

LAB ASSIGNMENT No. 7: TCPDUMP Packet Analyzer

Aim: Study of Packet Sniffer toll TCPDUMP. Use it to capture and analyze the packet.

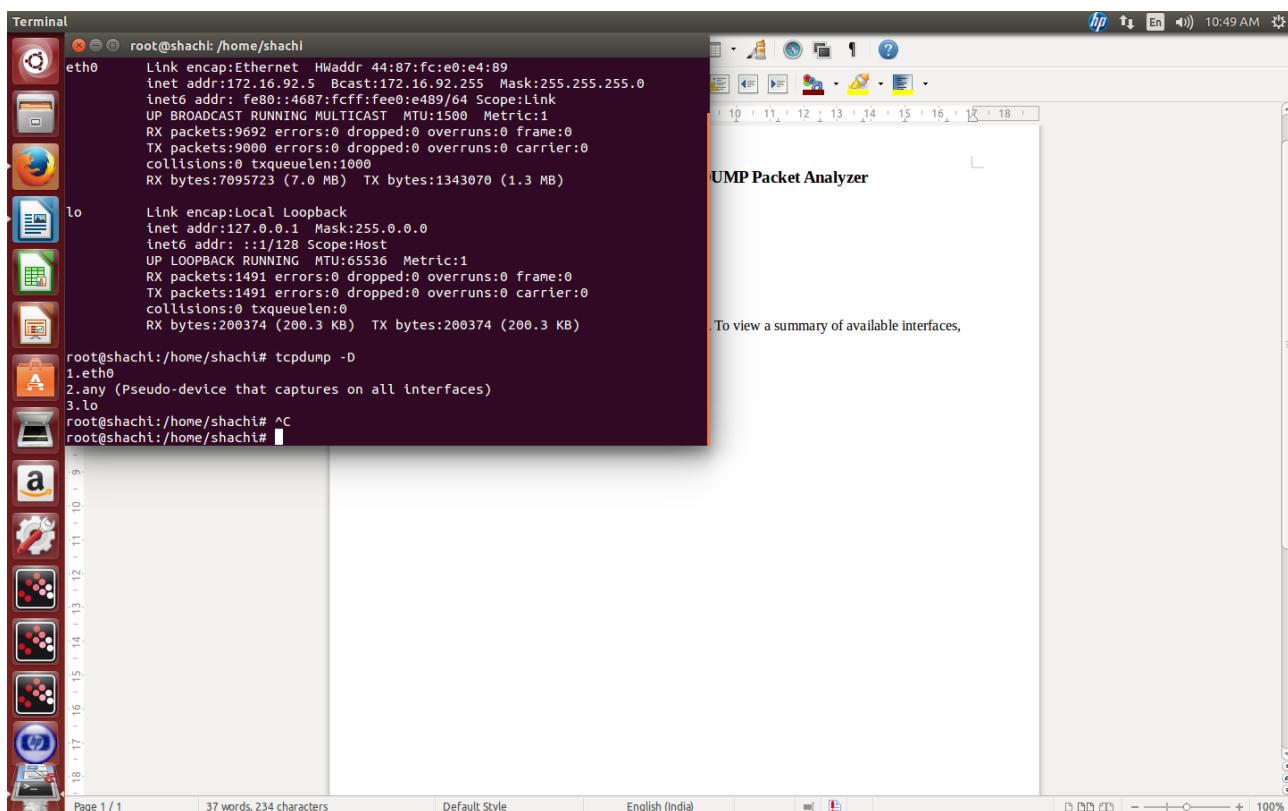
1. To install tcpdump

```
$ sudo apt-get install tcpdump
```

2 . Choosing an interface:

By default, tcpdump captures packets on all interfaces. To view a summary of available interfaces, run

```
# tcpdump -D
```



3. Basic command for sniffing

```
# tcpdump -n
```

The `-n` parameter is given to stop tcpdump from resolving ip addresses to hostnames, which take look and not required right now.

```

root@shachi:/home/shachi# ifconfig
    eth0      Link encap:Ethernet HWaddr 00:0c:29:14:dc:8e
              inet  IP 172.16.92.5  Netmask:255.0.0.0  Broadcast:172.16.92.255
                      UP BROADCAST RUNNING MULTICAST  MTU:1500 Metric:1
                      RX packets:9692 errors:0 dropped:0 overruns:0 frame:0
                      TX packets:9000 errors:0 dropped:0 overruns:0 carrier:0
                      collisions:0 txqueuelen:1000
                      RX bytes:7095723 (7.0 MB)  TX bytes:1343070 (1.3 MB)

    lo       Link encap:Local Loopback
              inet  IP 127.0.0.1  Netmask:255.0.0.0
                      UP LOOPBACK RUNNING  MTU:65536 Metric:1
                      RX packets:1491 errors:0 dropped:0 overruns:0 frame:0
                      TX packets:1491 errors:0 dropped:0 overruns:0 carrier:0
                      collisions:0 txqueuelen:0
                      RX bytes:200374 (200.3 KB)  TX bytes:200374 (200.3 KB)

root@shachi:/home/shachi# tcpdump -D
1.eth0
2.any (Pseudo-device that captures on all interfaces)
3.lo
root@shachi:/home/shachi# ^C
root@shachi:/home/shachi# tcpdump -n
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
11:11:48.755303 IP 172.16.92.5.43780 > 106.10.184.41.443: Flags [.], ack 263857829, win 367, options [nop,nop,TS val 2072096 ecr 29009846], length 0
11:11:48.817850 IP 106.10.184.41.443 > 172.16.92.5.43780: Flags [.], ack 1, win 97, options [nop,nop,TS val 29019925 ecr 2056996], length 0
11:11:49.811361 IP 172.16.92.5.43754 > 106.10.184.41.443: Flags [.], ack 3180545544, win 604, options [nop,nop,TS val 2072360 ecr 29010743], length 0
11:11:50.038240 IP 106.10.184.41.443 > 172.16.92.5.43754: Flags [.], ack 1, win 434, options [nop,nop,TS val 29020981 ecr 2056999], length 0
11:11:50.254917 IP 172.16.92.1.53 > 172.16.92.5.25220: 49967 0/1/0 (95)
11:11:51.602814 IP 172.16.92.5.39662 > 104.244.42.129.443: Flags [P.], seq 466596947:466596993, ack 1889999207, win 237, options [nop,nop,TS val 2072807 ecr 3388722348], length 46
11:11:51.602870 IP 172.16.92.5.39663 > 104.244.42.129.443: Flags [P.], seq 3440648596:3440648642, ack 2287316051, win 237, options [nop,nop,TS val 2072807 ecr 3387829666], length 46
11:11:51.731329 IP 172.16.92.5.38774 > 106.10.200.161.443: Flags [.], ack 3095876107, win 886, options [nop,nop,TS val 2072840 ecr 3356291879], length 0
11:11:51.791803 IP 106.10.200.161.443 > 172.16.92.5.38774: Flags [.], ack 1, win 501, options [nop,nop,TS val 3356301942 ecr 2067807], length 0
11:11:51.855464 IP 104.244.42.129.443 > 172.16.92.5.39662: Flags [.], ack 46, win 122, options [nop,nop,TS val 3388780638 ecr 2072807], length 0
11:11:51.855481 IP 104.244.42.129.443 > 172.16.92.5.39662: Flags [P.], seq 1:47, ack 46, win 122, options [nop,nop,TS val 3388780638 ecr 2072807], length 46
11:11:51.863087 IP 104.244.42.129.443 > 172.16.92.5.39663: Flags [.], ack 46, win 122, options [nop,nop,TS val 3387887640 ecr 2072807], length 0
11:11:51.863102 IP 104.244.42.129.443 > 172.16.92.5.39663: Flags [P.], seq 1:47, ack 46, win 122, options [nop,nop,TS val 3387887640 ecr 2072807], length 46
11:11:51.895360 IP 172.16.92.5.39662 > 104.244.42.129.443: Flags [.], ack 47, win 237, options [nop,nop,TS val 2072881 ecr 3388780638], length 0
11:11:51.899345 IP 172.16.92.5.39663 > 104.244.42.129.443: Flags [.], ack 47, win 237, options [nop,nop,TS val 2072882 ecr 3387887640], length 0
11:11:53.491365 IP 172.16.92.5.43672 > 66.196.113.5.443: Flags [.], ack 2320217246, win 403, options [nop,nop,TS val 2073288 ecr 3020942202], length 0
11:11:53.693795 IP 66.196.113.5.443 > 172.16.92.5.43672: Flags [.], ack 1, win 501, options [nop,nop,TS val 3020952409 ecr 2065621], length 0
[1]+  Stopped                  tcpdump -n
root@shachi:/home/shachi# 

