CS3093D: ASSIGNMENT 01 NETWORKS LABORATORY

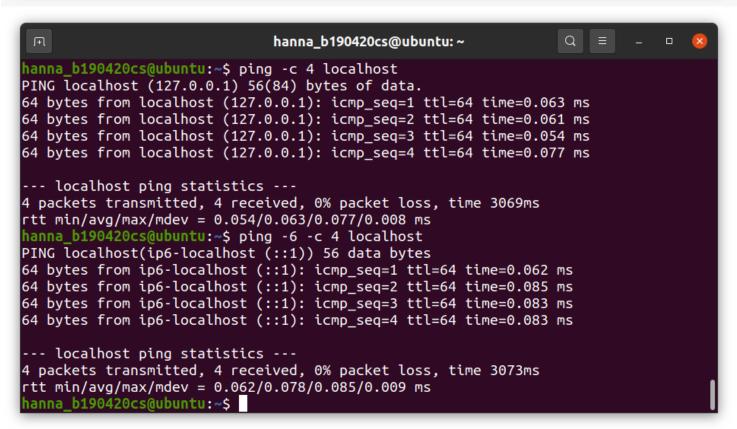
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1. ping

```
a =
                                              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
```



2. traceroute

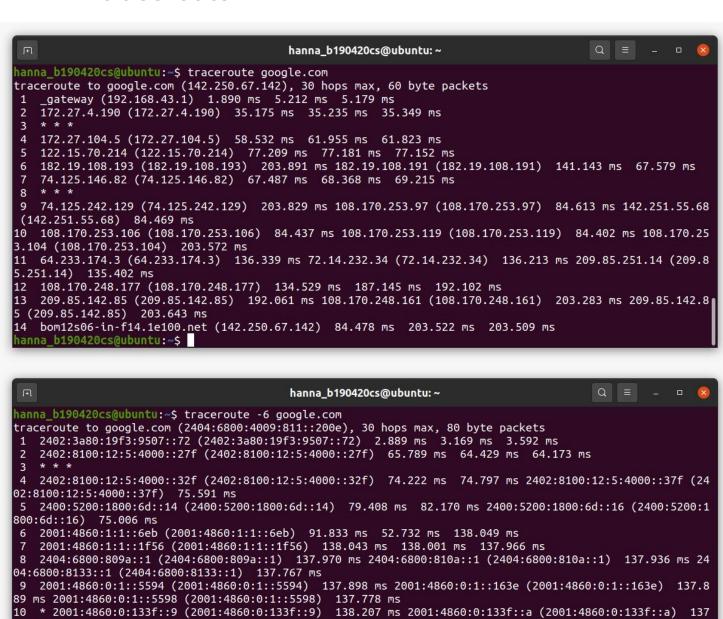
.793 ms

* * *

hanna b190420cs@ubuntu:~\$

12

13

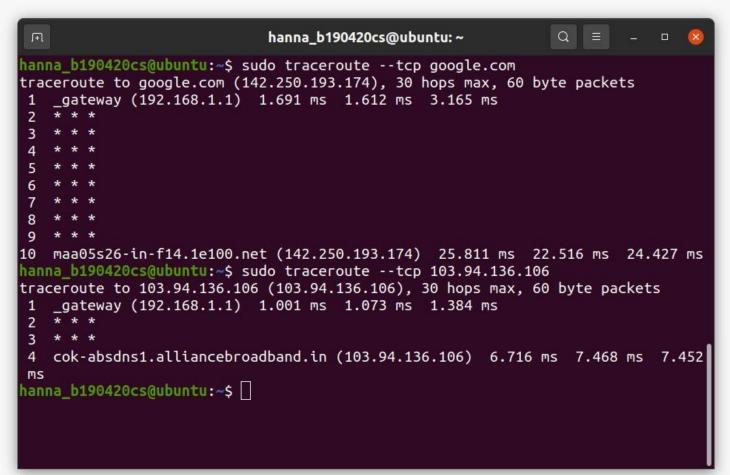


11 2001:4860::9:4001:b922 (2001:4860::9:4001:b922) 137.693 ms 2001:4860::9:4000:d772 (2001:4860::9:4000:

