

Development Tools Assignment

i. Module 2 – Network Performance Measurement Tools

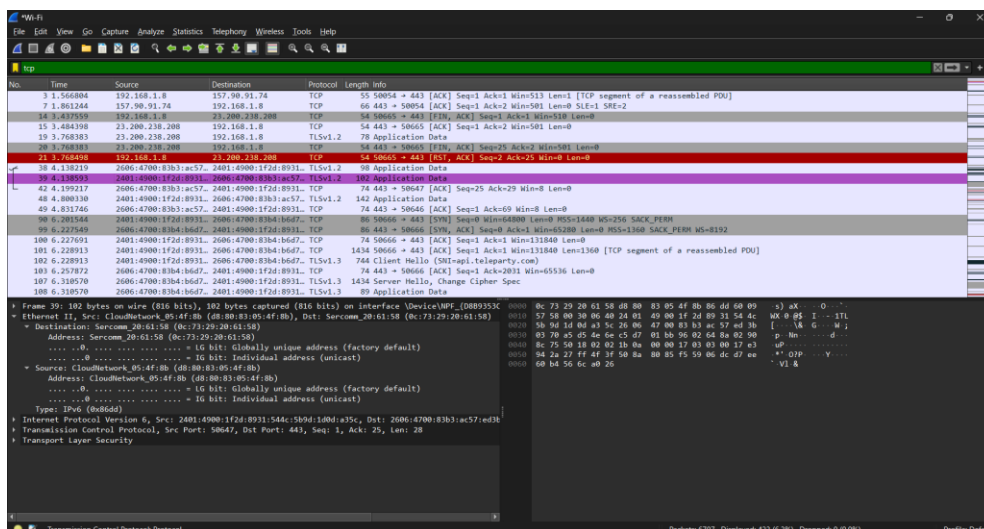
1) Install Wireshark, take capture on WiFi interface

1. Identify the beacon frame using filter.

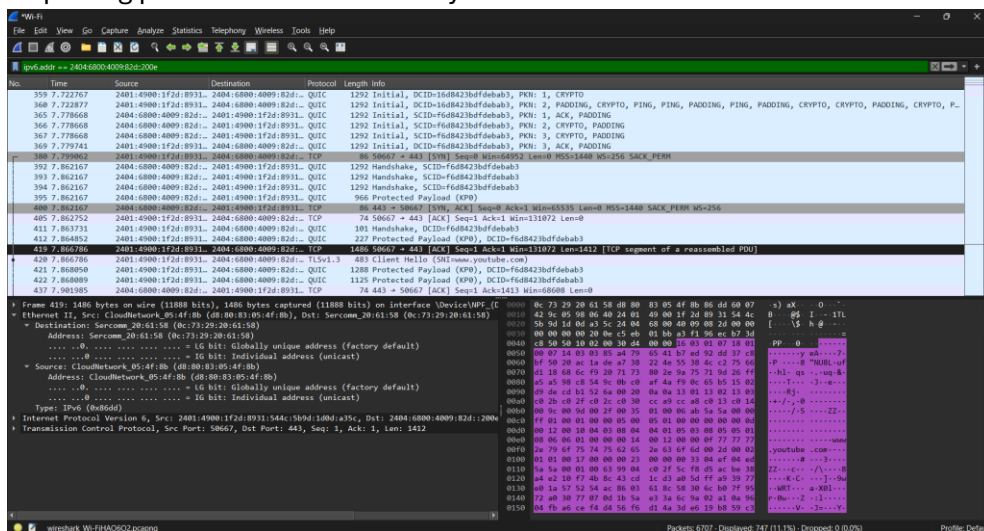
Since my wireless adapter does not go into monitor mode, I wasn't able to capture the beacon frames. The filter for capturing is "wlan.fc.type_subtype == 0x08"

