# Capture and Analyze Network Traffic Using Wireshark

**Objective:** Capture live network packets and identify basic protocols and traffic types.

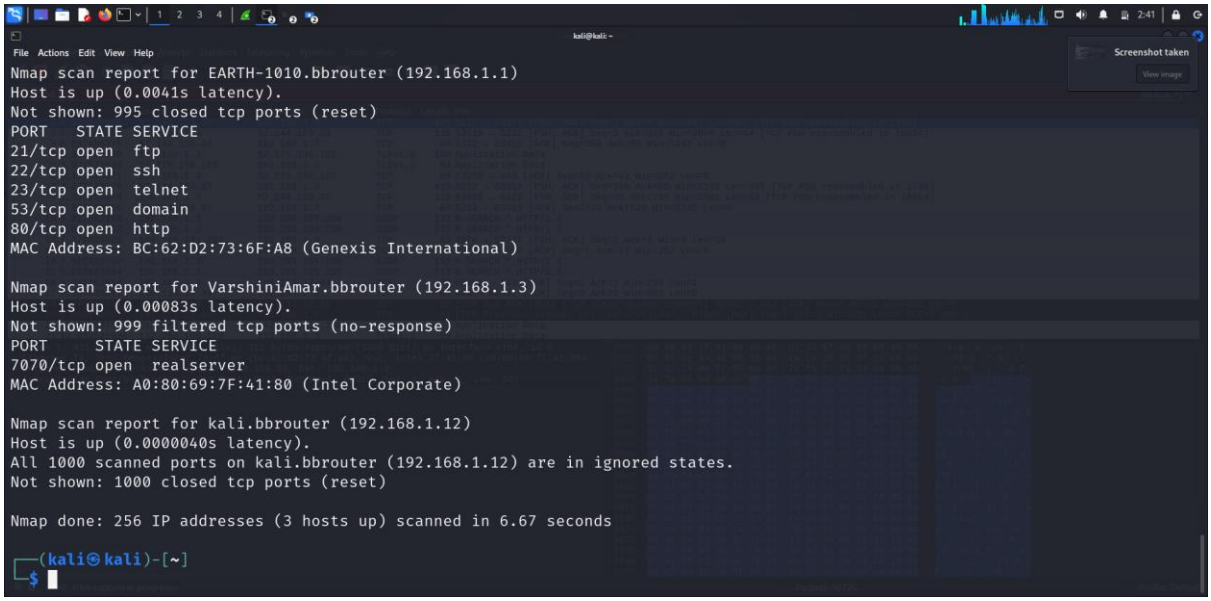
**Tools:** Wireshark

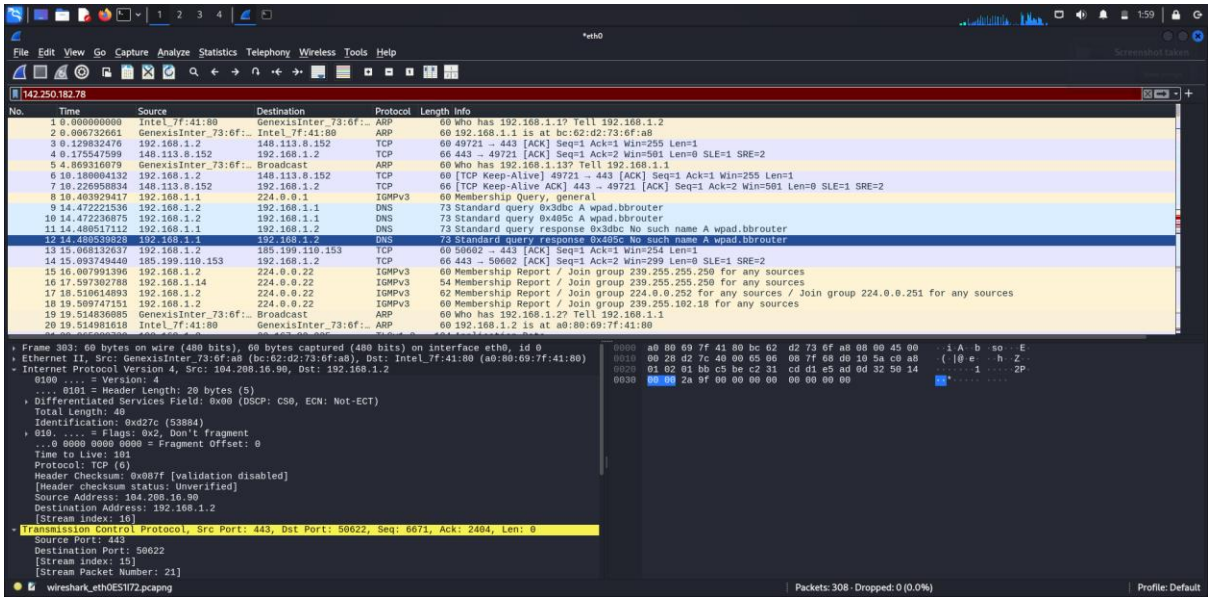
**Deliverables:** A packet capture (.pcap) file and a short report of protocols identified

