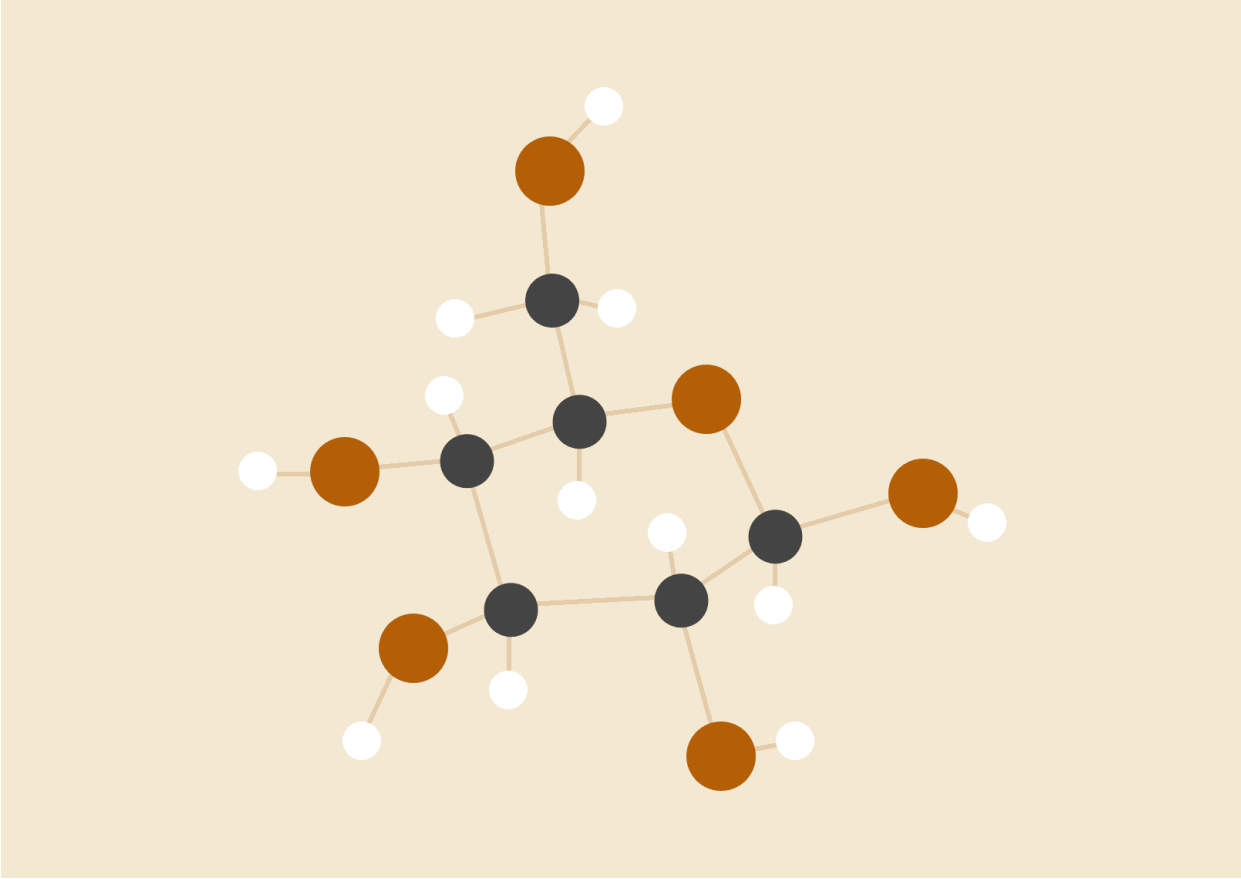
CS3093D: NETWORKS LABORATORY

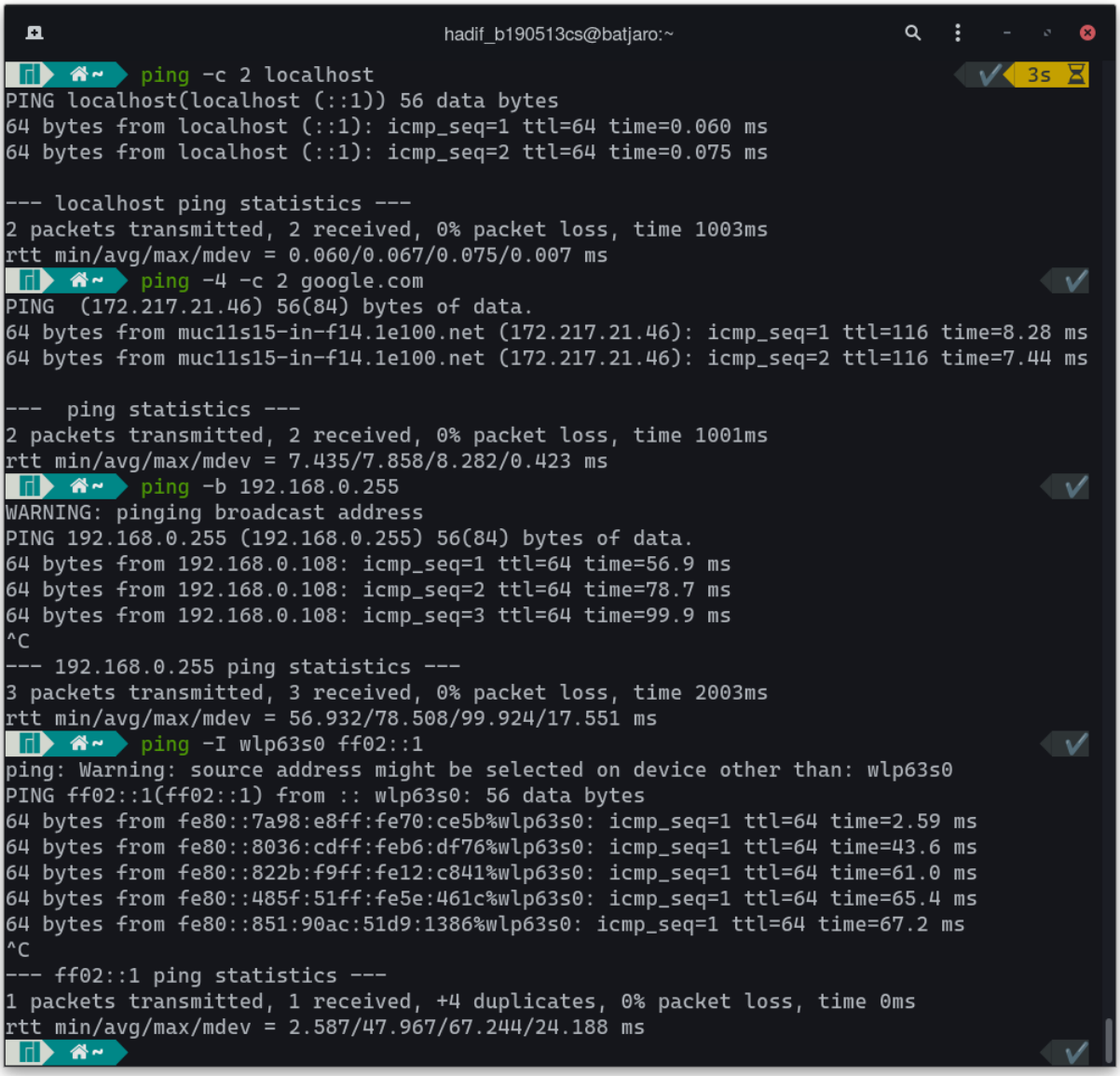
ASSIGNMENT 1



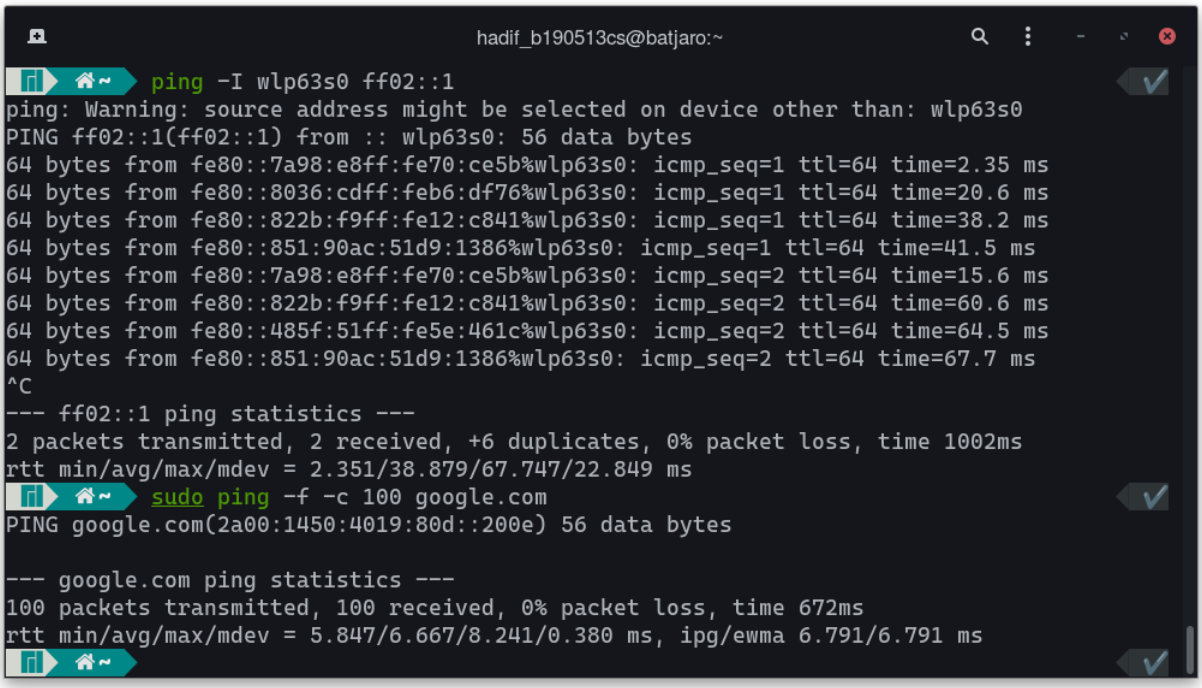
Hadif Yassin Hameed

B190513CS

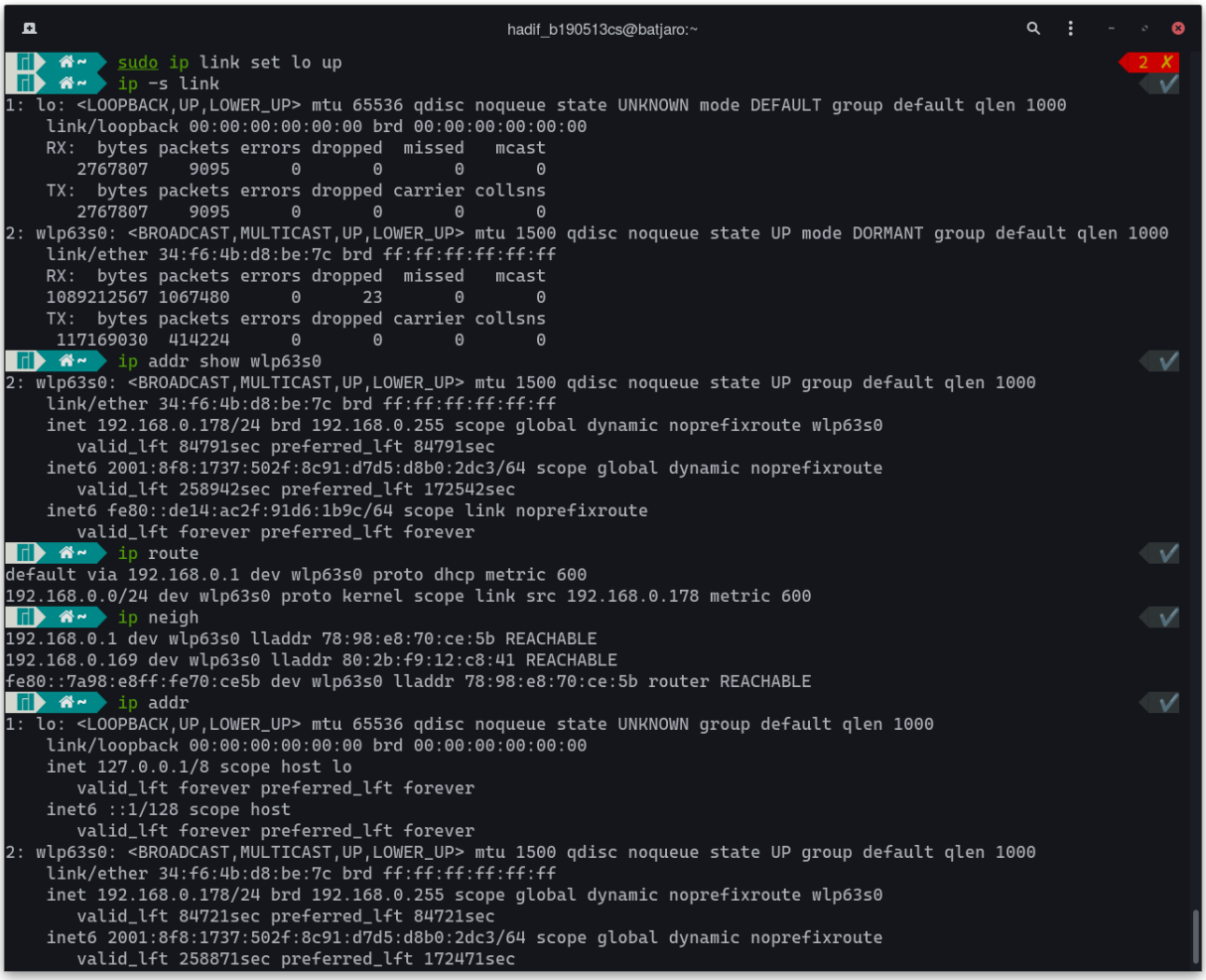
ping


hadif_b190513cs@batjaro:~
~ ping -c 2 localhost
3s
PING localhost(localhost (::1)) 56 data bytes
64 bytes from localhost (::1): icmp_seq=1 ttl=64 time=0.060 ms
64 bytes from localhost (::1): icmp_seq=2 ttl=64 time=0.075 ms
--- localhost ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1003ms
rtt min/avg/max/mdev = 0.060/0.067/0.075/0.007 ms
~ ping -4 -c 2 google.com
PING (172.217.21.46) 56(84) bytes of data.
64 bytes from muc11s15-in-f14.1e100.net (172.217.21.46): icmp_seq=1 ttl=116 time=8.28 ms
64 bytes from muc11s15-in-f14.1e100.net (172.217.21.46): icmp_seq=2 ttl=116 time=7.44 ms
--- ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 7.435/7.858/8.282/0.423 ms
~ ping -b 192.168.0.255
WARNING: pinging broadcast address
PING 192.168.0.255 (192.168.0.255) 56(84) bytes of data.
64 bytes from 192.168.0.108: icmp_seq=1 ttl=64 time=56.9 ms
