Mawlana Bhashani Science and Technology University

Lab-Report

Report No: 05

Course code: ICT-4202

Course title: Wireless and Mobile Communication Lab

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Submitted To

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Experiment No: 05

Experiment Name: Comparative Analysis of Wired and Wireless data using Wireshark

Objectives:

1. We have to find out the Wired data packages Using the Wireshark in order to compare with the wireless data packages.
2. Filter the packages
3. Find out the host, IP of the data packages
4. Create the Statistics for both of the data packages.
5. Finally compare the wired and wireless data packages simultaneously with the help of Wireshark.

Capturing Packets:

If we click any menu option, then it will show the available interfaces list. After clicking the menu, we need to start Capturing on interface that has IP address/Source/Host.

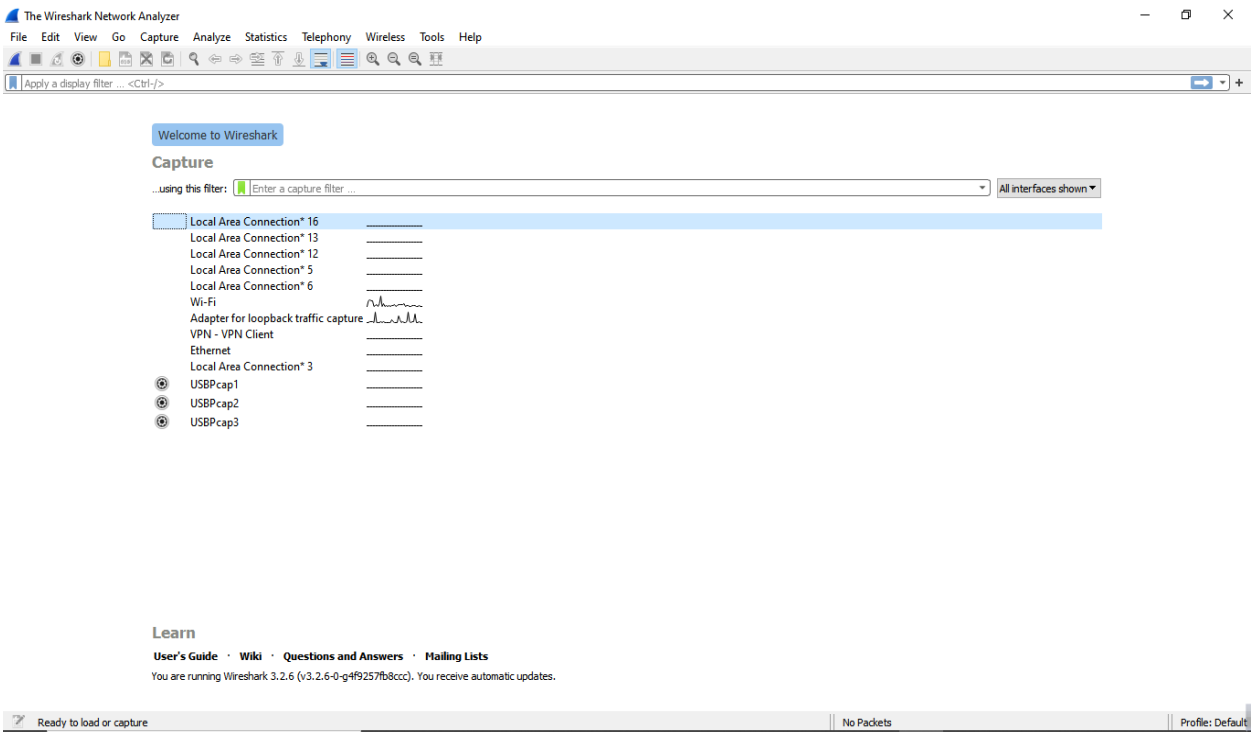


Figure 01: Wireshark Interface List

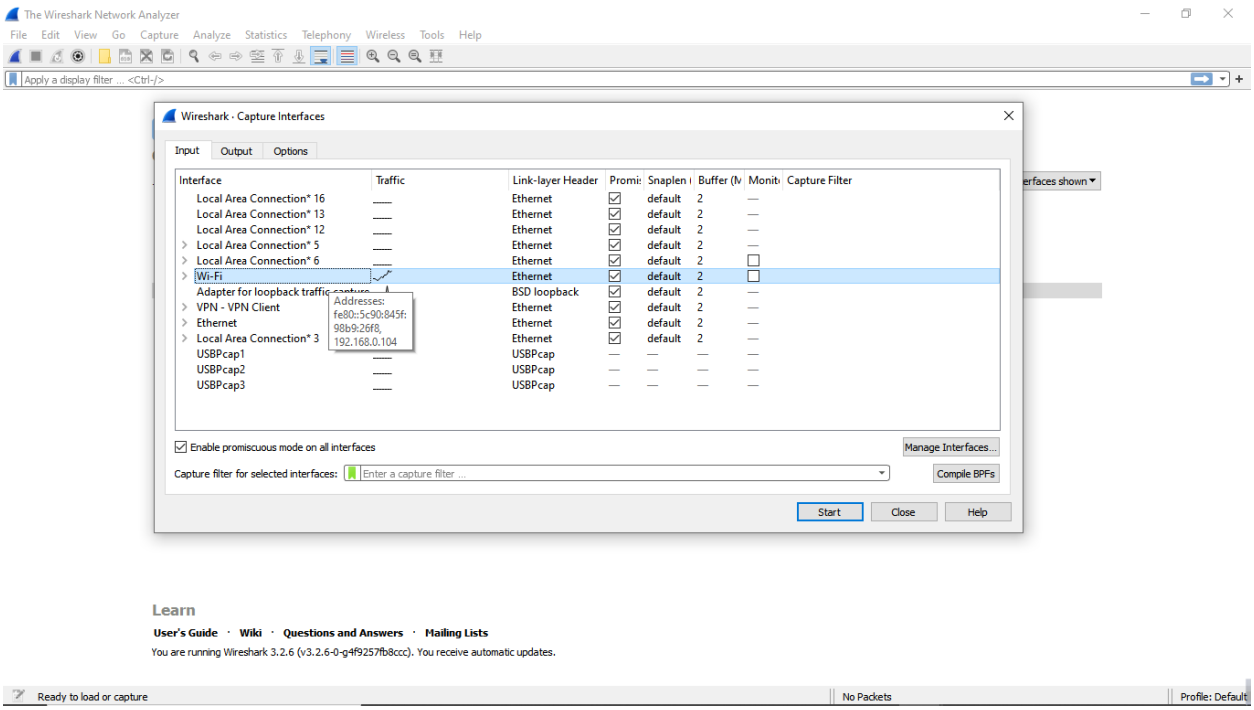


Figure 02-A: Start Capturing Interface that has for Wi-Fi (Wireless)

