

Mawlana Bhashani Science and Technology University



Lab-Report

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Experiment No: 05**Experiment Name: Comparative Analysis of Wired and Wireless data using Wireshark****Objectives:**

- i. Wireshark is a popular network analyzers
- ii. That uses pcap library to capture network packets at different layers of the OSI model
- iii. It is easy to install and possesses a nice GUI with many feature
- iv. Capture live packet data from a network interface.
- v. Display packets with very detailed protocol information.
- vi. Filter packets on many criteria.
- vii. Search for packets on many criteria.
- viii. Colorize packet display based on filters.
- ix. Create various statistics.

Comparative Analysis of Wired and Wireless data:**Capturing Packets:**

By clicking Capture menu the process of capturing will be started. It will show the available interfaces list. Then, we need to start Capturing on interface that has IP address

The packet capture will display the details of each packet as they were transmitted over the wireless LAN.

Capturing can be stopped by clicking on Stop the running capture button on the main toolbar.

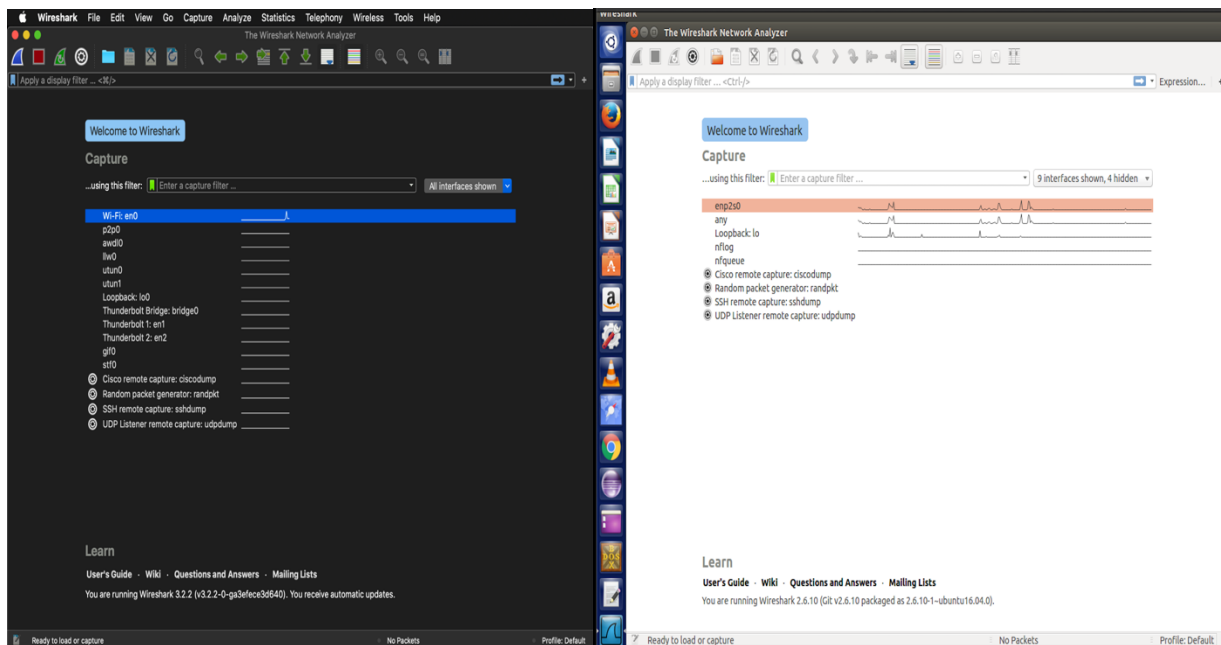


Figure 01: Wireshark Interface List (Wireless and Wired)