```

Consider the output line

11:11:48.755303 IP 172.16.92.5.43780 > 106.10.184.41.443: Flags [.], ack 263857829, win 367, options [nop,nop,TS val 2072096 ecr 29009846], length 0

11:11:48.755303 is the time stamp with microsecond precision. Next is the protocol of the packet called IP (stands for Internet protocol and it is under this protocol that most of the internet communication goes on). Next is the source ip address joined with the source port. Following next is the destination port and then some information about the packet.

Now lets increase the display resolution of this packet, or get more details about it. The verbose switch comes in handy. Here is a quick example

4. `tcpdump -v -n`

Now with the verbose switch lots of additional details about the packet are also being displayed. And these include the ttl, id, tcp flags, packet length etc.

```

root@shachi:/home/shachi# tcpdump -n
11:11:50.038240 IP 106.10.184.41.443 > 172.16.92.5.43754: Flags [.], ack 1, win 434, options [nop,nop,TS val 29020981 ecr 2056999], length 0
11:11:50.254917 IP 172.16.92.1.53 > 172.16.92.5.25220: 49967 0/1/0 (95)
11:11:51.602814 IP 172.16.92.5.39662 > 104.244.42.129.443: Flags [P.], seq 466596947:466596993, ack 1889999207, win 237, options [nop,nop,TS val 2072807
ecr 3388722348], length 46
11:11:51.602870 IP 172.16.92.5.39663 > 104.244.42.129.443: Flags [P.], seq 3440648596:3440648642, ack 2287316051, win 237, options [nop,nop,TS val 2072807
07 ecrc 3387829666], length 46
11:11:51.731329 IP 172.16.92.5.38774 > 106.10.200.161.443: Flags [.], ack 3095876107, win 886, options [nop,nop,TS val 2072840 ecr 3356291879], length 0
11:11:51.791883 IP 106.10.200.161.443 > 172.16.92.5.38774: Flags [.], ack 1, win 501, options [nop,nop,TS val 3356301942 ecr 2067807], length 0
11:11:51.855464 IP 104.244.42.129.443 > 172.16.92.5.39662: Flags [.], ack 46, win 122, options [nop,nop,TS val 3388780638 ecr 2072807], length 0
11:11:51.855481 IP 104.244.42.129.443 > 172.16.92.5.39662: Flags [P.], seq 1:47, ack 46, win 122, options [nop,nop,TS val 3388780638 ecr 2072807], lengt
h 46
11:11:51.863087 IP 104.244.42.129.443 > 172.16.92.5.39663: Flags [.], ack 46, win 122, options [nop,nop,TS val 3387887640 ecr 2072807], length 0
11:11:51.863102 IP 104.244.42.129.443 > 172.16.92.5.39663: Flags [P.], seq 1:47, ack 46, win 122, options [nop,nop,TS val 3387887640 ecr 2072807], lengt
h 46
11:11:51.895360 IP 172.16.92.5.39662 > 104.244.42.129.443: Flags [.], ack 47, win 237, options [nop,nop,TS val 2072881 ecr 3388780638], length 0
11:11:51.899345 IP 172.16.92.5.39663 > 104.244.42.129.443: Flags [.], ack 47, win 237, options [nop,nop,TS val 2072882 ecr 3387887640], length 0
11:11:53.491365 IP 172.16.92.5.43672 > 66.196.113.5.443: Flags [.], ack 2320217246, win 403, options [nop,nop,TS val 2073280 ecr 3020942202], length 0
11:11:53.693795 IP 66.196.113.5.443 > 172.16.92.5.43672: Flags [.], ack 1, win 501, options [nop,nop,TS val 3020952409 ecr 2065621], length 0
[2]+ Stopped tcpcdump -n
root@shachi:/home/shachi# tcpcdump -n
tcpdump: listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
11:20:45.512191 IP (tos 0x0, ttl 30, id 25702, offset 0, flags [none], proto UDP (17), length 244)
    172.16.92.1.53 > 172.16.92.5.35016: 5900 2/4/4 datsy.ubuntu.com. A 91.189.92.57, daisy.ubuntu.com. A 91.189.92.55 (216)
11:20:47.099973 IP (tos 0x20, ttl 46, id 39760, offset 0, flags [DF], proto TCP (6), length 137)
    66.196.113.5.443 > 172.16.92.5.43672: Flags [P.], cksum 0x1f64 (correct), seq 2320218351:2320218436, ack 1558268419, win 501, options [nop,nop,TS va
l 3021485760 ecr 2196611], length 85
11:20:47.102616 IP (tos 0x0, ttl 64, id 20779, offset 0, flags [DF], proto UDP (17), length 77)
    172.16.92.5.29918 > 172.16.92.1.53: 17445+ A? prod4.rest-notify.msg.yahoo.com. (49)
11:20:47.107884 IP (tos 0x0, ttl 30, id 25706, offset 0, flags [none], proto UDP (17), length 341)
    172.16.92.1.53 > 172.16.92.5.29918: 17445 2/5/6 prod4.rest-notify.msg.yahoo.com. CNAME rproxy1.us2.msg.vip.bf1.yahoo.com., rproxy1.us2.msg.vip.bf1.y
ahoo.com. A 66.196.113.5 (313)
11:20:47.108029 IP (tos 0x0, ttl 64, id 20781, offset 0, flags [DF], proto UDP (17), length 77)
    172.16.92.5.45937 > 172.16.92.1.53: 527+ AAAA? prod4.rest-notify.msg.yahoo.com. (49)
11:20:47.113757 IP (tos 0x0, ttl 30, id 25710, offset 0, flags [none], proto UDP (17), length 186)
    172.16.92.1.53 > 172.16.92.5.45937: 527 1/1/0 prod4.rest-notify.msg.yahoo.com. CNAME rproxy1.us2.msg.vip.bf1.yahoo.com. (158)
11:20:47.119612 IP (tos 0x0, ttl 64, id 42412, offset 0, flags [DF], proto TCP (6), length 1400)
    172.16.92.5.43672 > 66.196.113.5.443: Flags [.], cksum 0x4ad0 (correct), seq 1:1349, ack 85, win 403, options [nop,nop,TS val 2206687 ecr 3021485760]
J., length 1348
11:20:47.119621 IP (tos 0x0, ttl 64, id 42413, offset 0, flags [DF], proto TCP (6), length 469)
    172.16.92.5.43672 > 66.196.113.5.443: Flags [P.], cksum 0x1a61 (correct), seq 1349:1766, ack 85, win 403, options [nop,nop,TS val 2206687 ecr 302148
5760], length 417
11:20:47.322527 IP (tos 0x20, ttl 46, id 39761, offset 0, flags [DF], proto TCP (6), length 52)
    66.196.113.5.443 > 172.16.92.5.43672: Flags [.], cksum 0x8384 (correct), ack 1766, win 500, options [nop,nop,TS val 3021485983 ecr 2206687], length
0
[2]+ Stopped tcpcdump -n
root@shachi:/home/shachi#