64 bytes from 192.168.0.108: icmp_seq=2 ttl=64 time=78.7 ms
64 bytes from 192.168.0.108: icmp_seq=3 ttl=64 time=99.9 ms
^C
--- 192.168.0.255 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 56.932/78.508/99.924/17.551 ms
~ ping -I wlp63s0 ff02::1
ping: Warning: source address might be selected on device other than: wlp63s0
PING ff02::1(ff02::1) from :: wlp63s0: 56 data bytes
64 bytes from fe80::7a98:e8ff:fe70:ce5b%wlp63s0: icmp_seq=1 ttl=64 time=2.59 ms
64 bytes from fe80::8036:cdff:feb6:df76%wlp63s0: icmp_seq=1 ttl=64 time=43.6 ms
64 bytes from fe80::822b:f9ff:fe12:c841%wlp63s0: icmp_seq=1 ttl=64 time=61.0 ms
64 bytes from fe80::485f:51ff:fe5e:461c%wlp63s0: icmp_seq=1 ttl=64 time=65.4 ms
64 bytes from fe80::851:90ac:51d9:1386%wlp63s0: icmp_seq=1 ttl=64 time=67.2 ms
^C
--- ff02::1 ping statistics ---
1 packets transmitted, 1 received, +4 duplicates, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 2.587/47.967/67.244/24.188 ms
~

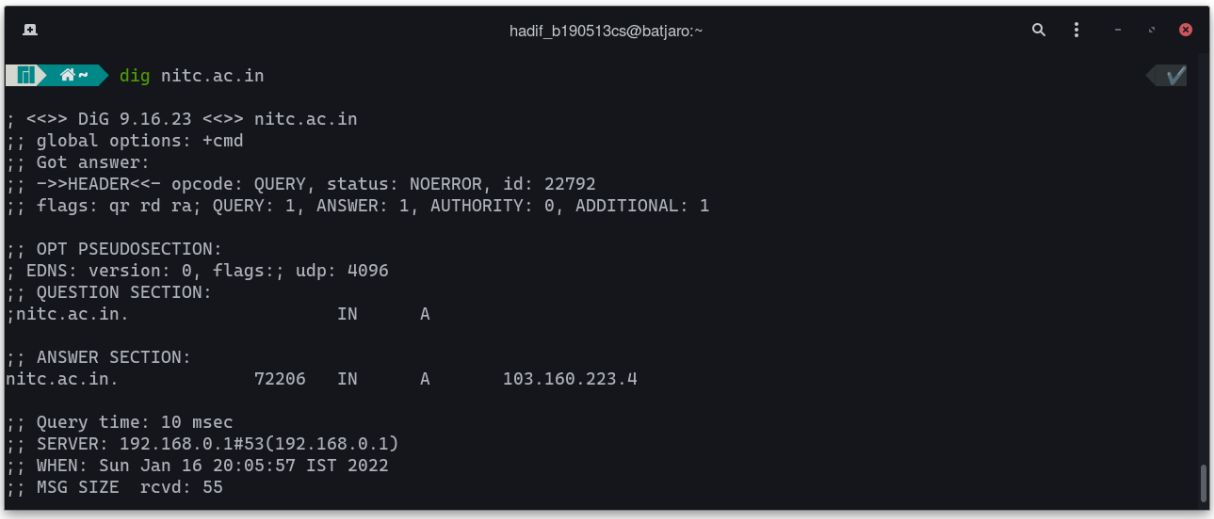
traceroute


hadif_b190513cs@batjaro:~
~ ping -I wlp63s0 ff02::1
ping: Warning: source address might be selected on device other than: wlp63s0
