

## WEEK 2

Configure IP address to routers (one and three) in packet tracer. Explore the following messages: ping responses, destination unreachable, request timed out, reply.

OBSERVATION:

2/6/23 LAB-2  
Program - 2.1

AIM -  
Configure IP address to a single router.  
Explore the following messages: ping message, destination unreachable request timed out, reply.

TOPOLOGY

```
graph TD
    Router[Router] ---|fa0/0| PC0[PC-0]
    Router ---|fa1/0| PC1[PC-1]
    PC0 ---|10.0.0.1| PC0
    PC1 ---|20.0.0.1| PC1
    Router ---|10.0.0.10| Router
    Router ---|20.0.0.10| Router
```

Procedure:-

1. Select One Generic router and 2 generic PC's. Connect the PC's to router using copper cross-over cable.
2. Set the IP address of both PC's by clicking on PC and Config tab. Along with IP address, set gateway in the settings option on config tab.
3. To set the IP addresses of router, click on it & go to CLI tab and type the following commands

Step 1: type NO & press enter  
Step 2: type enable & press enter  
Step 3: type config T & press enter  
Step 4: type interface fastEthernet 0/0 & press enter  
Step 5: type IP address 10.0.0.10 255.0.0.0 & press enter

Step 6: type NO shut & press Enter

Step 7: type EXIT

Step 8: type interface fast Ethernet 1/0 & press enter

Step 9: type IP address 20.0.0.10 255.0.0.0 & press enter

Step 10: type NO shut & press enter

Step 11: type Exit

Step 12: type Exit.

Step 13: type Show IP route [for seeing the connection status]

- Close the tab & Click on PC to go to command prompt. Type ping 20.0.0.1 to send packets across.
- Atleast send packets in simulation mode to get a successful transmission

### PING Output

Packet tracer PC Command Line 1.0

PC > ping 20.0.0.1

pinging 20.0.0.1 with 32 bytes of data

Request timed out.

Reply from 20.0.0.1 : bytes = 32 time = 0ms TTL = 127

Reply from 20.0.0.1 : bytes = 32 time = 0ms TTL = 127

Reply from 20.0.0.1 : bytes = 32 time = 10ms TTL = 127

Ping Statistics for 20.0.0.1

Packets: Sent = 4, Received = 3, Lost = 1 (25% loss)