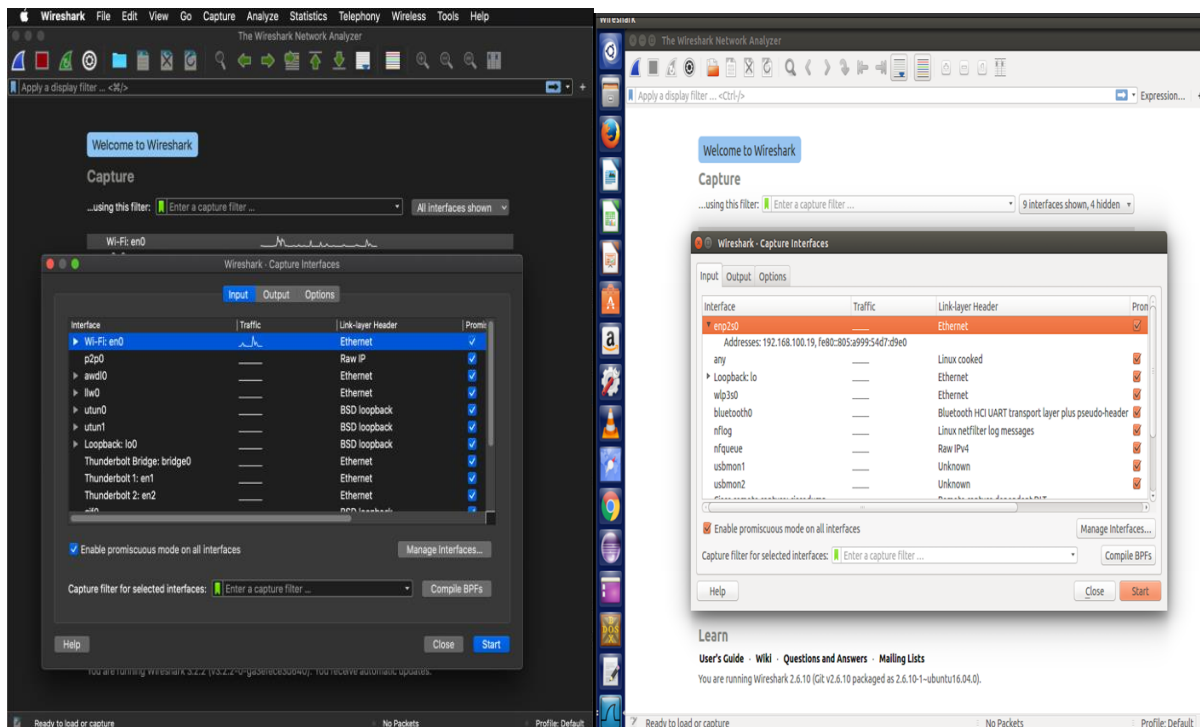


Figure 02: Start Capturing Interface that has IP address(Wireless and Wired)