PING ff02::1(ff02::1) from :: wlp63s0: 56 data bytes
64 bytes from fe80::7a98:e8ff:fe70:ce5b%wlp63s0: icmp_seq=1 ttl=64 time=2.35 ms
64 bytes from fe80::8036:cdff:feb6:df76%wlp63s0: icmp_seq=1 ttl=64 time=20.6 ms
64 bytes from fe80::822b:f9ff:fe12:c841%wlp63s0: icmp_seq=1 ttl=64 time=38.2 ms
64 bytes from fe80::851:90ac:51d9:1386%wlp63s0: icmp_seq=1 ttl=64 time=41.5 ms
64 bytes from fe80::7a98:e8ff:fe70:ce5b%wlp63s0: icmp_seq=2 ttl=64 time=15.6 ms
64 bytes from fe80::822b:f9ff:fe12:c841%wlp63s0: icmp_seq=2 ttl=64 time=60.6 ms
64 bytes from fe80::485f:51ff:fe5e:461c%wlp63s0: icmp_seq=2 ttl=64 time=64.5 ms
64 bytes from fe80::851:90ac:51d9:1386%wlp63s0: icmp_seq=2 ttl=64 time=67.7 ms
^C
--- ff02::1 ping statistics ---
2 packets transmitted, 2 received, +6 duplicates, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 2.351/38.879/67.747/22.849 ms
~ sudo ping -f -c 100 google.com
PING google.com(2a00:1450:4019:80d::200e) 56 data bytes
--- google.com ping statistics ---
100 packets transmitted, 100 received, 0% packet loss, time 672ms
rtt min/avg/max/mdev = 5.847/6.667/8.241/0.380 ms, ipg/ewma 6.791/6.791 ms
~