2. Apply filters to view specific packet.

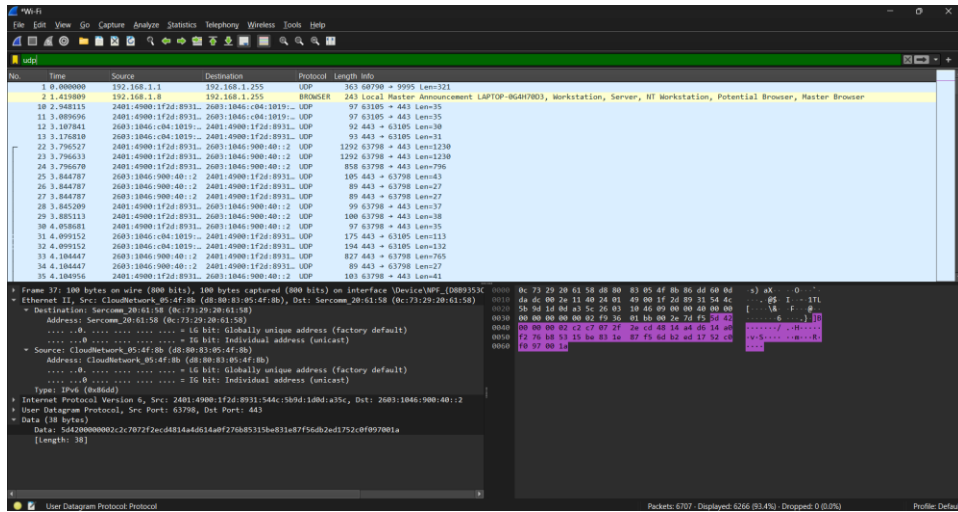
i. Capturing tcp packets



ii. Capturing packets associated with youtube.com

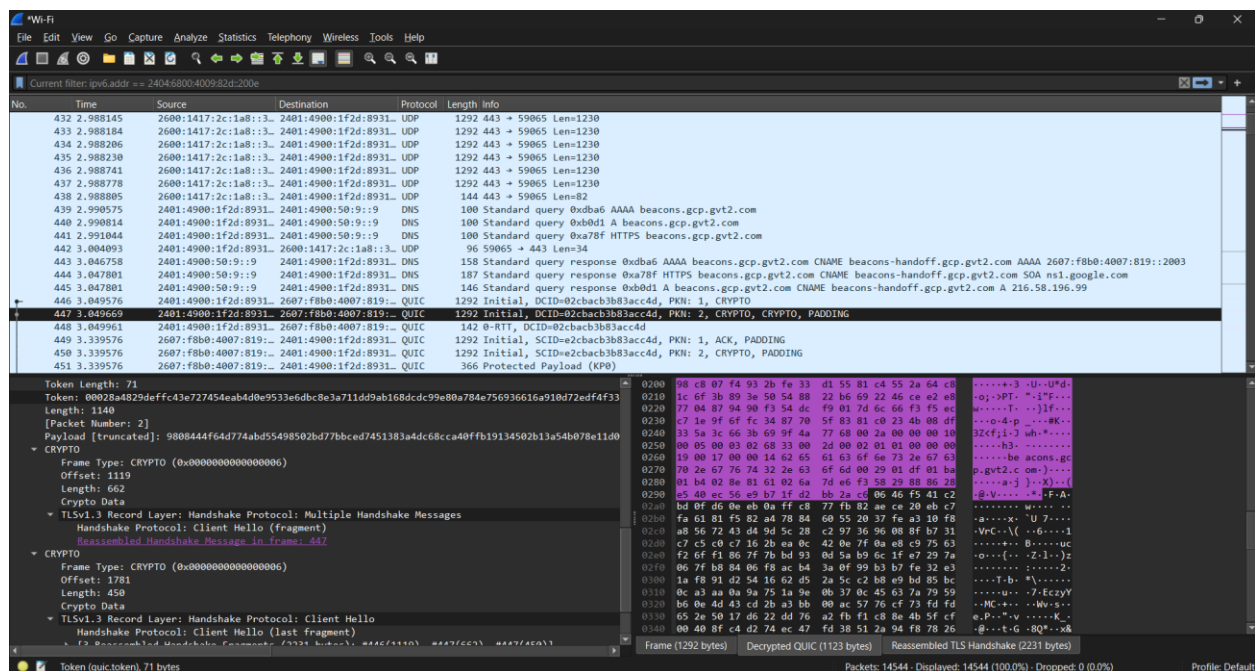


iii. Capturing UDP packets



3. Decrypt the wireshark pcap using passphrase, to view the encrypted packets.

- Click edit and go to preferences and there in protocols find IEEE 802.11
- In the decryption keys section click edit and a new decryption key
- The decryption key would be of the format 'wpa-pwd:password:SSID'