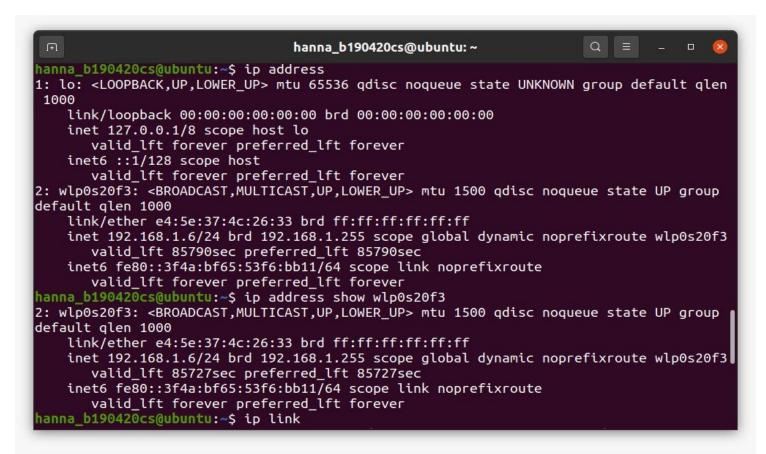
14 bom12s06-in-x0e.1e100.net (2404:6800:4009:811::200e) 155.811 ms 155.656 ms 155.489 ms

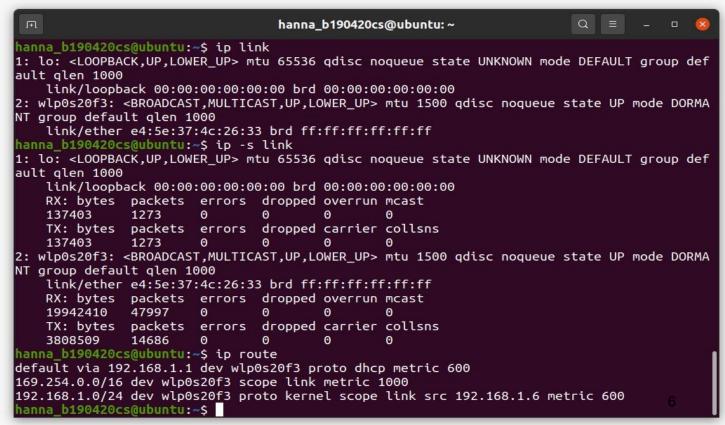
d772) 138.564 ms 2001:4860::9:4001:7734 (2001:4860::9:4001:7734) 138.156 ms

```
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 (2001:4860:0:1
33f::a) 137.793 ms
11 2001:4860::9:4001:b922 (2001:4860::9:4001:b922) 137.693 ms 2001:4860::9:4000:d772 (2001:4
860::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:~$
```

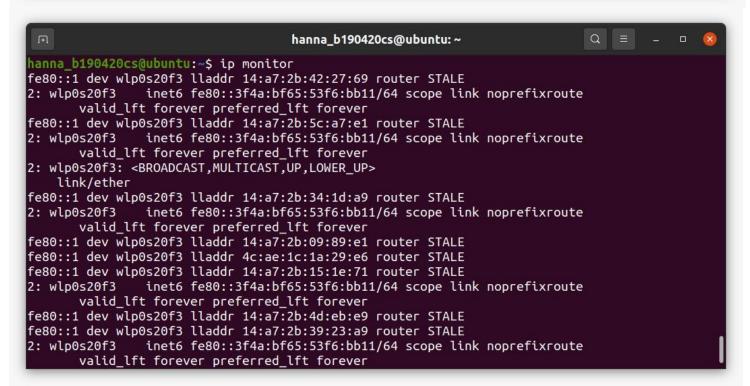


3.ip





```
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
glen 1000
    link/ether e4:5e:37:4c:26:33 brd 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
alen 1000
    link/ether e4:5e:37:4c:26:33 brd 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 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:c
4:11: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:c
4:11: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: ~
                                                                               Q ≡
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
                                                  142.250.193.110
                                          Α
;; 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:~$
```

