

# CS3093D: ASSIGNMENT 01

## NETWORKS LABORATORY

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16-01-2022  
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# 1. ping

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ ping -c 5 google.com  
PING google.com(maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e)) 56 data bytes  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=1 ttl=115 time=95.6 ms  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=2 ttl=115 time=77.5 ms  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=3 ttl=115 time=75.3 ms  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=4 ttl=115 time=73.8 ms  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=5 ttl=115 time=150 ms  
  
--- google.com ping statistics ---  
5 packets transmitted, 5 received, 0% packet loss, time 4007ms  
rtt min/avg/max/mdev = 73.815/94.529/150.313/28.978 ms  
hanna_b190420cs@ubuntu:~$  
hanna_b190420cs@ubuntu:~$ ping -6 -c 5 google.com  
PING google.com(maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e)) 56 data bytes  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=1 ttl=115 time=63.5 ms  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=3 ttl=115 time=78.7 ms  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=4 ttl=115 time=74.3 ms  
64 bytes from maa05s14-in-x0e.1e100.net (2404:6800:4007:815::200e): icmp_seq=5 ttl=115 time=64.8 ms  
  
--- google.com ping statistics ---  
5 packets transmitted, 4 received, 20% packet loss, time 4011ms  
rtt min/avg/max/mdev = 63.511/70.335/78.747/6.390 ms
```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ ping -c 4 localhost  
PING localhost (127.0.0.1) 56(84) bytes of data.  
64 bytes from localhost (127.0.0.1): icmp_seq=1 ttl=64 time=0.063 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=2 ttl=64 time=0.061 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=3 ttl=64 time=0.054 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=4 ttl=64 time=0.077 ms  
  
--- localhost ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3069ms  
rtt min/avg/max/mdev = 0.054/0.063/0.077/0.008 ms  
hanna_b190420cs@ubuntu:~$ ping -6 -c 4 localhost  
PING localhost(ip6-localhost (::1)) 56 data bytes  
64 bytes from ip6-localhost (::1): icmp_seq=1 ttl=64 time=0.062 ms  
64 bytes from ip6-localhost (::1): icmp_seq=2 ttl=64 time=0.085 ms  
64 bytes from ip6-localhost (::1): icmp_seq=3 ttl=64 time=0.083 ms  
64 bytes from ip6-localhost (::1): icmp_seq=4 ttl=64 time=0.083 ms  
  
--- localhost ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3073ms  
rtt min/avg/max/mdev = 0.062/0.078/0.085/0.009 ms  
hanna_b190420cs@ubuntu:~$
```

