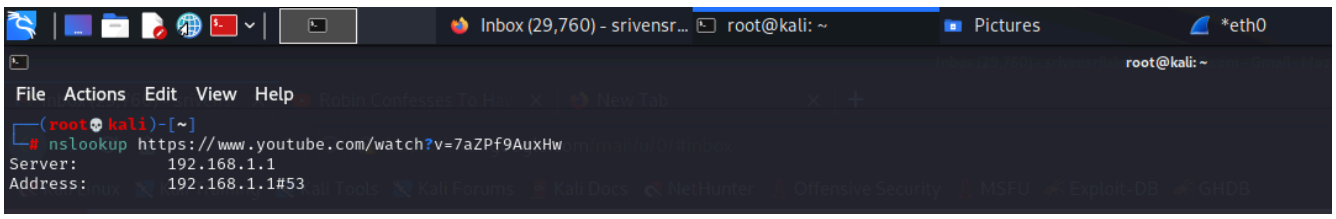
Objective:

To understand session-like behavior in UDP, despite it being a connectionless protocol, by examining a simple communication between a client and a server.

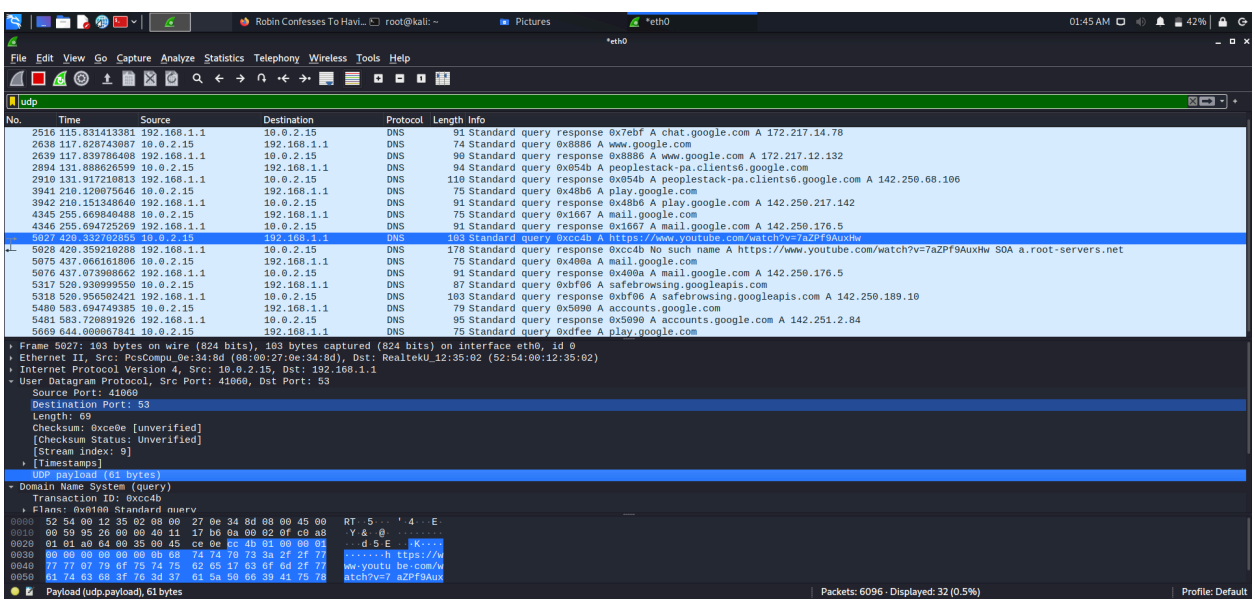
Choose a UDP-Based Application:

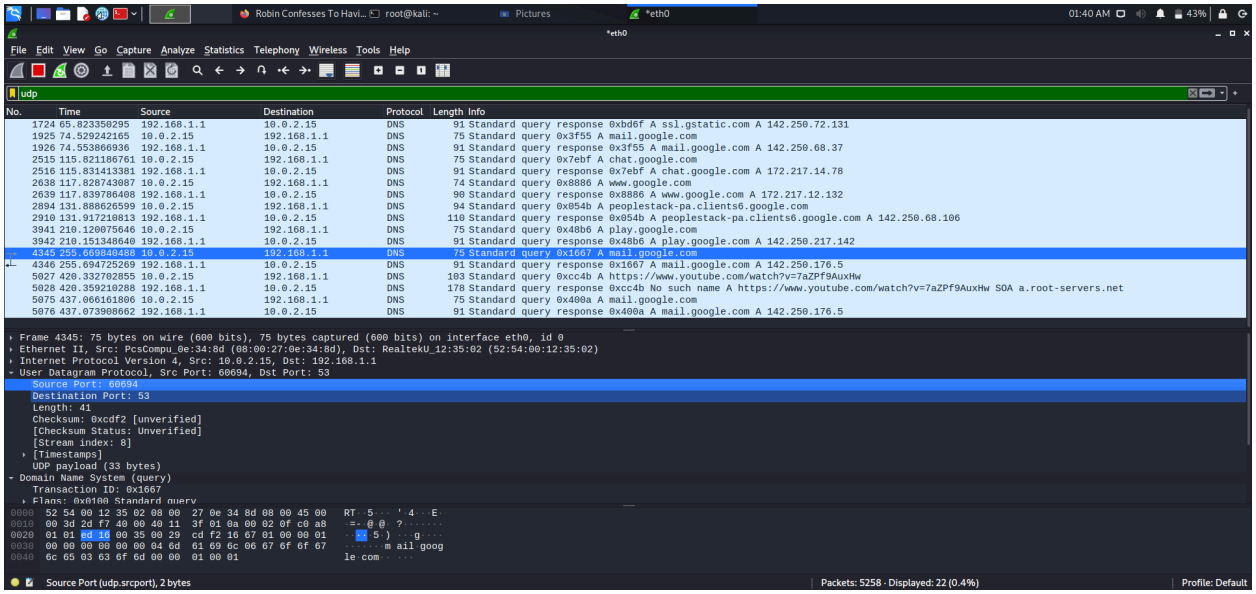
1. **DNS Query**: Use a tool like nslookup to perform a DNS lookup.
2. **Streaming Service**: Play a short video clip on a platform that uses UDP for streaming.
3. Run the nslookup command to resolve a domain name, such as

   nslookup youtube.com/watch?v=7aZPf9AuxHw



Scroll through the captured UDP packets to find those related to your nslookup query or streaming activity , we see that the server address 192.168.1.1
Identify packets by checking the source and destination IP addresses and ports. DNS traffic used port 53, while streaming might use different ports.





Source IP Address: The IP address of the client which our computer 10.0.2.15

Destination IP Address: The IP address of the server - 192.168.1.1

Source Port: A dynamically allocated port used by your machine - 60694

Destination Port: Port 53 for DNS queries, or a different port for streaming services.

Discuss how UDP handles data transmission without establishing a session.

1. UDP does not require a handshake like SYN, SYN-ACK, ACK to establish a connection before data transmission.
2. Stateless communication, each UDP packet is independent, meaning there is no inherent ordering or guarantee of delivery. This is evident in the lack of acknowledgement packets.
3. UDP has session like behavior through application layer mechanisms

Comparison with TCP session Creation

1. **TCP**: Establishes a connection using a three-way handshake SYN, SYN-ACK, ACK, maintains state, and ensures ordered and reliable delivery of packets.
2. **UDP**: Does not establish a connection, does not maintain state, and does not guarantee packet order or delivery.