3_3.9.0-1build1_amd64.deb  Could not resolve 'in.archive.ubuntu.com'
E: Failed to fetch http://in.archive.ubuntu.com/ubuntu/pool/universe/libl/liblinear/liblinear4_2.3.0+dfsg-3build1_amd64.deb  Could not resolve 'in.arc
hive.ubuntu.com'
E: Failed to fetch http://in.archive.ubuntu.com/ubuntu/pool/universe/l/lua-lpeg/lua-lpeg_1.0.2-1_amd64.deb  Could not resolve 'in.archive.ubuntu.com'
E: Failed to fetch http://in.archive.ubuntu.com/ubuntu/pool/universe/n/nmap/nmap-common_7.80+dfsg1-2build1_all.deb  Could not resolve 'in.archive.ubun
tu.com'
E: Failed to fetch http://in.archive.ubuntu.com/ubuntu/pool/universe/n/nmap/nmap_7.80+dfsg1-2build1_amd64.deb  Could not resolve 'in.archive.ubuntu.co
m'
E: Unable to fetch some archives, maybe run apt-get update or try with --fix-missing?
root@complab304pc14:/home/student# apt install nmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  gir1.2-goa-1.0 libxmlb1
Use 'sudo apt autoremove' to remove them.
```

```
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu focal/main amd64 libblas3 amd64 3.9.0-1build1 [142 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 liblinear4 amd64 2.3.0+dfsg-3build1 [41.7 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 lua-lpeg amd64 1.0.2-1 [31.4 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 nmap-common all 7.80+dfsg1-2build1 [3,676 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 nmap amd64 7.80+dfsg1-2build1 [1,662 kB]
Fetched 5,553 kB in 4s (1,271 kB/s)
Selecting previously unselected package libblas3:amd64.
(Reading database ... 233269 files and directories currently installed.)
Preparing to unpack .../libblas3_3.9.0-1build1_amd64.deb ...
Unpacking libblas3:amd64 (3.9.0-1build1) ...
Selecting previously unselected package liblinear4:amd64.
Preparing to unpack .../liblinear4_2.3.0+dfsg-3build1_amd64.deb ...
Unpacking liblinear4:amd64 (2.3.0+dfsg-3build1) ...
Selecting previously unselected package lua-lpeg:amd64.
Preparing to unpack .../lua-lpeg_1.0.2-1_amd64.deb ...
Unpacking lua-lpeg:amd64 (1.0.2-1) ...
Selecting previously unselected package nmap-common.
Preparing to unpack .../nmap-common_7.80+dfsg1-2build1_all.deb ...
Unpacking nmap-common (7.80+dfsg1-2build1) ...
Selecting previously unselected package nmap.
Preparing to unpack .../nmap_7.80+dfsg1-2build1_amd64.deb ...
Unpacking nmap (7.80+dfsg1-2build1) ...
Setting up lua-lpeg:amd64 (1.0.2-1) ...
Setting up libblas3:amd64 (3.9.0-1build1) ...
update-alternatives: using /usr/lib/x86_64-linux-gnu/blas/libblas.so.3 to provid
e /usr/lib/x86_64-linux-gnu/libblas.so.3 (libblas.so.3-x86_64-linux-gnu) in auto
 mode
Setting up nmap-common (7.80+dfsg1-2build1) ...
Setting up liblinear4:amd64 (2.3.0+dfsg-3build1) ...
Setting up nmap (7.80+dfsg1-2build1) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.9) ...
