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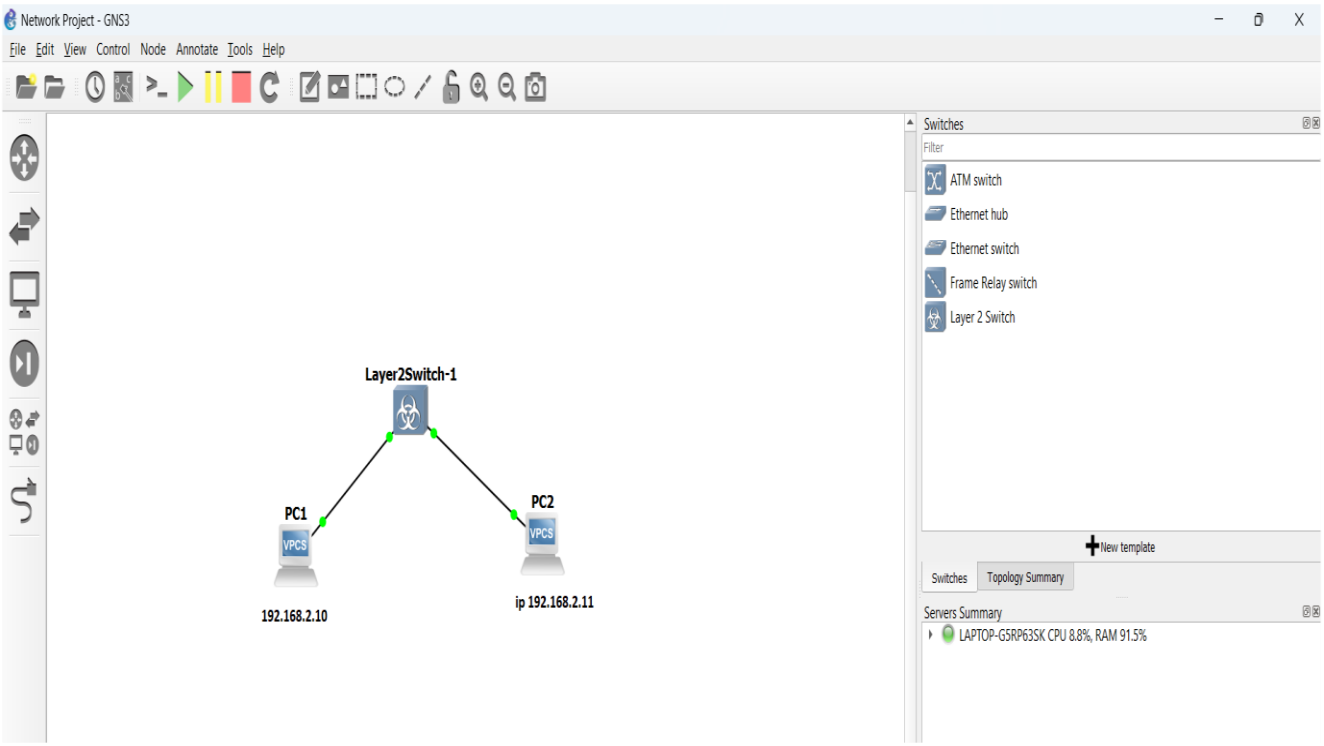
Q1. Simulate a small network with switches and multiple devices. Use ping to generate traffic and observe the MAC address table of the switch. Capture packets using Wireshark to analyze Ethernet frames and MAC addressing.

Network Diagram



Assigning IP Address for PC1:

PC1> ip 192.168.2.10

Checking for duplicate address...