```

5. Getting the ethernet header (link layer headers)

In the above examples details of the ethernet header are not printed. Use the -e option to print the

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root@shachi:/home/shachi# tcpcdump -n -e
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 333
11:31:20.018915 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 303: (tos 0x0, ttl 4, id 29192, offset 0, flags [none], proto UDP
(17), length 289)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 261
11:31:20.019444 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 312: (tos 0x0, ttl 4, id 29194, offset 0, flags [none], proto UDP
(17), length 298)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 270
11:31:20.019935 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 367: (tos 0x0, ttl 4, id 29196, offset 0, flags [none], proto UDP
(17), length 353)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 325
11:31:20.020443 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 377: (tos 0x0, ttl 4, id 29198, offset 0, flags [none], proto UDP
(17), length 363)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 335
[4]+ Stopped tcpcdump -n -e
root@shachi:/home/shachi# tcpcdump -n -e
tcpdump: listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
11:35:45.138738 44:87:fc:e0:e4:89 > 90:8d:78:7e:5a:b2, ethertype IPv4 (0x0800), length 98: (tos 0x0, ttl 64, id 1109, offset 0, flags [DF], proto ICMP
(1), length 84)
172.16.92.5 > 172.16.92.1: ICMP echo request, id 3724, seq 12, length 64
11:35:45.140454 90:8d:78:7e:5a:b2 > 44:87:fc:e0:e4:89, ethertype IPv4 (0x0800), length 98: (tos 0x0, ttl 30, id 1109, offset 0, flags [DF], proto ICMP
(1), length 84)
172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 12, length 64
11:35:45.779324 44:87:fc:e0:e4:89 > 90:8d:78:7e:5a:b2, ethertype IPv4 (0x0800), length 66: (tos 0x0, ttl 64, id 16457, offset 0, flags [DF], proto TCP
(6), length 52)
172.16.92.5.43966 > 66.196.113.5.443: Flags [.], cksum 0xbd4d (correct), ack 3232201735, win 361, options [nop,nop,TS val 2431352 ecr 2765622340], l
ength 0
11:35:45.979872 90:8d:78:7e:5a:b2 > 44:87:fc:e0:e4:89, ethertype IPv4 (0x0800), length 66: (tos 0x20, ttl 47, id 50408, offset 0, flags [DF], proto TCP
(6), length 52)
172.16.92.1.5.443 > 172.16.92.5.43966: Flags [.], cksum 0xd160 (correct), ack 1, win 501, options [nop,nop,TS val 2765632547 ecr 2423680], length 0
11:35:46.140677 44:87:fc:e0:e4:89 > 90:8d:78:7e:5a:b2, ethertype IPv4 (0x0800), length 98: (tos 0x0, ttl 64, id 1182, offset 0, flags [DF], proto ICMP
(1), length 84)
172.16.92.5 > 172.16.92.1: ICMP echo request, id 3724, seq 13, length 64
11:35:46.142433 90:8d:78:7e:5a:b2 > 44:87:fc:e0:e4:89, ethertype IPv4 (0x0800), length 98: (tos 0x0, ttl 30, id 1182, offset 0, flags [DF], proto ICMP
(1), length 84)
11:35:46.1639803 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 307: (tos 0x0, ttl 4, id 29720, offset 0, flags [none], proto UDP
(17), length 293)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 265
11:35:46.640658 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 316: (tos 0x0, ttl 4, id 29722, offset 0, flags [none], proto UDP
(17), length 302)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 274
11:35:46.641494 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 379: (tos 0x0, ttl 4, id 29724, offset 0, flags [none], proto UDP
(17), length 357)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 337
11:35:46.642337 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 371: (tos 0x0, ttl 4, id 29726, offset 0, flags [none], proto UDP
(17), length 357)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 329

```

selecting packets with specific protocol

