# Ex. No: 6 Identifying MAC and IP Addresses Using Packet Tracer

## Date:15-09-2025

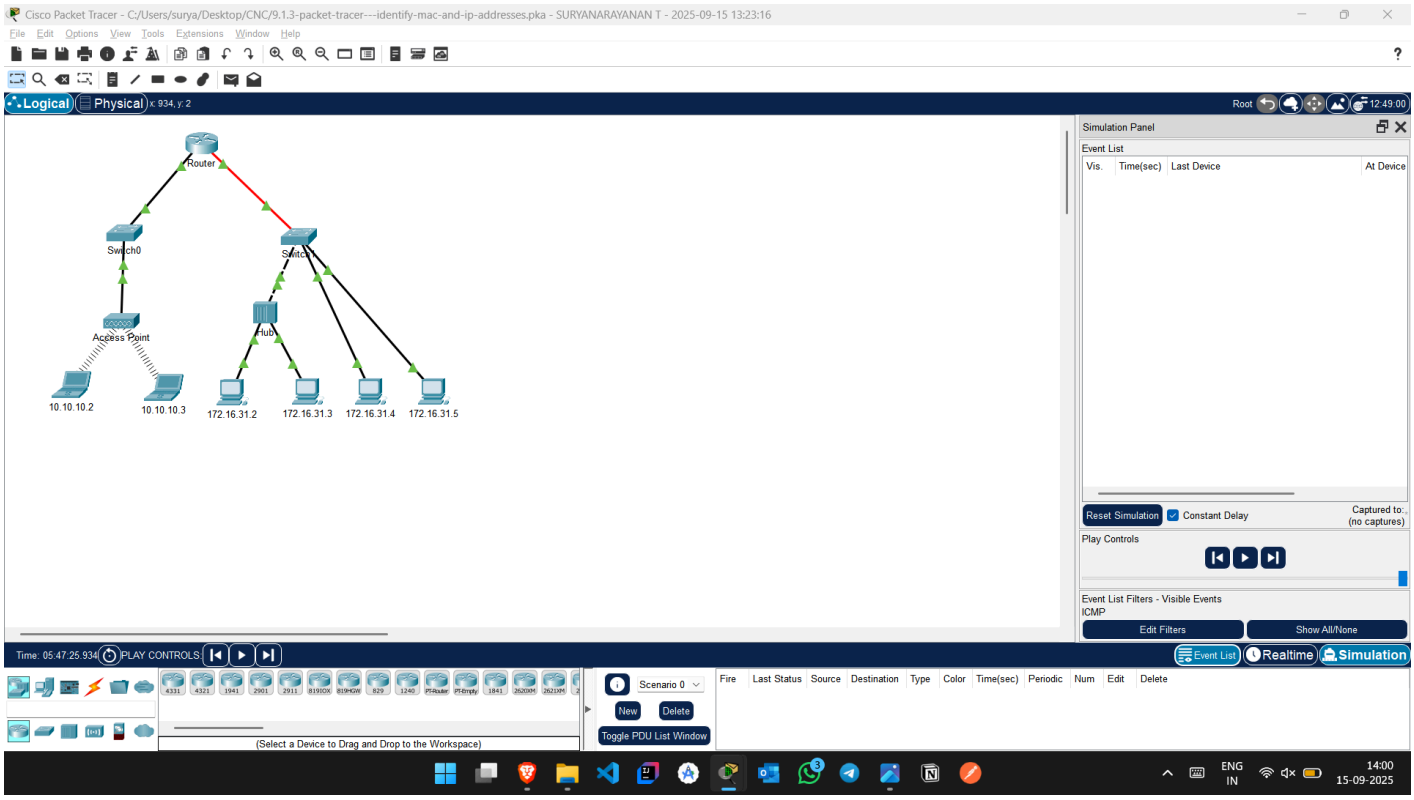
## Objective

To use Cisco Packet Tracer simulation mode to capture and analyze MAC and IP address information for both local and remote network communication.