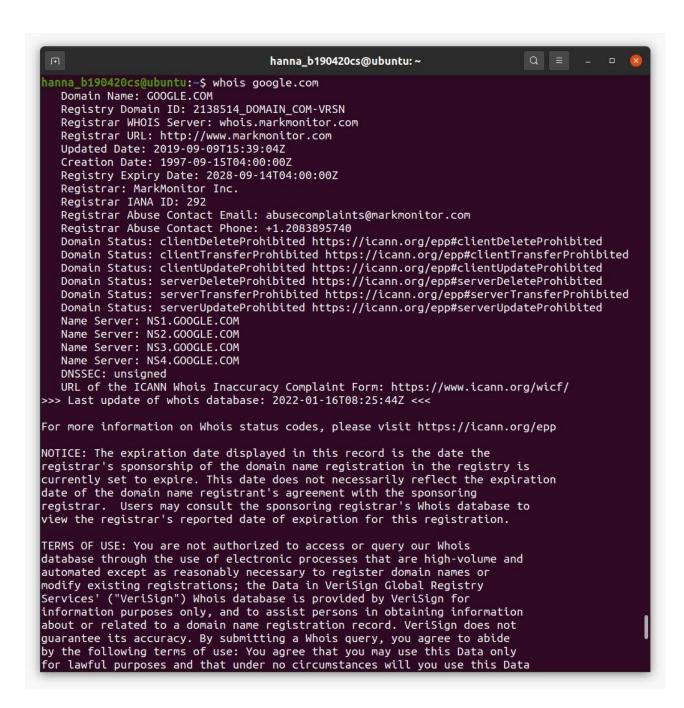
```
hanna_b190420cs@ubuntu: ~
hanna_b190420cs@ubuntu:~$ dig google.com ANY
; <<>> DiG 9.16.1-Ubuntu <<>> google.com ANY
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 51505
;; flags: qr rd ra; QUERY: 1, ANSWER: 7, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.
                                            ANY
                                   TN
:: ANSWER SECTION:
google.com.
                          49
                                   IN
                                            SOA
                                                     ns1.google.com. dns-admin.google.com. 422014924 900 900 1800 60
                                                     142.250.193.110
google.com.
                          22
                                   IN
                                            AAAA
                                                     2404:6800:4007:81f::200e
google.com.
                          37
                                   IN
google.com.
                          25
                                   IN
                                            NS
                                                     ns1.google.com.
google.com.
                          25
                                            NS
                                                     ns3.google.com.
                                   TN
google.com.
                          25
                                   IN
                                            NS
                                                     ns4.google.com.
google.com.
                                            NS
                          25
                                   IN
                                                     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
nanna 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:
                                 IN
                                         MX
;google.com.
;; ANSWER SECTION:
                                 IN
google.com.
                         60
                                         MX
                                                  30 alt2.aspmx.l.google.com.
                                 IN
google.com.
                         60
                                         MX
                                                  50 alt4.aspmx.l.google.com.
                                 IN
                                         MX
google.com.
                         60
                                                  40 alt3.aspmx.l.google.com.
                                                  20 alt1.aspmx.l.google.com.
google.com.
                         60
                                 IN
                                         MX
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
```