```
# tcpdump -n tcp
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6.

```
#          hp En 11:46 AM
root@shachi:/home/shachi
11:35:46.651490 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 367: (tos 0x0, ttl 4, id 29748, offset 0, flags [none], proto UDP (17, length 353)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 325
11:35:46.652334 90:8d:78:7e:5a:b2 > 01:00:5e:7f:ff:fa, ethertype IPv4 (0x0800), length 377: (tos 0x0, ttl 4, id 29750, offset 0, flags [none], proto UDP (17, length 363)
172.16.92.1.1900 > 239.255.255.250.1900: UDP, length 335
11:35:47.142545 44:87:fc:e0:e4:89 > 90:8d:78:7e:5a:b2, ethertype IPv4 (0x0800), length 98: (tos 0x0, ttl 64, id 1313, offset 0, flags [DF], proto ICMP (1, length 84)
172.16.92.5 > 172.16.92.1: ICMP echo request, id 3724, seq 14, length 64
11:35:47.144290 90:8d:78:7e:5a:b2 > 44:87:fc:e0:e4:89, ethertype IPv4 (0x0800), length 98: (tos 0x0, ttl 30, id 1313, offset 0, flags [DF], proto ICMP (1, length 84)
172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 14, length 64
```
A: Stopped tcpdump -n -e
root@shachi:/home/shachi# tcpdump -n tcp
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
11:44:13.587356 IP 172.16.92.5.43754 > 106.10.184.41.443: Flags [.], ack 3180552726, win 952, options [nop,nop,TS val 2558304 ecr 30954319], length 0
11:44:13.814359 IP 106.10.184.41.443 > 172.16.92.5.43754: Flags [.], ack 1, win 501, options [nop,nop,TS val 30964558 ecr 2550626], length 0
11:44:17.083363 IP 172.16.92.5.43966 > 66.196.113.5.443: Flags [.], ack 3232293064, win 382, options [nop,nop,TS val 2559328 ecr 2766134192], length 0
11:44:17.083454 IP 66.196.113.5.443 > 172.16.92.5.43966: Flags [.], ack 1, win 501, options [nop,nop,TS val 2766144400 ecr 2554220], length 0
11:44:20.253397 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [P..], seq 3527887078:3527887124, ack 1056001841, win 2235, options [nop,nop,TS val 255970 ecr 394511991], length 46
11:44:20.257363 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [.], ack 46, win 251, options [nop,nop,TS val 3945170883 ecr 2559970], length 0
11:44:20.257387 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [.], seq 1:47, ack 46, win 251, options [nop,nop,TS val 3945170883 ecr 2559970], length 0
11:44:21.059740 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 47, win 2235, options [nop,nop,TS val 2559971 ecr 3945170883], length 0
11:44:21.409517 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], seq 46:307, ack 47, win 2235, options [nop,nop,TS val 2560259 ecr 3945170883], length 261
11:44:21.451314 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [.], ack 307, win 251, options [nop,nop,TS val 3945172078 ecr 2560259], length 0
11:44:21.630640 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [P..], seq 47:435, ack 307, win 251, options [nop,nop,TS val 3945172256 ecr 2560259], length 388
11:44:21.630673 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 435, win 2232, options [nop,nop,TS val 2560314 ecr 3945172256], length 0
11:44:21.630686 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [P..], seq 435:483, ack 307, win 251, options [nop,nop,TS val 3945172256 ecr 2560259], length 48
11:44:21.630687 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 483, win 2232, options [nop,nop,TS val 2560314 ecr 3945172256], length 0
11:44:21.631097 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [P..], seq 483:1962, ack 307, win 251, options [nop,nop,TS val 3945172257 ecr 2560259], length 1479
root@shachi:/home/shachi
hp En 11:48 AM
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
11:44:13.587356 IP 172.16.92.5.43754 > 106.10.184.41.443: Flags [.], ack 3180552726, win 952, options [nop,nop,TS val 2558304 ecr 30954319], length 0
11:44:13.814359 IP 106.10.184.41.443 > 172.16.92.5.43754: Flags [.], ack 1, win 501, options [nop,nop,TS val 30964558 ecr 2550626], length 0
11:44:17.083363 IP 172.16.92.5.43966 > 66.196.113.5.443: Flags [.], ack 3232293064, win 382, options [nop,nop,TS val 2559328 ecr 2766134192], length 0
11:44:17.083454 IP 66.196.113.5.443 > 172.16.92.5.43966: Flags [.], ack 1, win 501, options [nop,nop,TS val 2766144400 ecr 2554220], length 0
11:44:20.253397 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [P..], seq 3527887078:3527887124, ack 1056001841, win 2235, options [nop,nop,TS val 255970 ecr 394511991], length 46
11:44:20.257363 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [.], ack 46, win 251, options [nop,nop,TS val 3945170883 ecr 2559970], length 0
11:44:20.257387 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [.], seq 1:47, ack 46, win 251, options [nop,nop,TS val 3945170883 ecr 2559970], length 0
11:44:21.059740 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 47, win 2235, options [nop,nop,TS val 2559971 ecr 3945170883], length 0
11:44:21.409517 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], seq 46:307, ack 47, win 2235, options [nop,nop,TS val 2560259 ecr 3945170883], length 261
11:44:21.451314 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [.], ack 307, win 251, options [nop,nop,TS val 3945172078 ecr 2560259], length 0
11:44:21.630640 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [P..], seq 47:435, ack 307, win 251, options [nop,nop,TS val 3945172256 ecr 2560259], length 388
11:44:21.630673 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 435, win 2232, options [nop,nop,TS val 2560314 ecr 3945172256], length 0
11:44:21.630686 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [P..], seq 435:483, ack 307, win 251, options [nop,nop,TS val 3945172256 ecr 2560259], length 48
11:44:21.630687 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 483, win 2232, options [nop,nop,TS val 2560314 ecr 3945172256], length 0
11:44:21.631097 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [P..], seq 483:1962, ack 307, win 251, options [nop,nop,TS val 3945172257 ecr 2560259], length 1479
11:44:21.631101 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 1962, win 2226, options [nop,nop,TS val 2560314 ecr 3945172257], length 0
11:44:21.631243 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [.], seq 1962:3310, ack 307, win 251, options [nop,nop,TS val 3945172257 ecr 2560259], length 1348
11:44:21.631251 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 3310, win 2228, options [nop,nop,TS val 2560314 ecr 3945172257], length 0
11:44:21.631340 IP 203.84.220.151.443 > 172.16.92.5.53367: Flags [P..], seq 3310:4569, ack 307, win 251, options [nop,nop,TS val 3945172257 ecr 2560259], length 1259
11:44:21.631355 IP 172.16.92.5.53367 > 203.84.220.151.443: Flags [.], ack 4569, win 2221, options [nop,nop,TS val 2560315 ecr 3945172257], length 0
```
A: Stopped tcpdump -n tcp
root@shachi:/home/shachi# tcpdump -n icmp
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
11:47:16.185939 IP 172.16.92.5 > 172.16.92.1: ICMP echo request, id 3724, seq 702, length 64
11:47:16.187282 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 702, length 64
11:47:17.187478 IP 172.16.92.5 > 172.16.92.1: ICMP echo request, id 3724, seq 703, length 64
11:47:17.188813 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 703, length 64
11:47:18.189022 IP 172.16.92.5 > 172.16.92.1: ICMP echo request, id 3724, seq 704, length 64
11:47:18.190569 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 705, length 64
11:47:19.191909 IP 172.16.92.1 > 172.16.92.5: ICMP echo request, id 3724, seq 705, length 64
11:47:20.192087 IP 172.16.92.5 > 172.16.92.1: ICMP echo request, id 3724, seq 706, length 64
11:47:20.193488 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 706, length 64
```
A: Stopped tcpdump -n icmp
root@shachi:/home/shachi# ^C
root@shachi:/home/shachi#
```

## 7. Particular host or port

Expressions can be used to specify source ip, destination ip, and port numbers. The next example picks up all those packets with source address 172.16.92.1