## Apparatus/Tools Required

- Cisco Packet Tracer
- Pre-configured network topology (as provided in the activity file)
- PCs, switches, router, hub, and wireless access point (as per given setup)

## Network Topology Diagram



# Description:

• The topology contains a local network (172.16.31.0/24) connected to a remote network (10.10.10.0/24) via a router.
• Devices include PCs, switches, hub, and wireless AP.
(Insert screenshot of your Packet Tracer setup here)

# IP Addressing Table

(Example – actual values from simulation)
Device IPv4 Address Subnet Mask MAC Address
PC-A 172.16.31.5 255.255.255.0 00D0:D311:C788
PC-B 172.16.31.2 255.255.255.0 000C:85CC:1DA7
Router (G0/0) 172.16.31.1 255.255.255.0 00D0:BA8E:741A
PC-Remote 10.10.10.2 255.255.255.0 00D0:588C:2401

# Procedure

# Part 1: Local Network Communication

1. Click PC-A (172.16.31.5) and open the Command Prompt.
2. Enter ping 172.16.31.2.
3. Switch to Simulation Mode and repeat the ping.
4. When the PDU appears, click it and record: Destination MAC, Source MAC, Source IP, Destination IP, and the device name.
5. Use Capture/Forward to follow the PDU through the network until it reaches PC-B.
6. Record the information in a table.
7. Repeat the above process for:
   o Ping from 172.16.31.3 to 172.16.31.2
   o Ping from 172.16.31.5 to 172.16.31.4
   Part 2: Remote Network Communication
8. From PC-A (172.16.31.5), enter ping 10.10.10.2.
9. Switch to Simulation Mode and repeat the ping.
10. When the PDU appears, note the Destination MAC, Source MAC, Source IP, and Destination IP.
11. Follow the PDU step-by-step until it reaches the remote PC.
12. Observe how MAC addresses change at the router while IP addresses remain constant end-to-end.