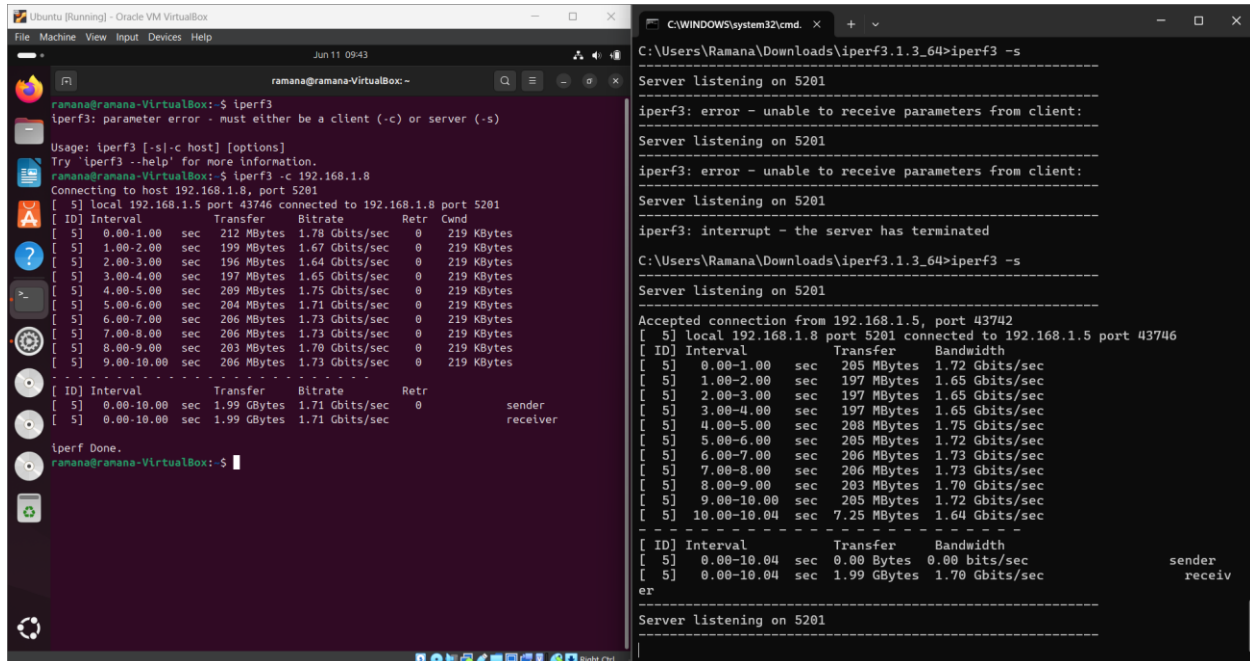
5. Point out ethernet and 802.11 frames.

Since monitor mode could not be enabled every frame which was captured was considered as an ethernet frame by wireshark.

