Practical no: 3

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Subject: Computer Security Lab
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Aim: Packet sniffing using Wireshark

Task 1: Capturing and Analyzing Network Traffic

Objective: Capture and analyze network traffic to identify specific packets and their contents.

Instructions:

- 1. Install Wireshark on your computer.
- 2. Start capturing network traffic on a selected network interface.
- 3. Capture traffic for a specific duration (e.g., 2 minutes).
- 4. Stop the capture and save it as a Wireshark capture file (PCAP).
- 5. Analyze the captured packets to identify specific protocols, source/destination IP addresses, and port numbers.

Task 2: Identifying Suspicious Activity

Objective: Use Wireshark to identify and investigate suspicious network activity. Instructions:

- 1. Capture network traffic on a specific interface.
- 2. Look for any unusual or suspicious network activity, such as unexpected connections or traffic patterns.
- 3. Analyze the suspicious packets to determine their nature and potential threat.
- 4. Document your findings and any actions taken to address the issue.

Task 3: Analyzing DNS Traffic

Objective: Capture and analyze DNS (Domain Name System) traffic to understand domain resolutions.

Instructions:

- 1. Start capturing network traffic on a selected interface.
- 2. Perform various DNS queries on your computer (e.g., visiting websites).

- 3. Stop the capture and save it as a PCAP file.
- 4. Analyze the DNS traffic to identify domain resolutions, IP addresses, and response times.

Task 4: Identifying Malware Communications

Objective: Use Wireshark to identify network communications associated with malware. Instructions:

- 1. Set up a controlled environment with a virtual machine.
- 2. Infect the virtual machine with malware (ensure it is safely isolated).
- 3. Capture network traffic from the infected virtual machine.
- 4. Analyze the traffic to identify any suspicious or malicious communications.
- 5. Document the findings and potential indicators of compromise.

Task 5: Monitoring HTTP Traffic

Objective: Capture and analyze HTTP (Hypertext Transfer Protocol) traffic to understand web browsing behavior.

Instructions:

- 1. Start capturing network traffic on a selected interface.
- 2. Open a web browser and visit several websites.
- 3. Stop the capture and save it as a PCAP file.
- 4. Analyze the HTTP traffic to identify visited URLs, request methods (GET, POST), and response codes.

Task 6: Analyzing Email Communication

- Task: Capture email communication (SMTP and POP/IMAP) using Wireshark between an email client (e.g., Outlook) and a mail server (e.g., smtp.example.com). Identify the email protocols used and examine the email headers.

Task 7: Detecting ARP Spoofing

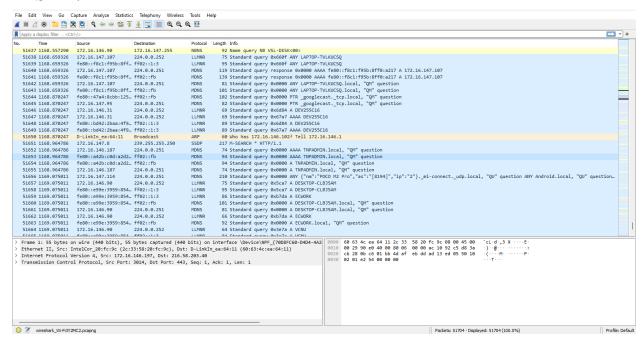
- Task: Capture ARP traffic on your local network and detect any signs of ARP spoofing (e.g., ARP requests for IP addresses that don't match the expected mappings).
- Answer: Look for ARP requests and responses in the captured traffic. Pay attention to any ARP requests that don't align with the known IP-to-MAC address mappings in your network.

Task 8: Analyzing VoIP Traffic

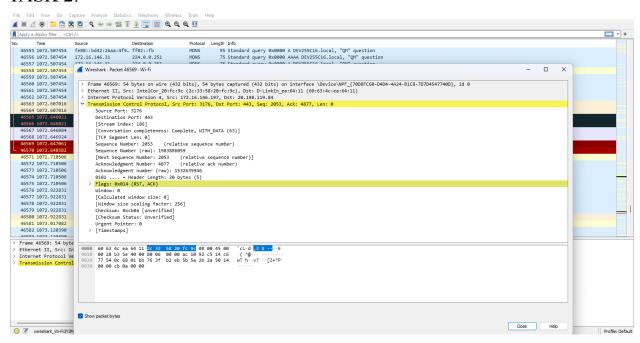
- Task: Capture VoIP (Voice over IP) traffic using Wireshark from a VoIP application (e.g., Skype) and analyze the packets. Identify the protocols used and understand how voice communication

is transmitted over the network.

