

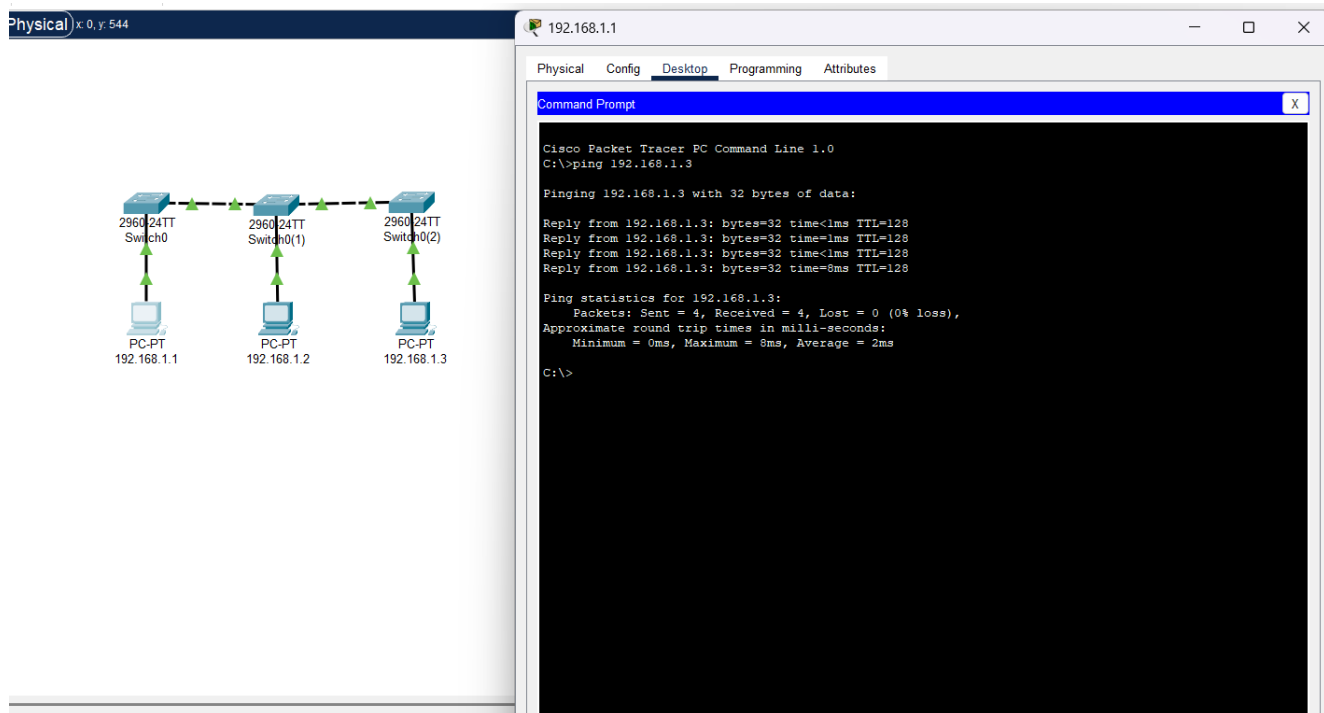
Date: 25/06/2025

### Lab Practical #04:

Installation of Network Simulator (Packet Tracer) and Implement different LAN topologies.