**STEP 01** - Install Wireshark

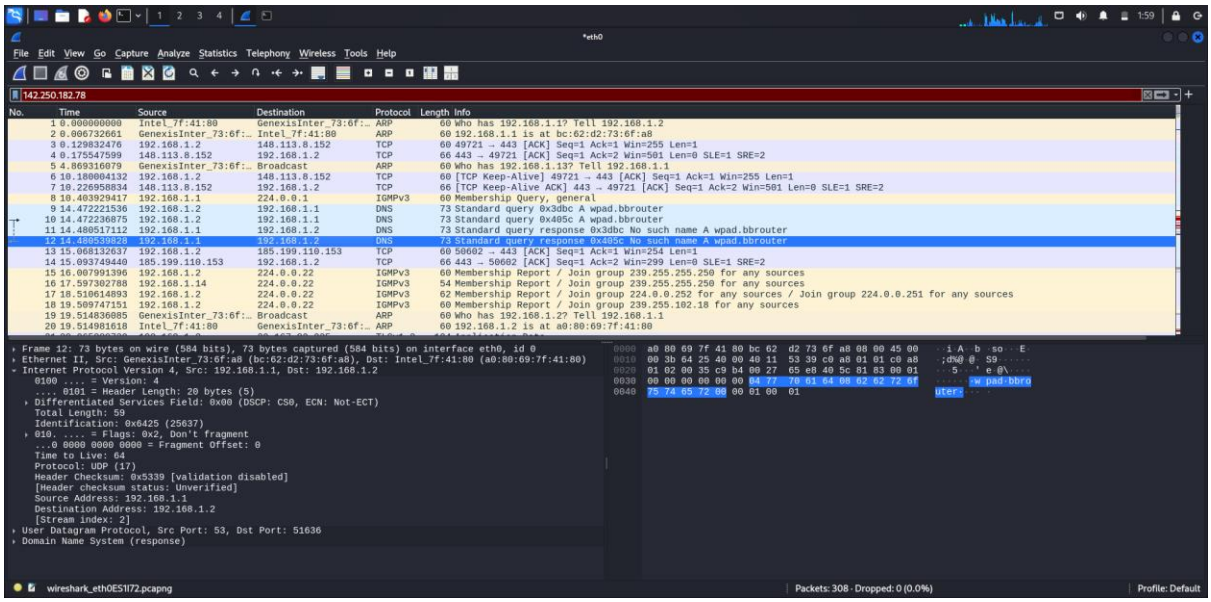
I have used **kali linux** for (wireshark)