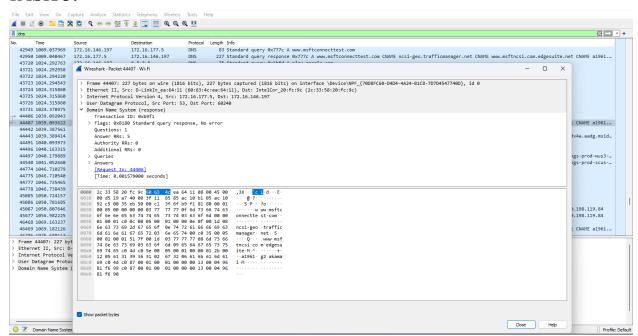
TASK 1:



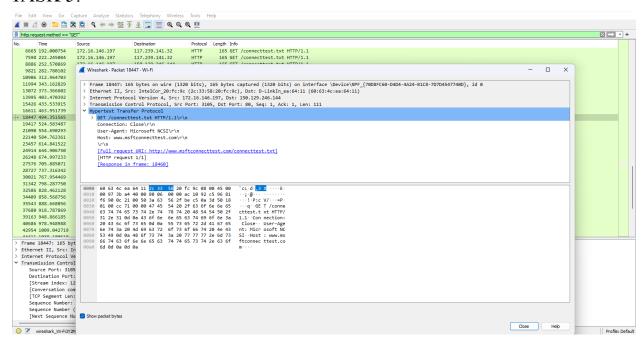
TASK 2:



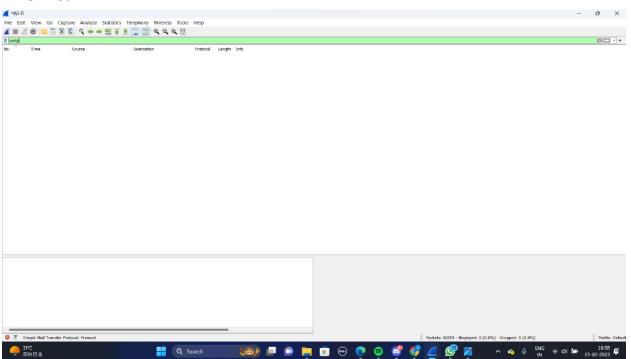
TASK 3:



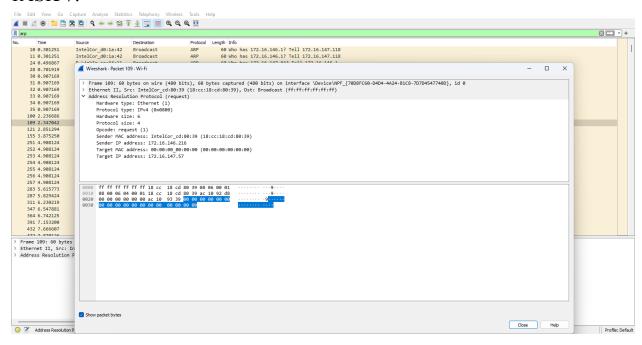
TASK 5:

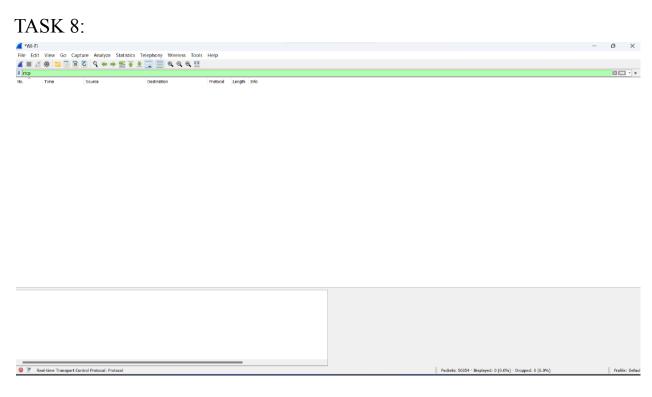


TASK 6:



TASK 7:





Conclusion: Through this practical ,we implemented various ways of packet sniffing using Wireshark.