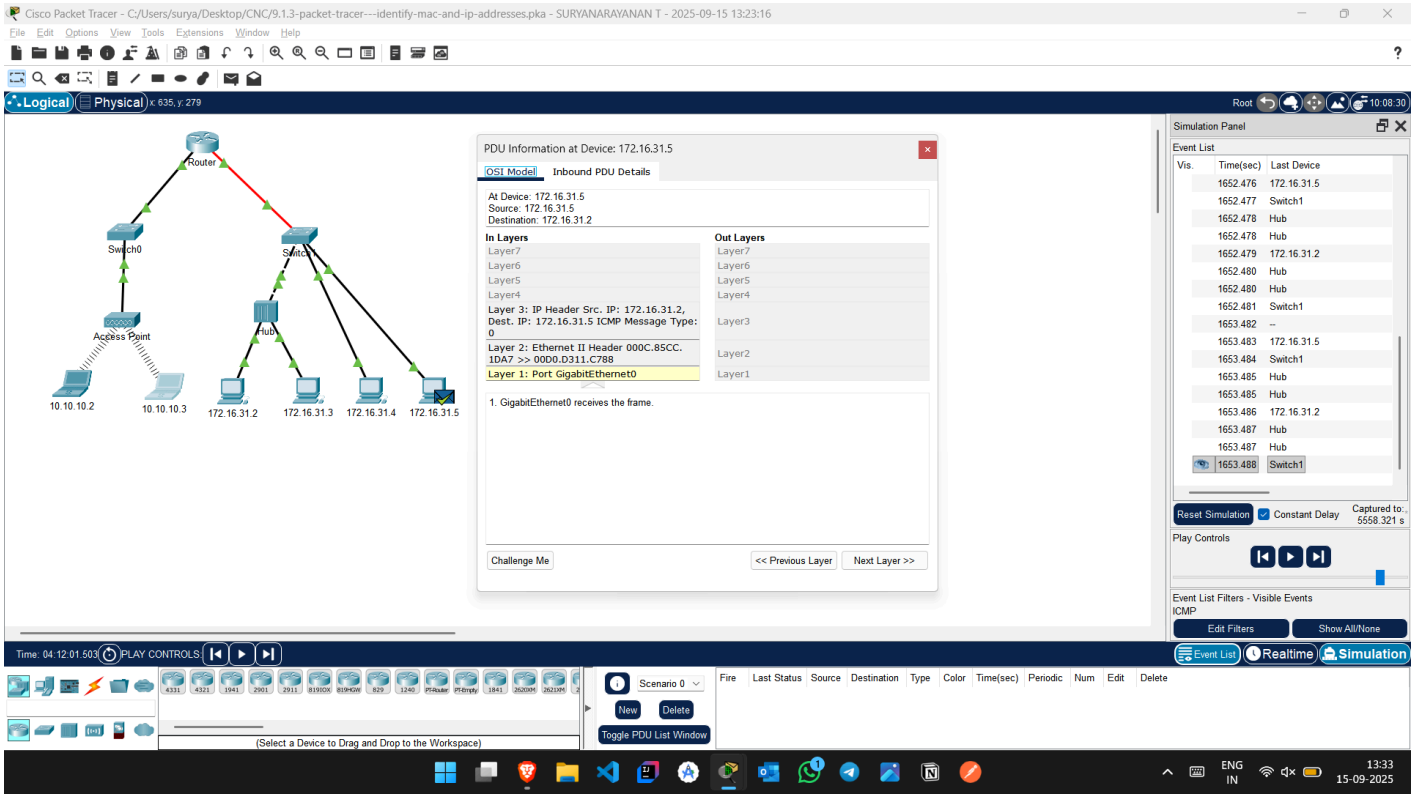
# Example Data Recording Table

At Device Dest. MAC Src MAC Src IPv4 Dest IPv4
172.16.31.5 000C:85CC:1DA7 00D0:D311:C788 172.16.31.5 172.16.31.2