## 2. traceroute

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ traceroute google.com  
traceroute to google.com (142.250.67.142), 30 hops max, 60 byte packets  
 1 _gateway (192.168.43.1) 1.890 ms 5.212 ms 5.179 ms  
 2 172.27.4.190 (172.27.4.190) 35.175 ms 35.235 ms 35.349 ms  
 3 * * *  
 4 172.27.104.5 (172.27.104.5) 58.532 ms 61.955 ms 61.823 ms  
 5 122.15.70.214 (122.15.70.214) 77.209 ms 77.181 ms 77.152 ms  
 6 182.19.108.193 (182.19.108.193) 203.891 ms 182.19.108.191 (182.19.108.191) 141.143 ms 67.579 ms  
 7 74.125.146.82 (74.125.146.82) 67.487 ms 68.368 ms 69.215 ms  
 8 * * *  
 9 74.125.242.129 (74.125.242.129) 203.829 ms 108.170.253.97 (108.170.253.97) 84.613 ms 142.251.55.68  
  (142.251.55.68) 84.469 ms  
10 108.170.253.106 (108.170.253.106) 84.437 ms 108.170.253.119 (108.170.253.119) 84.402 ms 108.170.25  
 3.104 (108.170.253.104) 203.572 ms  
11 64.233.174.3 (64.233.174.3) 136.339 ms 72.14.232.34 (72.14.232.34) 136.213 ms 209.85.251.14 (209.8  
 5.251.14) 135.402 ms  
12 108.170.248.177 (108.170.248.177) 134.529 ms 187.145 ms 192.102 ms  
13 209.85.142.85 (209.85.142.85) 192.061 ms 108.170.248.161 (108.170.248.161) 203.283 ms 209.85.142.8  
 5 (209.85.142.85) 203.643 ms  
14 bom12s06-in-f14.1e100.net (142.250.67.142) 84.478 ms 203.522 ms 203.509 ms  
hanna_b190420cs@ubuntu:~$
```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ traceroute -6 google.com  
traceroute to google.com (2404:6800:4009:811::200e), 30 hops max, 80 byte packets  
 1 2402:3a80:19f3:9507::72 (2402:3a80:19f3:9507::72) 2.889 ms 3.169 ms 3.592 ms  
 2 2402:8100:12:5:4000::27f (2402:8100:12:5:4000::27f) 65.789 ms 64.429 ms 64.173 ms  
 3 * * *  
 4 2402:8100:12:5:4000::32f (2402:8100:12:5:4000::32f) 74.222 ms 74.797 ms 2402:8100:12:5:4000::37f (24  
 02:8100:12:5:4000::37f) 75.591 ms  
 5 2400:5200:1800:6d::14 (2400:5200:1800:6d::14) 79.408 ms 82.170 ms 2400:5200:1800:6d::16 (2400:5200:1  
 800:6d::16) 75.006 ms  
 6 2001:4860:1:1::6eb (2001:4860:1:1::6eb) 91.833 ms 52.732 ms 138.049 ms  
 7 2001:4860:1:1::1f56 (2001:4860:1:1::1f56) 138.043 ms 138.001 ms 137.966 ms  
 8 2404:6800:809a::1 (2404:6800:809a::1) 137.970 ms 2404:6800:810a::1 (2404:6800:810a::1) 137.936 ms 24  
 04:6800:8133::1 (2404:6800:8133::1) 137.767 ms  
 9 2001:4860:0:1::5594 (2001:4860:0:1::5594) 137.898 ms 2001:4860:0:1::163e (2001:4860:0:1::163e) 137.8  
 89 ms 2001:4860:0:1::5598 (2001:4860:0:1::5598) 137.778 ms  
10 * 2001:4860:0:133f::9 (2001:4860:0:133f::9) 138.207 ms 2001:4860:0:133f::a (2001:4860:0:133f::a) 137  
 .793 ms  
11 2001:4860::9:4001:b922 (2001:4860::9:4001:b922) 137.693 ms 2001:4860::9:4000:d772 (2001:4860::9:4000:  
 d772) 138.564 ms 2001:4860::9:4001:7734 (2001:4860::9:4001:7734) 138.156 ms  
12 * * *  
13 * * *  
14 bom12s06-in-x0e.1e100.net (2404:6800:4009:811::200e) 155.811 ms 155.656 ms 155.489 ms  
hanna_b190420cs@ubuntu:~$
```



```
hanna_b190420cs@ubuntu: ~  
9 2001:4860:0:1::5594 (2001:4860:0:1::5594) 137.898 ms 2001:4860:0:1::163e (2001:4860:0:1::163e) 137.889 ms 2001:4860:0:1::5598 (2001:4860:0:1::5598) 137.778 ms  
10 * 2001:4860:0:133f::9 (2001:4860:0:133f::9) 138.207 ms 2001:4860:0:133f::a (2001:4860:0:133f::a) 137.793 ms  
11 2001:4860::9:4001:b922 (2001:4860::9:4001:b922) 137.693 ms 2001:4860::9:4000:d772 (2001:4860::9:4000:d772) 138.564 ms 2001:4860::9:4001:7734 (2001:4860::9:4001:7734) 138.156 ms  
12 * * *  
13 * * *  
14 bom12s06-in-x0e.1e100.net (2404:6800:4009:811::200e) 155.811 ms 155.656 ms 155.489 ms  
hanna_b190420cs@ubuntu:~$ traceroute localhost  
traceroute to localhost (127.0.0.1), 30 hops max, 60 byte packets  
1 localhost (127.0.0.1) 0.795 ms 0.670 ms 0.634 ms  
hanna_b190420cs@ubuntu:~$ traceroute -6 localhost  
traceroute to localhost (::1), 30 hops max, 80 byte packets  
1 ip6-localhost (::1) 0.901 ms 0.810 ms 0.765 ms  
hanna_b190420cs@ubuntu:~$ traceroute 192.168.43.217  
traceroute to 192.168.43.217 (192.168.43.217), 30 hops max, 60 byte packets  
1 192.168.43.217 (192.168.43.217) 0.716 ms 0.634 ms 0.597 ms  
hanna_b190420cs@ubuntu:~$ traceroute -6 2402:3a80:19e0:b8ec:a983:e0f4:575a:3af  
traceroute to 2402:3a80:19e0:b8ec:a983:e0f4:575a:3af (2402:3a80:19e0:b8ec:a983:e0f4:575a:3af),  
30 hops max, 80 byte packets  
1 ubuntu (2402:3a80:19e0:b8ec:a983:e0f4:575a:3af) 0.900 ms 0.800 ms 0.749 ms  
hanna_b190420cs@ubuntu:~$
```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ sudo traceroute --tcp google.com  
traceroute to google.com (142.250.193.174), 30 hops max, 60 byte packets  
1 _gateway (192.168.1.1) 1.691 ms 1.612 ms 3.165 ms  
2 * * *  
3 * * *  
4 * * *  
5 * * *  
6 * * *  
7 * * *  
8 * * *  
9 * * *  
10 maa05s26-in-f14.1e100.net (142.250.193.174) 25.811 ms 22.516 ms 24.427 ms  
hanna_b190420cs@ubuntu:~$ sudo traceroute --tcp 103.94.136.106  
traceroute to 103.94.136.106 (103.94.136.106), 30 hops max, 60 byte packets  
1 _gateway (192.168.1.1) 1.001 ms 1.073 ms 1.384 ms  
2 * * *  
3 * * *  
4 cok-absdns1.alliancebroadband.in (103.94.136.106) 6.716 ms 7.468 ms 7.452 ms  
hanna_b190420cs@ubuntu:~$
```



### 3.ip

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ 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: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000  
    link/ether e4:5e:37:4c:26:33 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.1.6/24 brd 192.168.1.255 scope global dynamic noprefixroute wlp0s20f3  
        valid_lft 85790sec preferred_lft 85790sec  
    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
hanna_b190420cs@ubuntu:~$ ip address show wlp0s20f3  
2: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000  
    link/ether e4:5e:37:4c:26:33 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.1.6/24 brd 192.168.1.255 scope global dynamic noprefixroute wlp0s20f3  
        valid_lft 85727sec preferred_lft 85727sec  
    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
hanna_b190420cs@ubuntu:~$ ip link
```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ ip link  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
2: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP mode DORMANT group default qlen 1000  
    link/ether e4:5e:37:4c:26:33 brd ff:ff:ff:ff:ff:ff  
hanna_b190420cs@ubuntu:~$ ip -s link  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
    RX: bytes    packets  errors  dropped  overrun  mcast  
    137403      1273    0       0       0       0  
    TX: bytes    packets  errors  dropped  carrier  collsns  
    137403      1273    0       0       0       0  
2: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP mode DORMANT group default qlen 1000  
    link/ether e4:5e:37:4c:26:33 brd ff:ff:ff:ff:ff:ff  
    RX: bytes    packets  errors  dropped  overrun  mcast  
    19942410    47997   0       0       0       0  
    TX: bytes    packets  errors  dropped  carrier  collsns  
    3808509     14686   0       0       0       0  
hanna_b190420cs@ubuntu:~$ ip route  
default via 192.168.1.1 dev wlp0s20f3 proto dhcp metric 600  
169.254.0.0/16 dev wlp0s20f3 scope link metric 1000  
192.168.1.0/24 dev wlp0s20f3 proto kernel scope link src 192.168.1.6 metric 600  
hanna_b190420cs@ubuntu:~$
```