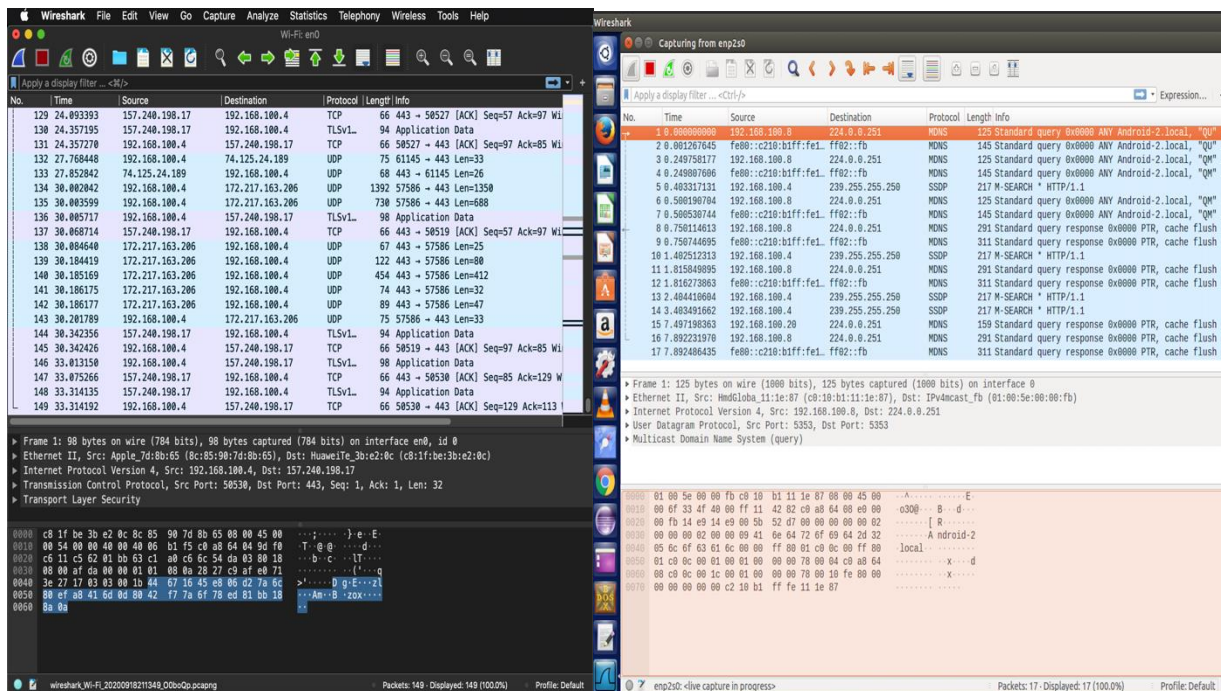


Figure 03: A sample packet capture window(Wireless and

Wired)

A source filter can be applied to restrict the packet view in wireshark to only those packets that have source IP as mentioned in the filter.

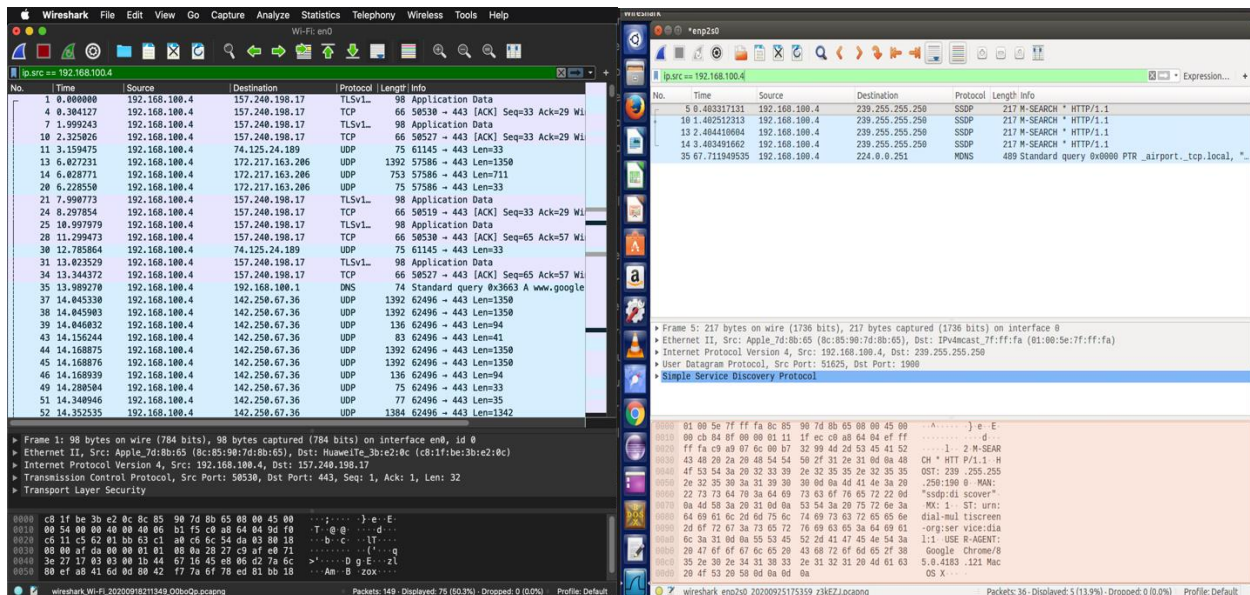


Figure 04: Source IP filter(Wireless and Wired)

