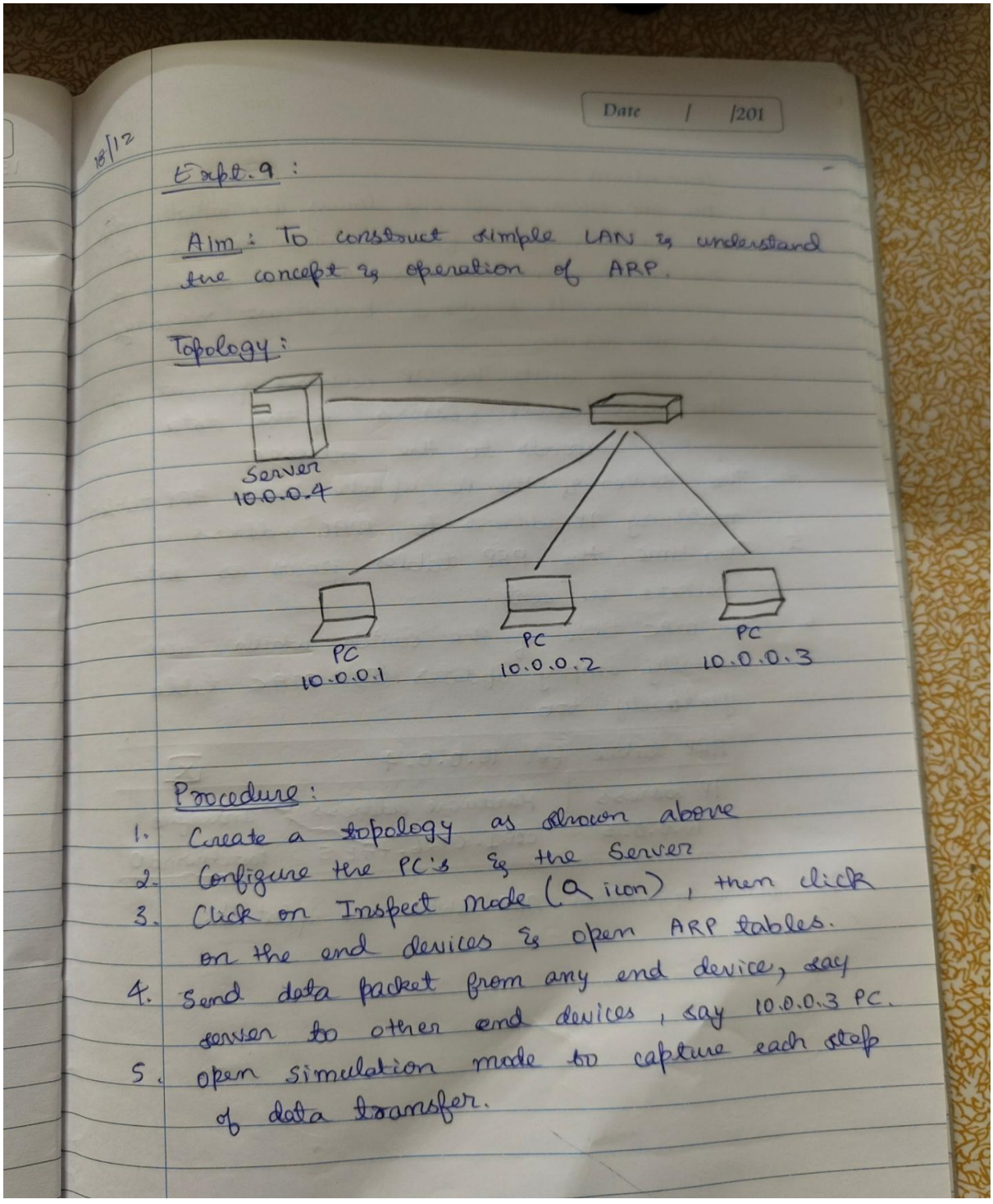
Expt. 9 – 18/12/2024



18/12

Date / /201

Expt. 9 :

Aim : To construct simple LAN & understand the concept & operation of ARP.

Topology :

Procedure :

1. Create a topology as shown above
2. Configure the PC's & the Server
3. Click on Inspect mode (🔍 icon), then click on the end devices & open ARP tables.
4. Send data packet from any end device, say server to other end devices, say 10.0.0.3 PC.
5. Open simulation mode to capture each step of data transfer.