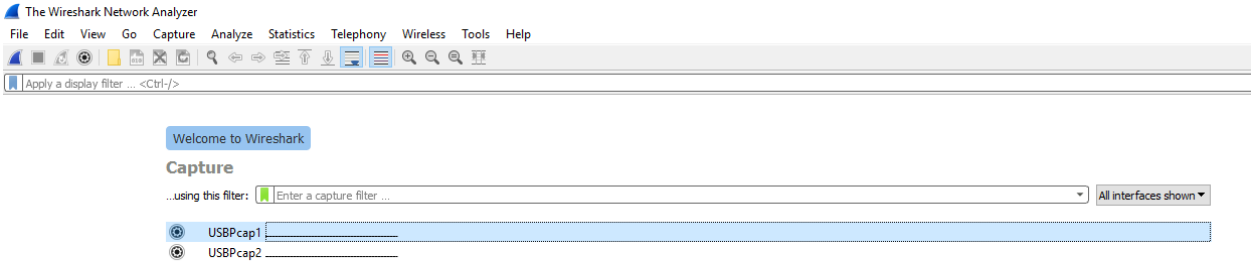


Figure 02-B: Start Capturing Interface that has for USB Tethering(Wired)

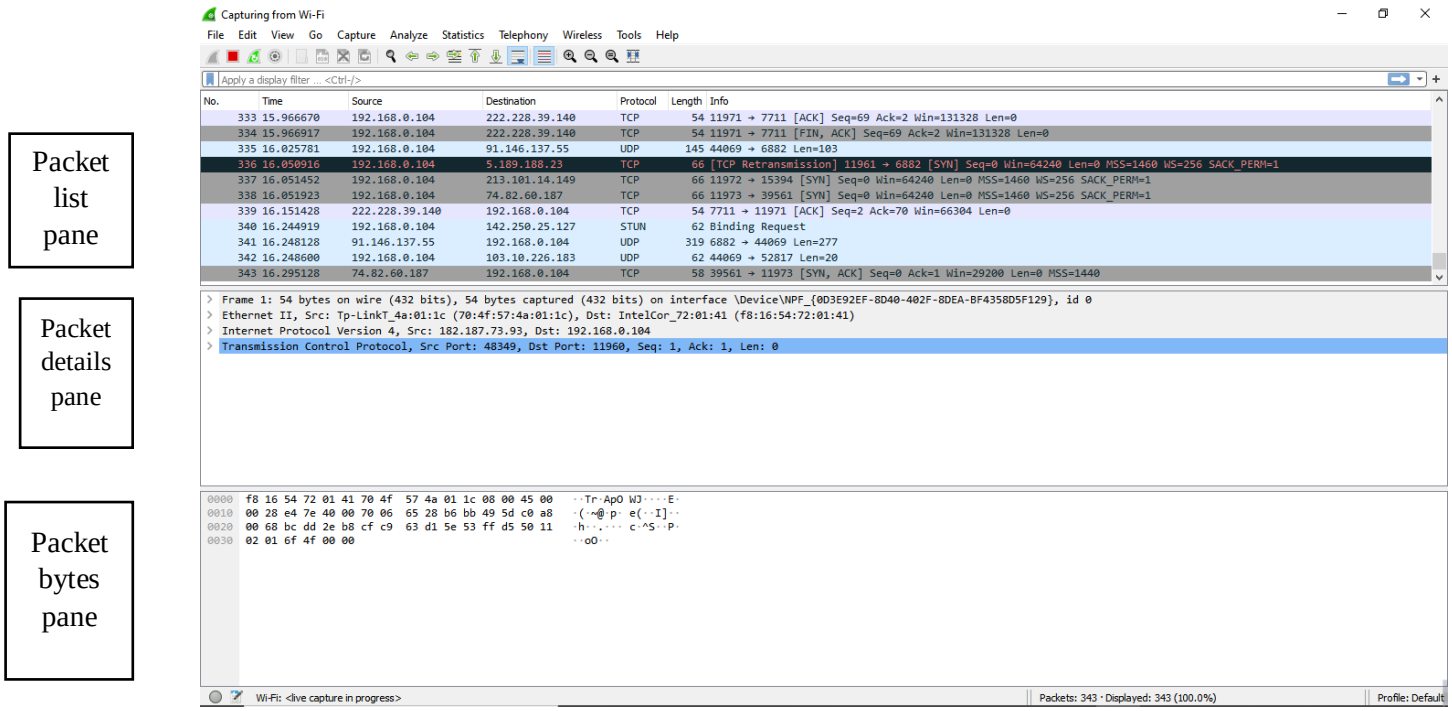


Figure 03-A: A sample packet capture window for Wireless Data Pack

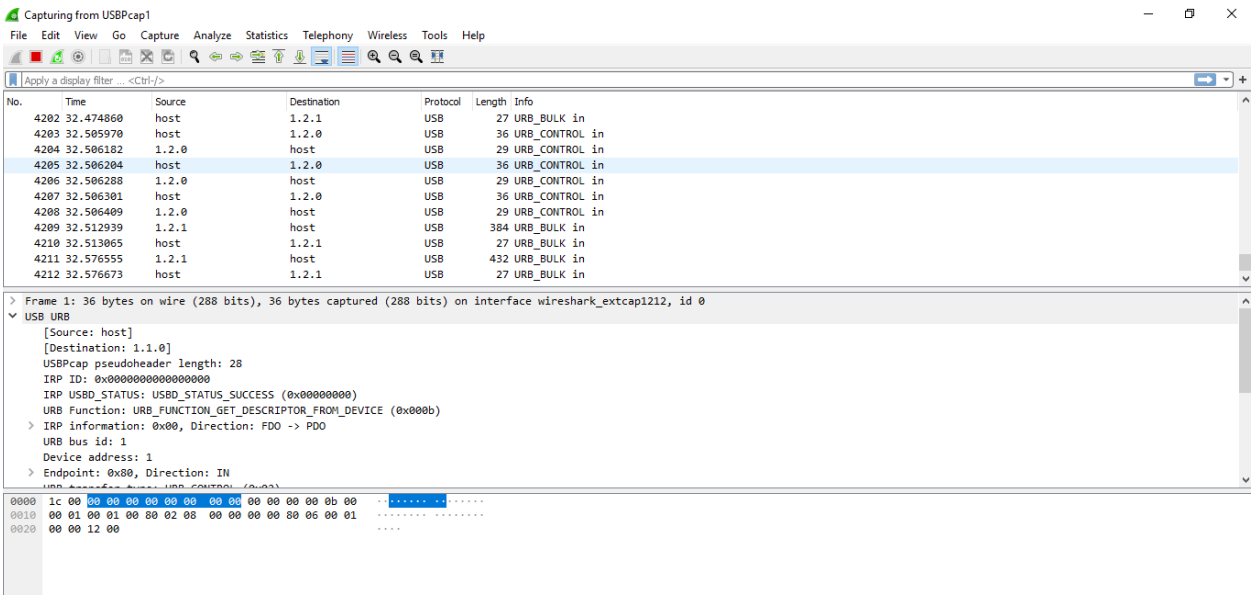
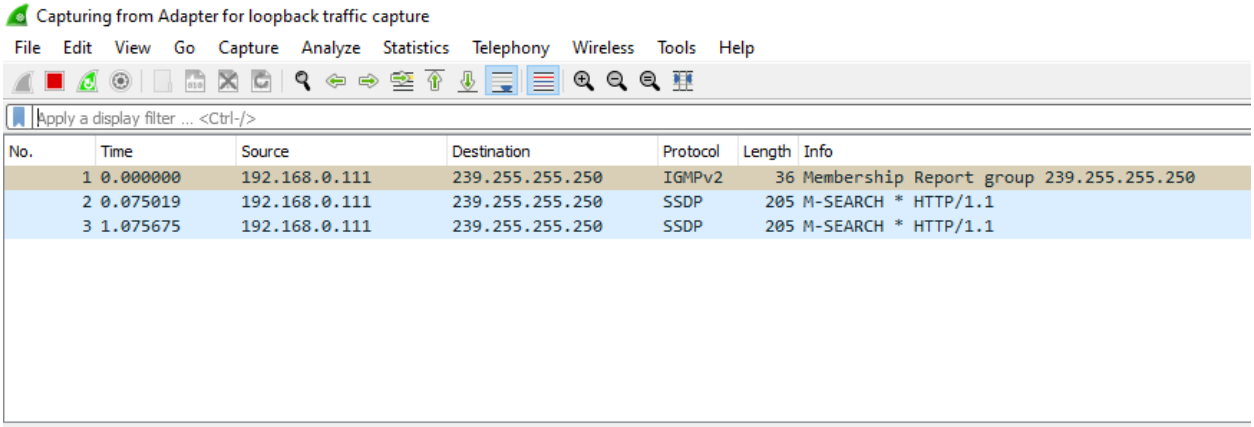
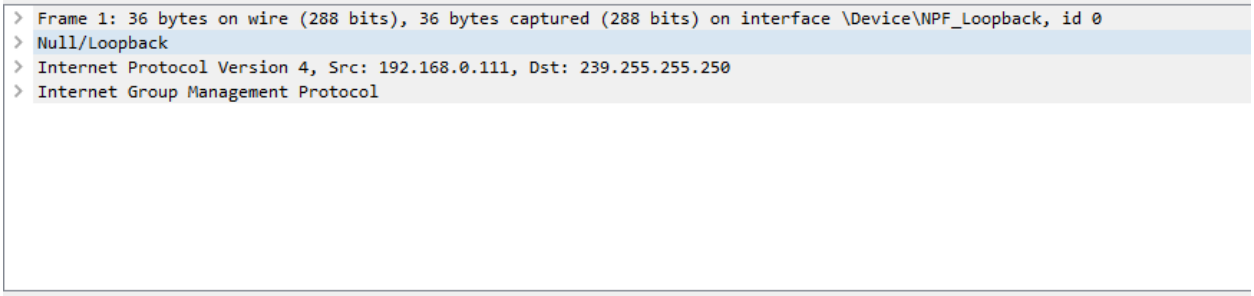


Figure 03-B: A sample packet capture window for Wired Data Pack


Capturing from Adapter for loopback traffic capture
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
No. Time Source Destination Protocol Length Info
1 0.000000 192.168.0.111 239.255.255.250 IGMPv2 36 Membership Report group 239.255.255.250
2 0.075019 192.168.0.111 239.255.255.250 SSDP 205 M-SEARCH * HTTP/1.1
3 1.075675 192.168.0.111 239.255.255.250 SSDP 205 M-SEARCH * HTTP/1.1


Frame 1: 36 bytes on wire (288 bits), 36 bytes captured (288 bits) on interface \Device\NPF_Loopback, id 0
Null/Loopback
Internet Protocol Version 4, Src: 192.168.0.111, Dst: 239.255.255.250
Internet Group Management Protocol


0000 02 00 00 00 46 00 00 20 87 93 00 00 01 02 00 00
0010 c0 a8 00 6f ef ff ff fa 94 04 00 00 16 00 fa 04
0020 ef ff ff fa