- Packets and protocols can be analyzed after capture
- Individual fields in protocols can be easily seen
- Graphs and flow diagrams can be helpful in analysis

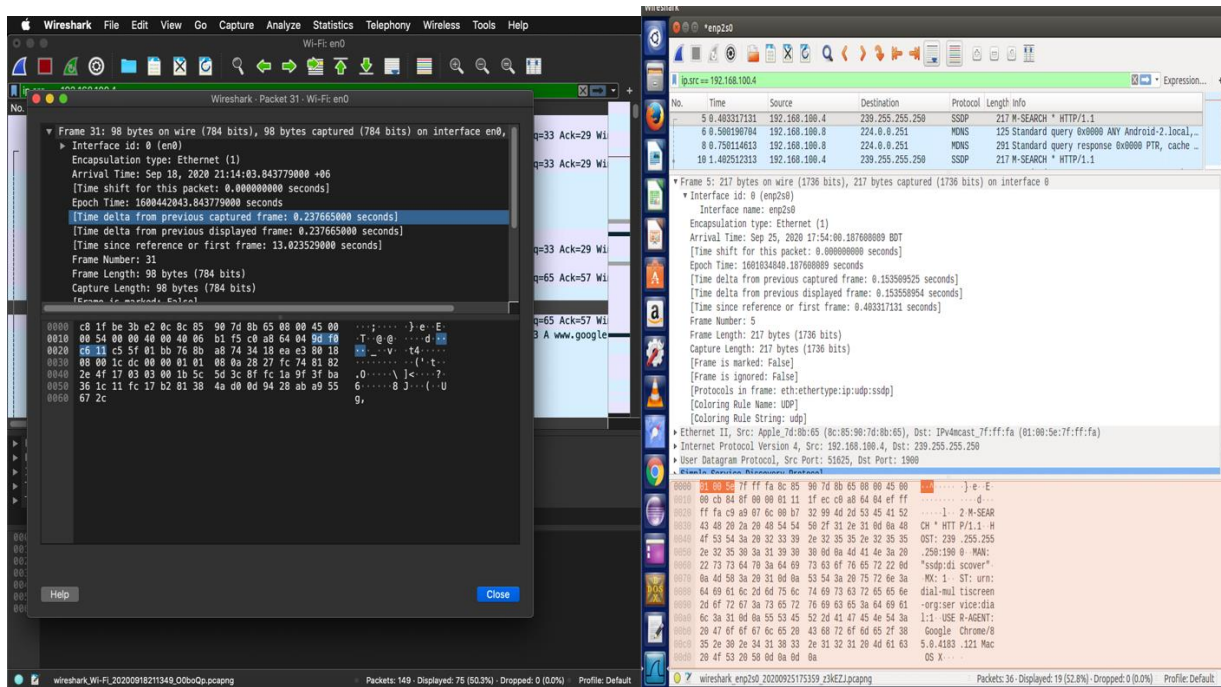


Figure 05: Packet Details (Frame segment (Wireless and Wired))