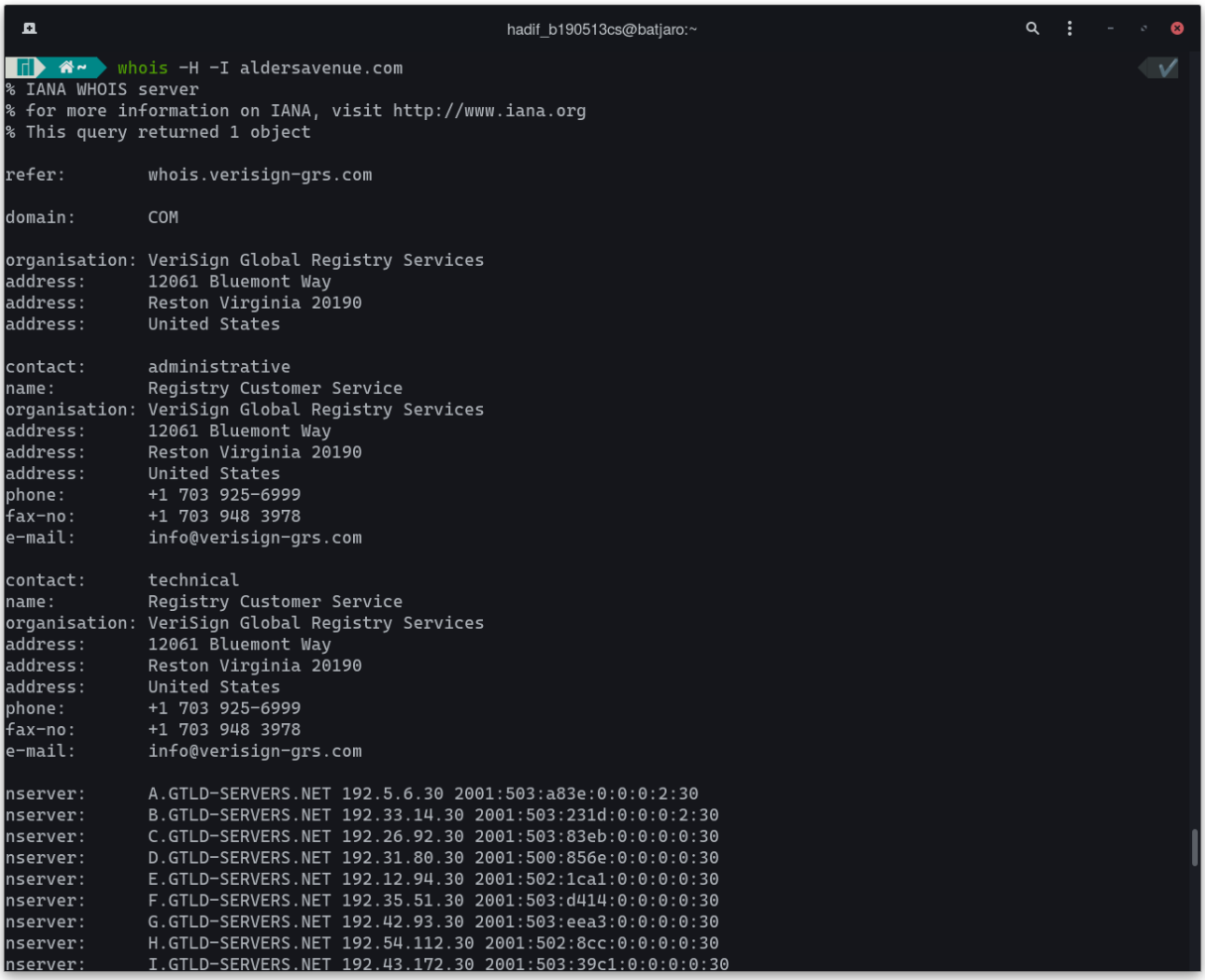
ip


hadif_b190513cs@batjaro:~
~ sudo ip link set lo up
2 ✗
~ 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 missed mcast
2767807 9095 0 0 0 0
TX: bytes packets errors dropped carrier collsns
2767807 9095 0 0 0 0
2: wlp63s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP mode DORMANT group default qlen 1000
link/ether 34:f6:4b:d8:be:7c brd ff:ff:ff:ff:ff:ff
RX: bytes packets errors dropped missed mcast
1089212567 1067480 0 23 0 0
TX: bytes packets errors dropped carrier collsns
117169030 414224 0 0 0 0
~ ip addr show wlp63s0
2: wlp63s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
link/ether 34:f6:4b:d8:be:7c brd ff:ff:ff:ff:ff:ff
inet 192.168.0.178/24 brd 192.168.0.255 scope global dynamic noprefixroute wlp63s0
valid_lft 84791sec preferred_lft 84791sec
inet6 2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3/64 scope global dynamic noprefixroute
valid_lft 258942sec preferred_lft 172542sec
inet6 fe80::de14:ac2f:91d6:1b9c/64 scope link noprefixroute
valid_lft forever preferred_lft forever
~ ip route
default via 192.168.0.1 dev wlp63s0 proto dhcp metric 600
192.168.0.0/24 dev wlp63s0 proto kernel scope link src 192.168.0.178 metric 600
~ ip neigh
192.168.0.1 dev wlp63s0 lladdr 78:98:e8:70:ce:5b REACHABLE
192.168.0.169 dev wlp63s0 lladdr 80:2b:f9:12:c8:41 REACHABLE
fe80::7a98:e8ff:fe70:ce5b dev wlp63s0 lladdr 78:98:e8:70:ce:5b router REACHABLE
~ ip addr
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: wlp63s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
link/ether 34:f6:4b:d8:be:7c brd ff:ff:ff:ff:ff:ff
inet 192.168.0.178/24 brd 192.168.0.255 scope global dynamic noprefixroute wlp63s0
valid_lft 84721sec preferred_lft 84721sec
inet6 2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3/64 scope global dynamic noprefixroute
valid_lft 258871sec preferred_lft 172471sec

dig

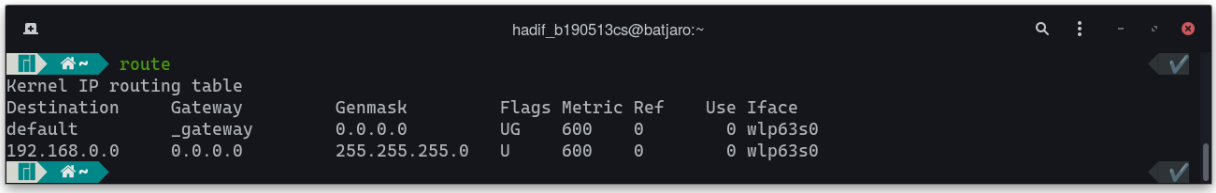

hadif_b190513cs@batjaro:~
dig nitc.ac.in
; <<>> DiG 9.16.23 <<>> nitc.ac.in
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 22792
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;nitc.ac.in. IN A
;; ANSWER SECTION:
nitc.ac.in. 72206 IN A 103.160.223.4
;; Query time: 10 msec
;; SERVER: 192.168.0.1#53(192.168.0.1)
;; WHEN: Sun Jan 16 20:05:57 IST 2022
;; MSG SIZE rcvd: 55