PC1 : 192.168.2.10 255.255.255.0

Assigning IP Address for PC2:

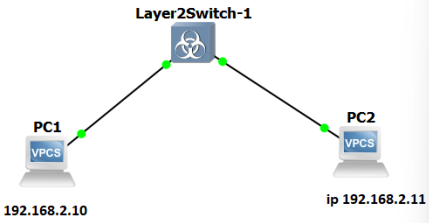
PC2> ip 192.168.2.11

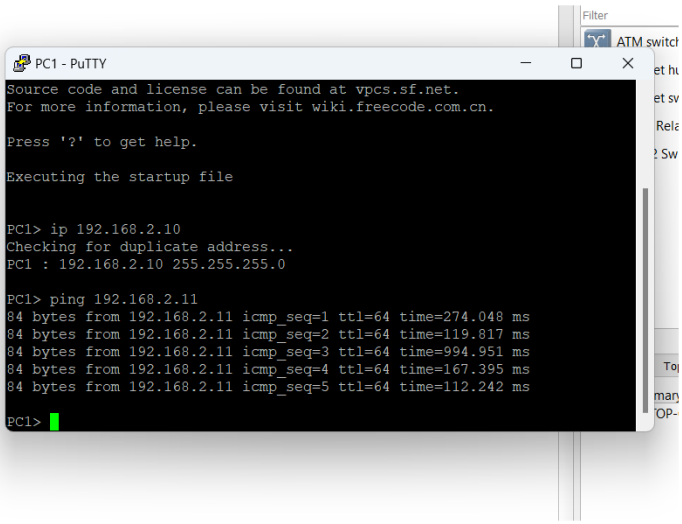
Checking for duplicate address...

PC1 : 192.168.2.11 255.255.255.0

Sending packets between PC

PC1





PC1> ping 192.168.2.11

84 bytes from 192.168.2.11 icmp_seq=1 ttl=64 time=0.572 ms

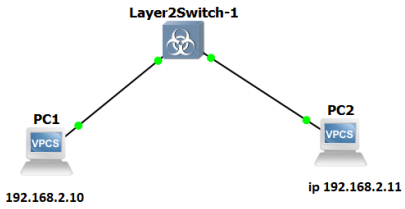
84 bytes from 192.168.2.11 icmp_seq=2 ttl=64 time=2.304 ms

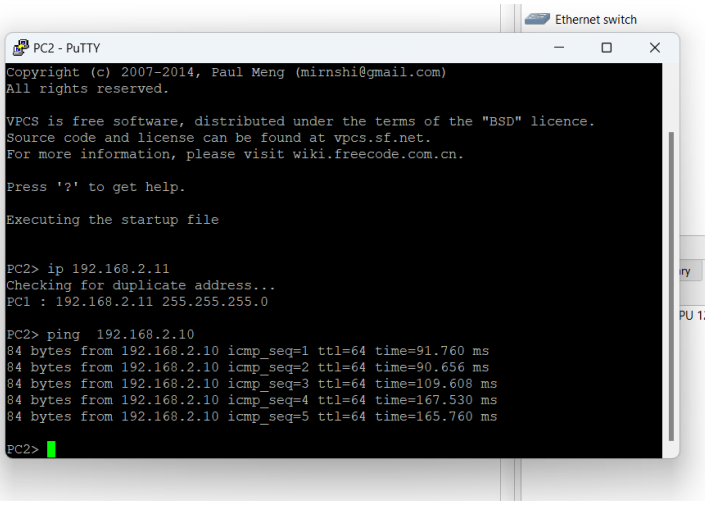
84 bytes from 192.168.2.11 icmp_seq=3 ttl=64 time=2.250 ms