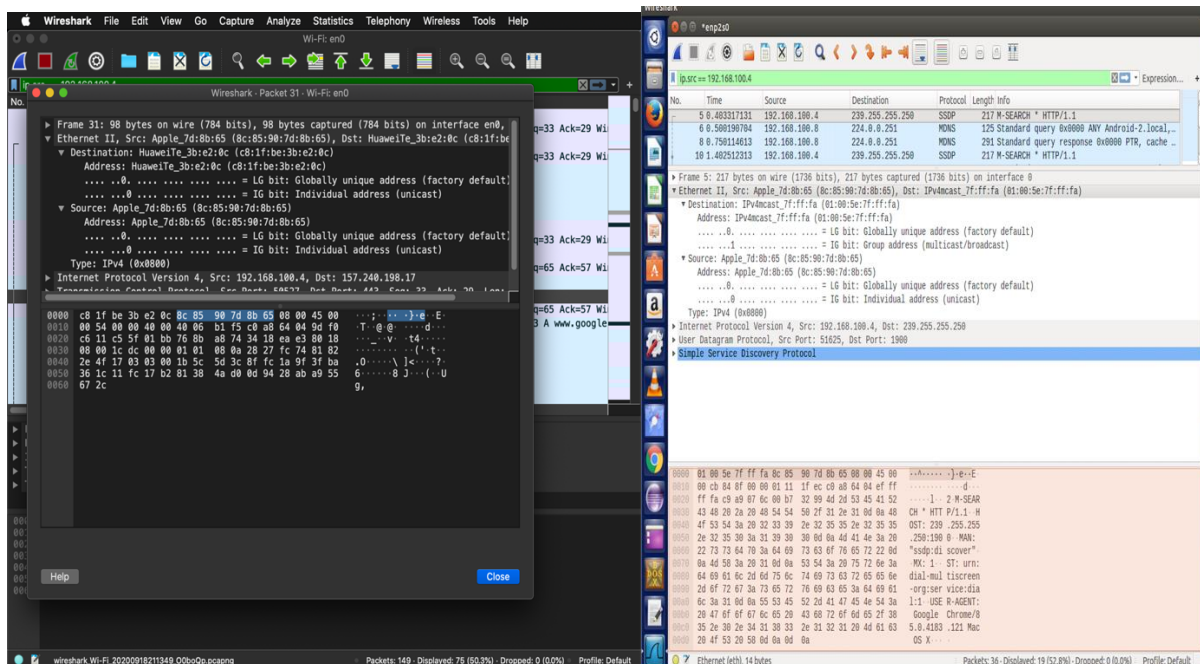


Figure 06: Packet Details Pane (Ethernet Segment (Wireless and Wired))