whois

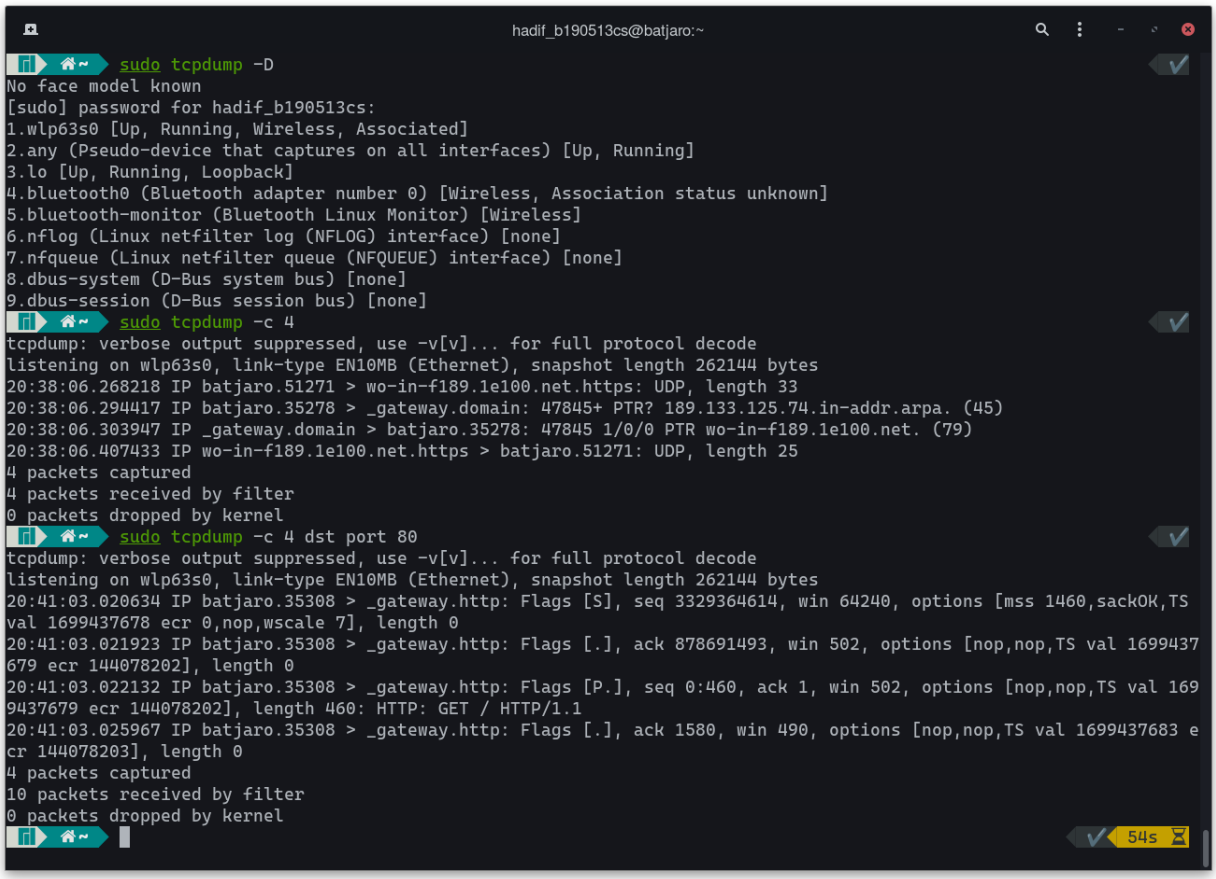

hadif_b190513cs@batjaro:~
whois -H -I aldersavenue.com
% IANA WHOIS server
% for more information on IANA, visit http://www.iana.org
% This query returned 1 object
refer: whois.verisign-grs.com
domain: COM
organisation: VeriSign Global Registry Services
address: 12061 Bluemont Way
address: Reston Virginia 20190
address: United States
contact: administrative
name: Registry Customer Service
organisation: VeriSign Global Registry Services
address: 12061 Bluemont Way
address: Reston Virginia 20190
address: United States
phone: +1 703 925-6999
fax-no: +1 703 948 3978
e-mail: info@verisign-grs.com
contact: technical
name: Registry Customer Service
organisation: VeriSign Global Registry Services
address: 12061 Bluemont Way
address: Reston Virginia 20190
address: United States
phone: +1 703 925-6999
fax-no: +1 703 948 3978
e-mail: info@verisign-grs.com
nserver: A.GTLD-SERVERS.NET 192.5.6.30 2001:503:a83e:0:0:0:2:30
nserver: B.GTLD-SERVERS.NET 192.33.14.30 2001:503:231d:0:0:0:2:30
nserver: C.GTLD-SERVERS.NET 192.26.92.30 2001:503:83eb:0:0:0:0:30
nserver: D.GTLD-SERVERS.NET 192.31.80.30 2001:500:856e:0:0:0:0:30
nserver: E.GTLD-SERVERS.NET 192.12.94.30 2001:502:1ca1:0:0:0:0:30
nserver: F.GTLD-SERVERS.NET 192.35.51.30 2001:503:d414:0:0:0:0:30
nserver: G.GTLD-SERVERS.NET 192.42.93.30 2001:503:eea3:0:0:0:0:30
nserver: H.GTLD-SERVERS.NET 192.54.112.30 2001:502:8cc:0:0:0:0:30
nserver: I.GTLD-SERVERS.NET 192.43.172.30 2001:503:39c1:0:0:0:0:30

```
nserver:      J.GTLD-SERVERS.NET 192.48.79.30 2001:502:7094:0:0:0:0:30
nserver:      K.GTLD-SERVERS.NET 192.52.178.30 2001:503:d2d:0:0:0:0:30
nserver:      L.GTLD-SERVERS.NET 192.41.162.30 2001:500:d937:0:0:0:0:30
nserver:      M.GTLD-SERVERS.NET 192.55.83.30 2001:501:b1f9:0:0:0:0:30
ds-rdata:     30909 8 2 E2D3C916F6DEEAC73294E8268FB5885044A833FC5459588F4A9184CFC41A5766

whois:        whois.verisign-grs.com

status:       ACTIVE
remarks:      Registration information: http://www.verisigninc.com

created:      1985-01-01
changed:      2017-10-05
source:       IANA

   Domain Name: ALDERSAVENUE.COM
   Registry Domain ID: 2463967783_DOMAIN_COM-VRSN
   Registrar WHOIS Server: whois.hostinger.com
   Registrar URL: http://www.hostinger.com
   Updated Date: 2019-12-06T15:42:49Z
   Creation Date: 2019-12-06T15:42:48Z
   Registry Expiry Date: 2022-12-06T15:42:48Z
   Registrar: Hostinger, UAB
   Registrar IANA ID: 1636
   Registrar Abuse Contact Email: abuse@hostinger.com
   Registrar Abuse Contact Phone: +37064503378
   Domain Status: clientTransferProhibited https://icann.org/epp#clientTransferProhibited
   Name Server: NS1.DNS-PARKING.COM
   Name Server: NS2.DNS-PARKING.COM
   DNSSEC: unsigned
   URL of the ICANN Whois Inaccuracy Complaint Form: https://www.icann.org/wicf/
>>> Last update of whois database: 2022-01-16T07:01:38Z <<<
```