### Practical Assignment #04:

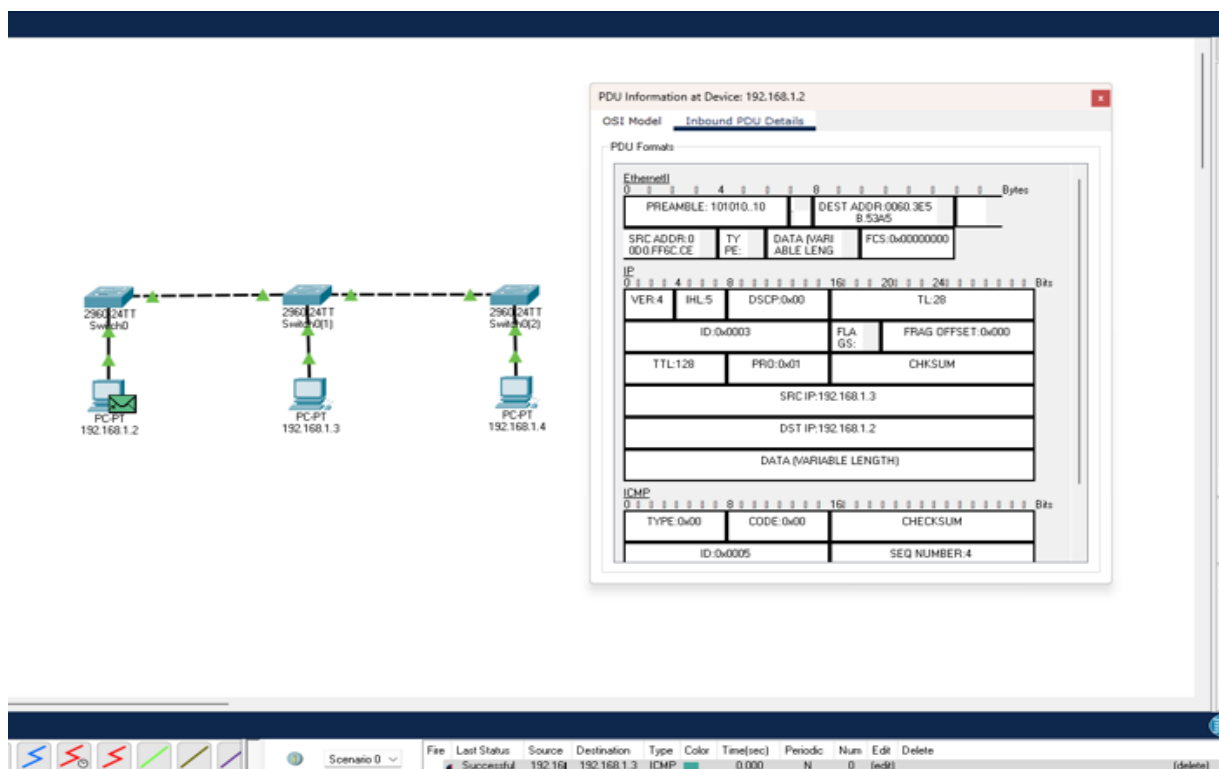
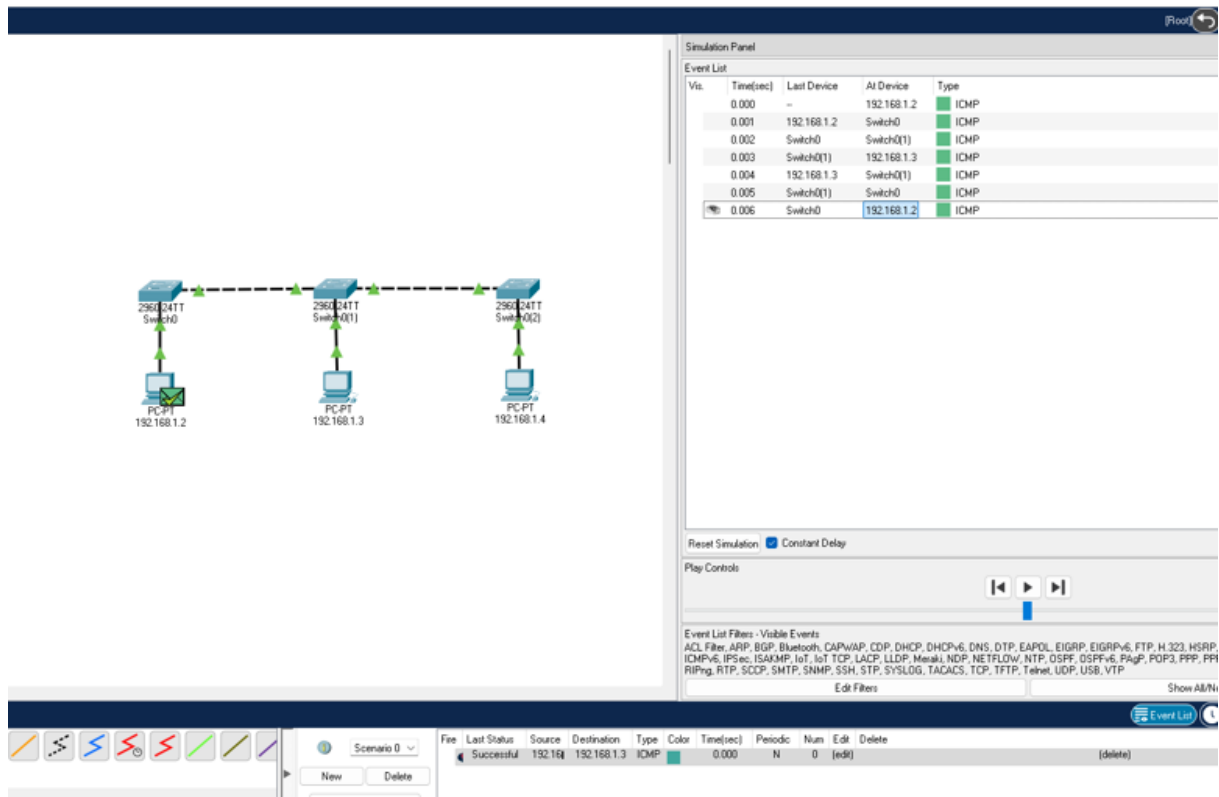
1. Create a simple network with switch and two or more pc. Also check connectivity between them using ping command or PDU utility.



