Lab 8 (CN2) CS310 Group 13

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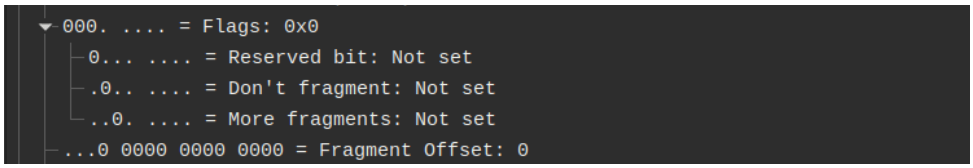
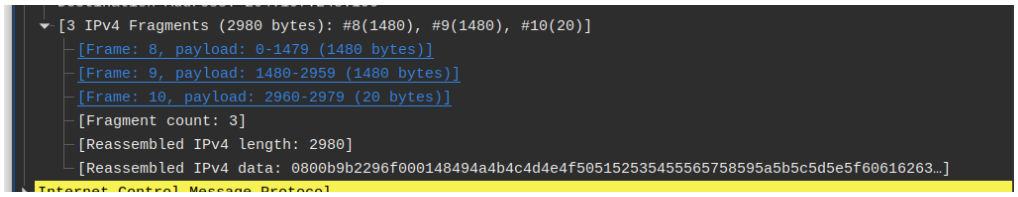
A)
I. sudo traceroute -I www.iitmandi.ac.in 64

1. 192.168.43.203
2. ICMP (1)
3. 20 bytes
4. 

5. Identification, Header Checksum, Sequence Number, Checksum
6. Type, Code, Data and Identifier
   Type, Code - because traceroute command sends an ICMP echo request so type remains constant (8 for echo) and code=0 corresponds to echo reply.
7.

II. sudo traceroute -I www.iitmandi.ac.in 3000

1. 192.168.43.203
2. ICMP (1)
3. 20 bytes
4. 

5. Identification, Header Checksum, Sequence Number, Checksum
6. Type, Code, Data and Identifier
   Type, Code - because traceroute command sends an ICMP echo request so type remains constant (8 for echo) and code=0 corresponds to echo reply.
7.

B)

27	*REF*	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4
28	0.206676741	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4
29	0.620003954	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4
30	1.446603058	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4
31	3.100003421	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4
32	6.406694672	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4
33	13.020026878	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4
34	26.246693521	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4
35	52.700044426	192.168.136.94	192.168.136.12	TCP	70 [TCP Retransmission] 56300 → 9 [PSH, ACK] Seq=8 Ack=1 Win=64256 Len=4

-> tc qdisc add dev wlp8s0 root netem rate 1mbit

```
PING 192.168.136.12 (192.168.136.12) 56(84) bytes of data.
64 bytes from 192.168.136.12: icmp_seq=1 ttl=64 time=5.65 ms
64 bytes from 192.168.136.12: icmp_seq=2 ttl=64 time=4.08 ms
64 bytes from 192.168.136.12: icmp_seq=3 ttl=64 time=7.28 ms
64 bytes from 192.168.136.12: icmp_seq=4 ttl=64 time=1.19 ms
64 bytes from 192.168.136.12: icmp_seq=5 ttl=64 time=4.59 ms
64 bytes from 192.168.136.12: icmp_seq=6 ttl=64 time=8.37 ms
64 bytes from 192.168.136.12: icmp_seq=7 ttl=64 time=6.87 ms
```

While sending large file.

```
PING 192.168.136.12 (192.168.136.12) 56(84) bytes of data.
64 bytes from 192.168.136.12: icmp_seq=1 ttl=64 time=1.14 ms
64 bytes from 192.168.136.12: icmp_seq=2 ttl=64 time=1.60 ms
64 bytes from 192.168.136.12: icmp_seq=3 ttl=64 time=1.64 ms
64 bytes from 192.168.136.12: icmp_seq=4 ttl=64 time=1.62 ms
64 bytes from 192.168.136.12: icmp_seq=5 ttl=64 time=1.64 ms
64 bytes from 192.168.136.12: icmp_seq=6 ttl=64 time=1.52 ms
64 bytes from 192.168.136.12: icmp_seq=7 ttl=64 time=1.62 ms
```

Without sending large file

C)

-> tc qdisc add dev wlp8s0 root netem delay 200ms

$ time ssh root@192.168.136.12

```
root@192.168.136.12's password:

ssh root@192.168.136.12  0.09s user 0.01s system 22% cpu 0.424 total
```

$ sudo tc qdisc add dev wl8s0 root netem delay 200ms

$ time ssh root@192.168.136.12

```
root@192.168.136.12's password:

ssh root@192.168.136.12  0.10s user 0.00s system 4% cpu 2.216 total
```