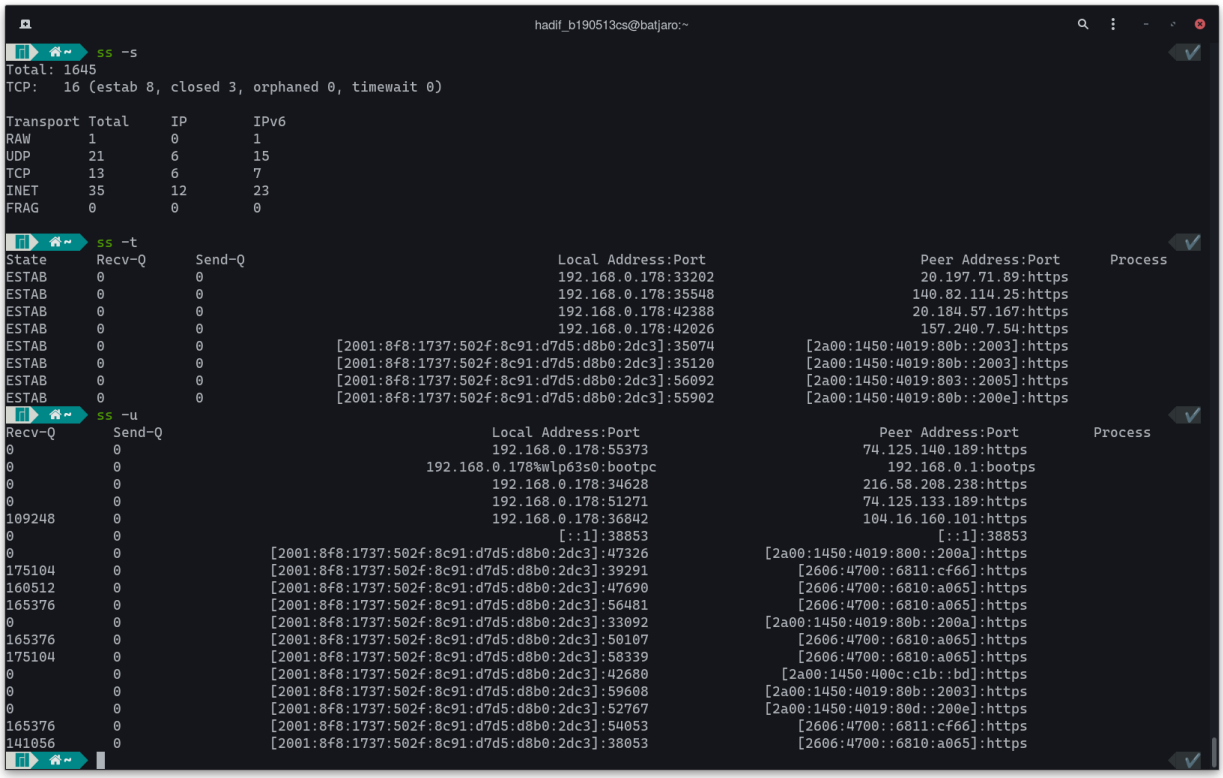
route



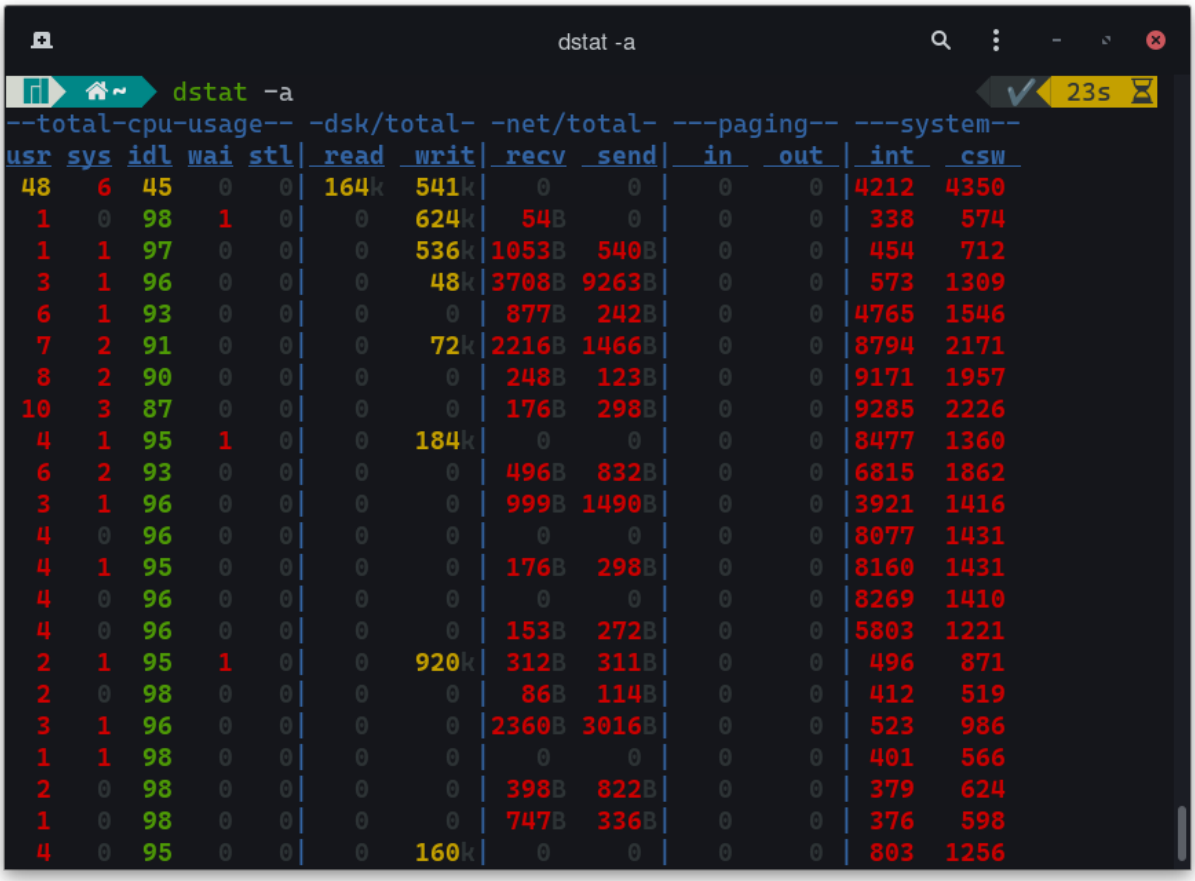
tcpdump


hadif_b190513cs@batjaro:~
sudo tcpdump -D
No face model known
[sudo] password for hadif_b190513cs:
1.wlp63s0 [Up, Running, Wireless, Associated]
2.any (Pseudo-device that captures on all interfaces) [Up, Running]
3.lo [Up, Running, Loopback]
4.bluetooth0 (Bluetooth adapter number 0) [Wireless, Association status unknown]
5.bluetooth-monitor (Bluetooth Linux Monitor) [Wireless]
6.nflog (Linux netfilter log (NFLOG) interface) [none]
7.nfqueue (Linux netfilter queue (NFQUEUE) interface) [none]
8.dbus-system (D-Bus system bus) [none]
9.dbus-session (D-Bus session bus) [none]
sudo tcpdump -c 4
tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on wlp63s0, link-type EN10MB (Ethernet), snapshot length 262144 bytes
20:38:06.268218 IP batjaro.51271 > wo-in-f189.1e100.net.https: UDP, length 33
20:38:06.294417 IP batjaro.35278 > _gateway.domain: 47845+ PTR? 189.133.125.74.in-addr.arpa. (45)
20:38:06.303947 IP _gateway.domain > batjaro.35278: 47845 1/0/0 PTR wo-in-f189.1e100.net. (79)
20:38:06.407433 IP wo-in-f189.1e100.net.https > batjaro.51271: UDP, length 25
4 packets captured
4 packets received by filter
0 packets dropped by kernel
sudo tcpdump -c 4 dst port 80
tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on wlp63s0, link-type EN10MB (Ethernet), snapshot length 262144 bytes
20:41:03.020634 IP batjaro.35308 > _gateway.http: Flags [S], seq 3329364614, win 64240, options [mss 1460,sackOK,TS val 1699437678 ecr 0,nop,wscale 7], length 0
20:41:03.021923 IP batjaro.35308 > _gateway.http: Flags [.], ack 878691493, win 502, options [nop,nop,TS val 1699437679 ecr 144078202], length 0
20:41:03.022132 IP batjaro.35308 > _gateway.http: Flags [P.], seq 0:460, ack 1, win 502, options [nop,nop,TS val 1699437679 ecr 144078202], length 460: HTTP: GET / HTTP/1.1
20:41:03.025967 IP batjaro.35308 > _gateway.http: Flags [.], ack 1580, win 490, options [nop,nop,TS val 1699437683 ecr 144078203], length 0
4 packets captured
10 packets received by filter
0 packets dropped by kernel
54s

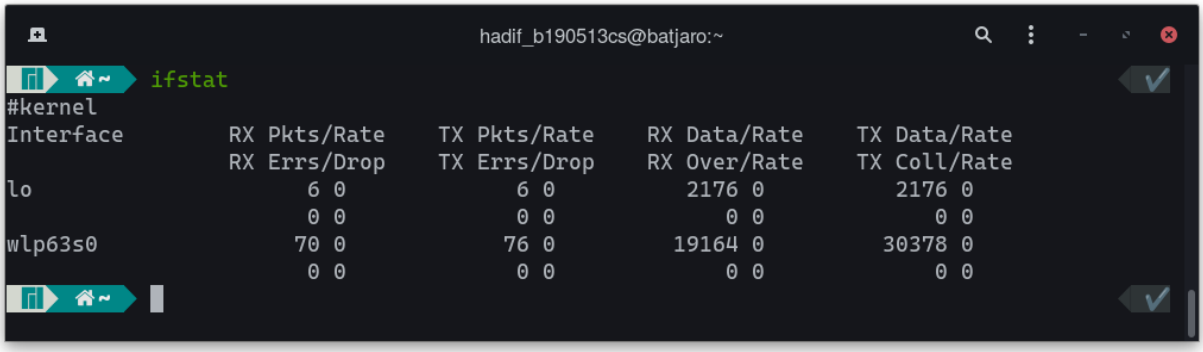
ss


hadif_b190513cs@batjaro:~
ss -s
Total: 1645
TCP: 16 (estab 8, closed 3, orphaned 0, timewait 0)