**Date: 25/ 06/2025**

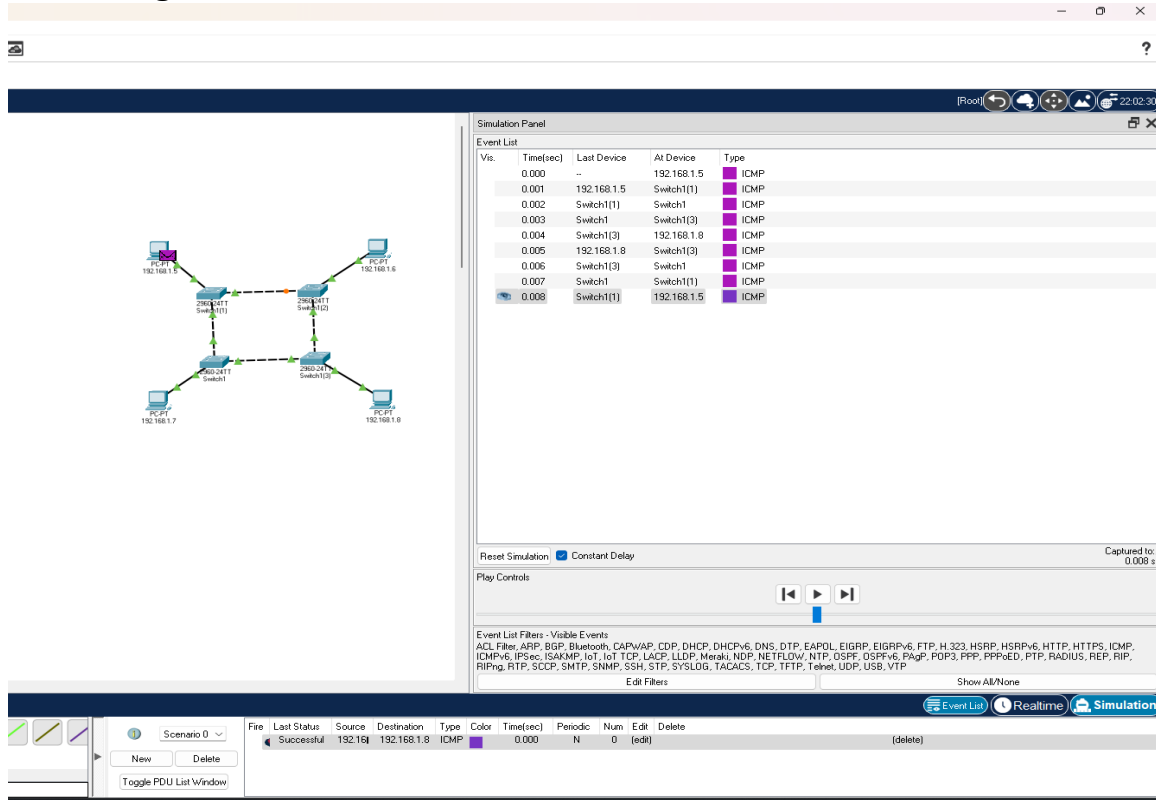
## 2. Implement different topologies in packet tracer.