Switch1 000C:85CC:1DA7 00D0:D311:C788 N/A N/A
172.16.31.2 00D0:D311:C788 000C:85CC:1DA7 172.16.31.2 172.16.31.5

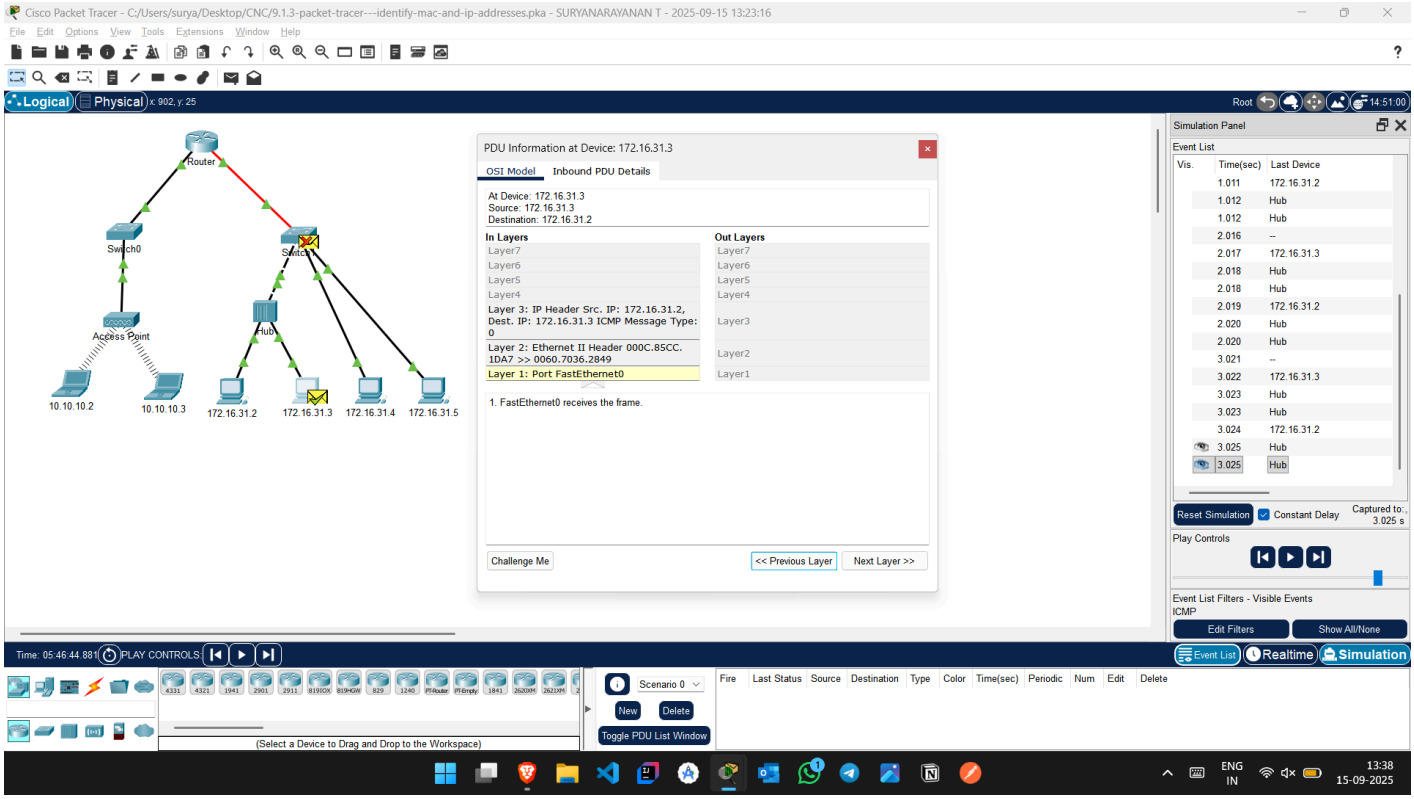
# Output (Screenshots)