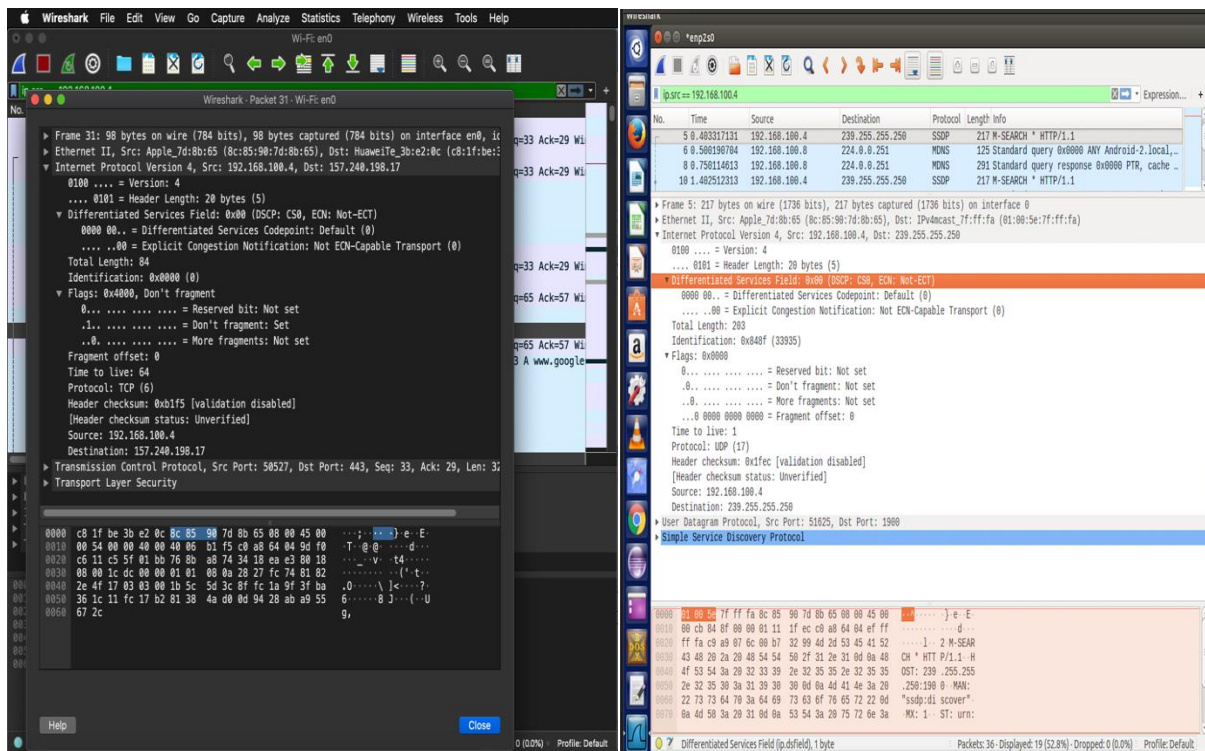


Figure 07: Packet Details (IP segment(Wired and Wireless))