**a. Bus**



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## b. Ring



**Simulation Panel**

Event List

Vs.	Time(sec)	Last Device	At Device	Type
0.000	-	-	192.168.1.5	ICMP
0.001	192.168.1.5	Switch1(1)	Switch1(1)	ICMP
0.002	Switch1(1)	Switch1	Switch1	ICMP
0.003	Switch1	Switch1(3)	Switch1(3)	ICMP
0.004	Switch1(3)	192.168.1.8	Switch1(3)	ICMP
0.005	192.168.1.8	Switch1(3)	Switch1(3)	ICMP
0.006	Switch1(3)	Switch1	Switch1	ICMP
0.007	Switch1	Switch1(1)	Switch1(1)	ICMP
0.008	Switch1(1)	192.168.1.5	192.168.1.5	ICMP

Reset Simulation ☒ Constant Delay

Captured to: 0.008 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, SIP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters

Show All/None

Scenario 0

New Delete

Toggle PDU List Window

File	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
Successful	192.168.1.5	192.168.1.8	ICMP			0.000	N	0	(edit)	(delete)

PDU Information at Device: 192.168.1.5

OSI Model **Inbound PDU Details**

PDU Formats

EthernetII

Bytes															
PREAMBLE: 10101010										DEST ADDR: 0000 8C 1E 7A 6A					
SRC ADDR: 0 090 0C72 8C				TYPE: 08		DATA (VARIABLE LENGTH)				FCS: 0x00000000					