- PDU details for local communication

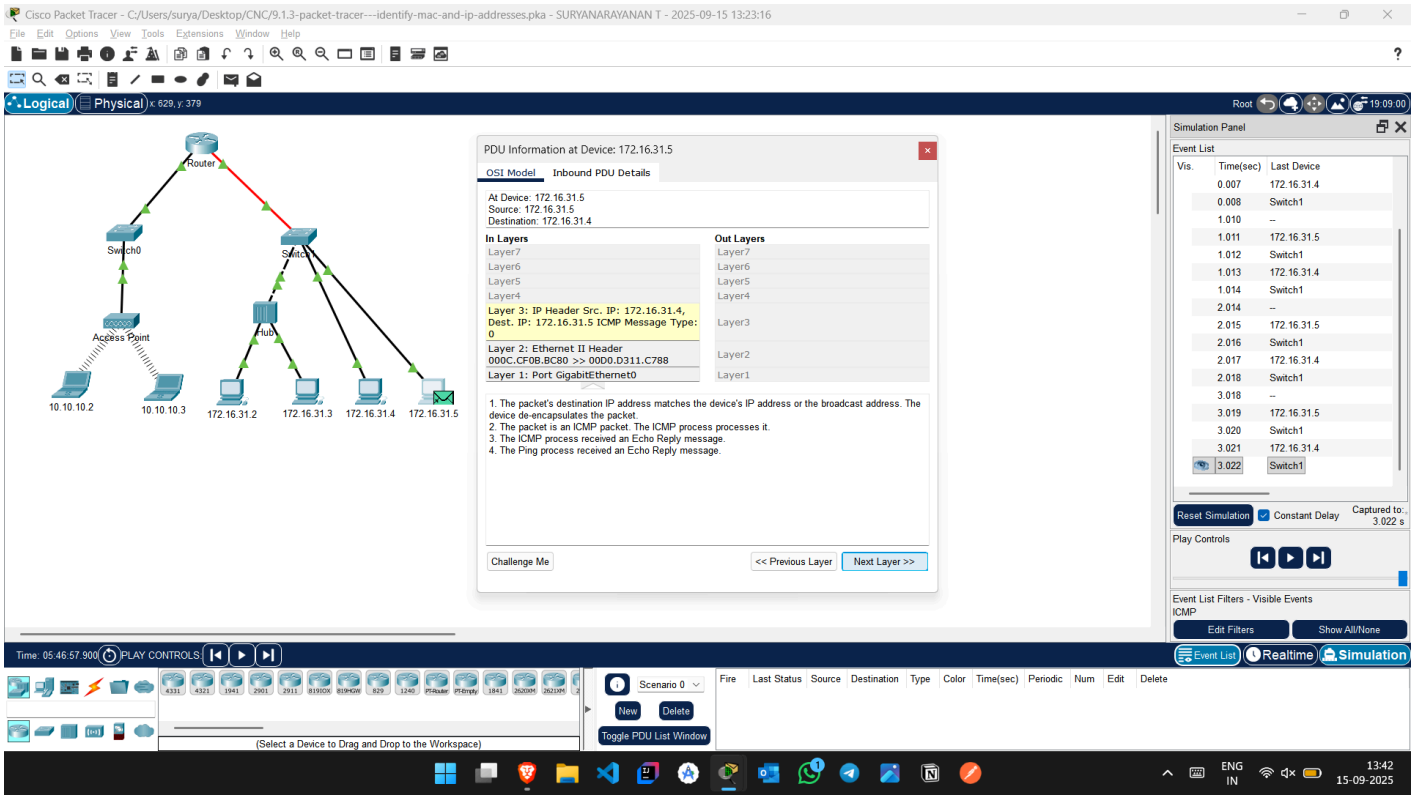
At 172.16.31.2




At 172.16.31.3

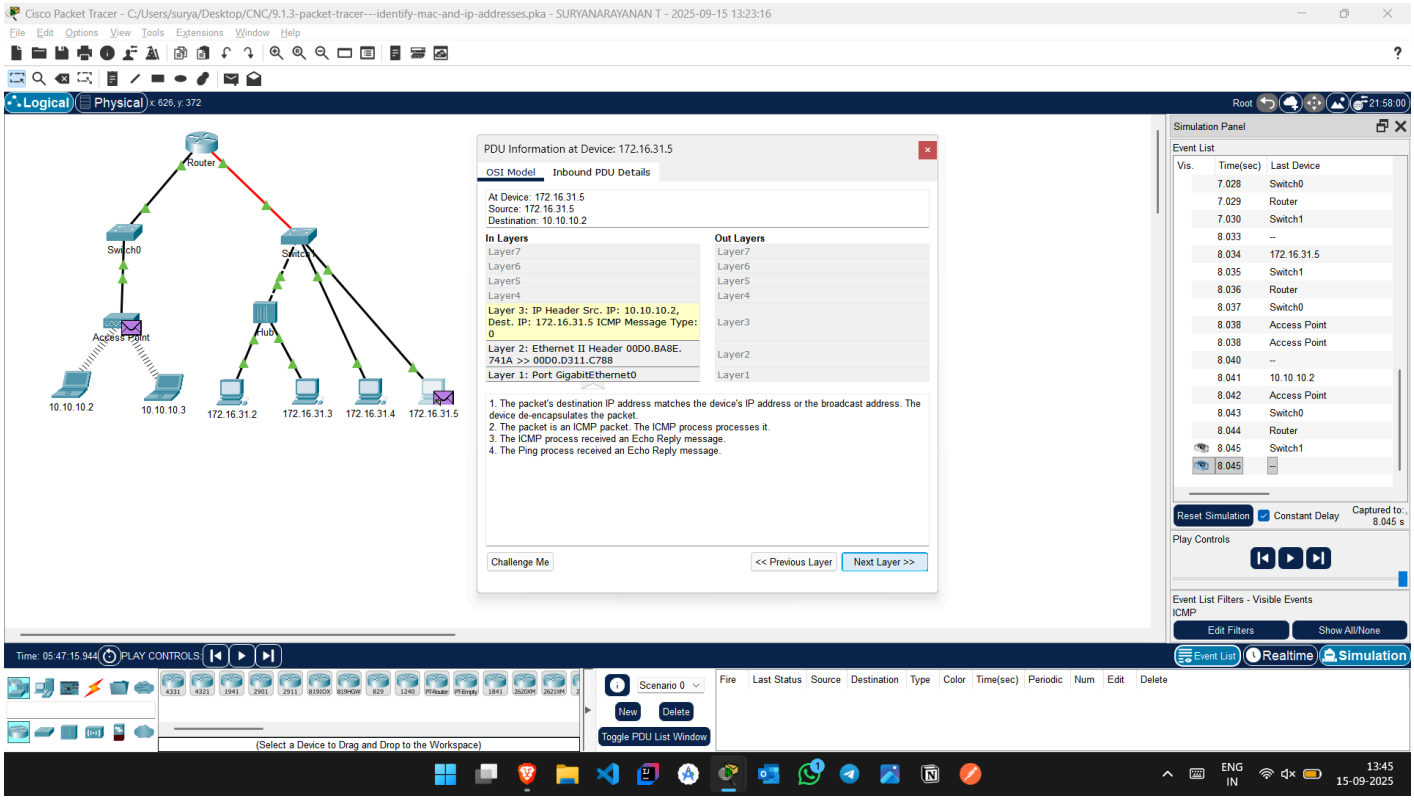


AT 172.16.31.4



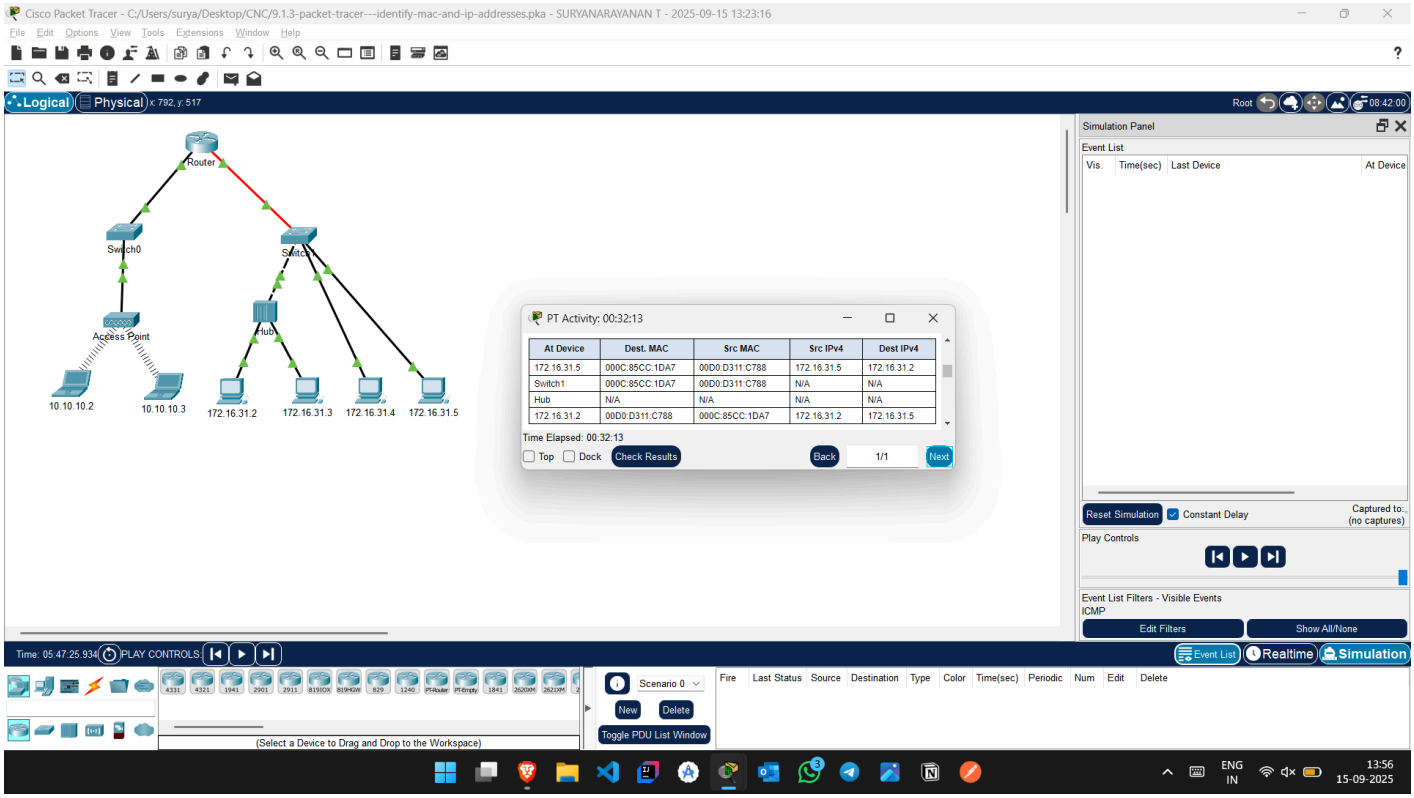