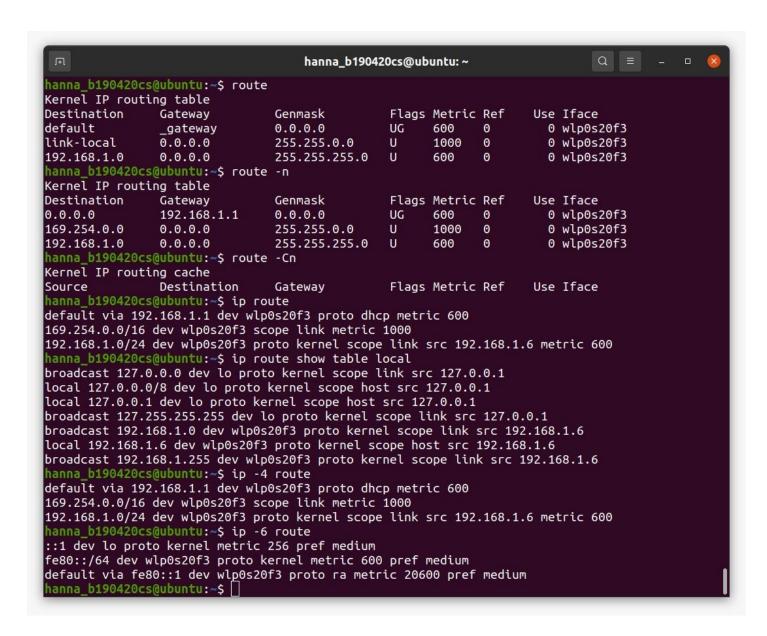
```
hanna_b190420cs@ubuntu: ~
hanna b190420cs@ubuntu:~$ dig localhost
; <<>> DiG 9.16.1-Ubuntu <<>> localhost
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 13801
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
:localhost.
                                IN
                                         Α
;; ANSWER SECTION:
localhost.
                        0
                                IN
                                        Α
                                                 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
nanna b190420cs@ubuntu:~$ dia 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:
descr:
                 OMTELE
                 Om Telecom
KG333-AP
admin-c:
                  KG333-AP
tech-c:
country:
                  TN
                 MAINT-IN-IRINN
mnt-by:
mnt-irt:
                  IRT-OMTELE-IN
mnt-routes:
status:
                 MAINT-IN-OMTELE
                  ASSIGNED PORTABLE
last-modified:
                 2017-06-06T12:06:05Z
source:
                  APNIC
                  IRT-OMTELE-IN
irt:
                 RZ-143A,GALI NO. 4,GURGA PARK ,New Delhi,Delhi-110045 abhijitm@alliancekolkata.com
address:
e-mail:
abmisitm@alliancekolkata.com
admin-c: KG333-AP
admin-c:
                 KG333-AP
tech-c:
                 # Filtered
auth:
mnt-by: MAINT-IN-OMTELE
last-modified: 2017-06-06T11:57:54Z
source:
                 APNIC
                 Kaushik Ghosh
person:
address:
                 RZ-143A,GALI NO. 4,GURGA PARK ,New Delhi,Delhi-110045
                 IN
country:
                  +91 03322277132
phone:
e-mail:
                  kaushik@alliancekolkata.com
                 KG333-AP
nic-hdl:
mnt-by:
                 MAINT-IN-OMTELE
last-modified: 2017-06-06T11:58:49Z
source:
% Information related to '103.94.136.0/24AS23860'
                 103.94.136.0/24
route:
```

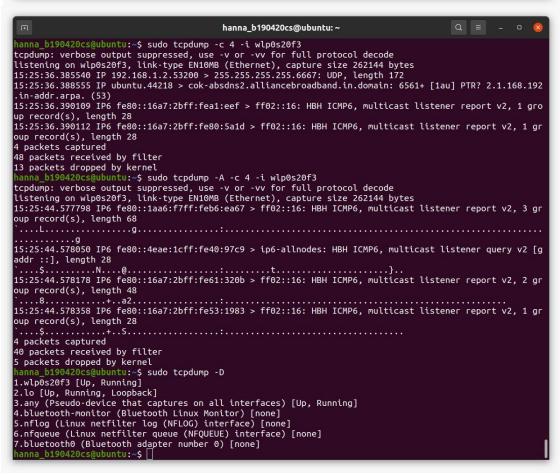


6.route



7.tcpdump

```
Q = _ _
                                          hanna_b190420cs@ubuntu: ~
 nanna_b190420cs@ubuntu:~$ sudo tcpdump
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on wlp0s20f3, link-type EN10MB (Ethernet), capture size 262144 bytes
15:21:37.533991 IP6 ubuntu > ff02::16: HBH ICMP6, multicast listener report v2, 2 group record(s),
length 48
15:21:37.536084 IP ubuntu.34445 > cok-absdns2.alliancebroadband.in.domain: 58167+ [1au] PTR? 6.1.0.
15:21:37.595886 IP ubuntu.34445 > cok-absdns2.alliancebroadband.in.domain: 58167+ PTR? 6.1.0.0.0.0.
b.6.f.3.5.5.6.f.b.a.4.f.3.0.0.0.0.0.0.0.0.0.0.0.0.0.e.s.e.f.ip6.arpa. (101)
15:21:37.609422 IP cok-absdns2.alliancebroadband.in.domain > ubuntu.52054: 22754 NXDomain* 0/1/1 (1
50)
15:21:37.609791 IP ubuntu.52054 > cok-absdns2.alliancebroadband.in.domain: 22754+ PTR? 1.1.b.b.6.f.
3.5.5.6.f.b.a.4.f.3.0.0.0.0.0.0.0.0.0.0.0.0.0.8.e.f.ip6.arpa. (90)
15:21:37.616337 IP cok-absdns2.alliancebroadband.in.domain > ubuntu.52054: 22754 NXDomain* 0/1/0 (1
15:21:37.618786 IP ubuntu.60425 > cok-absdns2.alliancebroadband.in.domain: 54649+ [1au] PTR? 6.1.16
8.192.in-addr.arpa. (53)
15:21:37.624765 IP cok-absdns2.alliancebroadband.in.domain > ubuntu.60425: 54649 NXDomain* 0/1/1 (1
15:21:37.625072 IP ubuntu.60425 > cok-absdns2.alliancebroadband.in.domain: 54649+ PTR? 6.1.168.192.
in-addr.arpa. (42)
15:21:37.629863 IP cok-absdns2.alliancebroadband.in.domain > ubuntu.60425: 54649 NXDomain* 0/1/0 (9
^C
13 packets captured
13 packets received by filter
0 packets dropped by kernel
```



```
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 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 captured
4 packets received by filter
6 packets dropped by kernel
6 hanna_b190420cs@ubuntu:-$ []
```