IP

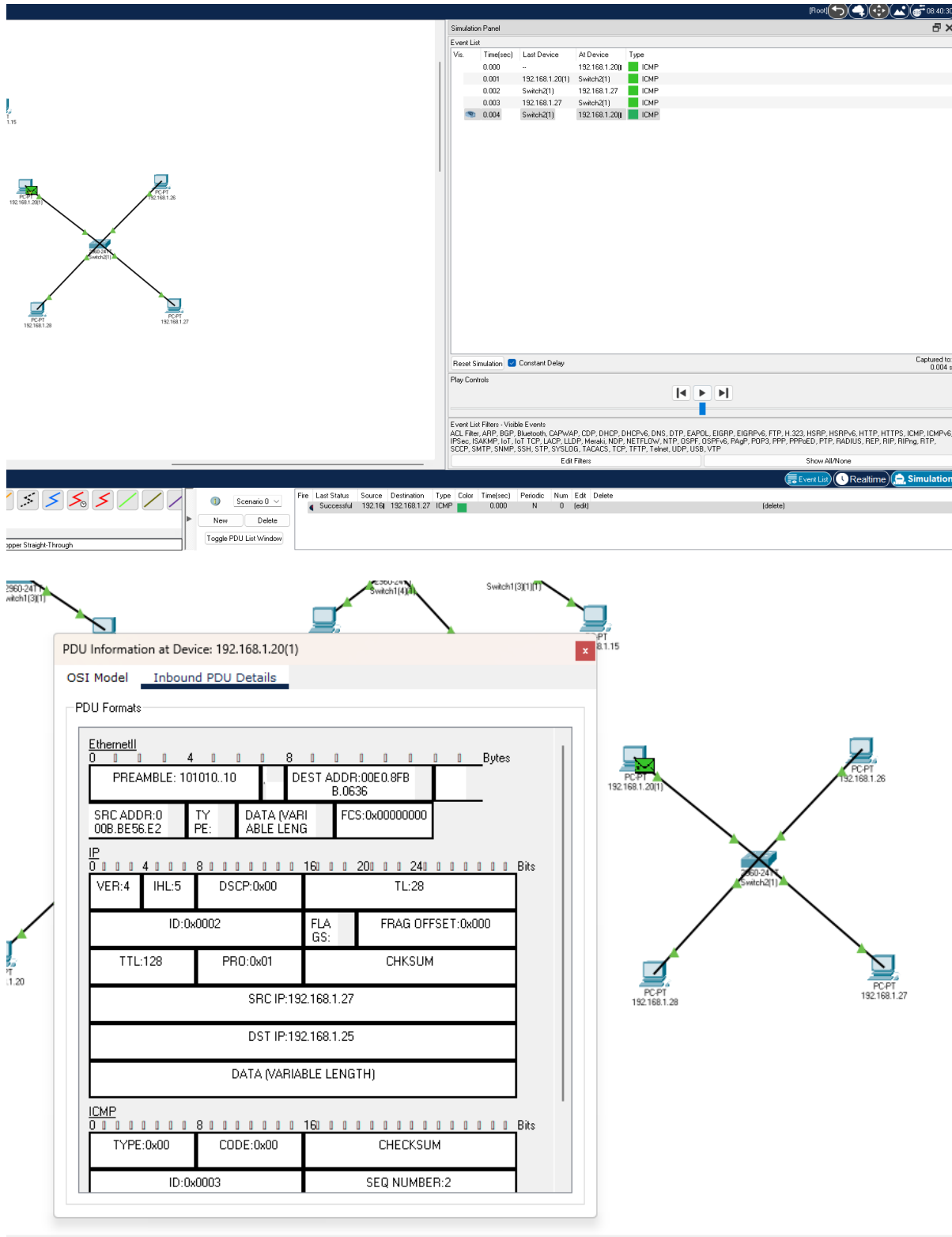
Bits															
VER: 4		IHL: 5		DSCP: 0x00				TL: 28							
ID: 0x0002				FLAGS: 0		FRAG OFFSET: 0x000									
TTL: 128				PRO: 0x01		CHKSUM									
SRC IP: 192.168.1.8															
DST IP: 192.168.1.5															
DATA (VARIABLE LENGTH)															

ICMP

Bits															
TYPE: 0x00				CODE: 0x00				CHECKSUM							
ID: 0x0003				SEQ NUMBER: 2											

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**c. Star**



The image displays a network simulation environment. The main window shows a star topology with a central switch (Switch2[1]) connected to four PCs (PC-P1, PC-P2, PC-P3, PC-P4) with IP addresses 192.168.1.20(1), 192.168.1.25, 192.168.1.27, and 192.168.1.28. The Simulation Panel on the right shows an Event List with ICMP events. The PDU Information window at the bottom shows the details of an inbound PDU at device 192.168.1.20(1).

**Simulation Panel Event List:**

Vis.	Time(sec)	Last Device	At Device	Type
0.000	-	-	192.168.1.20(1)	ICMP
0.001	-	192.168.1.20(1)	Switch2[1]	ICMP
0.002	-	Switch2[1]	192.168.1.27	ICMP
0.003	-	192.168.1.27	Switch2[1]	ICMP
0.004	-	Switch2[1]	192.168.1.20(1)	ICMP

**PDU Information at Device: 192.168.1.20(1)**

**OSI Model: Inbound PDU Details**

**PDU Formats:**

**Ethernet II:**

Bytes	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100				
PREAMBLE: 101010...10											DEST ADDR: 00E0.8FB8.0636																			
SRC ADDR: 00B.BE56.E2	TY PE:										DATA (VARIABLE LENG										FCS: 0x00000000									