84 bytes from 192.168.2.11 icmp_seq=4 ttl=64 time=2.377 ms

84 bytes from 192.168.2.11 icmp_seq=5 ttl=64 time=2.216 ms

PC2





PC2> ping 192.168.2.10

84 bytes from 192.168.2.10 icmp_seq=1 ttl=64 time=0.743 ms

84 bytes from 192.168.2.10 icmp_seq=2 ttl=64 time=1.809 ms

84 bytes from 192.168.2.10 icmp_seq=3 ttl=64 time=2.075 ms

84 bytes from 192.168.2.10 icmp_seq=4 ttl=64 time=0.997 ms

84 bytes from 192.168.2.10 icmp_seq=5 ttl=64 time=1.226 ms

Checking MAC Address Table using switch

Switch#show mac address-table

Mac Address Table

Vlan Mac Address Type Ports

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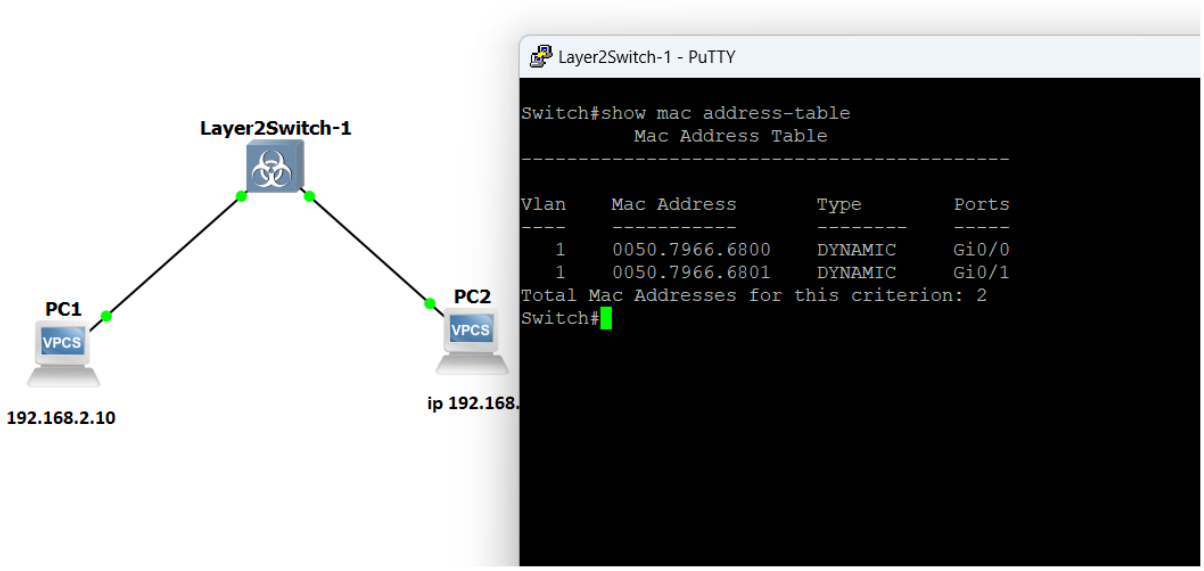
1 0050.7966.6800 DYNAMIC Gi0/0