Approximate round trip times in milli-seconds

Minimum = 0ms, Maximum = 10ms, Average = 3ms

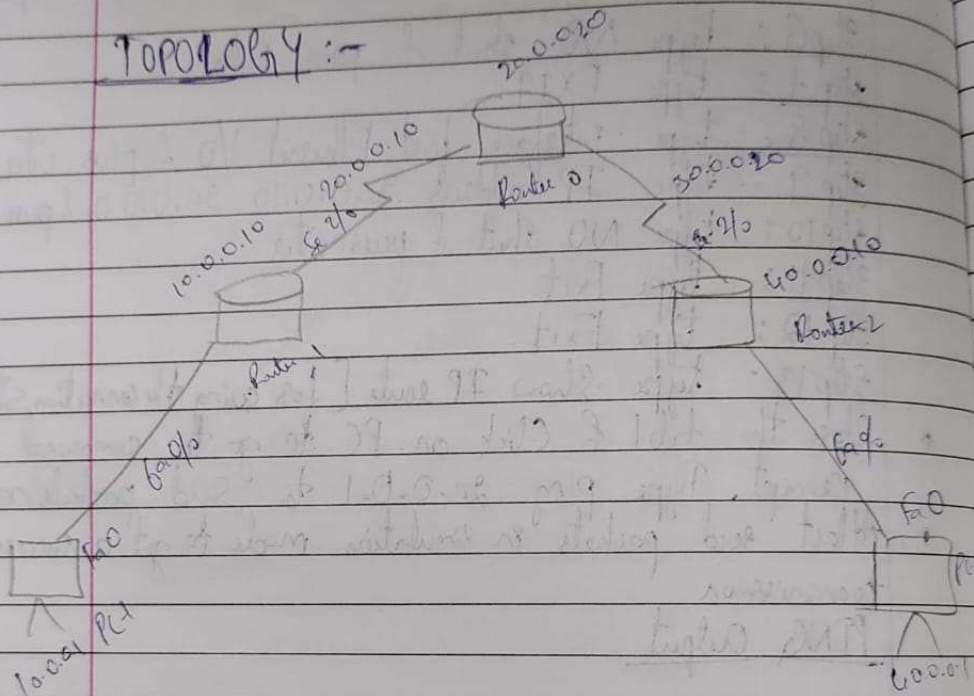


## PROGRAM - 2.2.

AIM -

Configure IP addresses to three routers in packet tracer. Explore the following messages: ping response, destination unreachable, request timed out, reply.

TOPOLOGY :-



## PROCEDURE -

- ① Connect 2 PC's & 3 routers using copper cross over cable for PC to router and Serial DCE cable to connect the routers to routers.
- ② Set the IP address of both PC's and gateway numbers.
- ③ Now for setting IP address & gateway number to routers.  
Select one router and perform the following commands:  
Step 1 - type NO & press enter  
Step 2 - type Enable & press enter  
Step 3 - type config T & press enter

in packet  
response,  
ply

- Step 4: type interface fast Ethernet 0/0 & press enter
- Step 5: type IP address 10.0.0.10 255.0.0.0 & press enter
- Step 6: type NO shut & press enter
- Step 7: type Exit
- Step 8: type interface se 2/0 & press enter
- Step 9: type IP address 20.0.0.10 255.0.0.0 & press enter
- Step 10: type NO shut & press enter
- Step 11: type Exit
- Step 12: type Exit

- Repeat these commands for the other two routers with respective IP/gateway address.
- Now to introduce the other two IP addresses to the first router we type the following commands.

- Step 1: type Config T & press enter
- Step 2: type IP route 30.0.0.0 255.0.0.0 20.0.0.20
- Step 3: type IP route 40.0.0.0 255.0.0.0 20.0.0.20
- Step 4: Exit
- Step 5: Exit

Step 6: type Show IP route

- Repeat these steps for other two routers with appropriate addresses.
- Go to Command Prompt by clicking on PC & config tab. Type Ping message to send packets to the destination address.

## PING OUTPUT

Output - 2:

Packet traces PC command line 1.0

PC > Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Reply from 10.0.0.10 : Destination host unreachable

Reply from 10.0.0.10 : Destination host unreachable

Reply from 10.0.0.10 : Destination host unreachable



Request timed out

Ping statistics for 40.0.0.1:

Packets: sent = 4, Received = 0, lost = 4 (100% loss)

## Output 2.

Packet Tracer PC Command Line 1.0

PC > ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes = 32 time = 2ms TTL = 125

Reply from 10.0.0.1: bytes = 32 time = 2ms TTL = 125

Reply from 10.0.0.1: bytes = 32 time = 2ms TTL = 125

Reply from 10.0.0.1: bytes = 32 time = 2ms TTL = 125

Ping statistics for 10.0.0.1:

Packets: sent = 4, received = 4, lost = 0 (0% loss)

Approximate round trip times in milli-seconds:

Minimum = 2ms, Maximum = 8ms, Average = 3ms

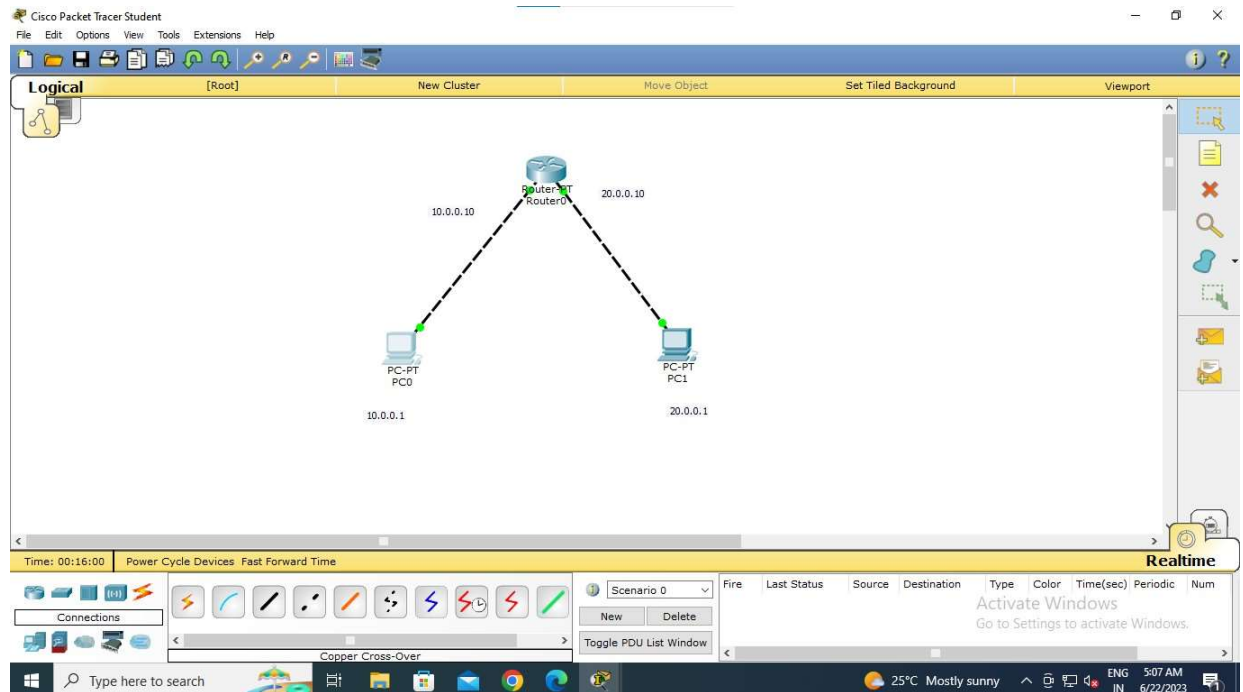
## OBSERVATION

- In Program 2.1 when we ping the destination address we get allocated with 32 bytes. In this first 8 bytes are used to learn about the route & their addresses. Rest bytes are used for sending packets to destination address. Thus, again if we ping all bytes are used for message sending and there will be no timed-out message.

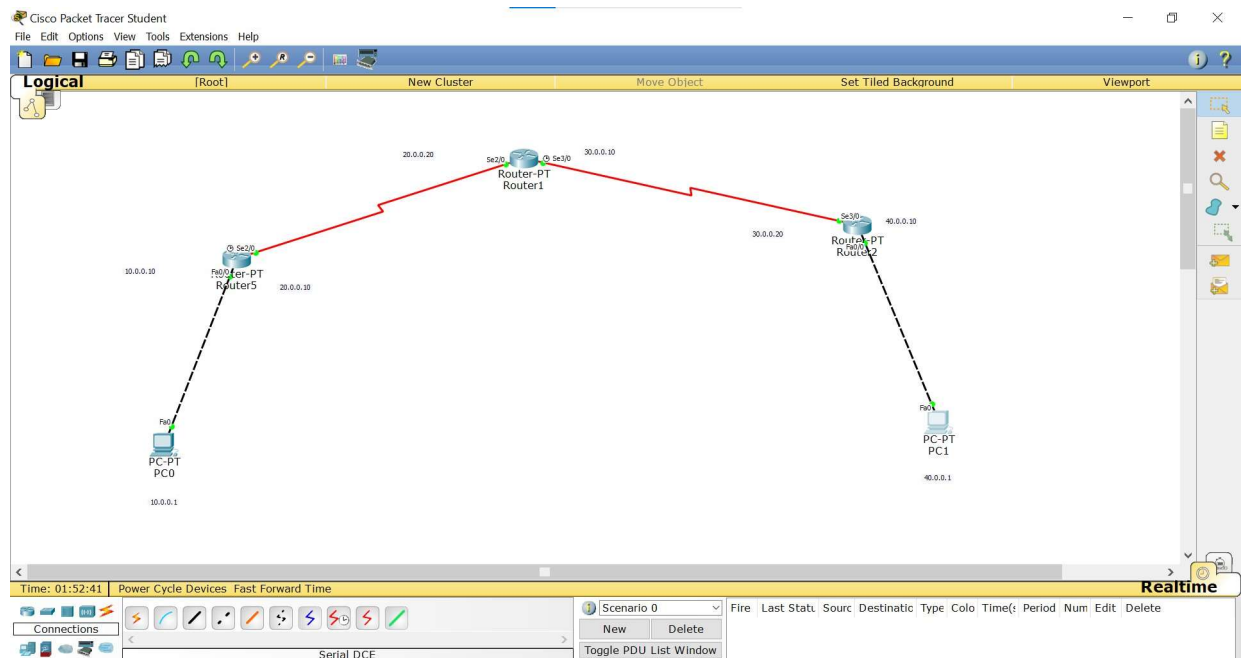
- In Program 2.2 when the router doesn't know about the remaining addresses, and we ping a message we get host unreachable message. Once the router has a full knowledge about other addresses, message will be sent successfully.