**IP:**

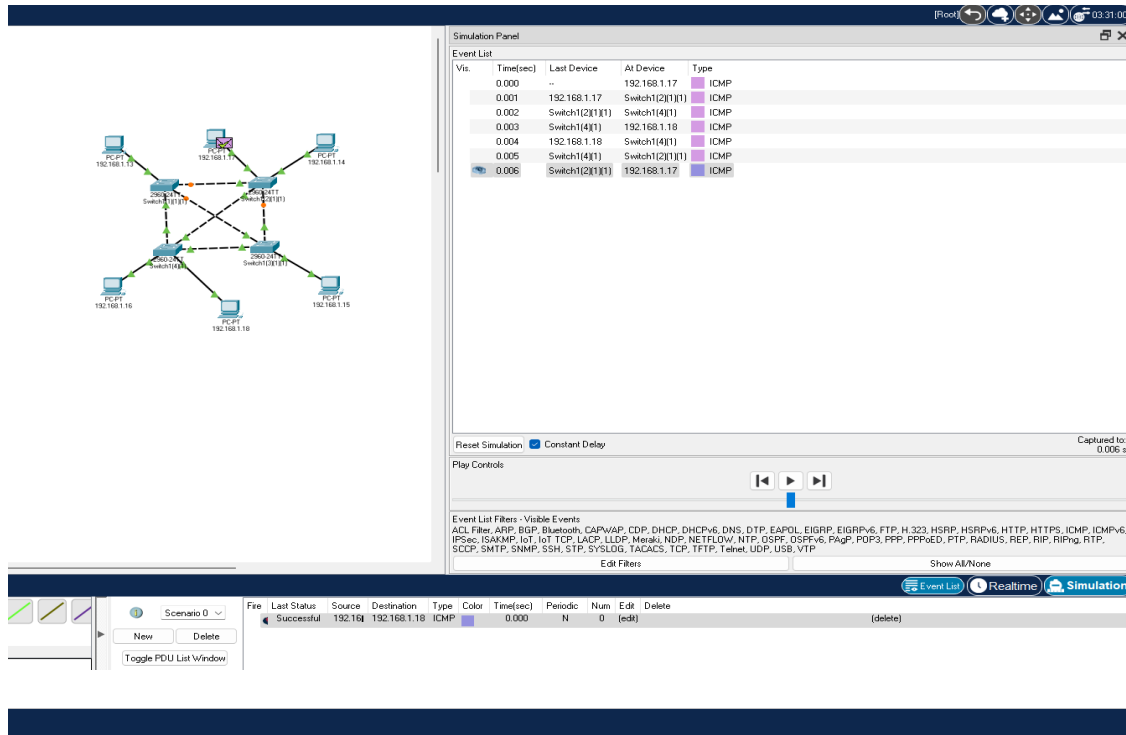
Bits	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100					
VER: 4	IHL: 5				DSCP: 0x00				TL: 28																						
ID: 0x0002																FLA GS:				FRAG OFFSET: 0x000											
TTL: 128								PRO: 0x01								CHKSUM															
SRC IP: 192.168.1.27																															
DST IP: 192.168.1.25																															
DATA (VARIABLE LENGTH)																															

**ICMP:**

Bits	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100					
TYPE: 0x00								CODE: 0x00								CHECKSUM															
ID: 0x0003																SEQ NUMBER: 2															