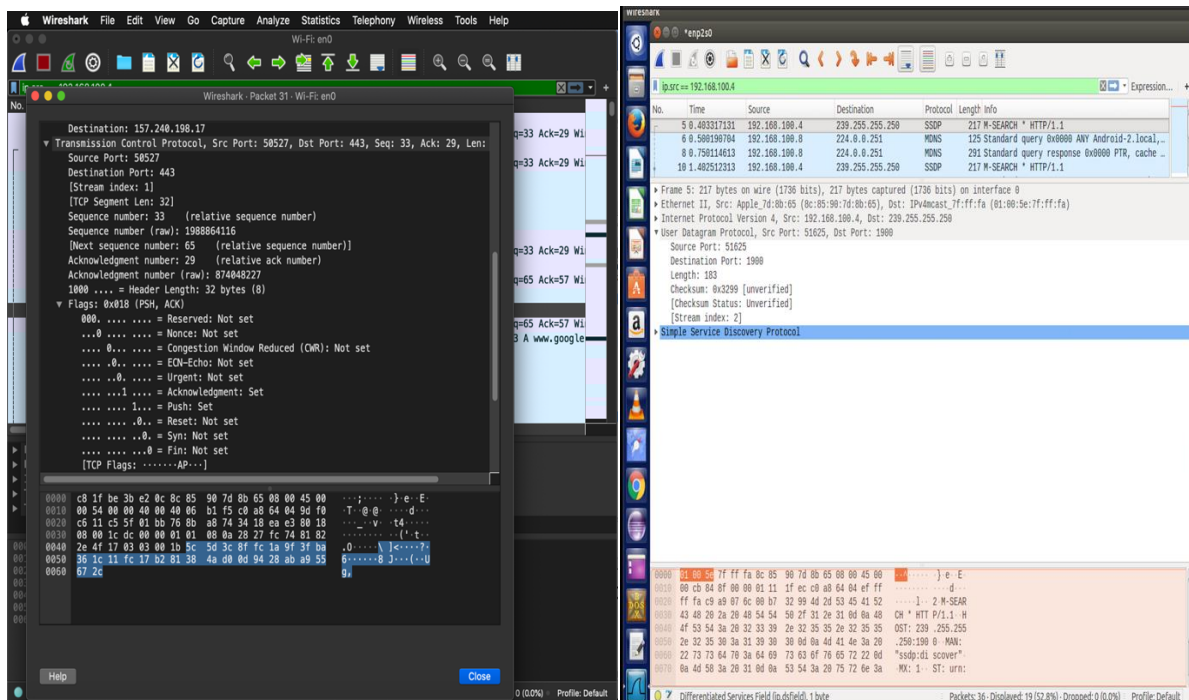


Figure 08: Packet Details Pane (TCP(Wireless) and UDP

(Wired)Segment

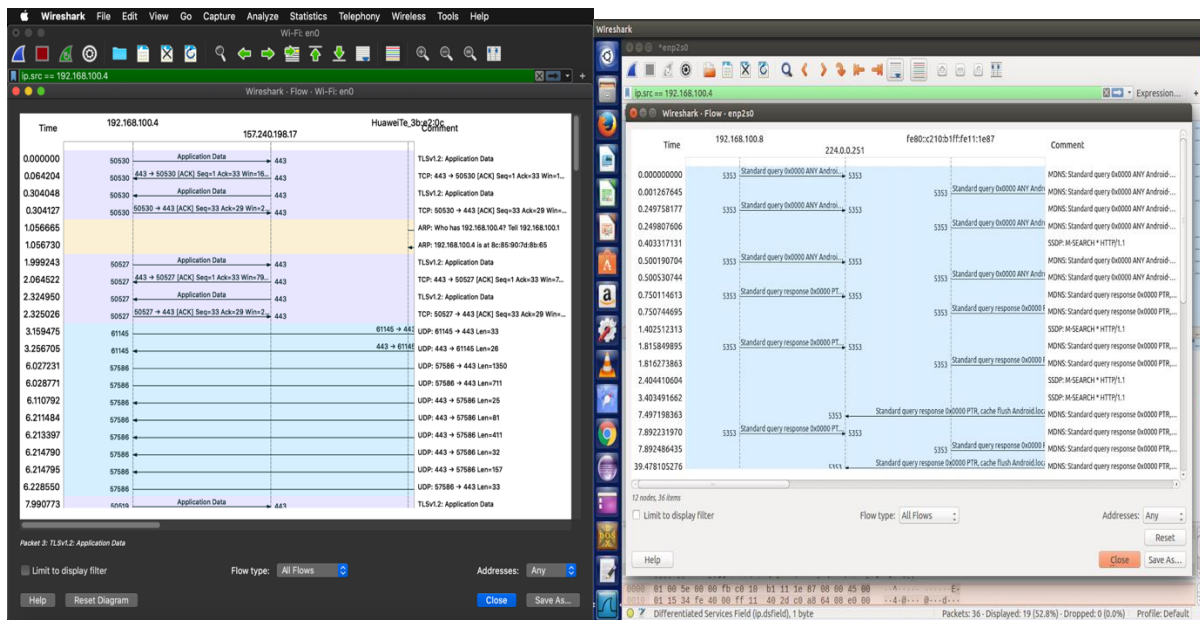


Figure 09: Statistics- Flow Graph(Wireless and Wired)