## TOPOLOGY:

### PROGRAM 2.1



### PROGRAM 2.2



OUTPUT:

## PROGRAM 2.1

The screenshot displays the Cisco Packet Tracer Student interface. At the top, a 'Command Prompt' window for PC0 is open, showing the results of a ping command to 20.0.0.1. The output indicates a 25% loss of packets.

```
Packet Tracer PC Command Line 1.0
PC>ping 20.0.0.1

Pinging 20.0.0.1 with 32 bytes of data:

Request timed out.
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=10ms TTL=127

Ping statistics for 20.0.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 3ms

PC>
```

The main interface shows a network topology with a central 'Router0' connected to two PCs, 'PC-P1' and 'PC-P2'. The IP addresses are 10.0.0.10 for the router, 10.0.0.1 for PC-P1, and 20.0.0.10 for PC-P2. The 'Simulation Panel' on the right shows an 'Event List' with a table of events.

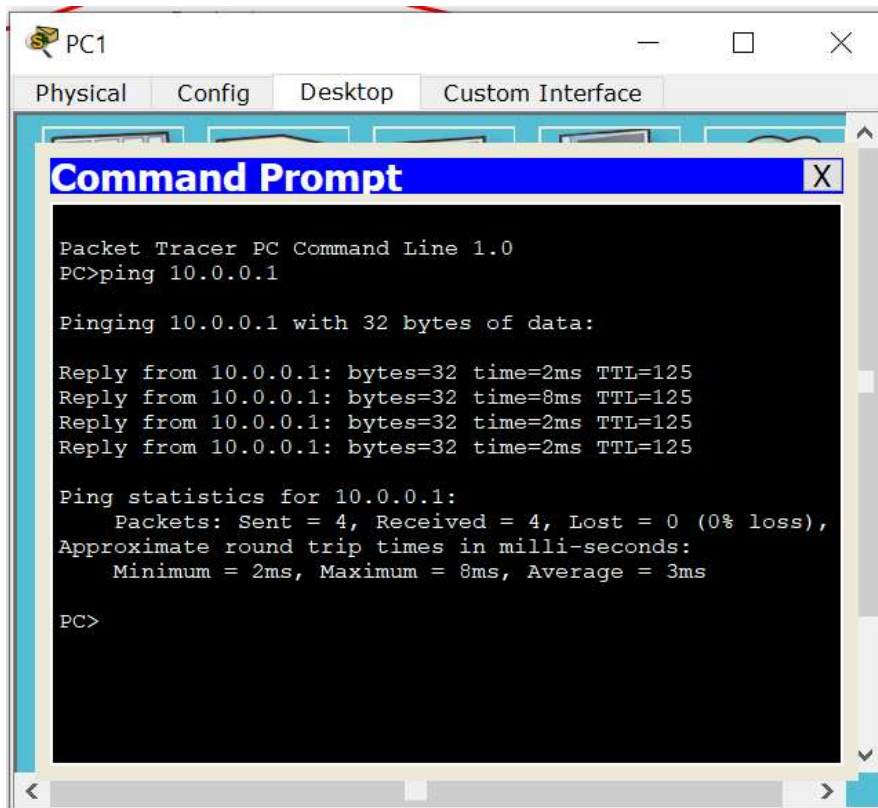
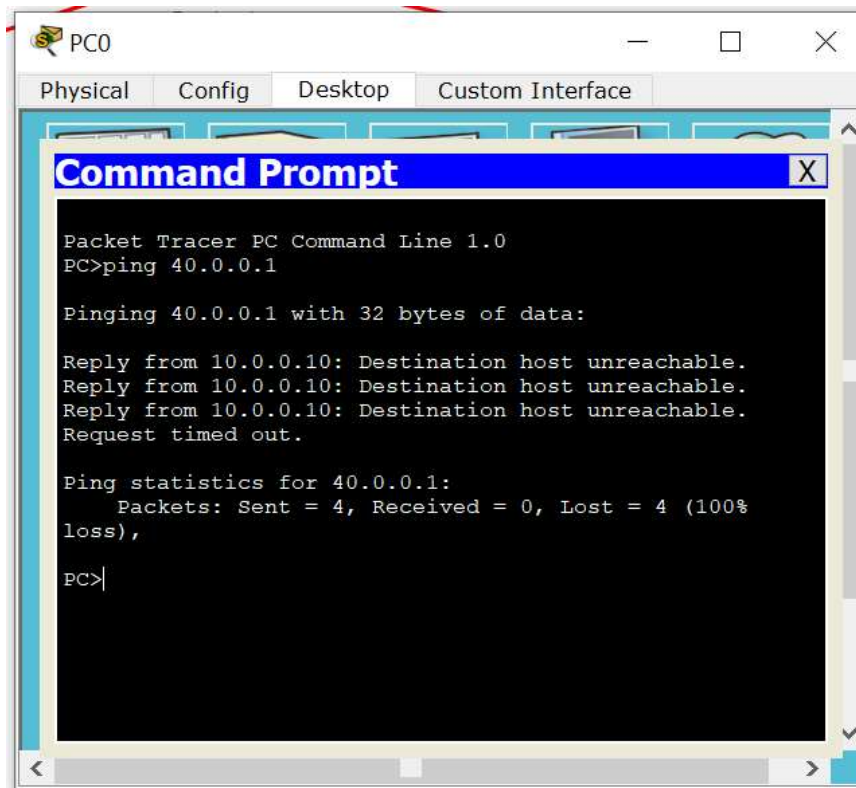
Vis.	Time(sec)	Last Device	At Device	Type	Info
	465.354	Router0	PC1	CDP	
	525.353	--	Router0	CDP	
	525.353	--	Router0	CDP	
	525.354	Router0	PC0	CDP	
	525.354	Router0	PC1	CDP	
	585.355	--	Router0	CDP	
	585.355	--	Router0	CDP	
	585.356	Router0	PC0	CDP	
	585.356	Router0	PC1	CDP	

The 'Simulation' panel at the bottom right shows a table of simulation events.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
	Successful	PC0	PC1	ICMP		0.000	N	0



## PROGRAM 2.2





Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

Router1

Router5

Router2

PC1

PC2

20.0.0.20

20.0.0.10

30.0.0.10

40.0.0.10

40.0.0.20

Simulation Panel

Event List

Vis.	Time(sec)	Last De	At Dev	Type	Info
	28.315	--	Router...	CDP	
	28.316	Router5	PC0	CDP	
	28.316	Router5	Router...	CDP	
	45.862	--	Router...	CDP	
	45.862	--	Router...	CDP	

Reset Simulation ☒ Constant Delay Captured to: 45.862 s

Play Controls

Back Auto Capture / Play Capture / Forward

Event List Filters - Visible Events

ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, LACP, NTP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTSP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters Show All/None

Time: 01:54:00.015 Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture / Forward

Connections

Serial DCE

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Statu Sourc Destinatic Type Colo Time(s) Period Num Edit Delete

Successful PC0 PC1 IC... 0.000 N 0 (ed... (delete)

Simulation