8.netstat

```
hanna_b190420cs@ubuntu: ~
nanna_b190420cs@ubuntu:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address
                                              Foreign Address
                                                                       State
           0
                   0 ubuntu:40668
                                              a23-221-52-199.de:https ESTABLISHED
tcp
           0
                   0 ubuntu:59124
                                              108.158.255.177:https
                                                                       ESTABLISHED
tcp
                   0 ubuntu:56732
tcp
           0
                                              72.251.249.14:https
                                                                       ESTABLISHED
           0
                   0 ubuntu:49902
                                              103.229.10.173:https
                                                                       ESTABLISHED
tcp
tcp
           0
                   0 ubuntu:39950
                                              ec2-54-246-96-194:https ESTABLISHED
           0
                                              a23-212-241-115.d:https LAST_ACK
                   1 ubuntu:41982
tcp
           0
                   0
                    ubuntu:42166
                                              ec2-54-251-95-203:https TIME WAIT
tcp
tcp
           0
                   0 ubuntu:40706
                                              a23-221-52-199.de:https ESTABLISHED
           0
                   0 ubuntu:39956
                                              server-18-67-161-:https ESTABLISHED
tcp
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
          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
                   1 ubuntu:57364
           0
                                              594.bm-nginx-load:https SYN_SENT
tcp
                    ubuntu:36468
tcp
           0
                   0
                                              69.173.158.64:https
                                                                       ESTABLISHED
tcp
           0
                   0 ubuntu:52574
                                              47.241.6.33:https
                                                                       ESTABLISHED
           0
                   0 ubuntu:41086
                                              103.231.98.194:https
                                                                       ESTABLISHED
tcp
           0
                   0 ubuntu:60126
                                              193.122.130.38:https
                                                                       ESTABLISHED
tcp
                   0 ubuntu:48554
                                              ip22.67-202-105.s:https ESTABLISHED
tcp
           0
           0
                    ubuntu:33628
                                              69.173.158.65:https
                                                                       ESTABLISHED
tcp
tcp
           0
                   0
                    ubuntu:55796
                                              maa05s26-in-f19.1:https ESTABLISHED
           0
                   0 ubuntu:48526
                                              ip22.67-202-105.s:https ESTABLISHED
tcp
tcp
           0
                   0 ubuntu:57586
                                              a23-58-66-29.depl:https ESTABLISHED
                                                                       CLOSE_WAIT
           0
                   0 ubuntu:35538
                                              147.75.61.140:https
tcp
                                              ec2-34-225-197-80:https CLOSE_WAIT
           1
                   0 ubuntu:33622
tcp
          32
                   0
                    ubuntu:33608
                                              ec2-34-225-197-80:https CLOSE_WAIT
tcp
           0
                                              ip32.67-202-105.s:https ESTABLISHED
tcp
                   0
                    ubuntu:46490
           0
                                              193.122.130.38:https
tcp
                   0 ubuntu:60128
                                                                       ESTABLISHED
          25
                   0 ubuntu:47506
                                              ip158.ip-51-68-57:https CLOSE_WAIT
tcp
           0
                   0 ubuntu:36472
                                              69.173.158.64:https
                                                                       ESTABLISHED
tcp
                                              594.bm-nginx-load:https SYN_SENT
tcp
           0
                    ubuntu:57384
                                              89.207.22.146:https
                                                                       ESTABLISHED
tcp
           0
                   0 ubuntu:45978
tcp
           0
                   0 ubuntu:60354
                                              199.232.102.49:https
                                                                       ESTABLISHED
tcp
          78
                   0 ubuntu:43172
                                              ec2-34-202-127-8.:https CLOSE_WAIT
           0
                   0 ubuntu:46498
                                              lb-140-82-114-26-:https ESTABLISHED
tcp
           0
                     ubuntu:57362
                                              594.bm-nginx-load:https SYN_SENT
tcp
                                              594.bm-nginx-load:https SYN_SENT
                     ubuntu:57374
           0
                   1
tcp
                   0 ubuntu:46776
                                              167.172.1.14:https
                                                                       TIME WAIT
```

```
| hanna_b190420cs@ubuntu:~$ netstat -i
| Kernel Interface table | Iface | MTU | RX-OK | RX-ERR | RX-DRP | RX-OVR | TX-OK | TX-DRP | TX-DRP
```