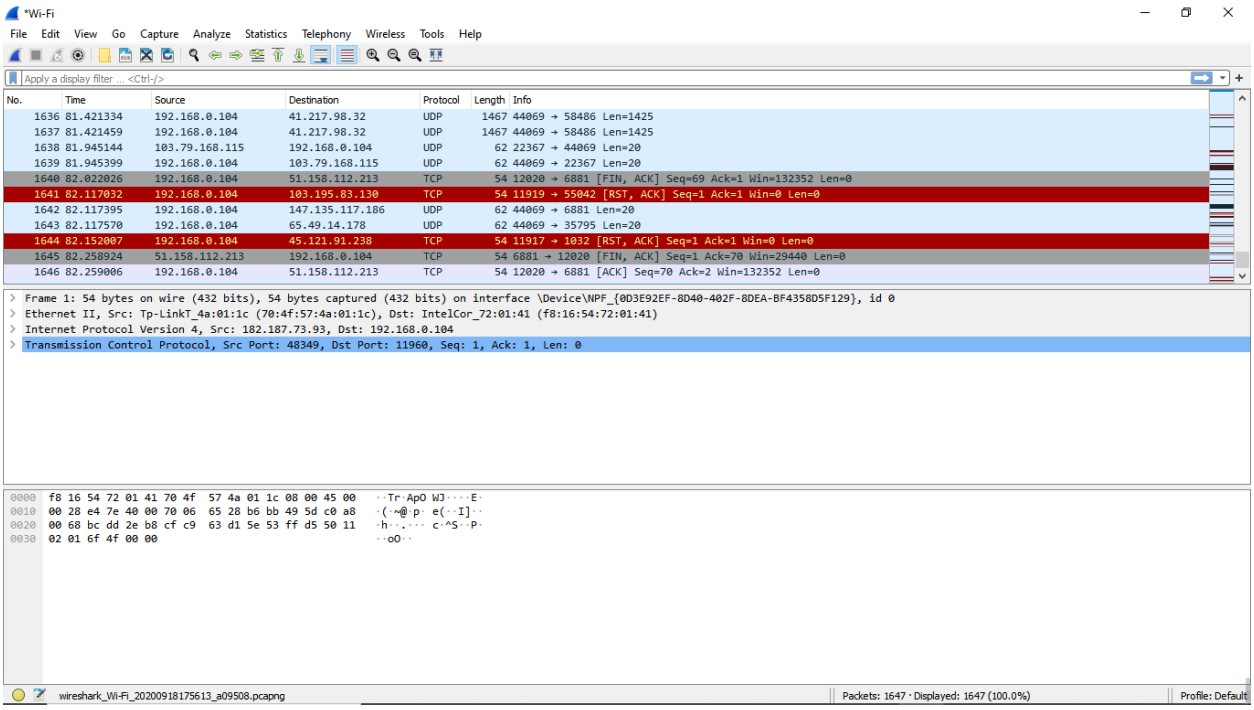

*Wi-Fi
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
No. Time Source Destination Protocol Length Info
1636 81.421334 192.168.0.104 41.217.98.32 UDP 1467 44069 → 58486 Len=1425
1637 81.421459 192.168.0.104 41.217.98.32 UDP 1467 44069 → 58486 Len=1425
1638 81.945144 103.79.168.115 192.168.0.104 UDP 62 22367 → 44069 Len=20
1639 81.945399 192.168.0.104 103.79.168.115 UDP 62 44069 → 22367 Len=20
1640 82.022026 192.168.0.104 51.158.112.213 TCP 54 12020 → 6881 [FIN, ACK] Seq=69 Ack=1 Win=132352 Len=0
1641 82.117032 192.168.0.104 103.195.83.130 TCP 54 11919 → 55042 [RST, ACK] Seq=1 Ack=1 Win=0 Len=0
1642 82.117395 192.168.0.104 147.135.117.186 UDP 62 44069 → 6881 Len=20
1643 82.117570 192.168.0.104 65.49.14.178 UDP 62 44069 → 35795 Len=20
1644 82.152007 192.168.0.104 45.121.91.238 TCP 54 11917 → 1032 [RST, ACK] Seq=1 Ack=1 Win=0 Len=0
1645 82.258924 51.158.112.213 192.168.0.104 TCP 54 6881 → 12020 [FIN, ACK] Seq=1 Ack=70 Win=29440 Len=0
1646 82.259006 192.168.0.104 51.158.112.213 TCP 54 12020 → 6881 [ACK] Seq=70 Ack=2 Win=132352 Len=0
Frame 1: 54 bytes on wire (432 bits), 54 bytes captured (432 bits) on interface \Device\NPF_{0D3E92EF-8D40-402F-8DEA-BF4358D5F129}, id 0
Ethernet II, Src: Tp-LinkT_4a:01:1c (70:4f:57:4a:01:1c), Dst: IntelCor_72:01:41 (f8:16:54:72:01:41)
Internet Protocol Version 4, Src: 182.187.73.93, Dst: 192.168.0.104
Transmission Control Protocol, Src Port: 48349, Dst Port: 11960, Seq: 1, Ack: 1, Len: 0
0000 f8 16 54 72 01 41 70 4f 57 4a 01 1c 08 00 45 00
0010 00 28 e4 7e 40 00 70 06 65 28 b6 bb 49 5d c0 a8
0020 00 68 bc dd 2e b8 cf c9 63 d1 5e 53 ff d5 50 11
0030 02 01 6f 4f 00 00
wireshark_Wi-Fi_20200918175613_a09508.pcapng
Packets: 1647 · Displayed: 1647 (100.0%)
Profile: Default

Figure 04-A: Stopping Capture for Wi-Fi (Wireless)