```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ sudo ip a add 192.168.1.50/24 dev wlp0s20f3  
[sudo] password for hanna_b190420cs:  
hanna_b190420cs@ubuntu:~$ ip address show wlp0s20f3  
2: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default  
qlen 1000  
    link/ether e4:5e:37:4c:26:33 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.1.6/24 brd 192.168.1.255 scope global dynamic noprefixroute wlp0s20f3  
        valid_lft 84925sec preferred_lft 84925sec  
    inet 192.168.1.50/24 scope global secondary wlp0s20f3  
        valid_lft forever preferred_lft forever  
    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
hanna_b190420cs@ubuntu:~$ sudo ip a del 192.168.1.50/24 dev wlp0s20f3  
hanna_b190420cs@ubuntu:~$ ip address show wlp0s20f3  
2: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default  
qlen 1000  
    link/ether e4:5e:37:4c:26:33 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.1.6/24 brd 192.168.1.255 scope global dynamic noprefixroute wlp0s20f3  
        valid_lft 84902sec preferred_lft 84902sec  
    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
hanna_b190420cs@ubuntu:~$
```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ ip monitor  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:42:27:69 router STALE  
2: wlp0s20f3    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
    valid_lft forever preferred_lft forever  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:5c:a7:e1 router STALE  
2: wlp0s20f3    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
    valid_lft forever preferred_lft forever  
2: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP>  
    link/ether  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:34:1d:a9 router STALE  
2: wlp0s20f3    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
    valid_lft forever preferred_lft forever  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:09:89:e1 router STALE  
fe80::1 dev wlp0s20f3 lladdr 4c:ae:1c:1a:29:e6 router STALE  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:15:1e:71 router STALE  
2: wlp0s20f3    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
    valid_lft forever preferred_lft forever  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:4d:eb:e9 router STALE  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:39:23:a9 router STALE  
2: wlp0s20f3    inet6 fe80::3f4a:bf65:53f6:bb11/64 scope link noprefixroute  
    valid_lft forever preferred_lft forever
```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ ip neighbour  
192.168.1.1 dev wlp0s20f3 lladdr c4:70:0b:c4:11:f8 REACHABLE  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:03:e9:59 router STALE  
hanna_b190420cs@ubuntu:~$ sudo ip neighbour add 192.168.1.20 dev wlp0s20f3  
Error: No link layer address given.  
hanna_b190420cs@ubuntu:~$ sudo ip neighbour add 192.168.1.20 dev wlp0s20f3 lladdr c4:70:0b:c4:11:f8  
RTNETLINK answers: File exists  
hanna_b190420cs@ubuntu:~$ sudo ip neighbour add 192.168.1.200 dev wlp0s20f3 lladdr c4:70:0b:c4:11:f8  
hanna_b190420cs@ubuntu:~$ ip neighbour  
192.168.1.1 dev wlp0s20f3 lladdr c4:70:0b:c4:11:f8 REACHABLE  
192.168.1.200 dev wlp0s20f3 lladdr c4:70:0b:c4:11:f8 PERMANENT  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:0f:98:2d router STALE  
hanna_b190420cs@ubuntu:~$ sudo ip neighbour del 192.168.1.200 dev wlp0s20f3 lladdr c4:70:0b:c4:11:f8  
hanna_b190420cs@ubuntu:~$ ip neighbour  
192.168.1.1 dev wlp0s20f3 lladdr c4:70:0b:c4:11:f8 REACHABLE  
fe80::1 dev wlp0s20f3 lladdr 14:a7:2b:15:6b:51 router STALE  
hanna_b190420cs@ubuntu:~$
```

## 4.dig

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ dig google.com  
  
; <<>> DiG 9.16.1-Ubuntu <<>> google.com  
;; global options: +cmd  
;; Got answer:  
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 55670  
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1  
  
;; OPT PSEUDOSECTION:  
; EDNS: version: 0, flags:; udp: 65494  
;; QUESTION SECTION:  
;google.com. IN A  
  
;; ANSWER SECTION:  
google.com. 32 IN A 142.250.193.110  
  
;; Query time: 8 msec  
;; SERVER: 127.0.0.53#53(127.0.0.53)  
;; WHEN: Sun Jan 16 14:20:10 IST 2022  
;; MSG SIZE rcvd: 55  
  
hanna_b190420cs@ubuntu:~$
```



```

hanna_b190420cs@ubuntu: ~
hanna_b190420cs@ubuntu:~$ dig google.com ANY

; <<>> DiG 9.16.1-Ubuntu <<>> google.com ANY
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 51505
;; flags: qr rd ra; QUERY: 1, ANSWER: 7, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.                IN      ANY

;; ANSWER SECTION:
google.com.                49      IN      SOA      ns1.google.com. dns-admin.google.com. 422014924 900 900 1800 60
google.com.                22      IN      A        142.250.193.110
google.com.                37      IN      AAAA     2404:6800:4007:81f::200e
google.com.                25      IN      NS       ns1.google.com.
google.com.                25      IN      NS       ns3.google.com.
google.com.                25      IN      NS       ns4.google.com.
google.com.                25      IN      NS       ns2.google.com.

;; Query time: 28 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun Jan 16 14:36:47 IST 2022
;; MSG SIZE rcvd: 201

hanna_b190420cs@ubuntu:~$

```

```

hanna_b190420cs@ubuntu: ~
hanna_b190420cs@ubuntu:~$ dig google.com MX

; <<>> DiG 9.16.1-Ubuntu <<>> google.com MX
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 52546
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.                IN      MX

;; ANSWER SECTION:
google.com.                60      IN      MX       30 alt2.aspmx.l.google.com.
google.com.                60      IN      MX       50 alt4.aspmx.l.google.com.
google.com.                60      IN      MX       40 alt3.aspmx.l.google.com.
google.com.                60      IN      MX       20 alt1.aspmx.l.google.com.
google.com.                60      IN      MX       10 aspmx.l.google.com.

;; Query time: 56 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun Jan 16 14:38:17 IST 2022
;; MSG SIZE rcvd: 147

hanna_b190420cs@ubuntu:~$ dig google.com +trace

```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ dig localhost  
  
; <<>> DiG 9.16.1-Ubuntu <<>> localhost  
;; global options: +cmd  
;; Got answer:  
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 13801  
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1  
  
;; OPT PSEUDOSECTION:  
;; EDNS: version: 0, flags:; udp: 65494  
;; QUESTION SECTION:  
;localhost.                IN      A  
  