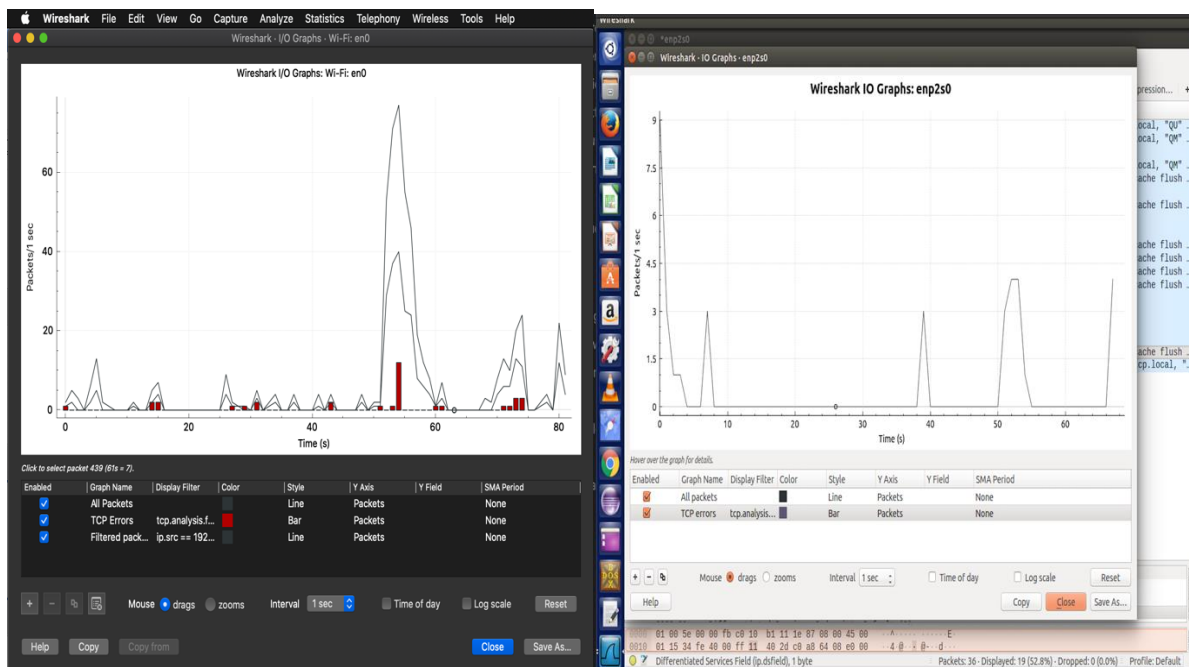


Figure 10: Statistics- I/O Graph(Wireless and Wired)

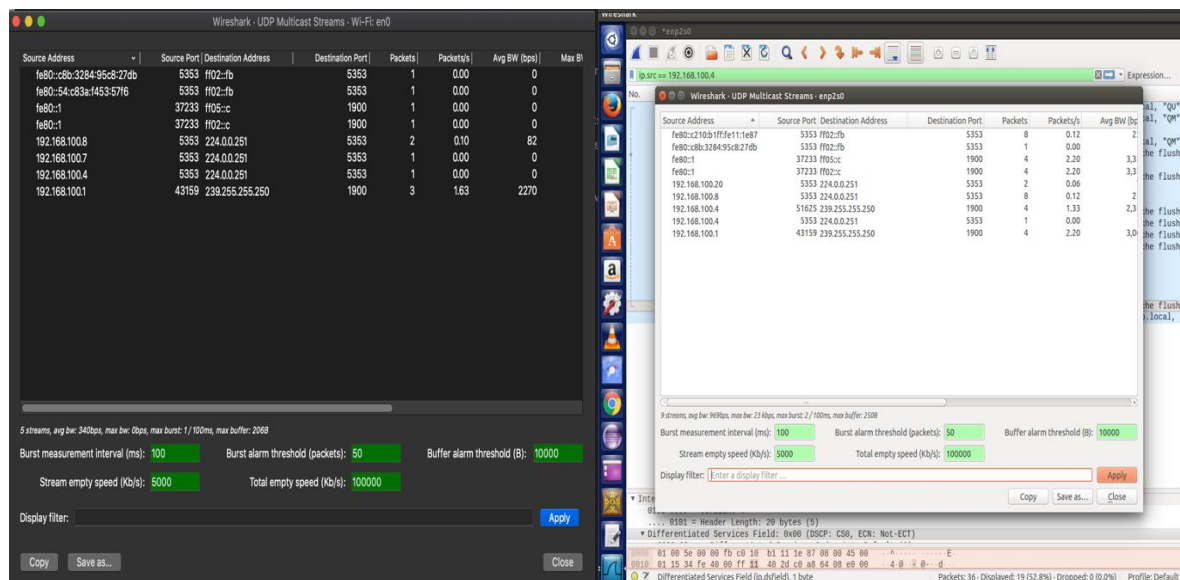


Figure 11: UDP Multicast(Wireless and Wired)

Conclusion:

A wireless network allows devices to stay connected to the network but roam untethered to any wires. A wired network uses cables to connect devices, such as laptop or desktop computers, to the Internet or another network. A wired network has some disadvantages when compared to a wireless network

Wireshark uses libpcap or Winpcap libraries to capture network traffic on Windows. Winpcap libraries are not intended to work with WiFi network cards, therefore they do not support WiFi network traffic capturing using Wireshark on Windows. Monitor mode for Windows using Wireshark is not supported by default.

So I use mac and Linux to analysis wireless and Wired data using Wireshark