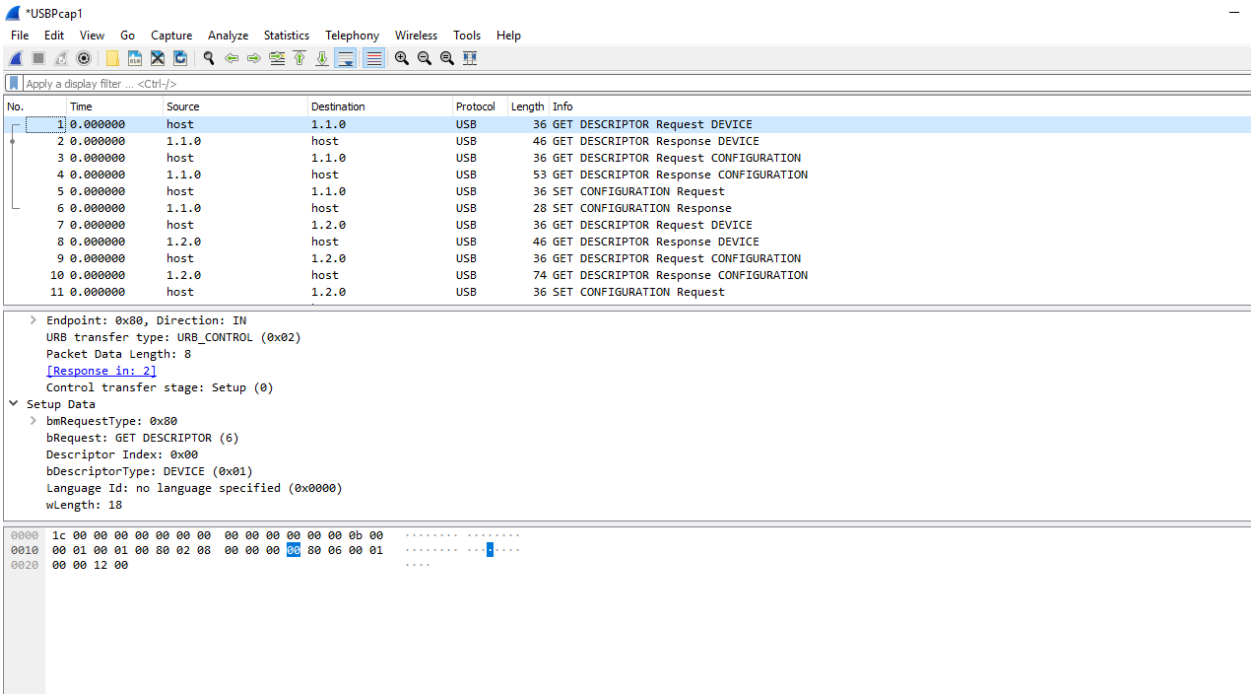
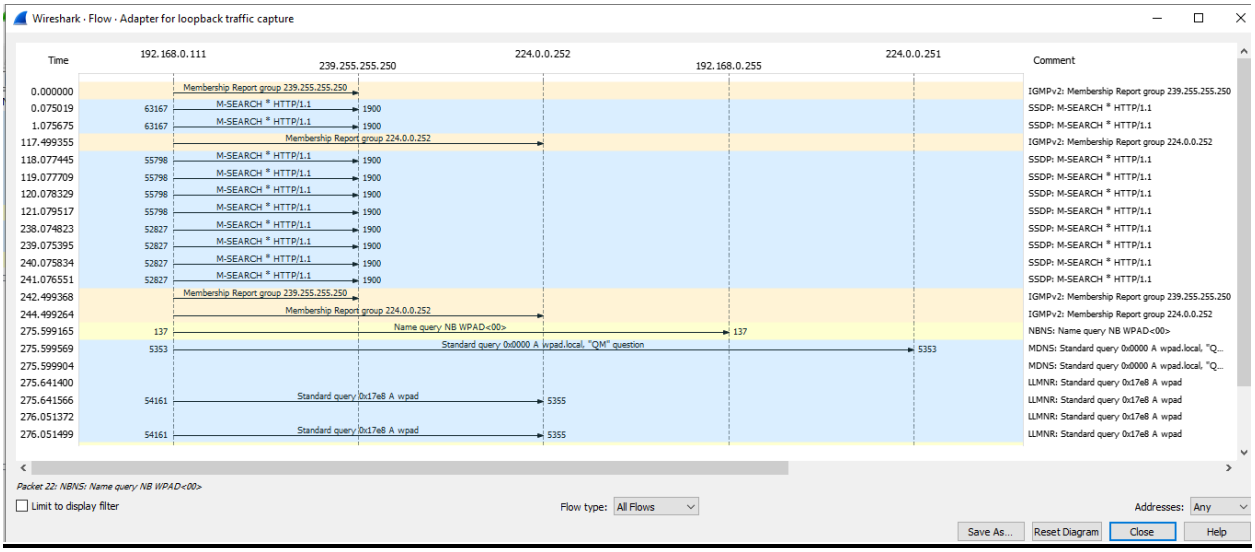


Figure 04-B: Stopping Capture for Wi-Fi (Wired)

Filtering:



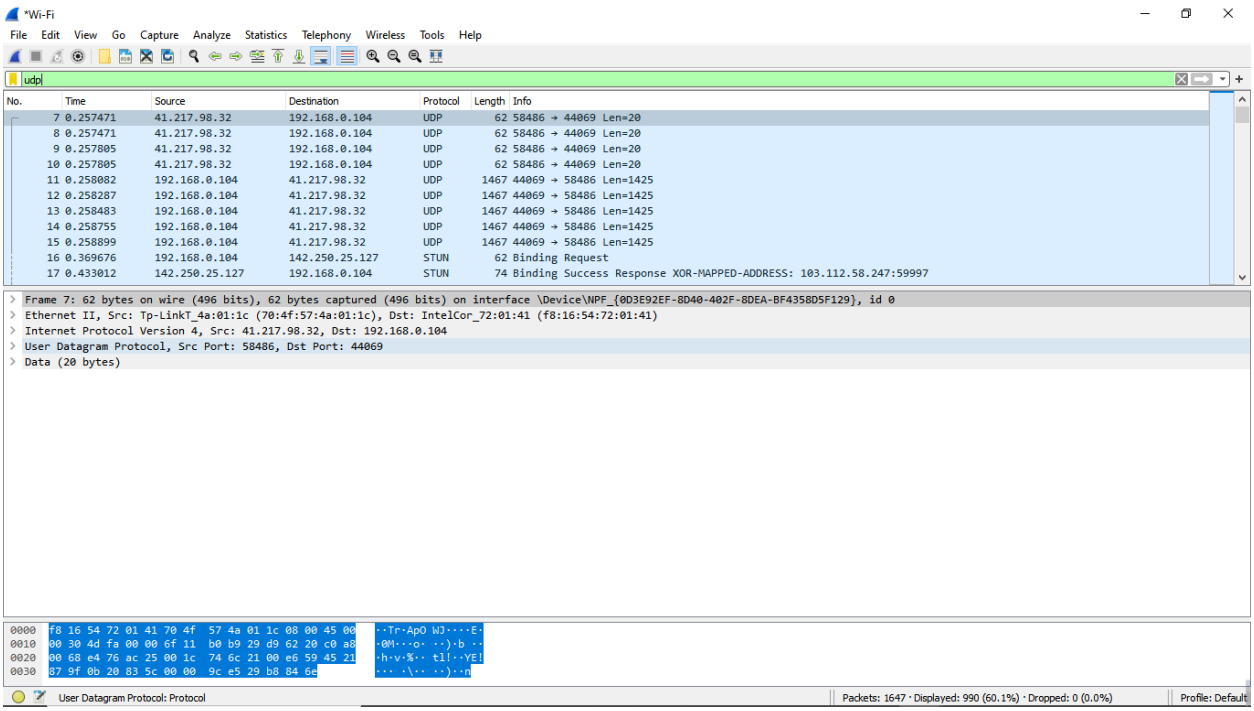


Figure 05-A: Filter by Protocol Wireless Data Packages

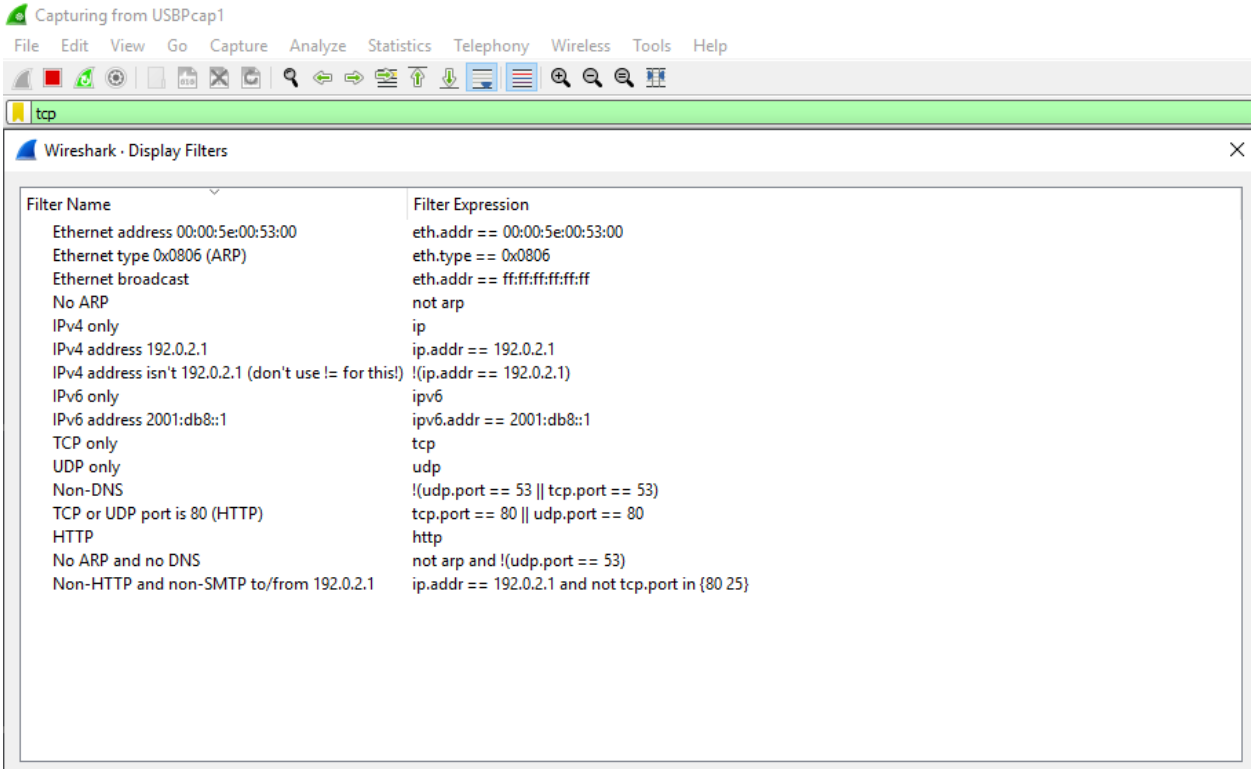


Figure 05-B: Filter by Protocol Wired Data Packages

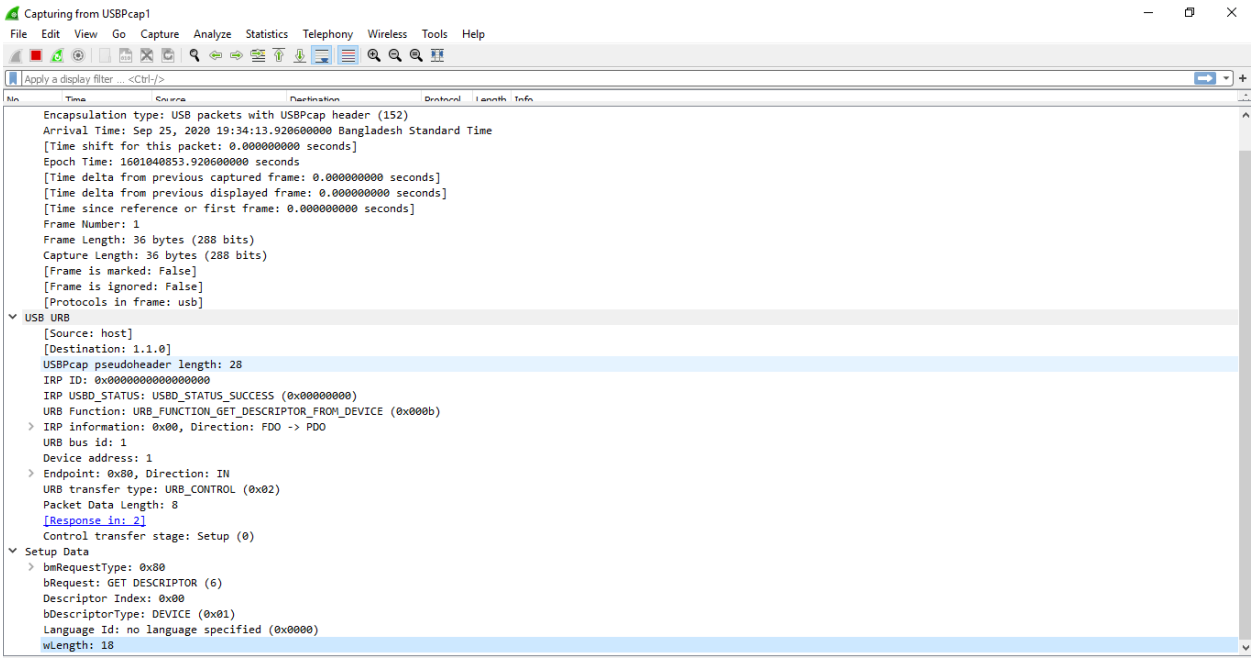


Figure 06-A: Packet Details Pane (Frame segment) for Wired Data Packages.