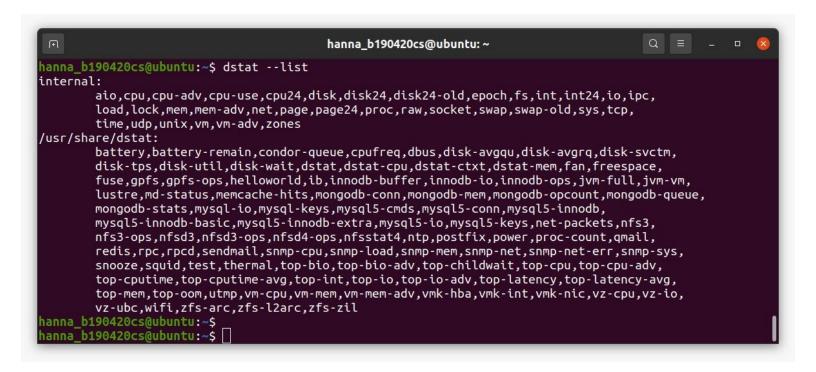
FI		hanna_	_b190420cs@ubuntu: ~		Q = 8
hanna_b190420cs@ubuntu:~\$ netstat -pt (No info could be read for "-p": geteuid()=1001 but you should be root.) Active Internet connections (w/o servers)					
		-Q Local Address	Foreign Address	State	PID/Program name
tcp	0	0 ubuntu:53552	lb-140-82-113-26-:https	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	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: ~
                                                                                                                                                                                                                                                                                                                              Q = _ 0
 hanna_b190420cs@ubuntu:~$ netstat -lt
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address
tcp 0 0 localhost:domain
tcp 0 0 0.0.0.0:ssh
tcp 0 0 localhost:ipp
                                                                                                                              Foreign Address 0.0.0.0:*
                                                                                                                                                                                                     State
                                                                                                                                                                                                   LISTEN
LISTEN
                                                                                                                                0.0.0.0:*
                                                                                                                                                                                                     LISTEN
                                                    0 [::]:ssh
0 ip6-localhost:ipp
                                                                                                                                [::]:*
[::]:*
 tcp6
                                0
                                                                                                                                                                                                    LISTEN
                                                                                                                                                                                                    LISTEN
 tcp6
 Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address
udp 0 0.0.0.0:36621
udp 0 0 localhost:domain
udp 0 0.0.0.0.6:3631
                                                                                                                                Foreign Address
                                                                                                                                                                                                    State
                                                                                                                              0.0.0.0:*
0.0.0.0:*
0.0.0.0:*
                                                    0 224.0.0.251:mdns
0 0.0.0.0:mdns
0 [::]:mdns
0 [::]:46392
                                                                                                                              0.0.0.0:*
0.0.0.0:*
[::]:*
  udp
 udp
udp6
  udp6
 hanna_b190420cs@ubuntu:~$ netstat -lx
Active UNIX domain sockets (only servers)
Active UNIX domain
Proto RefCnt Flags
unix 2 [ ACC
                                                                         Type
STREAM
                                                                                                        State
LISTENING
                                                                                                                                                I-Node
                                                                                                                                                 48186
                                                                                                                                                                        /run/user/1000/systemd/private
/run/user/1000/bus
/run/user/1000/gnupg/S.dirmngr
/run/user/1000/gnupg/S.gpg-agent.browser
/run/user/1000/gnupg/S.gpg-agent.extra
/run/user/1000/gnupg/S.gpg-agent.extra
/run/user/1000/gnupg/S.gpg-agent.ssh
/run/user/1000/gnupg/S.gpg-agent.ssh
/run/user/1000/gnupg/S.gpg-agent.ssh
/run/user/1000/gnupg/S.gpg-agent.socket
/run/user/1000/gnupg/S.gpg-agent.socket
/run/user/1000/pulse/native
/run/user/1000/snapd-session-agent.socket
//run/user/1000/snapd-session-agent.socket
//run/user/1000/keyring/control
/run/user/1000/keyring/pkcs11
/run/user/1000/keyring/ssh
/run/systemd/private
                                                                                                                                                                           /run/user/1000/systemd/private
                                                                         STREAM
                                                                                                         LISTENING
                                                                                                                                                 48191
                                                                         STREAM
                                                                                                        LISTENING
                                                                                                                                                 48192
                                                                         STREAM
                                                                                                         LISTENING
                                                                                                                                                 48193
                                                                                                                                                 48194
48195
                                                                         STREAM
                                                                                                         LISTENING
                                                                         STREAM
                                                                                                         LISTENING
                                                                         STREAM
                                                                                                         LISTENING
                                                                                                                                                 48196
                                                                         STREAM
                                                                                                         LISTENING
                                                                                                                                                 48197
48198
                                                                         STREAM
                                                                                                         LISTENING
                                                                         STREAM
                                                                                                         LISTENING
                                                                                                                                                 48199
                                                                         STREAM
STREAM
                                                                                                                                                 46652
49310
                                                                                                         LISTENING
                                                                                                         LISTENING
                                                                                                                                                44411
46645
                                                                         STREAM
                                                                                                         LISTENING
                                                                         STREAM
STREAM
                                                                                                         LISTENING
                                                                                                                                                 47842
                                                                                                         LISTENING
                                                                                                                                                                           /run/systemd/private
/run/systemd/userdb/io.systemd.DynamicUser
                                                                         STREAM
STREAM
                                                                                                                                                 815
817
                                                                                                         LISTENING
                                                                                                         LISTENING
```

9.dstat