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Observations:

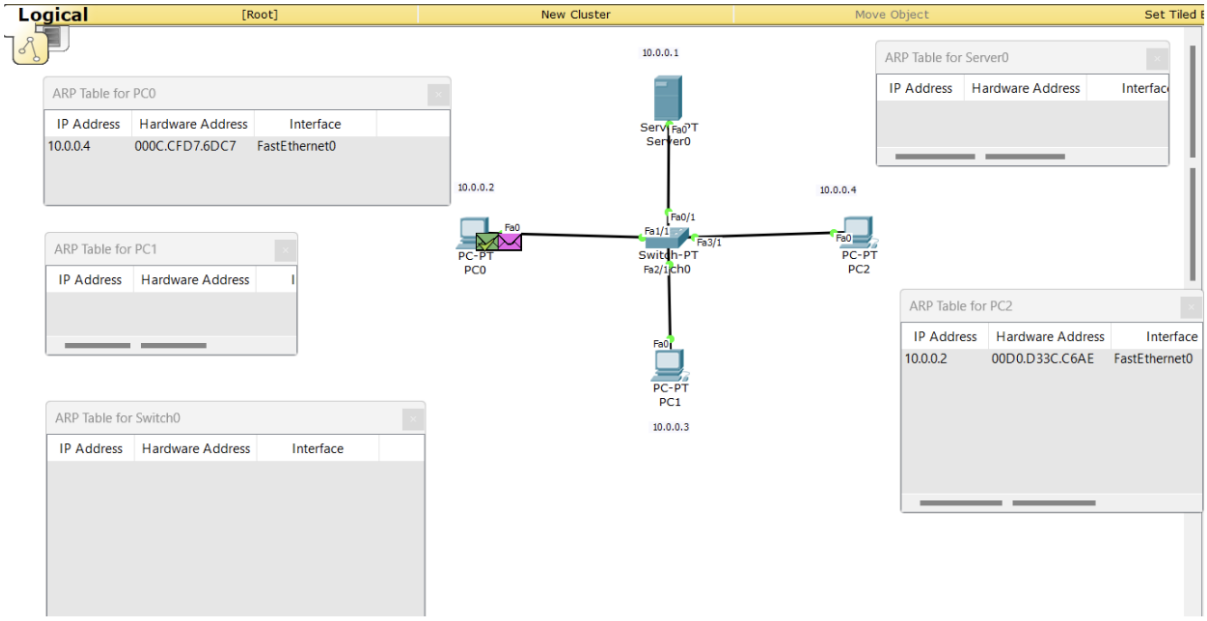
1. The ARP tables of all end devices are initially empty
2. When the data packet from Server arrives at the switch, since the Server MAC address is unknown, it sends a broadcast message to all devices.
3. The device with the IP address present in the destination address of the data packet responds to the message.
4. The Server & the PC update their ARP tables matching IP address to MAC address
5. Over time, the ARP tables grows as data packets are sent.
6. The MAC table of the switch which was initially empty updates its MAC table gradually too