;; ANSWER SECTION:  
localhost.                0       IN      A      127.0.0.1  
  
;; Query time: 4 msec  
;; SERVER: 127.0.0.53#53(127.0.0.53)  
;; WHEN: Sun Jan 16 14:40:53 IST 2022  
;; MSG SIZE rcvd: 54  
  
hanna_b190420cs@ubuntu:~$ dig localhost ANY
```

## 5.whois

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ whois 103.94.136.10  
% [whois.apnic.net]  
% Whois data copyright terms    http://www.apnic.net/db/dbcopyright.html  
  
% Information related to '103.94.136.0 - 103.94.139.255'  
  
% Abuse contact for '103.94.136.0 - 103.94.139.255' is 'abhijitm@alliancekolkata.com'  
  
inetnum:        103.94.136.0 - 103.94.139.255  
netname:        OMTELE  
descr:          Om Telecom  
admin-c:        KG333-AP  
tech-c:         KG333-AP  
country:        IN  
mnt-by:         MAINT-IN-IRINN  
mnt-irt:         IRT-OMTELE-IN  
mnt-routes:     MAINT-IN-OMTELE  
status:         ASSIGNED PORTABLE  
last-modified:  2017-06-06T12:06:05Z  
source:         APNIC  
  
irt:            IRT-OMTELE-IN  
address:        RZ-143A,GALI NO. 4,GURGA PARK ,New Delhi,Delhi-110045  
e-mail:         abhijitm@alliancekolkata.com  
abuse-mailbox:  abhijitm@alliancekolkata.com  
admin-c:        KG333-AP  
tech-c:         KG333-AP  
auth:           # Filtered  
mnt-by:         MAINT-IN-OMTELE  
last-modified:  2017-06-06T11:57:54Z  
source:         APNIC  
  
person:         Kaushik Ghosh  
address:        RZ-143A,GALI NO. 4,GURGA PARK ,New Delhi,Delhi-110045  
country:        IN  
phone:          +91 03322277132  
e-mail:         kaushik@alliancekolkata.com  
nic-hdl:        KG333-AP  
mnt-by:         MAINT-IN-OMTELE  
last-modified:  2017-06-06T11:58:49Z  
source:         APNIC  
  
% Information related to '103.94.136.0/24AS23860'  
  
route:          103.94.136.0/24
```



```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ whois google.com  
Domain Name: GOOGLE.COM  
Registry Domain ID: 2138514_DOMAIN_COM-VRSN  
Registrar WHOIS Server: whois.markmonitor.com  
Registrar URL: http://www.markmonitor.com  
Updated Date: 2019-09-09T15:39:04Z  
Creation Date: 1997-09-15T04:00:00Z  
Registry Expiry Date: 2028-09-14T04:00:00Z  
Registrar: MarkMonitor Inc.  
Registrar IANA ID: 292  
Registrar Abuse Contact Email: abusecomplaints@markmonitor.com  
Registrar Abuse Contact Phone: +1.2083895740  
Domain Status: clientDeleteProhibited https://icann.org/epp#clientDeleteProhibited  
Domain Status: clientTransferProhibited https://icann.org/epp#clientTransferProhibited  
Domain Status: clientUpdateProhibited https://icann.org/epp#clientUpdateProhibited  
Domain Status: serverDeleteProhibited https://icann.org/epp#serverDeleteProhibited  
Domain Status: serverTransferProhibited https://icann.org/epp#serverTransferProhibited  
Domain Status: serverUpdateProhibited https://icann.org/epp#serverUpdateProhibited  
Name Server: NS1.GOOGLE.COM  
Name Server: NS2.GOOGLE.COM  
Name Server: NS3.GOOGLE.COM  
Name Server: NS4.GOOGLE.COM  
DNSSEC: unsigned  
URL of the ICANN Whois Inaccuracy Complaint Form: https://www.icann.org/wicf/  
>>> Last update of whois database: 2022-01-16T08:25:44Z <<<  
  
For more information on Whois status codes, please visit https://icann.org/epp  
  
NOTICE: The expiration date displayed in this record is the date the  
registrar's sponsorship of the domain name registration in the registry is  
currently set to expire. This date does not necessarily reflect the expiration  
date of the domain name registrant's agreement with the sponsoring  
registrar. Users may consult the sponsoring registrar's Whois database to  
view the registrar's reported date of expiration for this registration.  
  
TERMS OF USE: You are not authorized to access or query our Whois  
database through the use of electronic processes that are high-volume and  
automated except as reasonably necessary to register domain names or  
modify existing registrations; the Data in VeriSign Global Registry  
Services' ("VeriSign") Whois database is provided by VeriSign for  
information purposes only, and to assist persons in obtaining information  
about or related to a domain name registration record. VeriSign does not  
guarantee its accuracy. By submitting a Whois query, you agree to abide  
by the following terms of use: You agree that you may use this Data only  
for lawful purposes and that under no circumstances will you use this Data
```