Transport Total IP IPv6
RAW 1 0 1
UDP 21 6 15
TCP 13 6 7
INET 35 12 23
FRAG 0 0 0
ss -t
State Recv-Q Send-Q Local Address:Port Peer Address:Port Process
ESTAB 0 0 192.168.0.178:33202 20.197.71.89:https
ESTAB 0 0 192.168.0.178:35548 140.82.114.25:https
ESTAB 0 0 192.168.0.178:42388 20.184.57.167:https
ESTAB 0 0 192.168.0.178:42026 157.240.7.54:https
ESTAB 0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:35074 [2a00:1450:4019:80b::2003]:https
ESTAB 0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:35120 [2a00:1450:4019:80b::2003]:https
ESTAB 0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:56092 [2a00:1450:4019:803::2005]:https
ESTAB 0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:55902 [2a00:1450:4019:80b::200e]:https
ss -u
Recv-Q Send-Q Local Address:Port Peer Address:Port Process
0 0 192.168.0.178:55373 74.125.140.189:https
0 0 192.168.0.178%wlp63s0:bootpc 192.168.0.1:bootps
0 0 192.168.0.178:34628 216.58.208.238:https
0 0 192.168.0.178:51271 74.125.133.189:https
109248 0 192.168.0.178:36842 104.16.160.101:https
0 0 [::1]:38853 [::1]:38853
0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:47326 [2a00:1450:4019:800::200a]:https
175104 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:39291 [2606:4700::6811:cf66]:https
160512 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:47690 [2606:4700::6810:a065]:https
165376 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:56481 [2606:4700::6810:a065]:https
0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:33092 [2a00:1450:4019:80b::200a]:https
165376 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:50107 [2606:4700::6810:a065]:https
175104 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:58339 [2606:4700::6810:a065]:https
0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:42680 [2a00:1450:400c:c1b::bd]:https
0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:59608 [2a00:1450:4019:80b::2003]:https
0 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:52767 [2a00:1450:4019:80d::200e]:https
165376 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:54053 [2606:4700::6811:cf66]:https
141056 0 [2001:8f8:1737:502f:8c91:d7d5:d8b0:2dc3]:38053 [2606:4700::6810:a065]:https