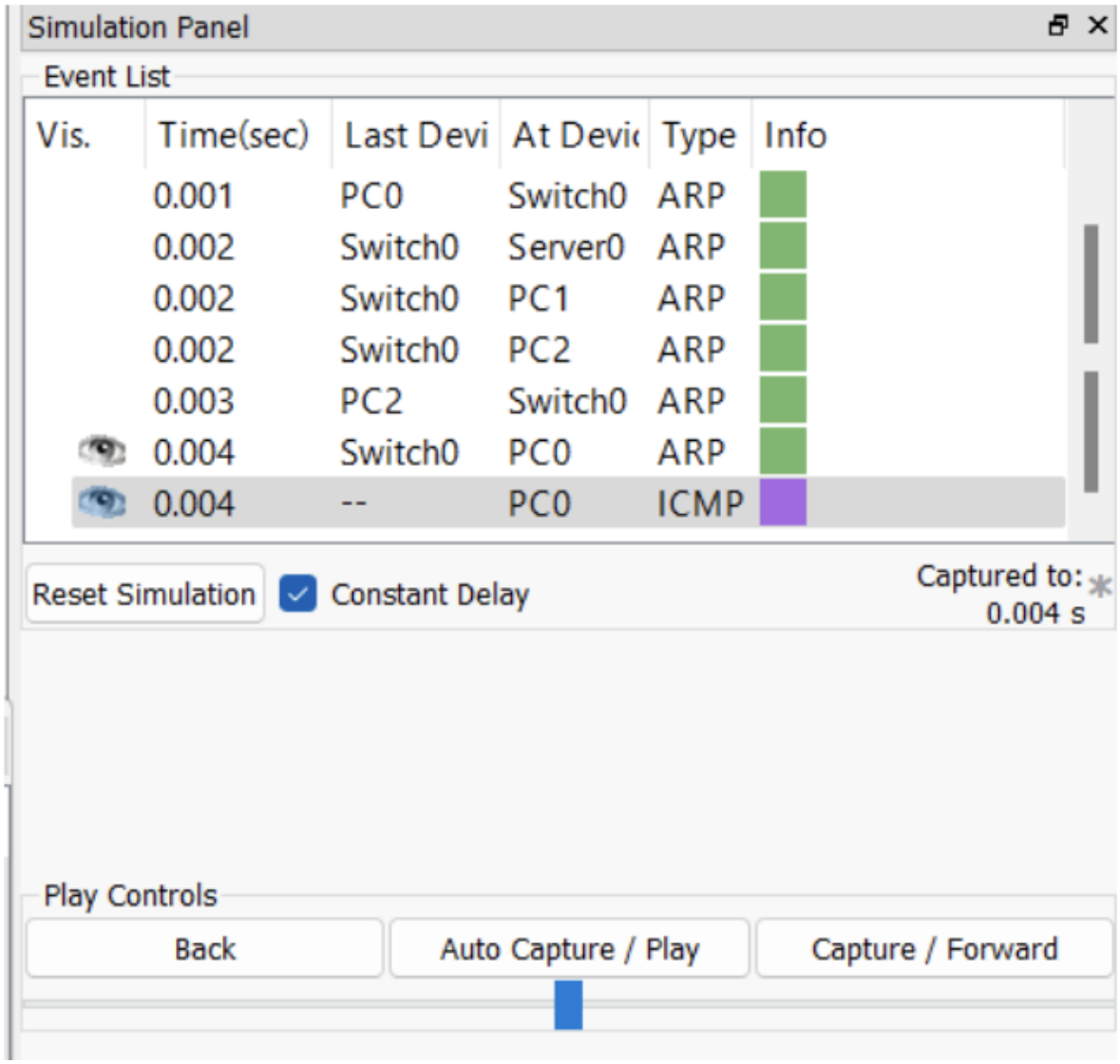
ARP table for 10.0.0.4 [X]

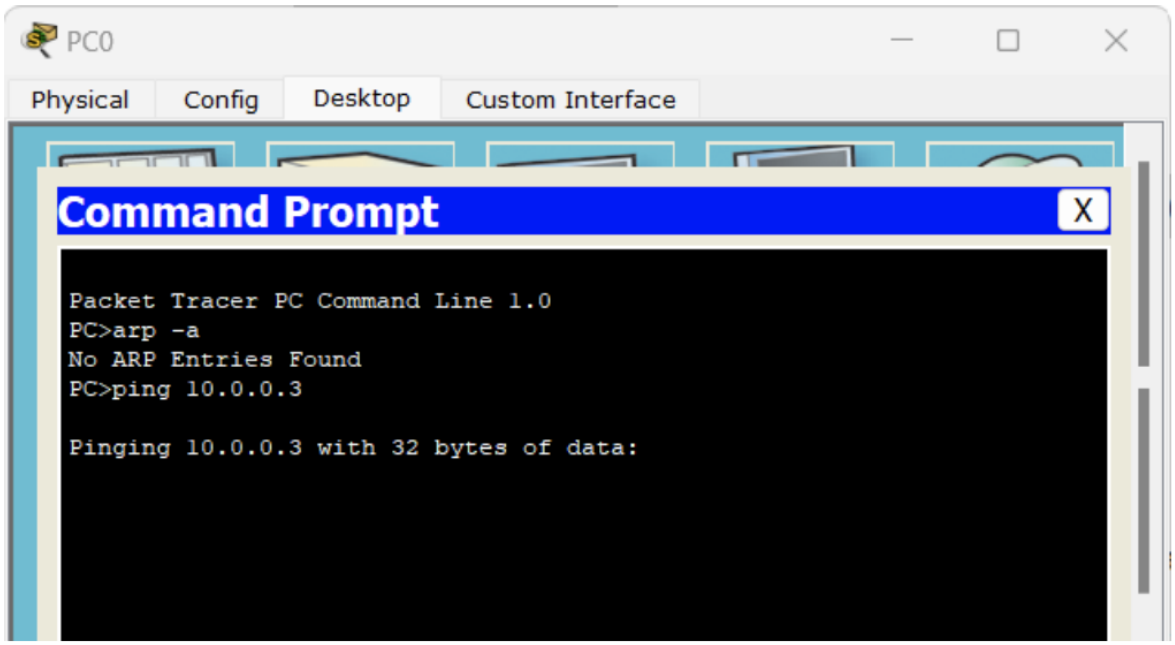
IP address	Hardware address	Interface
10.0.0.3	0001.C726.47E5	FastEthernet0