## 6.route

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ route  
Kernel IP routing table  
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface  
default          _gateway        0.0.0.0          UG    600    0      0 wlp0s20f3  
link-local       0.0.0.0         255.255.0.0      U     1000    0      0 wlp0s20f3  
192.168.1.0      0.0.0.0         255.255.255.0    U     600    0      0 wlp0s20f3  
hanna_b190420cs@ubuntu:~$ route -n  
Kernel IP routing table  
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface  
0.0.0.0          192.168.1.1     0.0.0.0          UG    600    0      0 wlp0s20f3  
169.254.0.0      0.0.0.0         255.255.0.0      U     1000    0      0 wlp0s20f3  
192.168.1.0      0.0.0.0         255.255.255.0    U     600    0      0 wlp0s20f3  
hanna_b190420cs@ubuntu:~$ route -Cn  
Kernel IP routing cache  
Source           Destination      Gateway          Flags Metric Ref    Use Iface  
hanna_b190420cs@ubuntu:~$ ip route  
default via 192.168.1.1 dev wlp0s20f3 proto dhcp metric 600  
169.254.0.0/16 dev wlp0s20f3 scope link metric 1000  
192.168.1.0/24 dev wlp0s20f3 proto kernel scope link src 192.168.1.6 metric 600  
hanna_b190420cs@ubuntu:~$ ip route show table local  
broadcast 127.0.0.0 dev lo proto kernel scope link src 127.0.0.1  
local 127.0.0.0/8 dev lo proto kernel scope host src 127.0.0.1  
local 127.0.0.1 dev lo proto kernel scope host src 127.0.0.1  
broadcast 127.255.255.255 dev lo proto kernel scope link src 127.0.0.1  
broadcast 192.168.1.0 dev wlp0s20f3 proto kernel scope link src 192.168.1.6  
local 192.168.1.6 dev wlp0s20f3 proto kernel scope host src 192.168.1.6  
broadcast 192.168.1.255 dev wlp0s20f3 proto kernel scope link src 192.168.1.6  
hanna_b190420cs@ubuntu:~$ ip -4 route  
default via 192.168.1.1 dev wlp0s20f3 proto dhcp metric 600  
169.254.0.0/16 dev wlp0s20f3 scope link metric 1000  
192.168.1.0/24 dev wlp0s20f3 proto kernel scope link src 192.168.1.6 metric 600  
hanna_b190420cs@ubuntu:~$ ip -6 route  
::1 dev lo proto kernel metric 256 pref medium  
fe80::/64 dev wlp0s20f3 proto kernel metric 600 pref medium  
default via fe80::1 dev wlp0s20f3 proto ra metric 20600 pref medium  
hanna_b190420cs@ubuntu:~$
```



## 7.tcpdump

[illegible]

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ sudo tcpdump -c 4 -i wlp0s20f3  
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode  
listening on wlp0s20f3, link-type EN10MB (Ethernet), capture size 262144 bytes  
15:25:36.385540 IP 192.168.1.2.53200 > 255.255.255.255.6667: UDP, length 172  
15:25:36.388555 IP ubuntu.44218 > cok-absdns2.alliancebroadband.in.domain: 6561+ [1au] PTR? 2.1.168.192  
.in-addr.arpa. (53)  
15:25:36.390109 IP6 fe80::16a7:2bff:feaf:1eef > ff02::16: HBH ICMP6, multicast listener report v2, 1 gr  
oup record(s), length 28  
15:25:36.390112 IP6 fe80::16a7:2bff:fe80:5a1d > ff02::16: HBH ICMP6, multicast listener report v2, 1 gr  
oup record(s), length 28  
4 packets captured  
48 packets received by filter  
13 packets dropped by kernel  
hanna_b190420cs@ubuntu:~$ sudo tcpdump -A -c 4 -i wlp0s20f3  
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode  
listening on wlp0s20f3, link-type EN10MB (Ethernet), capture size 262144 bytes  
15:25:44.577798 IP6 fe80::1aa6:f7ff:feb6:ea67 > ff02::16: HBH ICMP6, multicast listener report v2, 3 gr  
oup record(s), length 68  
`....L.....g.....:.....  
.....g  
15:25:44.578050 IP6 fe80::4eae:1cff:fe40:97c9 > ip6-allnodes: HBH ICMP6, multicast listener query v2 [g  
addr ::], length 28  
`....$......N.....@.....:.....t.....}.  
15:25:44.578178 IP6 fe80::16a7:2bff:fe61:320b > ff02::16: HBH ICMP6, multicast listener report v2, 2 gr  
oup record(s), length 48  
`....8.....+.a2.....  
15:25:44.578358 IP6 fe80::16a7:2bff:fe53:1983 > ff02::16: HBH ICMP6, multicast listener report v2, 1 gr  
oup record(s), length 28  
`....$......+.S.....  
4 packets captured  
40 packets received by filter  
5 packets dropped by kernel  
hanna_b190420cs@ubuntu:~$ sudo tcpdump -D  
1.wlp0s20f3 [Up, Running]  
2.lo [Up, Running, Loopback]  
3.any (Pseudo-device that captures on all interfaces) [Up, Running]  
4.bluetooth-monitor (Bluetooth Linux Monitor) [none]  
5.nflog (Linux netfilter log (NFLOG) interface) [none]  
6.nfqueue (Linux netfilter queue (NFQUEUE) interface) [none]  
7.bluetooth0 (Bluetooth adapter number 0) [none]  
hanna_b190420cs@ubuntu:~$
```

```

hanna_b190420cs@ubuntu: ~
hanna_b190420cs@ubuntu:~$ sudo tcpdump -n -i lo
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on lo, link-type EN10MB (Ethernet), capture size 262144 bytes
^C
0 packets captured
0 packets received by filter
0 packets dropped by kernel
hanna_b190420cs@ubuntu:~$ sudo tcpdump -c 4 -n -i wlp0s20f3
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on wlp0s20f3, link-type EN10MB (Ethernet), capture size 262144 bytes
15:28:20.682083 IP6 fe80::cad7:19ff:fe7e:35 > ff02::16: HBH ICMP6, multicast listener report v2, 3 group record(s), length 68
15:28:20.713589 IP6 fe80::e21c:fcff:fea6:c623 > ff02::16: HBH ICMP6, multicast listener report v2, 3 group record(s), length 68
15:28:20.906757 IP6 fe80::1 > ff02::1: ICMP6, router advertisement, length 56
15:28:20.912743 IP6 fe80::be0f:9aff:fef4:c9fb > ff02::16: HBH ICMP6, multicast listener report v2, 3 group record(s), length 68
4 packets captured
4 packets received by filter
0 packets dropped by kernel
hanna_b190420cs@ubuntu:~$