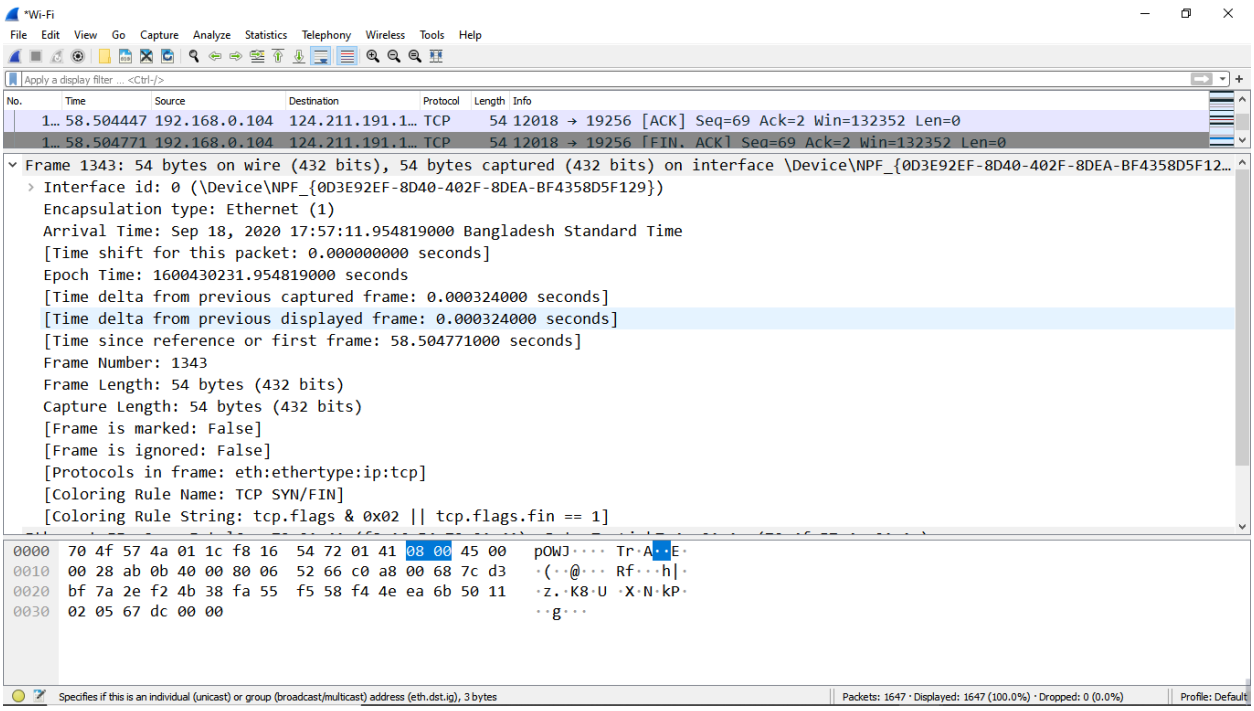


Figure 06-B: Packet Details Pane (Frame segment) for Wireless Data Packages.

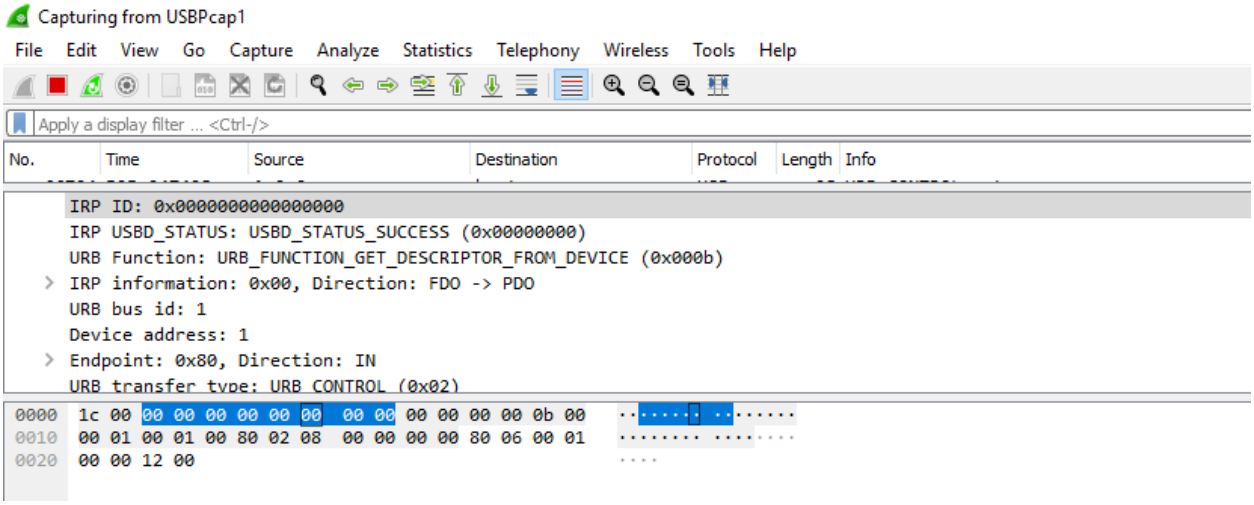


Figure 07-A: Packet Byte Pane for Wireless (USB Tethering)

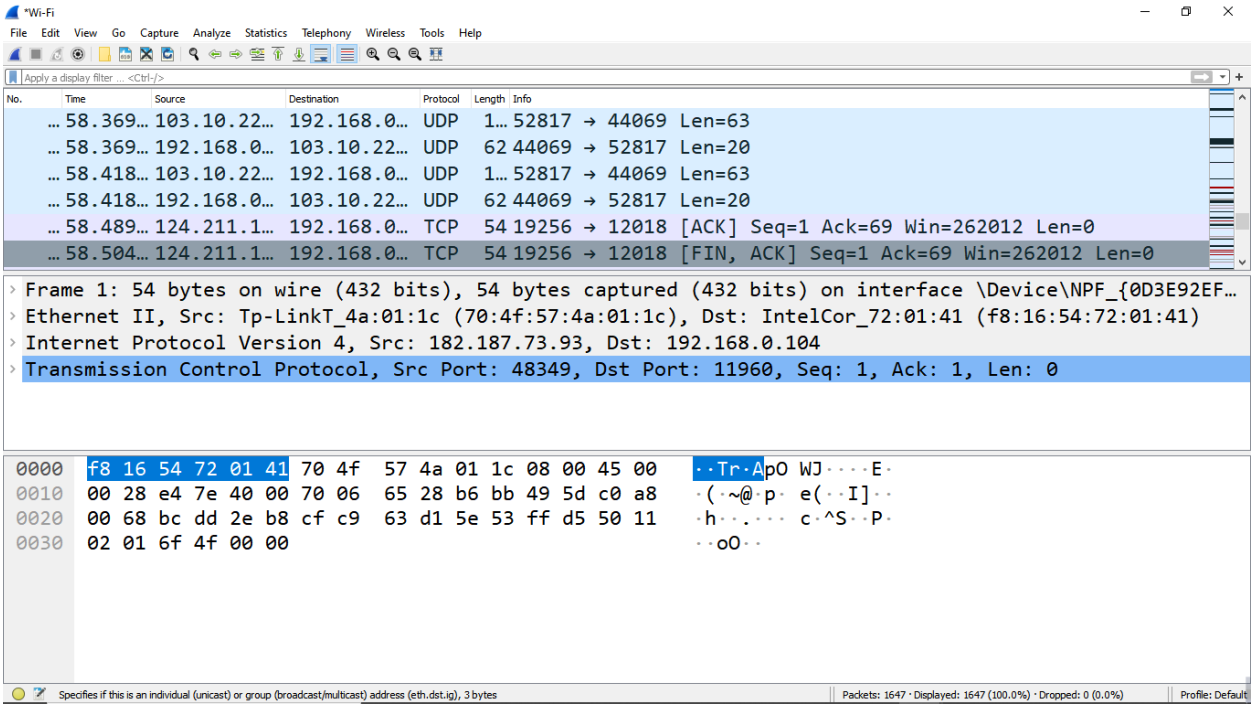


Figure 07-B: Packet Byte Pane (For Wi-Fi)