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### d. Mesh

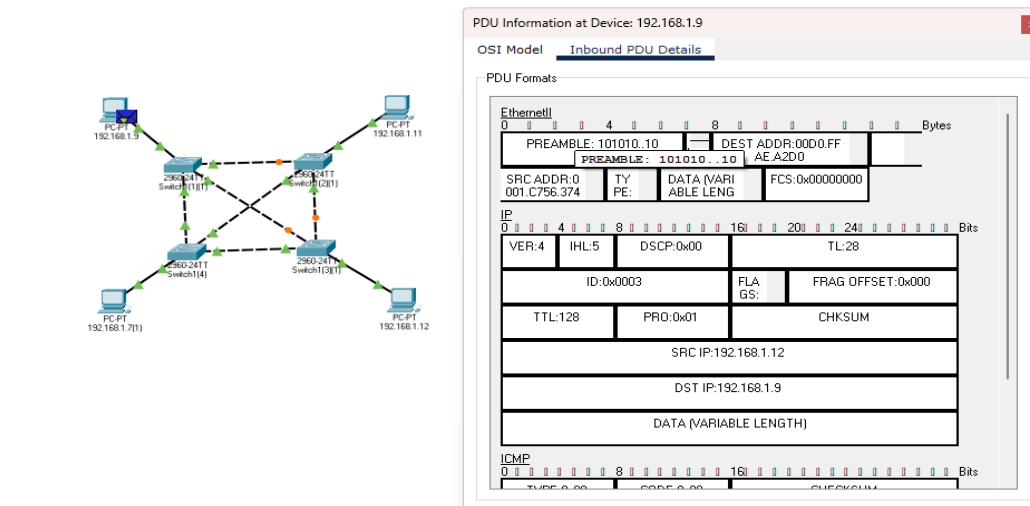


The screenshot displays a network simulation environment. On the left, a mesh topology is shown with four switches (Switch1, Switch2, Switch3, Switch4) and eight PCs connected in a fully meshed configuration. The switches are labeled with their IP addresses: Switch1 (192.168.1.1), Switch2 (192.168.1.2), Switch3 (192.168.1.3), and Switch4 (192.168.1.4). The PCs are labeled with their IP addresses: PC1 (192.168.1.5), PC2 (192.168.1.6), PC3 (192.168.1.7), PC4 (192.168.1.8), PC5 (192.168.1.9), PC6 (192.168.1.10), PC7 (192.168.1.11), and PC8 (192.168.1.12).

On the right, the 'Event List' panel shows a list of events. The first event is an ICMP packet sent from PC1 (192.168.1.5) to PC2 (192.168.1.6) at 0.000 seconds. The event list is as follows:

Vis.	Time(sec)	Last Device	AI Device	Type
0.000	0.000	192.168.1.5	192.168.1.6	ICMP
0.001	0.001	Switch1(211)	Switch1(211)	ICMP
0.002	0.002	Switch1(411)	Switch1(411)	ICMP
0.003	0.003	Switch1(411)	Switch1(411)	ICMP
0.004	0.004	Switch1(411)	Switch1(411)	ICMP
0.005	0.005	Switch1(411)	Switch1(411)	ICMP
0.006	0.006	Switch1(211)	Switch1(211)	ICMP

The 'Play Controls' section shows the simulation is running at 0.006 seconds. The 'Event List Filters' section shows the following filters: ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PaGP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCLP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP.