```

## 8.netstat

```

hanna_b190420cs@ubuntu: ~
hanna_b190420cs@ubuntu:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 ubuntu:40668           a23-221-52-199.de:https ESTABLISHED
tcp        0      0 ubuntu:59124           108.158.255.177:https   ESTABLISHED
tcp        0      0 ubuntu:56732           72.251.249.14:https    ESTABLISHED
tcp        0      0 ubuntu:49902           103.229.10.173:https   ESTABLISHED
tcp        0      0 ubuntu:39950           ec2-54-246-96-194:https ESTABLISHED
tcp        0      1 ubuntu:41982           a23-212-241-115.d:https LAST_ACK
tcp        0      0 ubuntu:42166           ec2-54-251-95-203:https TIME_WAIT
tcp        0      0 ubuntu:40706           a23-221-52-199.de:https ESTABLISHED
tcp        0      0 ubuntu:39956           server-18-67-161-:https ESTABLISHED
tcp        0      1 ubuntu:55608           178.128.135.80:https   LAST_ACK
tcp        0      0 ubuntu:58692           104.16.68.69:https     ESTABLISHED
tcp        0      0 ubuntu:37376           maa03s35-in-f1.1e:https ESTABLISHED
tcp        78      0 ubuntu:43228           ec2-13-231-15-149:https CLOSE_WAIT
tcp        32      0 ubuntu:33612           ec2-34-225-197-80:https CLOSE_WAIT
tcp        32      0 ubuntu:33610           ec2-34-225-197-80:https CLOSE_WAIT
tcp        0      1 ubuntu:57364           594.bm-nginx-load:https SYN_SENT
tcp        0      0 ubuntu:36468           69.173.158.64:https    ESTABLISHED
tcp        0      0 ubuntu:52574           47.241.6.33:https      ESTABLISHED
tcp        0      0 ubuntu:41086           103.231.98.194:https   ESTABLISHED
tcp        0      0 ubuntu:60126           193.122.130.38:https   ESTABLISHED
tcp        0      0 ubuntu:48554           ip22.67-202-105.s:https ESTABLISHED
tcp        0      0 ubuntu:33628           69.173.158.65:https    ESTABLISHED
tcp        0      0 ubuntu:55796           maa05s26-in-f19.1:https ESTABLISHED
tcp        0      0 ubuntu:48526           ip22.67-202-105.s:https ESTABLISHED
tcp        0      0 ubuntu:57586           a23-58-66-29.depl:https ESTABLISHED
tcp        0      0 ubuntu:35538           147.75.61.140:https    CLOSE_WAIT
tcp        1      0 ubuntu:33622           ec2-34-225-197-80:https CLOSE_WAIT
tcp        32      0 ubuntu:33608           ec2-34-225-197-80:https CLOSE_WAIT
tcp        0      0 ubuntu:46490           ip32.67-202-105.s:https ESTABLISHED
tcp        0      0 ubuntu:60128           193.122.130.38:https   ESTABLISHED
tcp        25      0 ubuntu:47506           ip158.ip-51-68-57:https CLOSE_WAIT
tcp        0      0 ubuntu:36472           69.173.158.64:https    ESTABLISHED
tcp        0      1 ubuntu:57384           594.bm-nginx-load:https SYN_SENT
tcp        0      0 ubuntu:45978           89.207.22.146:https    ESTABLISHED
tcp        0      0 ubuntu:60354           199.232.102.49:https   ESTABLISHED
tcp        78      0 ubuntu:43172           ec2-34-202-127-8.:https CLOSE_WAIT
tcp        0      0 ubuntu:46498           lb-140-82-114-26-:https ESTABLISHED
tcp        0      1 ubuntu:57362           594.bm-nginx-load:https SYN_SENT
tcp        0      1 ubuntu:57374           594.bm-nginx-load:https SYN_SENT
tcp        0      0 ubuntu:46776           167.172.1.14:https     TIME_WAIT

```



```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ netstat -i  
Kernel Interface table  
Iface      MTU  RX-OK RX-ERR RX-DRP RX-OVR    TX-OK TX-ERR TX-DRP TX-OVR Flg  
lo         65536 6205   0      0      0     6205   0      0      0    LRU  
wlp0s20f   1500 340996 0      0      0    87517   0      0      0    BMRU  
hanna_b190420cs@ubuntu:~$ netstat -ap | grep ssh  
(No info could be read for "-p": geteuid()=1001 but you should be root.)  
tcp        0      0 0.0.0.0:ssh 0.0.0.0:*      LISTEN     -  
tcp6       0      0 :::ssh      :::*          LISTEN     -  
unix 2      [ ACC ] STREAM LISTENING 48195 - /run/user/1000/gnupg/S.gpg-agent.ssh  
unix 2      [ ACC ] STREAM LISTENING 47842 - /run/user/1000/keyring/ssh  
unix 2      [ ACC ] STREAM LISTENING 48404 - /tmp/ssh-Tiry04MwciyB/agent.2011  
hanna_b190420cs@ubuntu:~$ netstat -an | grep ':80'  
hanna_b190420cs@ubuntu:~$ netstat -r  
Kernel IP routing table  
Destination Gateway Genmask Flags MSS Window irtt Iface  
default     _gateway  0.0.0.0 UG      0 0 0 wlp0s20f3  
link-local  0.0.0.0 255.255.0.0 U       0 0 0 wlp0s20f3  
192.168.1.0 0.0.0.0 255.255.255.0 U       0 0 0 wlp0s20f3  
hanna_b190420cs@ubuntu:~$
```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ netstat -pt  
(No info could be read for "-p": geteuid()=1001 but you should be root.)  
Active Internet connections (w/o servers)  
Proto Recv-Q Send-Q Local Address Foreign Address State PID/Program name  
tcp 0 0 ubuntu:53552 lb-140-82-113-26:https ESTABLISHED -  
tcp 0 0 ubuntu:59124 108.158.255.177:https ESTABLISHED -  
tcp 0 0 ubuntu:58692 104.16.68.69:https ESTABLISHED -  
tcp 0 0 ubuntu:58810 72.251.249.9:https ESTABLISHED -  
tcp 0 0 1 ubuntu:41314 134.209.129.254:https LAST_ACK -  
tcp 0 0 ubuntu:33628 69.173.158.65:https ESTABLISHED -  
tcp 0 0 ubuntu:55796 maa05s26-in-f19.1:https ESTABLISHED -  
tcp 0 0 ubuntu:58428 node-103-94-137-3:https ESTABLISHED -  
tcp 0 0 ubuntu:50378 maa05s25-in-f1.1e:https ESTABLISHED -  
tcp 78 0 ubuntu:47592 ec2-52-77-166-126:https CLOSE_WAIT -  
tcp 1 1 ubuntu:33622 ec2-34-225-197-80:https LAST_ACK -  
tcp 0 0 ubuntu:46310 maa05s18-in-f10.1:https TIME_WAIT -  
tcp 0 0 ubuntu:34432 maa05s28-in-f10.1:https TIME_WAIT -  
tcp 0 0 ubuntu:36472 69.173.158.64:https TIME_WAIT -  
tcp 0 0 ubuntu:34426 maa05s28-in-f10.1:https TIME_WAIT -  
tcp 0 0 ubuntu:46578 8.159.244.35.bc.g:https TIME_WAIT -  
tcp 0 0 ubuntu:48020 ec2-176-34-169-11:https ESTABLISHED -  
tcp 0 0 ubuntu:45978 89.207.22.146:https ESTABLISHED -  
tcp 0 0 ubuntu:60354 199.232.102.49:https ESTABLISHED -
```