2) Install Iperf on client and server device

A link was set up between windows host machine and linux virtual machine

1. Run TCP traffic



```
ramana@ramana-VirtualBox:~$ iperf3
iperf3: parameter error - must either be a client (-c) or server (-s)

Usage: iperf3 [-s|-c host] [options]
Try 'iperf3 -help' for more information.
ramana@ramana-VirtualBox:~$ iperf3 -c 192.168.1.8
Connecting to host 192.168.1.8, port 5201
[ S] local 192.168.1.5 port 43746 connected to 192.168.1.8 port 5201
[ ID] Interval      Transfer       Bitrate      Retr  Cwnd
[ S] 0.00-1.00 sec  212 MBytes    1.78 Gbits/sec  0    219 KBytes
[ S] 1.00-2.00 sec  199 MBytes    1.67 Gbits/sec  0    219 KBytes
[ S] 2.00-3.00 sec  196 MBytes    1.64 Gbits/sec  0    219 KBytes
[ S] 3.00-4.00 sec  197 MBytes    1.65 Gbits/sec  0    219 KBytes
[ S] 4.00-5.00 sec  209 MBytes    1.75 Gbits/sec  0    219 KBytes
[ S] 5.00-6.00 sec  204 MBytes    1.71 Gbits/sec  0    219 KBytes
[ S] 6.00-7.00 sec  206 MBytes    1.73 Gbits/sec  0    219 KBytes
[ S] 7.00-8.00 sec  206 MBytes    1.73 Gbits/sec  0    219 KBytes
[ S] 8.00-9.00 sec  203 MBytes    1.70 Gbits/sec  0    219 KBytes
[ S] 9.00-10.00 sec 206 MBytes    1.73 Gbits/sec  0    219 KBytes
-----
[ ID] Interval      Transfer       Bitrate      Retr  sender receiver
[ S] 0.00-10.00 sec 1.99 GBytes    1.71 Gbits/sec  0
[ S] 0.00-10.00 sec 1.99 GBytes    1.71 Gbits/sec

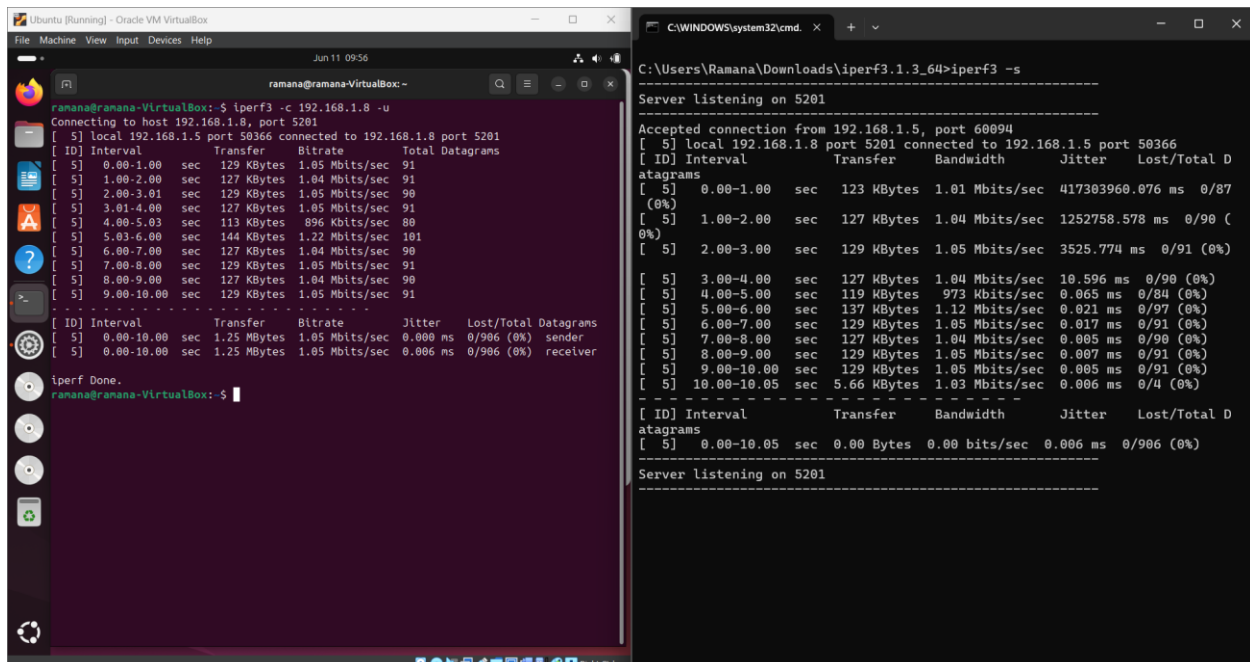
iperf Done.
ramana@ramana-VirtualBox:~$
```

```
C:\Users\Ramana\Downloads\iperf3.1.3_64>iperf3 -s
Server listening on 5201
iperf3: error - unable to receive parameters from client:
Server listening on 5201
iperf3: error - unable to receive parameters from client:
Server listening on 5201
iperf3: interrupt - the server has terminated

C:\Users\Ramana\Downloads\iperf3.1.3_64>iperf3 -s
Server listening on 5201
Accepted connection from 192.168.1.5, port 43742
[ S] local 192.168.1.8 port 5201 connected to 192.168.1.5 port 43746
[ ID] Interval      Transfer       Bandwidth
[ S] 0.00-1.00 sec  205 MBytes    1.72 Gbits/sec
[ S] 1.00-2.00 sec  197 MBytes    1.65 Gbits/sec
[ S] 2.00-3.00 sec  197 MBytes    1.65 Gbits/sec
[ S] 3.00-4.00 sec  197 MBytes    1.65 Gbits/sec
[ S] 4.00-5.00 sec  208 MBytes    1.75 Gbits/sec
[ S] 5.00-6.00 sec  205 MBytes    1.72 Gbits/sec
[ S] 6.00-7.00 sec  206 MBytes    1.73 Gbits/sec
[ S] 7.00-8.00 sec  206 MBytes    1.73 Gbits/sec
[ S] 8.00-9.00 sec  203 MBytes    1.70 Gbits/sec
[ S] 9.00-10.00 sec 205 MBytes    1.72 Gbits/sec
[ S] 10.00-10.04 sec 7.25 MBytes    1.64 Gbits/sec
-----
[ ID] Interval      Transfer       Bandwidth      sender receiver
[ S] 0.00-10.04 sec 0.00 Bytes     0.00 bits/sec
[ S] 0.00-10.04 sec 1.99 GBytes    1.70 Gbits/sec

Server listening on 5201
```