```
tcpdump -n src 172.16.92.1
```

```
root@shachi:/home/shachi#
[7]+ Stopped tcpdump -n icmp
root@shachi:/home/shachi# ^C
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[8]+ Stopped tcpdump -n src 172.16.92.3
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[8]+ Stopped tcpdump -n src 172.16.92.1
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[9]+ Stopped tcpdump -n src 172.16.92.1
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[10]+ Stopped tcpdump -n src 172.16.92.6
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[11]+ Stopped tcpdump -n src 172.16.92.2
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[12]+ Stopped tcpdump -n src 172.16.92.2
tcpdump: syntax error
```

```
tcpdump -n dst 172.16.92.1
```

```
root@shachi:/home/shachi#
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[11:51:51.587639 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 977, length 64
11:51:52.589224 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 978, length 64
11:51:53.590784 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 979, length 64
11:51:54.592258 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 980, length 64
11:51:55.593744 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 981, length 64
11:51:56.595282 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 982, length 64
11:51:57.596758 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 983, length 64
11:51:58.598268 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 984, length 64
11:51:59.599724 IP 172.16.92.1 > 172.16.92.5: ICMP echo reply, id 3724, seq 985, length 64
[2]+ Stopped tcpdump -n src 172.16.92.1
root@shachi:/home/shachi# tcpdump -n src 172.16.92.1
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[3]+ Stopped tcpdump -n src 172.16.92.6
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[4]+ Stopped tcpdump -n src 172.16.92.2
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
[5]+ Stopped tcpdump -n src 172.16.92.2
tcpdump: syntax error
```

```
tcpdump -n port 80
```

```

root@shachi:/home/shachi
[1] 389
11:59:10.250287 IP 172.16.92.5.60751 > 23.65.124.32.80: Flags [.], ack 1738, win 272, options [nop,nop,TS val 2782469 ecr 1810011394], length 0
11:59:10.262485 IP 23.65.124.25.80 > 172.16.92.5.56518: Flags [.], seq 2697:4045, ack 665, win 947, options [nop,nop,TS val 1965639424 ecr 2782467], len
gth 1348
[1] 4045
11:59:10.262512 IP 172.16.92.5.56518 > 23.65.124.25.80: Flags [.], ack 17492, win 523, options [nop,nop,TS val 2782472 ecr 1965639403,nop,nop,sack 1 [26
97:4045]], length 0
11:59:10.262707 IP 23.65.124.25.80 > 172.16.92.5.56518: Flags [.], seq 4045:5393, ack 665, win 947, options [nop,nop,TS val 1965639424 ecr 2782467], len
gth 1348
[1] 5393
11:59:10.262717 IP 172.16.92.5.56518 > 23.65.124.25.80: Flags [.], ack 17492, win 523, options [nop,nop,TS val 2782472 ecr 1965639403,nop,nop,sack 1 [40
45:5393]], length 0
11:59:10.263056 IP 23.65.124.25.80 > 172.16.92.5.56518: Flags [.], seq 5393:6741, ack 665, win 947, options [nop,nop,TS val 1965639424 ecr 2782467], len
gth 1348
[1] 6741
11:59:10.263066 IP 172.16.92.5.56518 > 23.65.124.25.80: Flags [.], ack 17492, win 523, options [nop,nop,TS val 2782472 ecr 1965639403,nop,nop,sack 1 [53
93:6741]], length 0
11:59:10.263177 IP 23.65.124.25.80 > 172.16.92.5.56518: Flags [.], seq 6741:8089, ack 665, win 947, options [nop,nop,TS val 1965639424 ecr 2782467], len
gth 1348
[1] 8089
11:59:10.263182 IP 172.16.92.5.56518 > 23.65.124.25.80: Flags [.], ack 17492, win 523, options [nop,nop,TS val 2782472 ecr 1965639403,nop,nop,sack 1 [67
41:8089]], length 0
11:59:10.263403 IP 23.65.124.25.80 > 172.16.92.5.56518: Flags [.], seq 8089:9437, ack 665, win 947, options [nop,nop,TS val 1965639424 ecr 2782467], len
gth 1348
[1] 9437
11:59:10.263412 IP 172.16.92.5.56518 > 23.65.124.25.80: Flags [.], ack 17492, win 523, options [nop,nop,TS val 2782473 ecr 1965639403,nop,nop,sack 1 [80
89:9437]], length 0
11:59:10.265416 IP 23.65.124.25.80 > 172.16.92.5.56518: Flags [.], ack 665, win 947, options [nop,nop,TS val 1965639428 ecr 2782469], length 0
11:59:10.266724 IP 23.65.124.25.80 > 172.16.92.5.56518: Flags [.], ack 665, win 947, options [nop,nop,TS val 1965639430 ecr 2782469], length 0
11:59:10.267394 IP 23.65.124.25.80 > 172.16.92.5.56518: Flags [.], ack 665, win 947, options [nop,nop,TS val 1965639430 ecr 2782469], length 0
11:59:10.283304 IP 23.2.16.91.80 > 172.16.92.5.52070: Flags [P..], seq 108257:109074, ack 9383, win 1498, options [nop,nop,TS val 2288872455 ecr 2782455]
, length 817
[1] 109074
11:59:10.283339 IP 172.16.92.5.52070 > 23.2.16.91.80: Flags [.], ack 109074, win 1324, options [nop,nop,TS val 2782477 ecr 2288872455], length 0
11:59:10.289595 IP 23.2.16.91.80 > 172.16.92.5.52067: Flags [P..], seq 101844:104084, ack 6505, win 1319, options [nop,nop,TS val 2288872458 ecr 2782455]
, length 2240
[1] 104084
11:59:10.295197 IP 172.16.92.5.52067 > 23.2.16.91.80: Flags [.], ack 104084, win 1324, options [nop,nop,TS val 2782480 ecr 2288872458], length 0
[2] 104084
[14]+ Stopped tcpdump -n port 80
root@shachi:/home/shachi# tcpdump -n port 80
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
11:59:42.993474 IP 54.225.189.34.80 > 172.16.92.5.57552: Flags [.], ack 3070349890, win 76, options [nop,nop,TS val 952097209 ecr 2788093], length 0
11:59:43.763310 IP 172.16.92.5.42413 > 74.125.130.147.80: Flags [.], ack 357444536, win 237, options [nop,nop,TS val 2790848 ecr 2528258055], length 0
11:59:43.795321 IP 172.16.92.5.42413 > 74.125.130.147.80: Flags [.], ack 1841024414, win 237, options [nop,nop,TS val 2790856 ecr 2477051253], length 0
11:59:43.827318 IP 74.125.130.147.80 > 172.16.92.5.42413: Flags [.], ack 1, win 342, options [nop,nop,TS val 2528268135 ecr 2783305], length 0
11:59:43.827330 IP 172.16.92.5.53185 > 23.58.34.202.80: Flags [.], ack 1901034413, win 507, options [nop,nop,TS val 2790864 ecr 2433734662 ecr 2783336], length 0
11:59:43.851874 IP 23.58.34.202.80 > 172.16.92.5.53185: Flags [.], ack 1, win 1005, options [nop,nop,TS val 2433734662 ecr 2783336], length 0
11:59:43.851876 IP 74.125.130.147.80 > 172.16.92.5.42416: Flags [.], ack 1, win 342, options [nop,nop,TS val 2477061333 ecr 2783319], length 0
11:59:43.851879 IP 172.16.92.5.52070 > 23.2.16.91.80: Flags [.], ack 2496230879, win 1324, options [nop,nop,TS val 2790904 ecr 2288896133], length 0
11:59:44.075833 IP 23.2.16.91.80 > 172.16.92.5.52070: Flags [.], ack 1, win 1657, options [nop,nop,TS val 2288906245 ecr 2783345], length 0
[1] 2783345
[15]+ Stopped tcpdump -n port 80
root@shachi:/home/shachi# tcpdump port 80

```