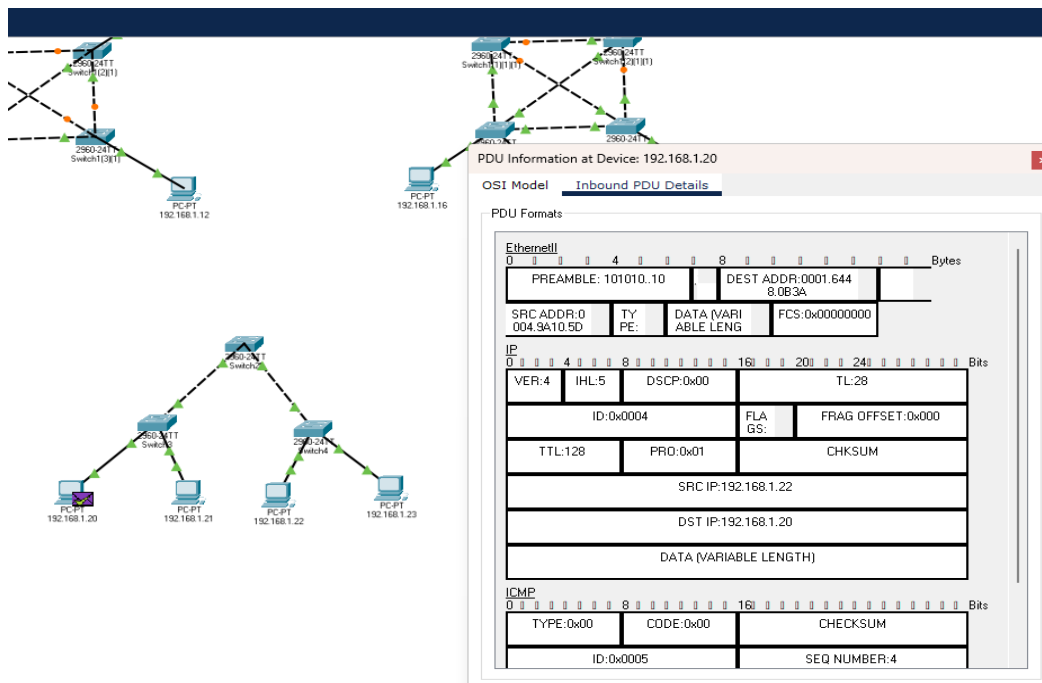
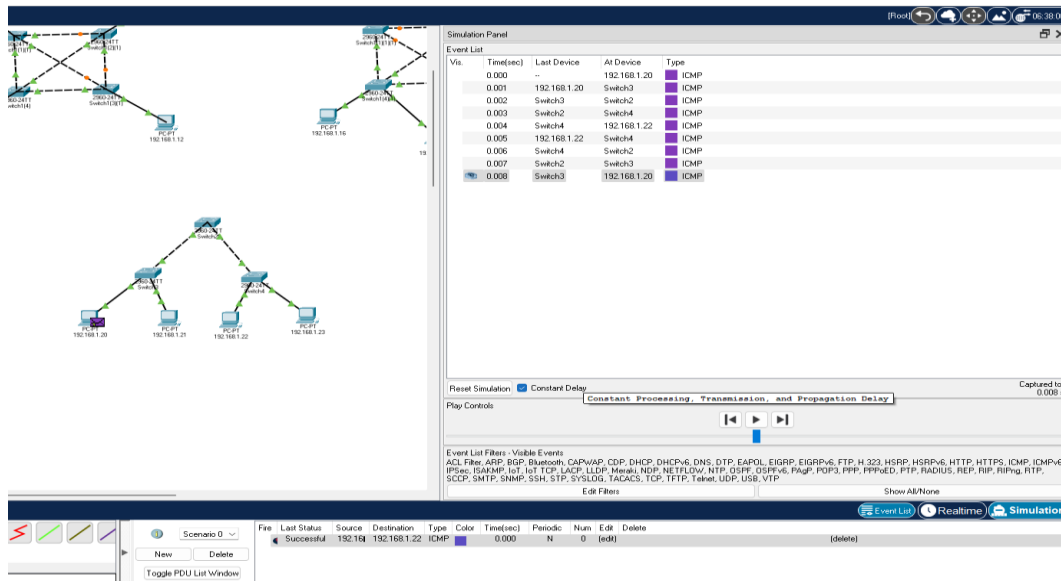
The screenshot displays a network simulation environment. On the left, a mesh topology is shown with four switches (Switch1, Switch2, Switch3, Switch4) and eight PCs connected in a fully meshed configuration. The switches are labeled with their IP addresses: Switch1 (192.168.1.1), Switch2 (192.168.1.2), Switch3 (192.168.1.3), and Switch4 (192.168.1.4). The PCs are labeled with their IP addresses: PC1 (192.168.1.5), PC2 (192.168.1.6), PC3 (192.168.1.7), PC4 (192.168.1.8), PC5 (192.168.1.9), PC6 (192.168.1.10), PC7 (192.168.1.11), and PC8 (192.168.1.12).

On the right, the 'PDU Information at Device: 192.168.1.9' window is open, showing the details of an inbound PDU. The PDU is an ICMP packet. The details are as follows:

Ethernet II	
PREAMBLE: 10101010	DEST ADDR: 0000.0000.0000
PREAMBLE: 10101010	AE A2D0
SRC ADDR: 0001.C756.374	DATA (VARIABLE LENG)
IP	
VER: 4	IHL: 5
DSCP: 0x00	TL: 28
ID: 0x0003	FRAG OFFSET: 0x000
TTL: 128	PRO: 0x01
SRC IP: 192.168.1.12	
DST IP: 192.168.1.9	
DATA (VARIABLE LENGTH)	
ICMP	

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**e. Tree**





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**Instructions:**

1. Topology-wise Screenshot.
2. Mention IP address of each pc as label.
3. Ping command or PDU screenshot between two pcs.