root@complab304pc14:/home/student# nmap -V
Nmap version 7.80 ( https://nmap.org )
Platform: x86_64-pc-linux-gnu
Compiled with: liblua-5.3.3 openssl-1.1.1d nmap-libssh2-1.8.2 libz-1.2.11 libpcre-8.39 libpcap-1.9.1 nmap-libdnet-1.12 ipv6
Compiled without:
Available nsock engines: epoll poll select
root@complab304pc14:/home/student# ^C
root@complab304pc14:/home/student# nmap -V
Nmap version 7.80 ( https://nmap.org )
Platform: x86_64-pc-linux-gnu
Compiled with: liblua-5.3.3 openssl-1.1.1d nmap-libssh2-1.8.2 libz-1.2.11 libpcre-8.39 libpcap-1.9.1 nmap-libdnet-1.12 ipv6
Compiled without:
Available nsock engines: epoll poll select
```

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Platform: x86_64-pc-linux-gnu
Compiled with: liblua-5.3.3 openssl-1.1.1d nmap-libssh2-1.8.2 libz-1.2.11 libpcre-8.39 libpcap-1.9.1 nmap-libdnet-1.12 ipv6
Compiled without:
Available nsock engines: epoll poll select
root@complab304pc14:/home/student# ^C
root@complab304pc14:/home/student# nmap -V
Nmap version 7.80 ( https://nmap.org )
Platform: x86_64-pc-linux-gnu
Compiled with: liblua-5.3.3 openssl-1.1.1d nmap-libssh2-1.8.2 libz-1.2.11 libpcre-8.39 libpcap-1.9.1 nmap-libdnet-1.12 ipv6
Compiled without:
Available nsock engines: epoll poll select
root@complab304pc14:/home/student# nmap -O
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:50 IST
WARNING: No targets were specified, so 0 hosts scanned.
Nmap done: 0 IP addresses (0 hosts up) scanned in 0.14 seconds
root@complab304pc14:/home/student# nmap -0 192.168.31.17
nmap: unrecognized option '-0'
See the output of nmap -h for a summary of options.
root@complab304pc14:/home/student# nmap -O 192.168.31.17
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:52 IST
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:30951 S ttl=48 id=63760 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:11111 S ttl=41 id=7845 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:8000 S ttl=38 id=12556 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:10012 S ttl=48 id=24943 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:4111 S ttl=38 id=31363 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:3011 S ttl=41 id=43564 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:9011 S ttl=55 id=24882 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:49155 S ttl=44 id=9694 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:3826 S ttl=54 id=27543 iplen=44  seq=774037064 win=1024 <mss 1460>
sendto in send_ip_packet_sd: sendto(5, packet, 44, 0, 192.168.31.17, 16) => Network is unreachable
Offending packet: TCP 192.168.31.40:36736 > 192.168.31.17:32783 S ttl=39 id=46535 iplen=44  seq=774037064 win=1024 <mss 1460>
Omitting future Sendto error messages now that 10 have been shown.  Use -d2 if you really want to see them.
send_ip_packet in send_closedudp_probe: Network is unreachable (101)
send_ip_packet in send_closedudp_probe: Network is unreachable (101)
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send_ip_packet in send_closedudp_probe: Network is unreachable (101)
```

```
Omitting future Sendto error messages now that 10 have been shown.  Use -d2 if you really want to see them.
send_ip_packet in send_closedudp_probe: Network is unreachable (101)
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send_ip_packet in send_closedudp_probe: Network is unreachable (101)
Nmap scan report for 192.168.31.17
Host is up (0.00074s latency).
All 1000 scanned ports on 192.168.31.17 are filtered
MAC Address: D8:BB:C1:C2:9D:D7 (Unknown)
Too many fingerprints match this host to give specific OS details
Network Distance: 1 hop

OS detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 26.64 seconds
root@complab304pc14:/home/student# nmap -O 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:53 IST
Nmap scan report for 192.168.122.1
Host is up (0.000083s latency).
Not shown: 998 closed ports
PORT    STATE SERVICE
21/tcp open  ftp
53/tcp open  domain
Device type: general purpose
Running: Linux 2.6.X
OS CPE: cpe:/o:linux:linux_kernel:2.6.32
OS details: Linux 2.6.32
Network Distance: 0 hops

OS detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 14.52 seconds
root@complab304pc14:/home/student# nmap -sP 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:54 IST
Nmap scan report for 192.168.122.1
Host is up.
Nmap done: 1 IP address (1 host up) scanned in 11.67 seconds
root@complab304pc14:/home/student# nmap -p T:192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:54 IST
Error #487: Your port specifications are illegal.  Example of proper form: "-100,200-1024,T:3000-4000,U:60000-"
QUITTING!
root@complab304pc14:/home/student# nmap -p T:23 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:55 IST
Nmap scan report for complab304pc14 (192.168.122.1)
```

```
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:54 IST
Nmap scan report for 192.168.122.1
Host is up.
Nmap done: 1 IP address (1 host up) scanned in 11.67 seconds
root@complab304pc14:/home/student# nmap -p T:192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:54 IST
Error #487: Your port specifications are illegal.  Example of proper form: "-100,200-1024,T:3000-4000,U:60000-"
QUITTING!
root@complab304pc14:/home/student# nmap -p T:23 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:55 IST
Nmap scan report for complab304pc14 (192.168.122.1)
Host is up (0.000041s latency).