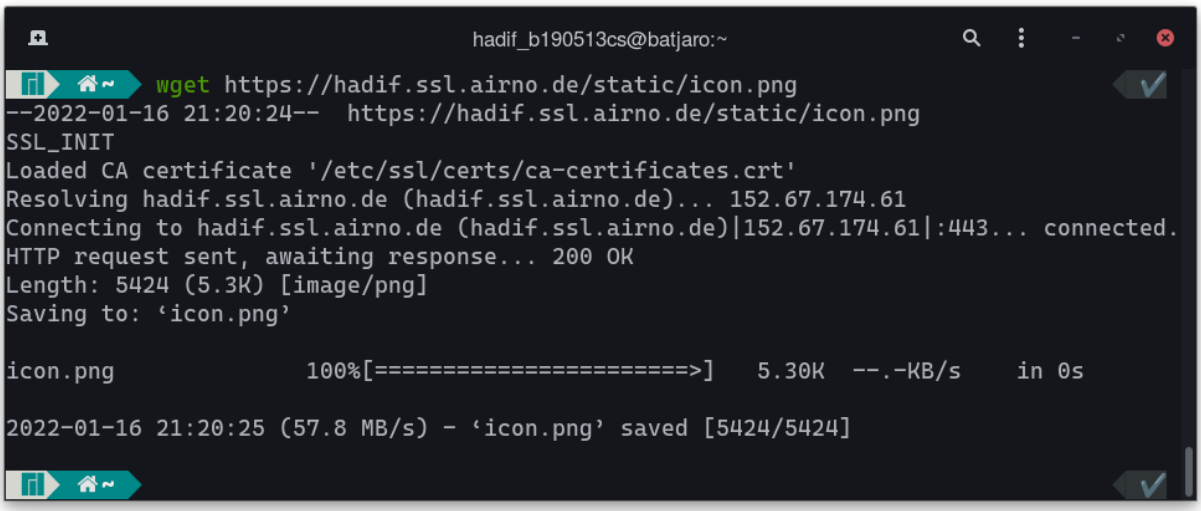
dstat



ifstat

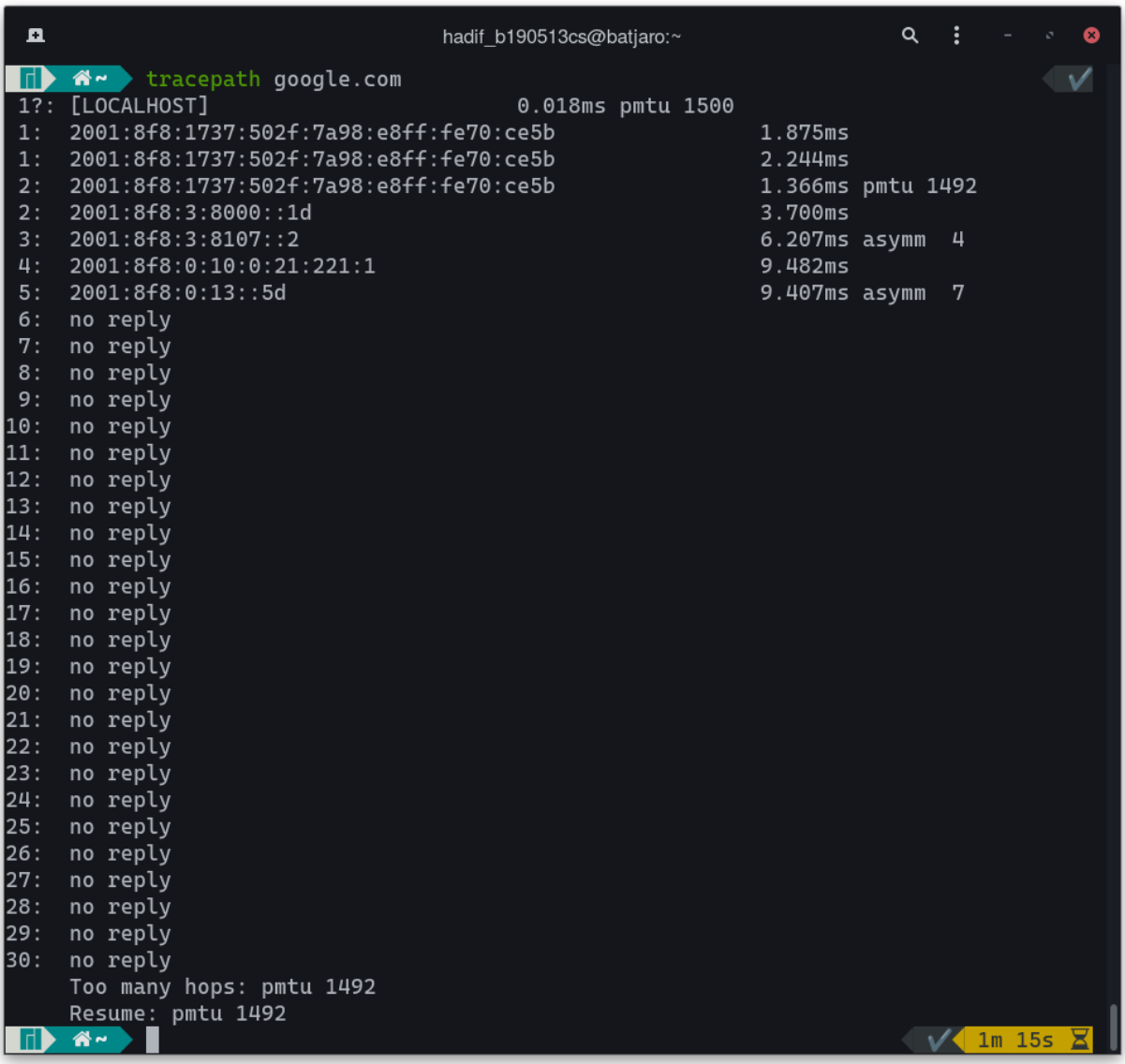


wget


hadif_b190513cs@batjaro:~
wget https://hadif.ssl.airno.de/static/icon.png
--2022-01-16 21:20:24-- https://hadif.ssl.airno.de/static/icon.png
SSL_INIT
Loaded CA certificate '/etc/ssl/certs/ca-certificates.crt'
Resolving hadif.ssl.airno.de (hadif.ssl.airno.de)... 152.67.174.61
Connecting to hadif.ssl.airno.de (hadif.ssl.airno.de)|152.67.174.61|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 5424 (5.3K) [image/png]
Saving to: ‘icon.png’
icon.png 100%[=====>] 5.30K --.-KB/s in 0s
2022-01-16 21:20:25 (57.8 MB/s) - ‘icon.png’ saved [5424/5424]

tracepath

hadif_b190513cs@batjaro:~
~ tracepath 10.159.96.1
1?: [LOCALHOST] pmtu 1500
1: _gateway 2.762ms
1: _gateway 1.195ms
2: 10.159.96.1 3.512ms reached
Resume: pmtu 1500 hops 2 back 2
~


hadif_b190513cs@batjaro:~
~ tracepath google.com
1?: [LOCALHOST] 0.018ms pmtu 1500
1: 2001:8f8:1737:502f:7a98:e8ff:fe70:ce5b 1.875ms
1: 2001:8f8:1737:502f:7a98:e8ff:fe70:ce5b 2.244ms
2: 2001:8f8:1737:502f:7a98:e8ff:fe70:ce5b 1.366ms pmtu 1492
2: 2001:8f8:3:8000::1d 3.700ms
3: 2001:8f8:3:8107::2 6.207ms asymm 4
4: 2001:8f8:0:10:0:21:221:1 9.482ms
5: 2001:8f8:0:13::5d 9.407ms asymm 7
6: no reply
7: no reply
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 1492
Resume: pmtu 1492
~
1m 15s