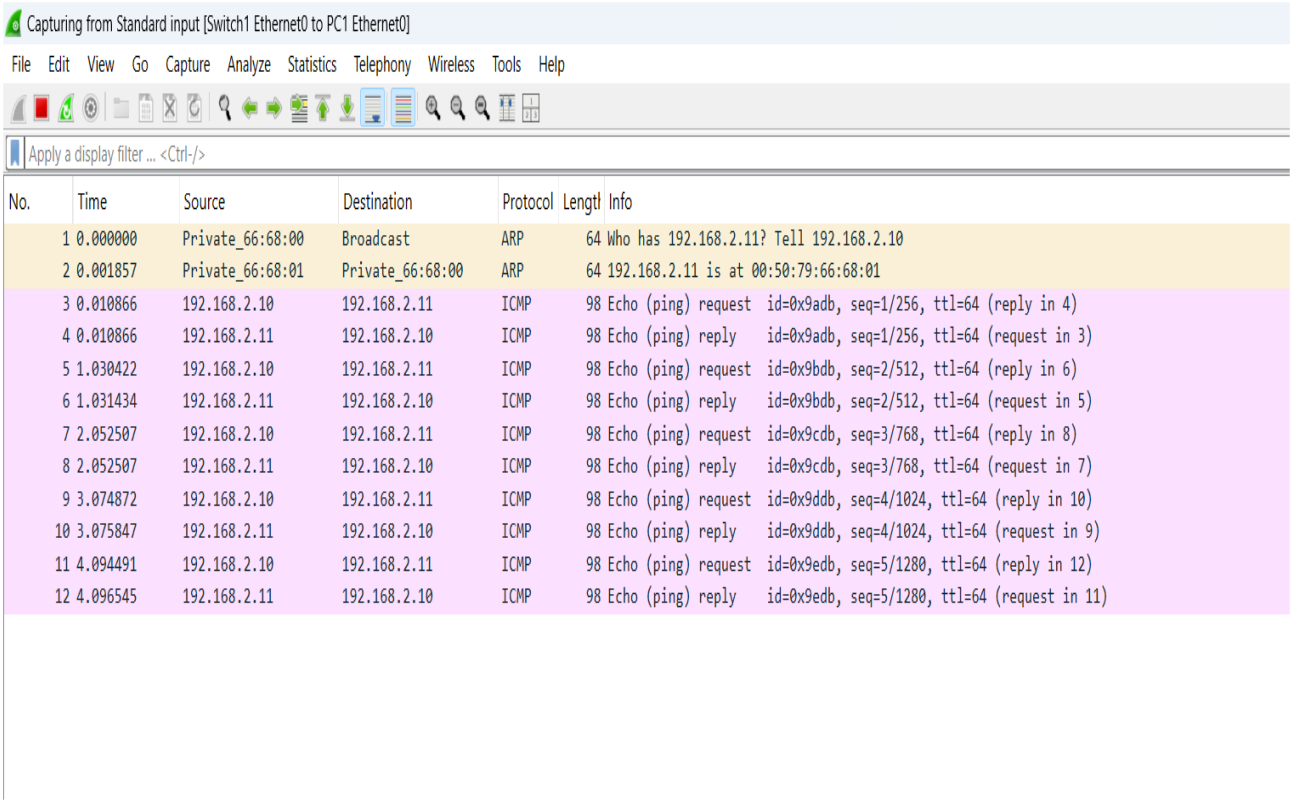
1 0050.7966.6801 DYNAMIC Gi0/1

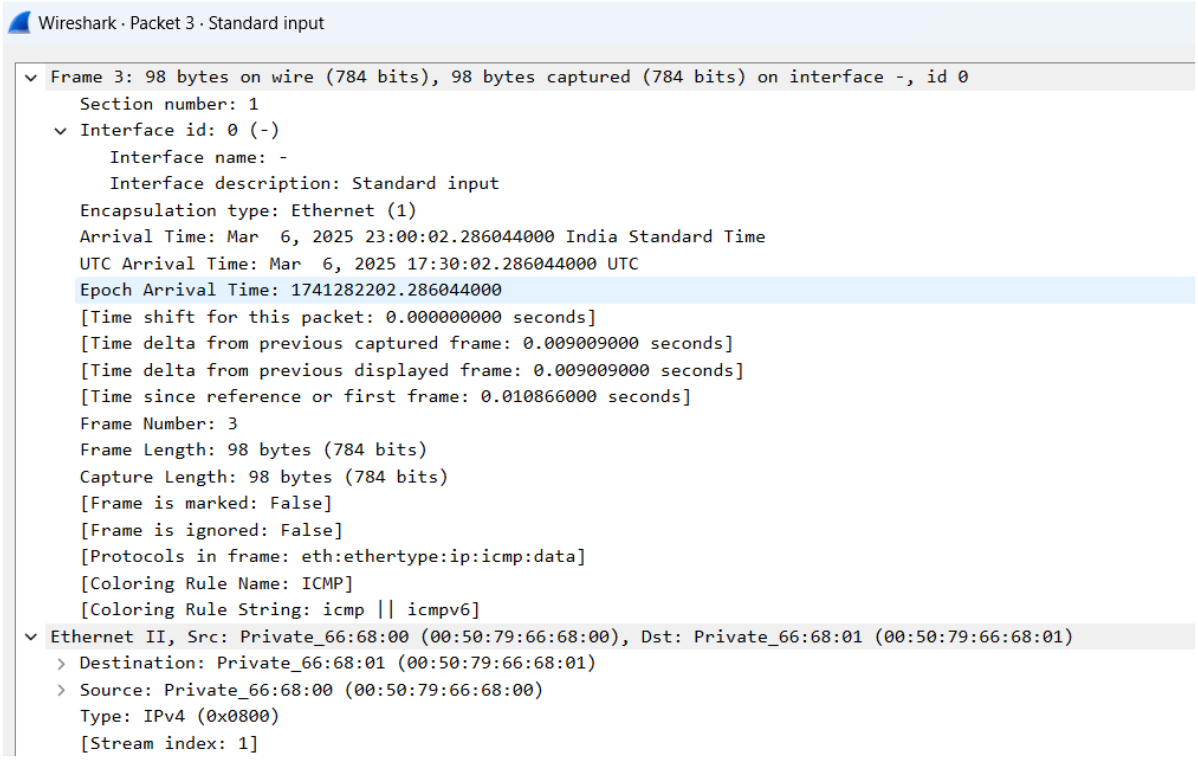
Total Mac Addresses for this criterion: 2