• PDU details for remote communication

At 10.10.10.2

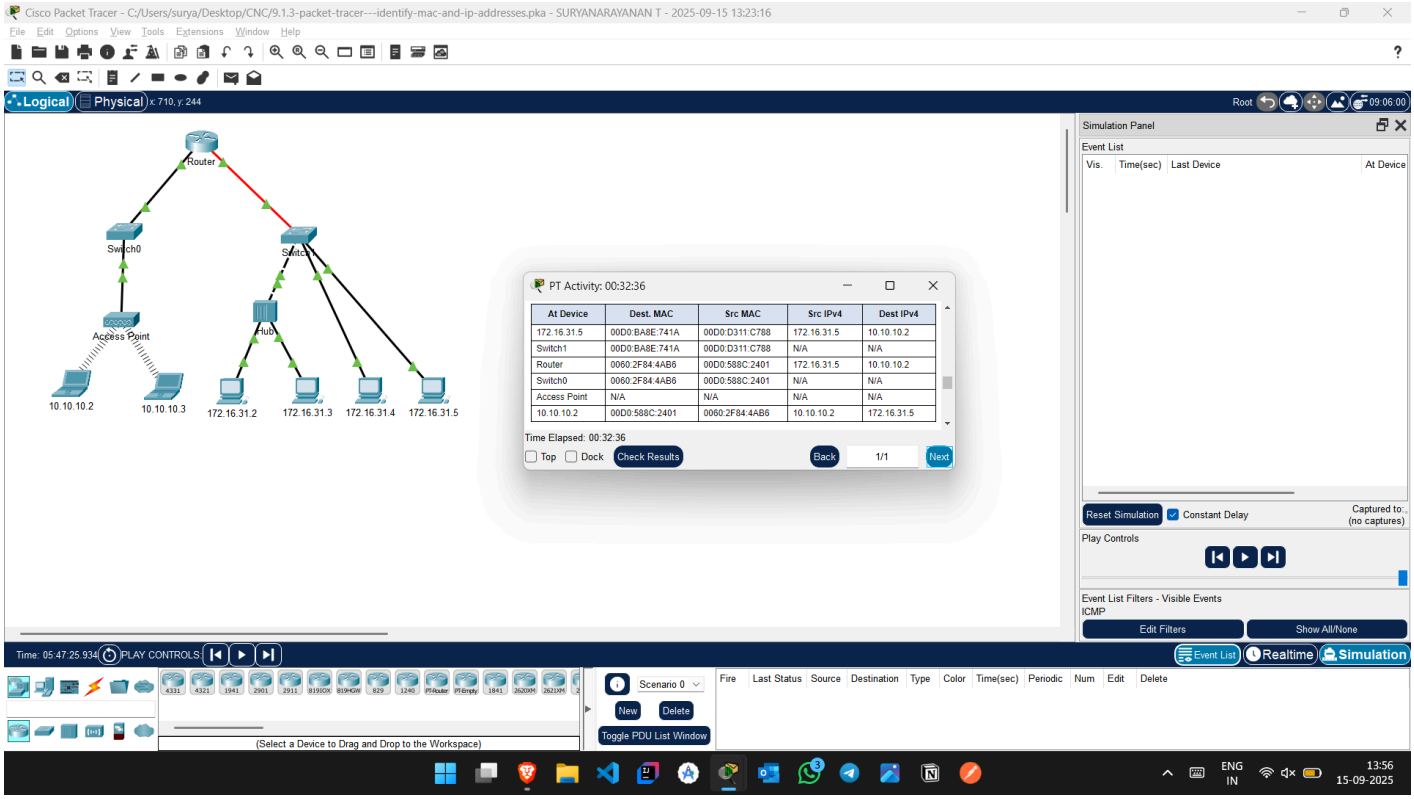


• Tables showing MAC/IP changes through each device

For Local Network Communication




For Remote Network Communication




# Result

Successfully captured and analyzed MAC and IP addresses for both local and remote communications. Verified that MAC addresses change at each hop while IP addresses remain constant from source to destination.