2. Run UDP traffic



```
ramana@ramana-VirtualBox:~$ iperf3 -c 192.168.1.8 -u
Connecting to host 192.168.1.8, port 5201
[ S] local 192.168.1.5 port 50366 connected to 192.168.1.8 port 5201
[ ID] Interval      Transfer       Bitrate      Total Datagrams
[ S] 0.00-1.00 sec  129 KBytes    1.05 Mbits/sec  91
[ S] 1.00-2.00 sec  127 KBytes    1.04 Mbits/sec  91
[ S] 2.00-3.00 sec  129 KBytes    1.05 Mbits/sec  90
[ S] 3.00-4.00 sec  127 KBytes    1.05 Mbits/sec  91
[ S] 4.00-5.00 sec  113 KBytes    0.96 Kbits/sec  80
[ S] 5.00-6.00 sec  144 KBytes    1.22 Mbits/sec  101
[ S] 6.00-7.00 sec  127 KBytes    1.04 Mbits/sec  90
[ S] 7.00-8.00 sec  129 KBytes    1.05 Mbits/sec  91
[ S] 8.00-9.00 sec  127 KBytes    1.04 Mbits/sec  90
[ S] 9.00-10.00 sec  129 KBytes    1.05 Mbits/sec  91
-----
[ ID] Interval      Transfer       Bitrate      Jitter  Lost/Total Datagrams
[ S] 0.00-10.00 sec 1.25 MBytes    1.05 Mbits/sec  0.000 ms  0/906 (0%) sender
[ S] 0.00-10.00 sec 1.25 MBytes    1.05 Mbits/sec  0.006 ms  0/906 (0%) receiver

iperf Done.
ramana@ramana-VirtualBox:~$
```

```
C:\Users\Ramana\Downloads\iperf3.1.3_64>iperf3 -s
Server listening on 5201
Accepted connection from 192.168.1.5, port 60094
[ S] local 192.168.1.8 port 5201 connected to 192.168.1.5 port 50366
[ ID] Interval      Transfer       Bandwidth      Jitter  Lost/Total D
atagrams
[ S] 0.00-1.00 sec  123 KBytes    1.01 Mbits/sec  417303960.076 ms  0/87 (0%)
[ S] 1.00-2.00 sec  127 KBytes    1.04 Mbits/sec  1252758.578 ms  0/90 (0%)
[ S] 2.00-3.00 sec  129 KBytes    1.05 Mbits/sec  3525.774 ms  0/91 (0%)
[ S] 3.00-4.00 sec  127 KBytes    1.04 Mbits/sec  10.596 ms  0/90 (0%)
[ S] 4.00-5.00 sec  119 KBytes    973 Kbits/sec  0.065 ms  0/84 (0%)
[ S] 5.00-6.00 sec  137 KBytes    1.12 Mbits/sec  0.021 ms  0/97 (0%)
[ S] 6.00-7.00 sec  129 KBytes    1.05 Mbits/sec  0.017 ms  0/91 (0%)
[ S] 7.00-8.00 sec  127 KBytes    1.04 Mbits/sec  0.005 ms  0/90 (0%)
[ S] 8.00-9.00 sec  129 KBytes    1.05 Mbits/sec  0.007 ms  0/91 (0%)
[ S] 9.00-10.00 sec  129 KBytes    1.05 Mbits/sec  0.005 ms  0/91 (0%)
[ S] 10.00-10.05 sec 5.66 KBytes    1.03 Mbits/sec  0.006 ms  0/4 (0%)
-----
[ ID] Interval      Transfer       Bandwidth      Jitter  Lost/Total D
atagrams
[ S] 0.00-10.05 sec 0.00 Bytes     0.00 bits/sec  0.006 ms  0/906 (0%)

Server listening on 5201
```

Check for the bandwidth and drops reported in the results.