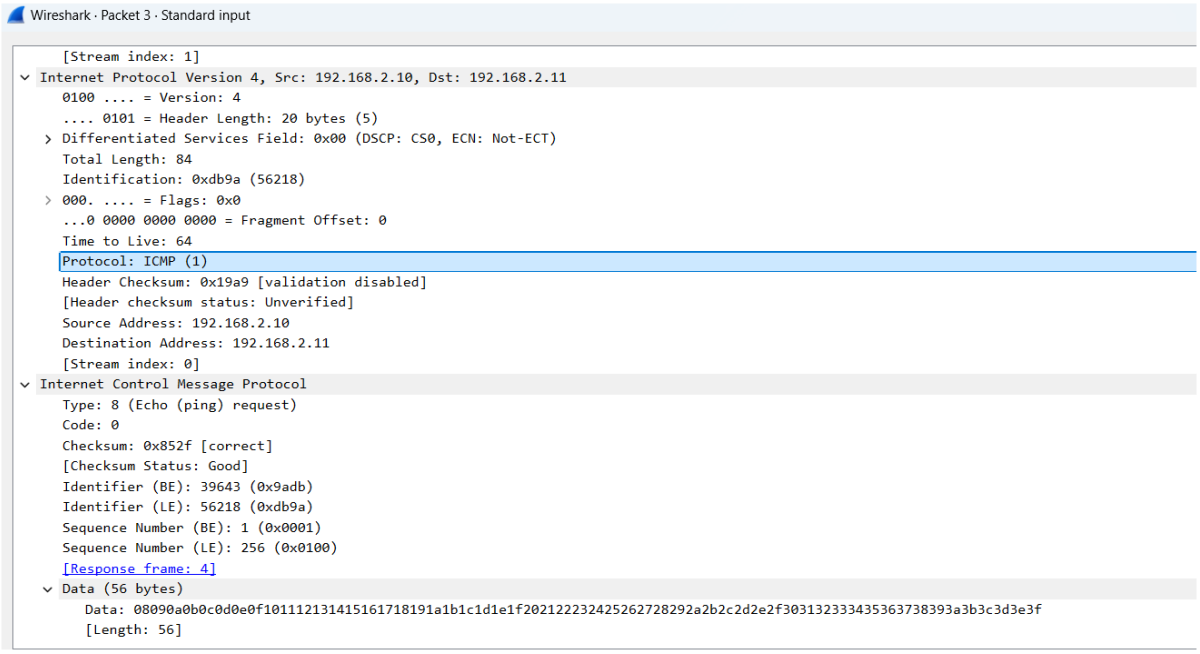
Switch#



Capturing Packet using Wireshark







Source MAC: 00:50:79:66:68:00

Destination MAC: 00:50:79:66:68:01

Ethertype: 0x0800 (IPv4)

Source IP: 192.168.2.10

Destination IP: 192.168.2.11