```

hanna_b190420cs@ubuntu:~$ netstat -lt
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 localhost:domain        0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:ssh             0.0.0.0:*               LISTEN
tcp        0      0 localhost:ipp           0.0.0.0:*               LISTEN
tcp6       0      0 [::]:ssh                [::]:*                  LISTEN
tcp6       0      0 ip6-localhost:ipp      [::]:*                  LISTEN
hanna_b190420cs@ubuntu:~$ netstat -lu
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 0.0.0.0:36621          0.0.0.0:*               LISTEN
udp        0      0 localhost:domain        0.0.0.0:*               LISTEN
udp        0      0 0.0.0.0:631            0.0.0.0:*               LISTEN
udp        0      0 224.0.0.251:mdns       0.0.0.0:*               LISTEN
udp        0      0 0.0.0.0:mdns           0.0.0.0:*               LISTEN
udp6       0      0 [::]:mdns               [::]:*                  LISTEN
udp6       0      0 [::]:46392              [::]:*                  LISTEN
hanna_b190420cs@ubuntu:~$ netstat -lx
Active UNIX domain sockets (only servers)
Proto RefCnt Flags       Type       State         I-Node  Path
unix  2      [ ACC ] STREAM    LISTENING   48186   /run/user/1000/systemd/private
unix  2      [ ACC ] STREAM    LISTENING   48191   /run/user/1000/bus
unix  2      [ ACC ] STREAM    LISTENING   48192   /run/user/1000/gnupg/S.dirmngr
unix  2      [ ACC ] STREAM    LISTENING   48193   /run/user/1000/gnupg/S.gpg-agent.browser
unix  2      [ ACC ] STREAM    LISTENING   48194   /run/user/1000/gnupg/S.gpg-agent.extra
unix  2      [ ACC ] STREAM    LISTENING   48195   /run/user/1000/gnupg/S.gpg-agent.ssh
unix  2      [ ACC ] STREAM    LISTENING   48196   /run/user/1000/gnupg/S.gpg-agent
unix  2      [ ACC ] STREAM    LISTENING   48197   /run/user/1000/pk-debconf-socket
unix  2      [ ACC ] STREAM    LISTENING   48198   /run/user/1000/pulse/native
unix  2      [ ACC ] STREAM    LISTENING   48199   /run/user/1000/snapd-session-agent.socket
unix  2      [ ACC ] STREAM    LISTENING   46652   @/tmp/.ICE-unix/2129
unix  2      [ ACC ] STREAM    LISTENING   49310   @/tmp/.X11-unix/X0
unix  2      [ ACC ] STREAM    LISTENING   44411   /run/user/1000/keyring/control
unix  2      [ ACC ] STREAM    LISTENING   46645   /run/user/1000/keyring/pkcs11
unix  2      [ ACC ] STREAM    LISTENING   47842   /run/user/1000/keyring/ssh
unix  2      [ ACC ] STREAM    LISTENING   815     /run/systemd/private
unix  2      [ ACC ] STREAM    LISTENING   817     /run/systemd/userdb/io.systemd.DynamicUser

```

## 9.dstat

```

hanna_b190420cs@ubuntu:~$ dstat
You did not select any stats, using -cdngy by default.
--total-cpu-usage-- -dsk/total- -net/total- ---paging-- ---system--
usr sys idl wai stl | read | writ | recv | send | in  | out | int  | csw
10  2  88  0  0 | 405k | 585k |    0 |    0 | 0   | 0   | 3570 | 6798
 8  2  89  0  0 |    0 |    0 | 2080B | 260B | 0   | 0   | 2937 | 5945
 9  3  89  0  0 |    0 |    0 | 7875B | 390B | 0   | 0   | 2893 | 5915
 9  2  89  0  0 |    0 |    0 | 2713B | 260B | 0   | 0   | 3202 | 6087
10  3  87  0  0 |    0 | 664k | 4386B | 216B | 0   | 0   | 4853 | 8128
10  2  88  0  0 |    0 |    0 | 2320B | 130B | 0   | 0   | 4722 | 7425
10  2  87  0  0 |    0 |    0 | 396B  | 476B | 0   | 0   | 4730 | 7561
10  2  88  0  0 |    0 |    0 | 3640B | 260B | 0   | 0   | 4544 | 7076
 9  3  88  0  0 |    0 |    0 | 9280B | 216B | 0   | 0   | 4624 | 7025
 9  2  89  0  0 |    0 | 88k  | 2574B | 260B | 0   | 0   | 4617 | 7200
 7  2  91  0  0 |    0 | 264k | 1886B | 346B | 0   | 0   | 3639 | 5463
 8  2  90  0  0 |    0 |    0 |    0   |    0 | 0   | 0   | 2750 | 4822
 5  1  95  0  0 |    0 |    0 | 164B  | 420B | 0   | 0   | 1057 | 2844
 9  2  89  0  0 |    0 |    0 | 176B  | 130B | 0   | 0   | 2385 | 5118
13  3  83  0  0 |    0 |    0 | 654B  | 776B | 0   | 0   | 4460 | 10k
14  3  83  0  0 |    0 |    0 | 12k   | 260B | 0   | 0   | 6942 | 14k
12  2  86  0  0 |    0 | 32k  | 2004B | 507B | 0   | 0   | 6613 | 8270
13  5  83  0  0 |    0 | 48k  | 1130B | 130B | 0   | 0   | 6933 | 12k
17  6  77  0  0 |    0 | 232k | 428B  | 764B | 0   | 0   | 7542 | 16k

```



```

hanna_b190420cs@ubuntu: ~
hanna_b190420cs@ubuntu:~$ dstat -c --top-cpu
/usr/bin/dstat:2619: DeprecationWarning: the imp module is deprecated in favour of importlib; see the module's documentation for alternative uses
import imp
--total-cpu-usage-- -most-expensive-
usr sys idl wai stl|_cpu process
10  2  88  0  0|gnome-shell 1.8
 8  2  91  0  0|chrome 4.2
 8  2  90  0  0|chrome 4.1
10  3  86  0  0|chrome 4.0
11  2  86  0  0|chrome 3.9
10  3  88  0  0|chrome 4.9
 9  1  90  0  0|chrome 4.8
11  1  88  0  0|chrome 4.5
 7  2  91  0  0|chrome 4.5
15  4  81  0  0|chrome 6.1
16  4  79  0  0|chrome 5.5
11  3  86  0  0|chrome 4.5
19  5  76  0  0|chrome 7.9
13  3  84  0  0|chrome 5.8
12  4  84  0  0|chrome 5.4
16  4  81  0  0|chrome 4.0^C
hanna_b190420cs@ubuntu:~$

```