PORT   STATE  SERVICE
23/tcp closed telnet

Nmap done: 1 IP address (1 host up) scanned in 0.10 seconds
root@complab304pc14:/home/student# nmap -p 80,443 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:56 IST
Nmap scan report for complab304pc14 (192.168.122.1)
Host is up (0.000046s latency).

PORT    STATE  SERVICE
80/tcp  closed http
443/tcp closed https

Nmap done: 1 IP address (1 host up) scanned in 0.11 seconds
root@complab304pc14:/home/student# nmap -sV 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:56 IST
Nmap scan report for complab304pc14 (192.168.122.1)
Host is up (0.000010s latency).
Not shown: 998 closed ports
PORT   STATE SERVICE VERSION
21/tcp open  ftp     vsftpd 3.0.3
53/tcp open  domain  dnsmasq 2.80
Service Info: OS: Unix

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 6.35 seconds
root@complab304pc14:/home/student# ipconfig

Command 'ipconfig' not found, did you mean:

  command 'ifconfig' from deb net-tools (1.60+git20180626.aebd88e-1ubuntu1)
  command 'iconfig' from deb ipmiutil (3.1.5-1)
  command 'iwconfig' from deb wireless-tools (30~pre9-13ubuntu1)
```

```
eno1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.31.40  netmask 255.255.255.0  broadcast 192.168.31.255
        inet6 fe80::1ee7:e811:4ac0:12d9  prefixlen 64  scopeid 0x20<link>
        ether d8:bb:c1:c2:9d:c8  txqueuelen 1000  (Ethernet)
        RX packets 25817  bytes 21220487 (21.2 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 8208  bytes 716573 (716.5 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
        device interrupt 16  memory 0xb1200000-b1220000

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 6040  bytes 330285 (330.2 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 6040  bytes 330285 (330.2 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 52:54:00:98:e7:d3  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

root@complab304pc14:/home/student# nmap -sS 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:57 IST
Nmap scan report for 192.168.122.1
Host is up (0.0000030s latency).
Not shown: 998 closed ports
PORT   STATE SERVICE
21/tcp open  ftp
53/tcp open  domain

Nmap done: 1 IP address (1 host up) scanned in 13.09 seconds
root@complab304pc14:/home/student# nmap -sN 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:58 IST
Nmap scan report for 192.168.122.1
Host is up (0.000013s latency).
Not shown: 998 closed ports
PORT   STATE         SERVICE
21/tcp open|filtered ftp
53/tcp open|filtered domain
```

```
Host is up (0.000014s latency).
Not shown: 998 closed ports
PORT    STATE         SERVICE
21/tcp open|filtered ftp
53/tcp open|filtered domain

Nmap done: 1 IP address (1 host up) scanned in 12.40 seconds
root@complab304pc14:/home/student# nmap -sX 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 13:59 IST
Nmap scan report for 192.168.122.1
Host is up (0.000014s latency).
Not shown: 998 closed ports
PORT    STATE         SERVICE
21/tcp open|filtered ftp
53/tcp open|filtered domain

Nmap done: 1 IP address (1 host up) scanned in 14.31 seconds
root@complab304pc14:/home/student# nmap -sO 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 14:00 IST
Nmap scan report for 192.168.122.1
Host is up (0.0000050s latency).
Not shown: 249 closed protocols
PROTOCOL STATE          SERVICE
1         open          icmp
2         open|filtered igmp
6         open          tcp
17        open          udp
103       open|filtered pim
136       open|filtered udplite
255       open|filtered unknown

Nmap done: 1 IP address (1 host up) scanned in 14.28 seconds
root@complab304pc14:/home/student# nmap -sU 192.168.122.1
Starting Nmap 7.80 ( https://nmap.org ) at 2023-03-06 14:00 IST
Nmap scan report for 192.168.122.1
Host is up (0.000011s latency).
Not shown: 996 closed ports
PORT       STATE         SERVICE
53/udp    open|filtered domain
67/udp    open|filtered dhcps
631/udp   open|filtered ipp
5353/udp  open|filtered zeroconf

Nmap done: 1 IP address (1 host up) scanned in 14.31 seconds
root@complab304pc14:/home/student#
```