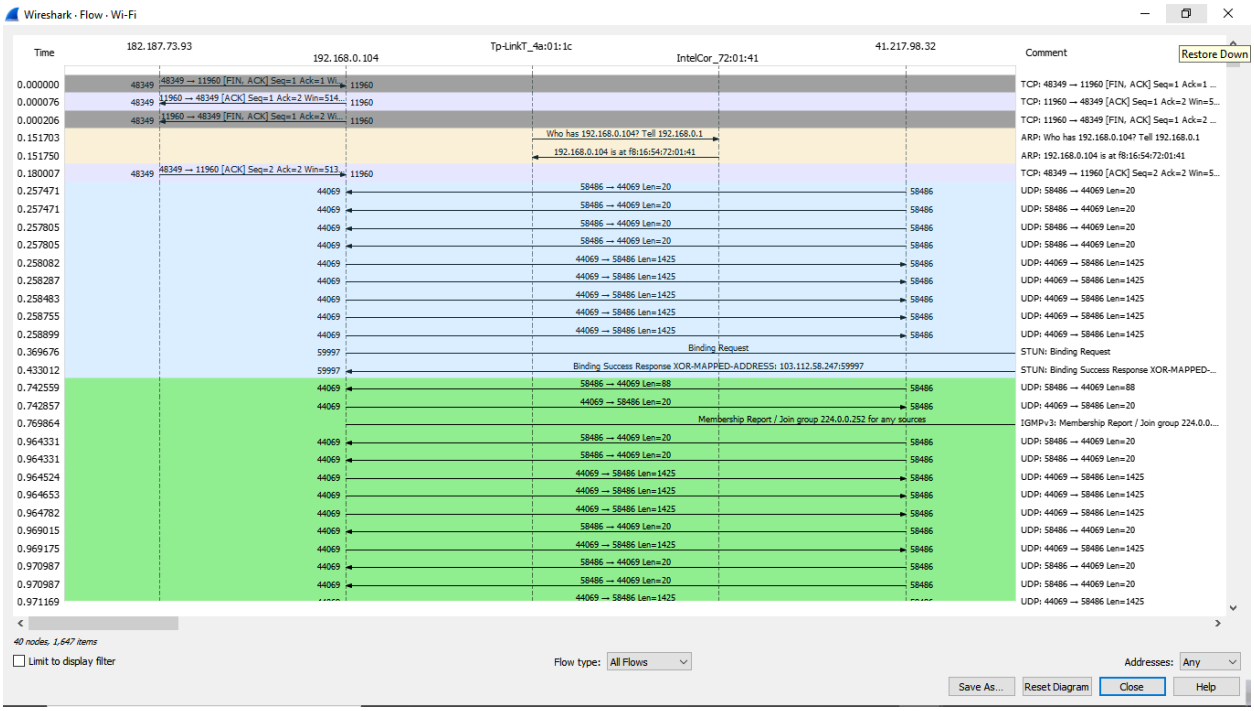


Figure 08-A: Statistics- Flow Graph -All Flows for Wi-Fi (Wireless Data Packages)

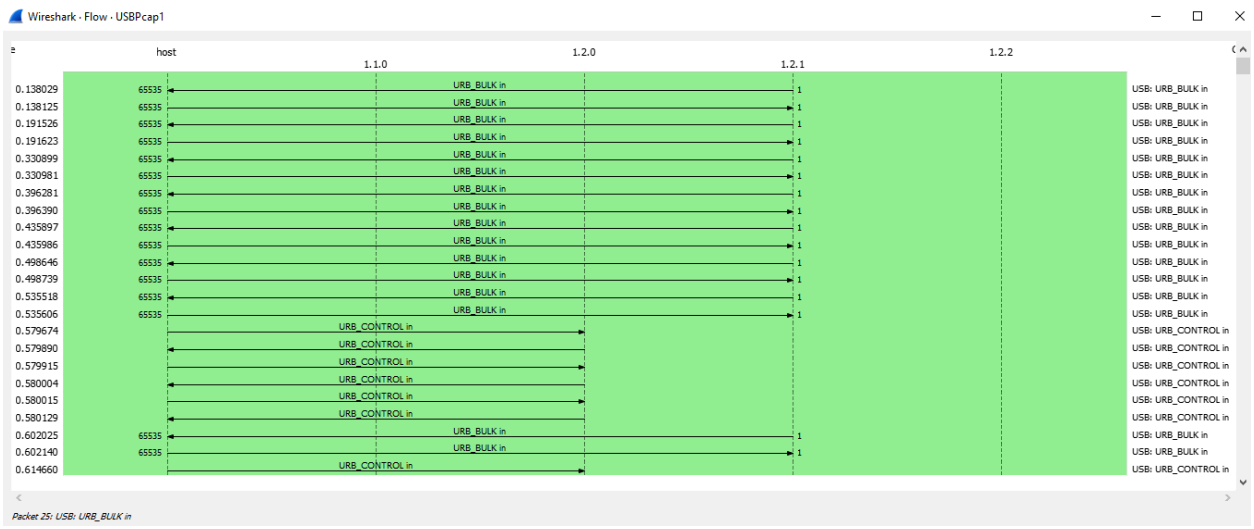


Figure 08-B: Statistics- Flow Graph -All Flows for Wi-Fi (Wired Data Packages)

Conclusion:

From above experiment we come to know that Between Wired and Wireless Network, wired network is much more efficient than wireless network. Because Wired data packages transfer rate are very much smoother than Wireless.

Wired data are more secure and high speedy. On the other hand wireless data are less secure and low speedy compare to wired data transfer.