```

tcpdump port 80
root@shachi:/home/shachi
[1] 305
11:59:43.827318 IP 74.125.130.147.80 > 172.16.92.5.42413: Flags [.], ack 1, win 342, options [nop,nop,TS val 2528268135 ecr 2783305], length 0
11:59:43.827330 IP 172.16.92.5.53185 > 23.58.34.202.80: Flags [.], ack 1901034413, win 507, options [nop,nop,TS val 2790864 ecr 2433724615], length 0
11:59:43.851874 IP 23.58.34.202.80 > 172.16.92.5.53185: Flags [.], ack 1, win 1005, options [nop,nop,TS val 2433734662 ecr 2783336], length 0
11:59:43.851876 IP 74.125.130.147.80 > 172.16.92.5.42416: Flags [.], ack 1, win 342, options [nop,nop,TS val 2477061333 ecr 2783319], length 0
11:59:44.075833 IP 23.2.16.91.80 > 172.16.92.5.52070: Flags [.], ack 1, win 1657, options [nop,nop,TS val 2288906245 ecr 2783345], length 0
[2] 2783345
[15]+ Stopped tcpdump -n port 80
root@shachi:/home/shachi# tcpdump port 80
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
12:01:59.827359 IP 172.16.92.5.49469 > a23-65-124-11.deploy.static.akamaitechnologies.com.http: Flags [.], ack 1511875855, win 715, options [nop,nop,TS
val 2824864 ecr 1881618913], length 0
12:01:59.843004 IP a23-65-124-11.deploy.static.akamaitechnologies.com.http > 172.16.92.5.49469: Flags [.], ack 1, win 1201, options [nop,nop,TS val 1881
628944 ecr 2819856], length 0
12:02:01.171347 IP 172.16.92.5.47450 > a23-2-16-200.deploy.static.akamaitechnologies.com.http: Flags [.], ack 103999294, win 237, options [nop,nop,TS va
l 12825200 ecr 1813304904], length 0
12:02:01.262031 IP a23-2-16-200.deploy.static.akamaitechnologies.com.http > 172.16.92.5.47450: Flags [.], ack 1, win 961, options [nop,nop,TS val 181331
5015 ecr 2812588], length 0
12:02:02.213919 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http: Flags [S], seq 1844346817, win 29200, options [mss 1460,sackOK,T
S val 2825460 ecr 0,nop,wscale 7], length 0
12:02:02.356972 IP 172.16.92.5.58426 > ec2-54-235-182-182.compute-1.amazonaws.com.http: Flags [S], seq 2030480750, win 29200, options [mss 1460,sackOK,T
S val 2825496 ecr 0,nop,wscale 7], length 0
12:02:02.465018 IP 172.16.92.5.58427 > ec2-54-235-182-182.compute-1.amazonaws.com.http: Flags [S], seq 2822657575, win 29200, options [mss 1460,sackOK,T
S val 2825523 ecr 0,nop,wscale 7], length 0
12:02:02.471711 IP ec2-23-23-170-207.compute-1.amazonaws.com.http > 172.16.92.5.59629: Flags [S.], seq 679810268, ack 1844346818, win 17898, options [m
s 1360,sackOK,TS val 2655095165 ecr 2825460,nop,wscale 8], length 0
12:02:02.476209 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http: Flags [.], ack 1, win 229, options [nop,nop,TS val 2825526 ecr 26
55095165], length 0
12:02:02.476377 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http: Flags [P.], seq 1:563, ack 1, win 229, options [nop,nop,TS val 28
25526 ecr 2655095165], length 562
12:02:02.606311 IP ec2-54-235-182-182.compute-1.amazonaws.com.http > 172.16.92.5.58426: Flags [S.], seq 508822866, ack 2030480751, win 17898, options [m
s 1360,sackOK,TS val 3010472859 ecr 2825496,nop,wscale 8], length 0
12:02:02.606357 IP 172.16.92.5.58426 > ec2-54-235-182-182.compute-1.amazonaws.com.http: Flags [.], ack 1, win 229, options [nop,nop,TS val 2825558 ecr 3
010472859], length 0
12:02:02.737363 IP ec2-54-235-182-182.compute-1.amazonaws.com.http > 172.16.92.5.58427: Flags [S.], seq 715329396, ack 2822657576, win 17898, options [m
s 1360,sackOK,TS val 3010472889 ecr 2825523,nop,wscale 8], length 0
12:02:02.733688 IP 172.16.92.5.58427 > ec2-54-235-182-182.compute-1.amazonaws.com.http: Flags [.], ack 1, win 229, options [nop,nop,TS val 2825590 ecr 3
010472889], length 0
12:02:02.737495 IP ec2-23-23-170-207.compute-1.amazonaws.com.http > 172.16.92.5.59629: Flags [.], ack 563, win 75, options [nop,nop,TS val 2655095230 e
c 2825526], length 0
12:02:02.739779 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http > 172.16.92.5.59629: Flags [P.], seq 1:214, ack 563, win 75, options [nop,nop,TS val 26
55095231], length 213
12:02:02.739799 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http: Flags [.], ack 214, win 237, options [nop,nop,TS val 2825592 ecr
2655095231], length 0
[2] 2655095231
[16]+ Stopped tcpdump port 80
root@shachi:/home/shachi#

```

## Specific Packets from specific port