7. Similarly, other ARP tables are updated.

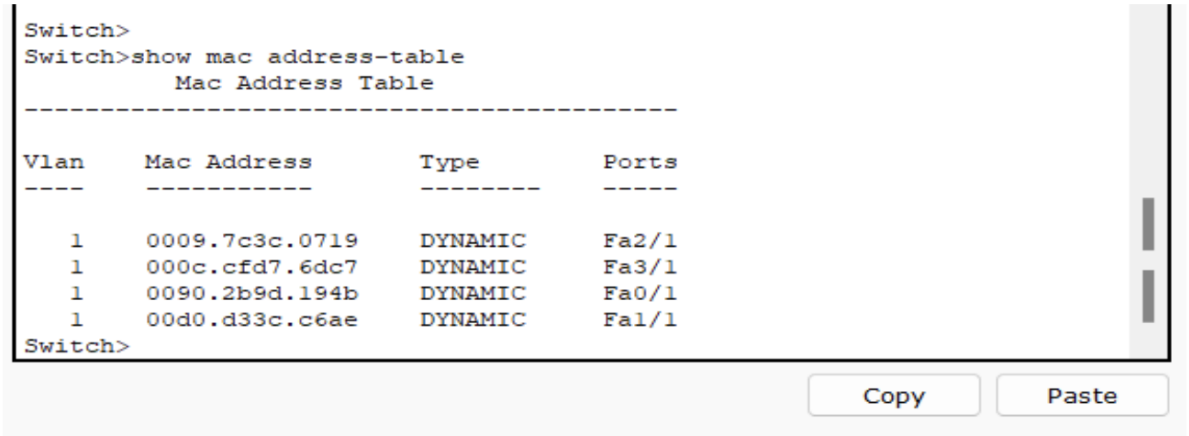
03.01.25


Logical
[Root]
New Cluster
Move Object
ARP Table for PC0
IP Address
Hardware Address
Interface
10.0.0.4
000C.CFD7.6DC7
FastEthernet0
ARP Table for PC1
ARP Table for Switch0
ARP Table for Server0
ARP Table for PC2
10.0.0.2
00D0.D33C.C6AE
10.0.0.1
10.0.0.2
10.0.0.3
10.0.0.4
PC-PT PC0
PC-PT PC1
PC-PT PC2
Switch-PT
Server0


Simulation Panel
Event List
Vis.
Time(sec)
Last Devi
At Devi
Type
Info
0.001 PC0 Switch0 ARP
0.002 Switch0 Server0 ARP
0.002 Switch0 PC1 ARP
0.002 Switch0 PC2 ARP
0.003 PC2 Switch0 ARP
0.004 Switch0 PC0 ARP
0.004 -- PC0 ICMP
Reset Simulation
Constant Delay
Captured to:
0.004 s
Play Controls
Back
Auto Capture / Play
Capture / Forward


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>arp -a
No ARP Entries Found
PC>ping 10.0.0.3
Pinging 10.0.0.3 with 32 bytes of data:

Switch:


Switch>
Switch>show mac address-table
Mac Address Table
Vlan Mac Address Type Ports
1 0009.7c3c.0719 DYNAMIC Fa2/1
1 000c.cfd7.6dc7 DYNAMIC Fa3/1
1 0090.2b9d.194b DYNAMIC Fa0/1
1 00d0.d33c.c6ae DYNAMIC Fa1/1
Switch>
Copy
Paste