```

hanna_b190420cs@ubuntu: ~
hanna_b190420cs@ubuntu:~$ dstat --list
internal:
  aio,cpu,cpu-adv,cpu-use,cpu24,disk,disk24,disk24-old,epoch,fs,int,int24,io,ipc,
  load,lock,mem,mem-adv,net,page,page24,proc,raw,socket,swap,swap-old,sys,tcp,
  time,udp,unix,vm,vm-adv,zones
/usr/share/dstat:
  battery,battery-remain,condor-queue,cpufreq,dbus,disk-avgqu,disk-avgrq,disk-svctm,
  disk-tps,disk-util,disk-wait,dstat,dstat-cpu,dstat-ctxt,dstat-mem,fan,freespace,
  fuse,gpfs,gpfs-ops,helloworld,ib,innodb-buffer,innodb-io,innodb-ops,jvm-full,jvm-vm,
  lustre,md-status,memcache-hits,mongodb-conn,mongodb-mem,mongodb-opcount,mongodb-queue,
  mongodb-stats,mysql-io,mysql-keys,mysql5-cmds,mysql5-conn,mysql5-innodb,
  mysql5-innodb-basic,mysql5-innodb-extra,mysql5-io,mysql5-keys,net-packets,nfs3,
  nfs3-ops,nfsd3,nfsd3-ops,nfsd4-ops,nfsstat4,ntp,postfix,power,proc-count,qmail,
  redis,rpc,rpcd,sendmail,snmp-cpu,snmp-load,snmp-mem,snmp-net,snmp-net-err,snmp-sys,
  snooze,squid,test,thermal,top-bio,top-bio-adv,top-childwait,top-cpu,top-cpu-adv,
  top-cputime,top-cputime-avg,top-int,top-io,top-io-adv,top-latency,top-latency-avg,
  top-mem,top-oom,utmp,vm-cpu,vm-mem,vm-mem-adv,vmk-hba,vmk-int,vmk-nic,vz-cpu,vz-io,
  vz-ubc,wifi,zfs-arc,zfs-l2arc,zfs-zil
hanna_b190420cs@ubuntu:~$
hanna_b190420cs@ubuntu:~$

```

## 10. ifstat

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ ifstat  
wlp0s20f3  
KB/s in  KB/s out  
6.45      0.61  
2.30      0.37  
2.21      0.38  
0.98      1.38  
0.11      0.13  
1.48      1.25  
10.64     0.13  
2.23      0.51  
0.88      0.38  
4.81      0.80  
4.87      0.13  
2.01      0.21  
1.22      0.38  
6.92      1.03  
2.56      0.52  
43.07     4.82  
39.58     7.95  
2.52      0.21  
3.86      0.51  
3.88      3.92  
8.13      1.74  
2.21      0.63  
4.89      0.13  
3.13      2.81  
5.99      0.63  
3.75      3.65
```

## 11. wget

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ wget http://example.org  
--2022-01-16 19:06:28-- http://example.org/  
Resolving example.org (example.org)... 93.184.216.34, 2606:2800:220:1:248:1893:25c  
8:1946  
Connecting to example.org (example.org)|93.184.216.34|:80... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 1256 (1.2K) [text/html]  
Saving to: 'index.html'  
  
index.html          100%[=====>] 1.23K  --.-KB/s  in 0s  
  
2022-01-16 19:06:29 (65.7 MB/s) - 'index.html' saved [1256/1256]  
  
hanna_b190420cs@ubuntu:~$
```



## 12. tracepath

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ tracepath www.google.com  
1?: [LOCALHOST] 0.021ms pmtu 1432  
1: 2402:3a80:19f0:40a4::14 78.768ms  
1: 2402:3a80:19f0:40a4::14 3.233ms  
2: 2402:8100:12:5:4000::25f 458.818ms  
3: no reply  
4: 2402:8100:12:5:4000::32f 356.640ms  
5: ??? 832.975ms  
6: 2001:4860:1:1::6eb 200.324ms  
7: 2001:4860:1:1::1f56 204.562ms asymm 12  
8: no reply  
9: no reply  
10: no reply  
11: no reply  
12: no reply  
13: no reply  
14: no reply  
15: no reply  
16: no reply  
17: no reply  
18: no reply  
19: no reply  
20: no reply  
21: no reply  
22: no reply  
23: no reply  
24: no reply  
25: no reply  
26: no reply  
27: no reply  
28: no reply  
29: no reply  
30: no reply  
Too many hops: pmtu 1432  
Resume: pmtu 1432  
hanna_b190420cs@ubuntu:~$
```

```
hanna_b190420cs@ubuntu: ~  
hanna_b190420cs@ubuntu:~$ tracepath localhost  
1: localhost 0.052ms reached  
Resume: pmtu 65535 hops 1 back 1  
hanna_b190420cs@ubuntu:~$ tracepath -6 google.com  
1?: [LOCALHOST] 0.032ms pmtu 1432  
1: 2402:3a80:19f0:40a4::14 3.375ms  
1: 2402:3a80:19f0:40a4::14 2.999ms  
2: 2402:8100:12:5:4000::25f 50.383ms  
3: no reply  
4: 2402:8100:12:5:4000::32f 90.929ms  
5: ??? 50.659ms  
6: 2001:4860:1:1::6eb 279.351ms  
7: 2001:4860:1:1::1f56 78.417ms asymm 12  
8: no reply  
9: no reply  
10: no reply  
11: no reply  
12: no reply  
13: no reply  
14: no reply  
15: no reply  
16: no reply  
17: no reply  
18: no reply  
19: no reply  
20: no reply  
21: no reply  
22: no reply  
23: no reply  
24: no reply  
25: no reply  
26: no reply  
27: no reply  
28: no reply  
29: no reply  
30: no reply
```