```
Q ≡
                                          hanna_b190420cs@ubuntu: ~
hanna b190420cs@ubuntu:~$ dstat
You did not select any stats, using -cdngy by default.
                     405
                            585
                            664
                            88
                            264
                                                                  10
                                                                  14
                                   12
                             32
                                                                  12
                            232
                                                                  16
```

```
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 m
odule's documentation for alternative uses
  import imp
usr sys idl wai stl| cpu process
                   anome-shell
                  Olchrome
                  Olchrome
                  Ochrome
         86
                  Ochrome
                  Chrome
                  Olchrome
                  Olchrome
         91
                  Olchrome
                  Olchrome
         79
                  Olchrome
         86
                  Olchrome
         76
                  Olchrome
         84
                  Olchrome
         84
                  Olchrome
                  Olchrome
anna b190420cs@ubuntu:~S
```



10. ifstat

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

11. wget

```
hanna_b190420cs@ubuntu:~ Q = - □ & 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

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

1: 2402:3a80:19f0:40a4::14

2: 2402:8100:12:5:4000::25f
                                                                              3.375ms
                                                                              2.999ms
                                                                             50.383ms
  3: no reply
      2402:8100:12:5:4000::32f
  4:
                                                                             90.929ms
                                                                             50.659ms
 6: 2001:4860:1:1::6eb
7: 2001:4860:1:1::1f56
                                                                            279.351ms
                                                                             78.417ms asymm 12
  8: no reply
 9: no reply
10: no reply
10:
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
20: no reply
21: no reply
22: no reply
23: no reply
24: no reply
25: no reply
26: no reply
27:
      no reply
      no reply
28:
29: no reply
30: no reply
      no reply
```