```
tcpdump udp and src port 53
```

```
root@shachi:/home/shachi# tcpdump udp and src port 53
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
12:02:02.213919 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http: Flags [S], seq 1844346817, win 29200, options [mss 1460,sackOK,TS val 2825460 ecr 0,nop,wscale 7], length 0
12:02:02.356972 IP 172.16.92.5.58426 > ec2-54-235-182-182.compute-1.amazonaws.com.http: Flags [S], seq 2030480750, win 29200, options [mss 1460,sackOK,TS val 2825499 ecr 0,nop,wscale 7], length 0
12:02:02.465018 IP 172.16.92.5.58427 > ec2-54-235-182-182.compute-1.amazonaws.com.http: Flags [S], seq 2822657575, win 29200, options [mss 1460,sackOK,TS val 2825523 ecr 0,nop,wscale 7], length 0
12:02:02.476171 IP ec2-23-23-170-207.compute-1.amazonaws.com.http > 172.16.92.5.59629: Flags [S.], seq 679810268, ack 1844346818, win 17898, options [mss 1360,sackOK,TS val 2655095165 ecr 2825460,nop,wscale 8], length 0
12:02:02.476209 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http: Flags [.], ack 1, win 229, options [nop,nop,TS val 2825526 ecr 2655095165], length 0
12:02:02.476377 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http: Flags [P.], seq 1:563, ack 1, win 229, options [nop,nop,TS val 2825526 ecr 2655095165], length 562
12:02:02.606311 IP ec2-54-235-182-182.compute-1.amazonaws.com.http > 172.16.92.5.58426: Flags [S.], seq 508822866, ack 2030480751, win 17898, options [mss 1360,sackOK,TS val 3010472859 ecr 2825496,nop,wscale 8], length 0
12:02:02.606357 IP 172.16.92.5.59629 > ec2-54-235-182-182.compute-1.amazonaws.com.http: Flags [.], ack 1, win 229, options [nop,nop,TS val 2825558 ecr 3010472859], length 0
12:02:02.673363 IP ec2-54-235-182-182.compute-1.amazonaws.com.http > 172.16.92.5.58427: Flags [S.], seq 715329396, ack 2822657576, win 17898, options [mss 1366,sackOK,TS val 3010472889 ecr 2825523,nop,wscale 8], length 0
12:02:02.673368 IP 172.16.92.5.58427 > ec2-54-235-182-182.compute-1.amazonaws.com.http: Flags [.], ack 1, win 229, options [nop,nop,TS val 2825590 ecr 3010472889], length 0
12:02:02.737495 IP ec2-23-23-170-207.compute-1.amazonaws.com.http > 172.16.92.5.59629: Flags [.], ack 563, win 75, options [nop,nop,TS val 2655095230 ecr 2825526], length 0
12:02:02.739779 IP ec2-23-23-170-207.compute-1.amazonaws.com.http > 172.16.92.5.59629: Flags [P.], seq 1:214, ack 563, win 75, options [nop,nop,TS val 2655095231], length 213
12:02:02.739799 IP 172.16.92.5.59629 > ec2-23-23-170-207.compute-1.amazonaws.com.http: Flags [.], ack 214, win 237, options [nop,nop,TS val 2825592 ecr 2655095231], length 0
^Z
[16]+ Stopped tcpdump port 53
root@shachi:/home/shachi#
```

observing packets within a specific port range

```
tcpdump -n portrange 1-80
```

It shows all packets whose source or destination port is between 1 to 80

```
root@shachi:/home/shachi#
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
12:14:31.420791 IP 172.16.92.5.18617 > 18-24-212-203.fxwirelessol.com.domain: 1965+ PTR? 71.197.243.54.in-addr.arpa. (44)
12:14:31.428241 IP 18-24-212-203.fxwirelessol.com.domain > 172.16.92.5.18617: 1965 1/5/6 PTR ec2-54-243-197-71.compute-1.amazonaws.com. (320)
12:14:31.428618 IP 172.16.92.5.10318 > 18-24-212-203.fxwirelessol.com.domain: 39949+ PTR? 46.24.222.203.in-addr.arpa. (44)
12:14:31.432230 IP 18-24-212-203.fxwirelessol.com.domain > 172.16.92.5.10318: 39949* 1/1/1 PTR 46-24-212-203.fxwirelessol.com. (123)
12:14:32.568515 IP 172.16.92.5.63039 > 18-24-212-203.fxwirelessol.com.domain: 5923+ A? pr.comet.yahoo.com. (36)
12:14:32.569005 IP 172.16.92.5.34956 > 18-24-212-203.fxwirelessol.com.domain: 21633+ A? pr.comet.yahoo.com. (36)
12:14:32.572141 IP 18-24-212-203.fxwirelessol.com.domain > 172.16.92.5.63039: 5923 1/4/4 CNAME ds-comet.yahoo.pr.g03.yahoodns.net., A 106.10.200.161 (247)
12:14:32.572366 IP 172.16.92.5.31826 > 18-24-212-203.fxwirelessol.com.domain: 58264+ AAAA? pr.comet.yahoo.com. (36)
12:14:32.572937 IP 18-24-212-203.fxwirelessol.com.domain > 172.16.92.5.34956: 21633 2/4/4 CNAME ds-comet.yahoo.pr.g03.yahoodns.net., A 106.10.200.161 (247)
12:14:32.619316 IP 172.16.92.5.42206 > ec2-23-23-187-101.compute-1.amazonaws.com.http: Flags [.], ack 1691709936, win 237, options [nop,nop,TS val 301306 ecr 1476060867], length 0
12:14:32.702167 IP 18-24-212-203.fxwirelessol.com.domain > 172.16.92.5.31826: 58264 2/4/4 CNAME ds-comet.yahoo.pr.g03.yahoodns.net., AAAA 2406:2000:e4:200::460c (259)
12:14:32.703580 IP 172.16.92.5.25812 > 18-24-212-203.fxwirelessol.com.domain: 53982+ A? daisy.ubuntu.com. (34)
12:14:32.703639 IP 172.16.92.5.33314 > 18-24-212-203.fxwirelessol.com.domain: 38653+ AAAA? daisy.ubuntu.com. (34)
12:14:32.707639 IP 18-24-212-203.fxwirelessol.com.domain > 172.16.92.5.25812: 53982 2/4/4 A 91.189.92.57, A 91.189.92.55 (216)
12:14:32.708683 IP 18-24-212-203.fxwirelessol.com.domain > 172.16.92.5.33314: 38653 0/1/0 (95)
12:14:32.869576 IP ec2-23-23-187-101.compute-1.amazonaws.com.http > 172.16.92.5.42206: Flags [.], ack 1, win 75, options [nop,nop,TS val 1476063429 ecr 3010562], length 0
^Z
[18]+ Stopped tcpdump portrange 1-80
root@shachi:/home/shachi# tcpdump -n portrange 1-80
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
12:15:12.409505 IP 172.16.92.5.7134 > 203.212.24.18.53: 39941+ A? daisy.ubuntu.com. (34)
12:15:12.409510 IP 172.16.92.5.7134 > 203.212.24.46.53: 39941+ A? daisy.ubuntu.com. (34)
12:15:12.405219 IP 172.16.92.5.41596 > 203.212.24.18.53: 11017+ AAAA? daisy.ubuntu.com. (34)
12:15:12.409182 IP 203.212.24.18.53 > 172.16.92.5.7134: 39941 2/4/4 A 91.189.92.57, A 91.189.92.55 (216)
12:15:12.410572 IP 203.212.24.18.53 > 172.16.92.5.41596: 11017 0/1/0 (95)
12:15:13.407414 IP 172.16.92.5.26234 > 203.212.24.18.53: 16870+ A? daisy.ubuntu.com. (34)
12:15:13.407519 IP 172.16.92.5.60952 > 203.212.24.18.53: 58676+ AAAA? daisy.ubuntu.com. (34)
12:15:13.411593 IP 203.212.24.18.53 > 172.16.92.5.26234: 16870 2/4/4 A 91.189.92.55, A 91.189.92.57 (216)
12:15:13.412069 IP 203.212.24.18.53 > 172.16.92.5.60952: 58676 0/1/0 (95)
12:15:13.715375 IP 172.16.92.5.42206 > 23.23.187.101.80: Flags [.], ack 1691709936, win 237, options [nop,nop,TS val 3023336 ecr 1476071134], length 0
12:15:13.966198 IP 23.23.187.101.80 > 172.16.92.5.42206: Flags [.], ack 1, win 75, options [nop,nop,TS val 1476073702 ecr 3010562], length 0
12:15:14.661172 IP 172.16.92.5.59600 > 23.65.124.16.80: Flags [P.], seq 3789008896:3789008878, ack 1351089907, win 1174, options [nop,nop,TS val 3023572 ecr 1812008826], length 691
12:15:14.683868 IP 23.65.124.16.80 > 172.16.92.5.59600: Flags [.], seq 1:2697, ack 691, win 1534, options [nop,nop,TS val 1812018734 ecr 3023572], length 696
12:15:14.683917 IP 172.16.92.5.59600 > 23.65.124.16.80: Flags [.], ack 2697, win 1216, options [nop,nop,TS val 3023578 ecr 1812018734], length 0
12:15:14.684042 IP 23.65.124.16.80 > 172.16.92.5.59600: Flags [P.], seq 2697:4676, ack 691, win 1534, options [nop,nop,TS val 1812018734 ecr 3023572], length 1979
12:15:14.684063 IP 172.16.92.5.59600 > 23.65.124.16.80: Flags [.], ack 4676, win 1247, options [nop,nop,TS val 3023578 ecr 1812018734], length 0
^Z
[19]+ Stopped tcpdump -n portrange 1-80
root@shachi:/home/shachi#
```