**STEP 02** - Start capturing on your active network interface



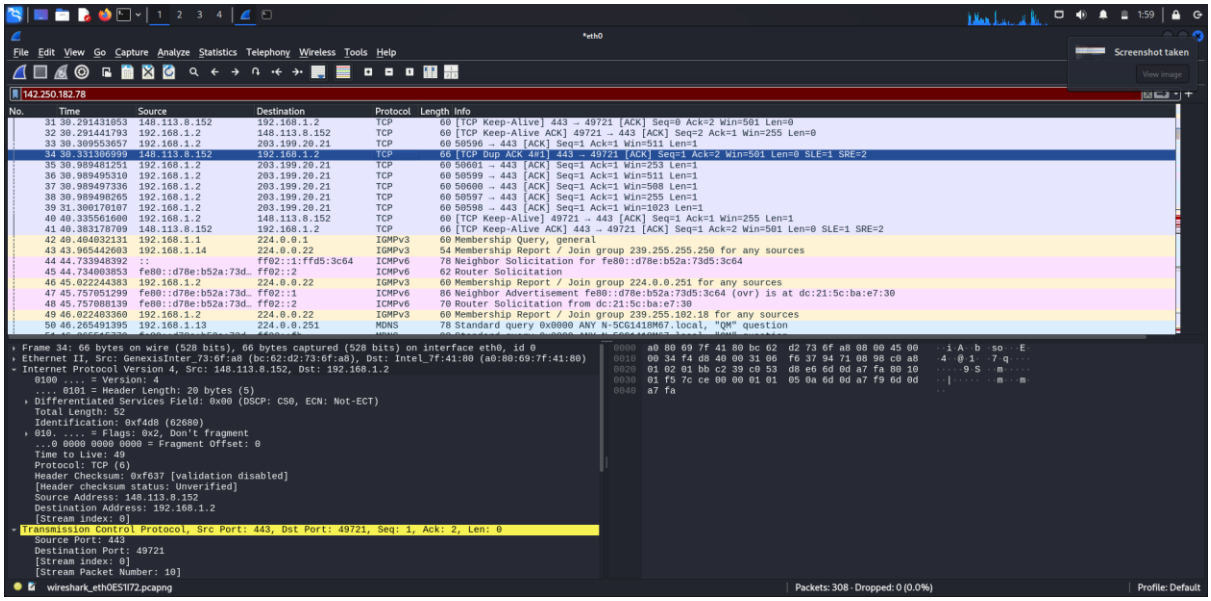


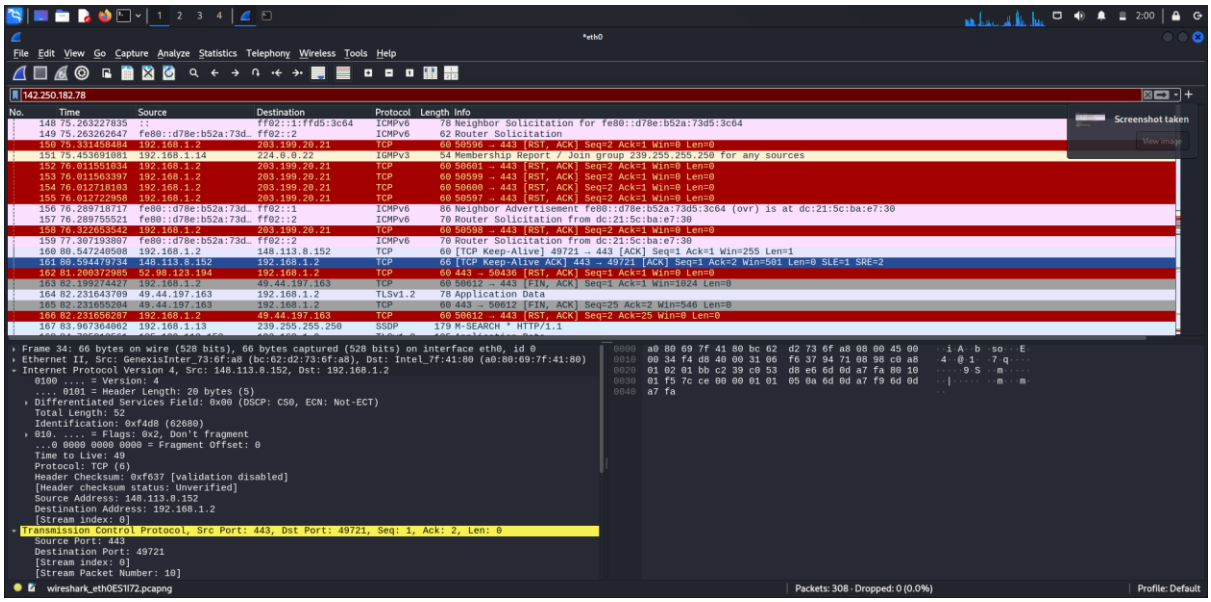

**STEP 03** - Browse a website or ping a server to generate traffic



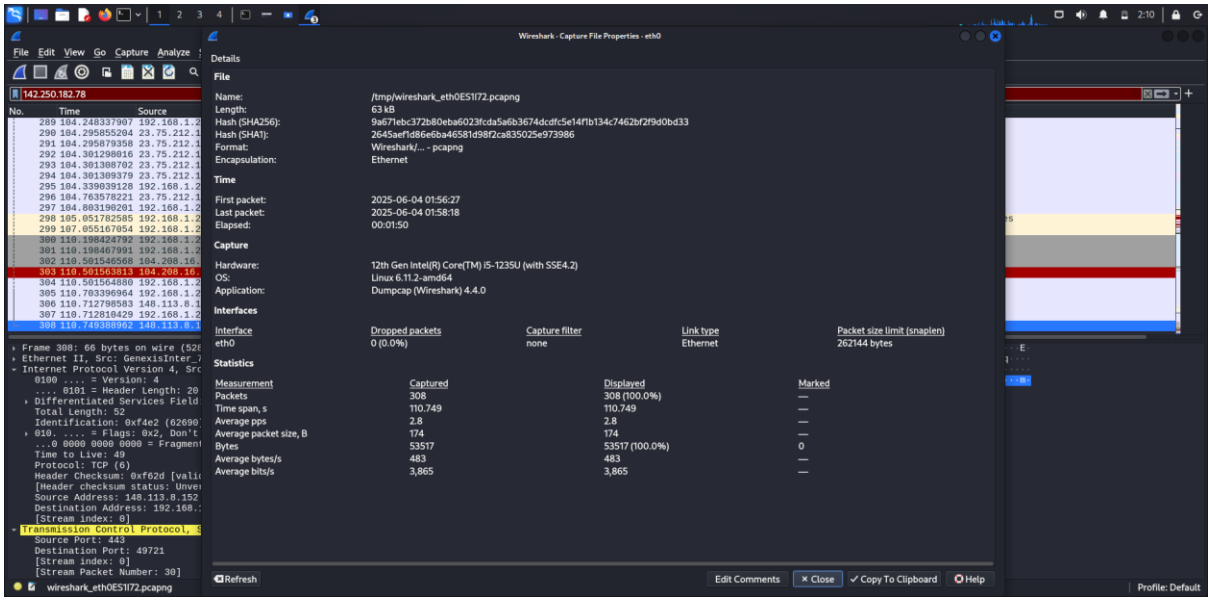

**PING** google.com

**STEP 04** - Filter captured packets by protocol (e.g., HTTP, DNS, TCP)



**STEP 05** - Export the capture as a .pcap file.




**STEP 06** - Summarize your findings and packet details.

## Wireshark Packet Capture Summary Report

**File Name**: wireshark_eth0E5172.pcapng
**Capture Date:** 2025-06-04
**Duration:** 50.51seconds
**Interface:** eth0(Ethernet)
**System Hardware:** 12th Gen Intel(R) Core(TM) i5-1235U
**Packet Size Limit:** 262,144 bytes
**Capture Software:** Dumpcap (Wireshark) 4.0.4

### Capture Statistics

- **Total Packets Captured:** 308
- **Displayed Packets:** 308 (100%)
- **Dropped Packets:** 0

- **Average Packet Size:** 174 bytes
- **Total Data Captured:** 53,517 bytes
- **Average Bandwidth:** 8,865 bits/sec

**Protocols Identified in the Capture**

**1. TCP (Transmission Control Protocol)**

- **Observed in Packet #308**
- **Source IP:** 142.250.180.78
- **Source Port:** 443 (HTTPS)
- **Destination Port:** 49721
- **Stream index:** 1
- Used for encrypted web communication (HTTPS).

**2. TLS (Transport Layer Security)**

- TLS traffic is likely seen in the stream from port 443.
- TLS secures HTTP traffic, indicating secure browsing or access to websites like Google.

**3. HTTP/2 or HTTPS (Encrypted)**

- The port and flow suggest the usage of encrypted web communication with Google servers.
- The detailed protocol may be seen as **TLS**, **QUIC**, or **HTTP2** if expanded in packet details.

**Key Insights**

- Device communicated with 142.250.180.78 — an IP address belonging to **Google**.
- All 308 packets were successfully captured and displayed with no packet loss.
- The network interface used was Ethernet (eth0) with a high capture size limit (good for deep inspection).
- The presence of TCP over port 443 strongly indicates encrypted HTTPS traffic.
- The capture shows only a **single stream (Stream index: 1)** — possibly one secure browsing session or ping interaction with Google servers.

**Outcome:**

- Successfully captured a live network session.
- Identified key Internet protocols: **TCP**, **TLS**, and likely **HTTPS**.
- Analyzed communication between your local system and an external IP (Google).
- Gained hands-on experience in using Wireshark for basic protocol analysis.