```
#tcpdump -n src port 443
```

```
root@shachi:/home/shachi
12:15:14.683917 IP 172.16.92.5.59600 > 23.65.124.16.80: Flags [.], ack 2697, win 1216, options [nop,nop,TS val 3023578 ecr 1812018734], length 0
12:15:14.684042 IP 23.65.124.16.80 > 172.16.92.5.59600: Flags [P.], seq 2697:4676, ack 691, win 1534, options [nop,nop,TS val 1812018734 ecr 3023572], length 1979
^Z
[19]+ Stopped tcpdump -n portrange 1-80
root@shachi:/home/shachi# tcpdump less 32
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
^Z
[20]+ Stopped tcpdump less 32
root@shachi:/home/shachi# tcpdump -n >32
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
^Z
[21]+ Stopped tcpdump -n >32
root@shachi:/home/shachi# tcpdump -n src port 1025 # tcpdump dst port 80
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
^Z
[22]+ Stopped tcpdump -n src port 1025
root@shachi:/home/shachi# tcpdump -n src port 443
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
12:23:30.744322 IP 203.84.220.151.443 > 172.16.92.5.54288: Flags [.], ack 399553216, win 103, options [nop,nop,TS val 3956133356 ecr 3147592], length 0
12:23:30.744352 IP 203.84.220.151.443 > 172.16.92.5.54288: Flags [P.], seq 0:46, ack 1, win 103, options [nop,nop,TS val 3956133356 ecr 3147592], length 46
12:23:30.833318 IP 106.10.200.161.443 > 172.16.92.5.39631: Flags [P.], seq 3713984124:3713984422, ack 3661746272, win 151, options [nop,nop,TS val 3360600379 ecr 3103255], length 298
12:23:30.833357 IP 106.10.200.161.443 > 172.16.92.5.39631: Flags [P.], seq 298:616, ack 1, win 151, options [nop,nop,TS val 3360600379 ecr 3103255], length 318
12:23:30.850860 IP 106.10.200.161.443 > 172.16.92.5.39631: Flags [P.], seq 616:650, ack 1, win 151, options [nop,nop,TS val 3360600398 ecr 3103255], length 34
12:23:32.519042 IP 203.84.220.151.443 > 172.16.92.5.54288: Flags [.], ack 262, win 112, options [nop,nop,TS val 3956135131 ecr 3148026], length 0
12:23:32.694379 IP 203.84.220.151.443 > 172.16.92.5.54288: Flags [P.], seq 46:434, ack 262, win 112, options [nop,nop,TS val 3956135306 ecr 3148026], length 388
12:23:32.694431 IP 203.84.220.151.443 > 172.16.92.5.54288: Flags [P.], seq 434:482, ack 262, win 112, options [nop,nop,TS val 3956135306 ecr 3148026], length 48
12:23:32.695135 IP 203.84.220.151.443 > 172.16.92.5.54288: Flags [.], seq 482:1830, ack 262, win 112, options [nop,nop,TS val 3956135306 ecr 3148026], length 1348
12:23:32.695415 IP 203.84.220.151.443 > 172.16.92.5.54288: Flags [P.], seq 1830:4525, ack 262, win 112, options [nop,nop,TS val 3956135306 ecr 3148026], length 2695
12:23:33.080739 IP 106.10.200.161.443 > 172.16.92.5.39631: Flags [.], ack 1, win 151, options [nop,nop,TS val 3360602627 ecr 3147619,nop,nop,sack 1 {1349:1778}], length 0
12:23:33.080788 IP 106.10.200.161.443 > 172.16.92.5.39631: Flags [.], ack 1778, win 172, options [nop,nop,TS val 3360602627 ecr 3148121], length 0
^Z
[23]+ Stopped tcpdump -n src port 443
root@shachi:/home/shachi#
```