

WEEK 2

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

OBSERVATION:

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

2a) Aim:- Configure IP address to router and exploring ping messages

```

    graph TD
      Router0[Router 0]
      PC1[PC1]
      PC2[PC2]
      Router0 ---|Copper Crossover| PC1
      Router0 ---|Copper Crossover| PC2
      style Router0 fill:#fff,stroke:#000,stroke-width:1px
      style PC1 fill:#fff,stroke:#000,stroke-width:1px
      style PC2 fill:#fff,stroke:#000,stroke-width:1px
  
```

Procedure:-

- Step 1:- Select Router - PT and place it in workspace
- Step 2:- Take 2 end devices as PC-PT and drop them in workspace.
- Step 3:- connect fast ethernet 0/0 of PC1 to fast ethernet 0/0 of router and fast ethernet 0/0 of PC2 to fast ethernet 0/0 of router using copper crossover.
- Step 4:- set IP address of PC1 as 10.0.0.1 and PC2 as 20.0.0.1
- Step 5:- In setting set gateway of PC1 as 10.0.0.10 and PC2 as 20.0.0.10
- Step 6:- setup the interface of router using the following steps:-

To configure router commandline interface (CLI) is used.....

```

Router 0 CLI
(Press N)
Router > enable
Router # config t
    
```

or config terminal

STEPS

→ interface serial 2/0

IP address

No shut

exit

exit

Show IP route

CLI

n.

→ Interface serial 2/0

IP address 20.0.0.20

No shut

exit

→ Interface serial 3/0

→ IP address 30.0.0.10

→ No shut

→ exit

→ Router enable

→ Interface serial 2/0

→ Set IP address

Router #1 : show IP route

→ click on PC

→ Ping 10.0.0.1

Static Routing :-

cmd :-

subnet mask

IP route 30.0.0.0 255.0.0.0 20.0.0.20

IP route 40.0.0.0 255.0.0.0 20.0.0.20

Router 2: IP route 10.0.0.0 255.0.0.0 20.0.0.10

IP route 40.0.0.0 255.0.0.0 30.0.0.20

exit

Show IP route

Router S:- IP route 10.0.0.0 255.0.0.0 30.0.0.10
 IP route 20.0.0.0 255.0.0.0 30.0.0.10
 exit
 show IP route.

ping 40.0.0.1 ?

Router (config) # interface fastEthernet 0/0
 Router (config-if) # ip address 10.0.0.10 255.0.0.0
 Router (config-if) # no shut.
 exit

Router (config) # interface fastEthernet 1/0
 Router (config-if) # ip address 20.0.0.10 255.0.0.0
 Router (config-if) # no shut.
 exit.

Router (config) # exit
 Router #
 show ip route

C 10.0.0.0/8 is directly connected, FastEthernet 0/0
 C 20.0.0.0/8 is directly connected, FastEthernet 1/0

step 7 :- observation

Green light appears on wire when no shut commands are written which indicate that they are ready for data transmission.

Ping output in PC :-

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 = 0ms TTL = 127
 ping statistics for 20.0.0.1
 packets: sent = 4 Received = 3, lost = 1 (25% loss),
 Appropriate Approximate round trip times in milliseconds:
 minimum = 0ms maximum = 1ms Average =

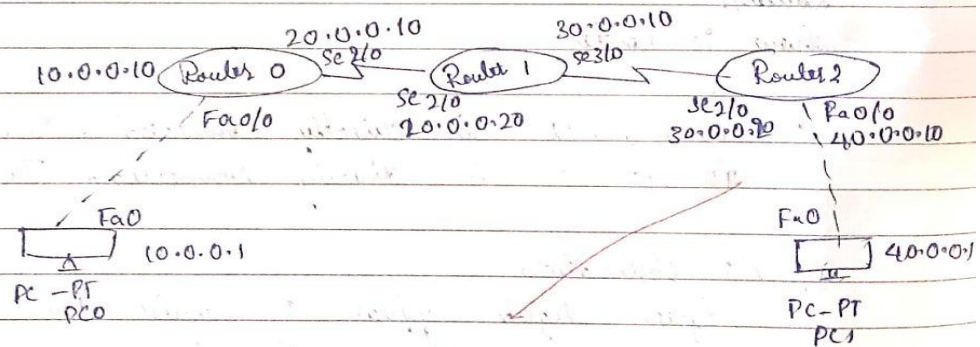
Observation

Free On pinging in PC0 for the first time there is a 25% loss

From next ping there are no losses

2b) Aim :- Configure using 3 routers and 2 PCs

Topology :-



Procedure

Step 1 : The network is started by selecting end device PC0 & PC1 i.e., generic PCs and placing them in workspace.

Step 2 : select 3 routers - PT and place them as router 0, router 1 and router 2 in workspace.

step 3: PC0 & PC1 are connected to router 0 and router 1 respectively using copper crossovers

step 4: Connect router 0 to router 1, router 1 to router 2 using

step 5: set up IP address of PC0 to 10.0.0.1, PC1 to 40.0.0.1. Set up gateway of PC0 as 10.0.0.10 and PC1 as 40.0.0.10

Configure the routers by opening CLI:

In router 0

```
Router > enable
```

```
Router # config t
```

```
Router (config) # interface fastEthernet 0/0
```

```
Router (config-if) # ip address 10.0.0.10 255.0.0.0
```

```
Router (config-if) # no shut
```

```
exit
```

```
Router (config) # interface serial 2/0
```

```
Router (config-if) # ip address 20.0.0.10 255.0.0.0
```

```
Router (config-if) # no shut
```

```
exit
```

In Router 1

```
Router > enable
```

```
Router # config t
```

```
Router (config) # interface serial 2/0
```

```
Router (config-if) # ip address 20.0.0.20 255.0.0.0
```

```
Router (config-if) # no shut
```

```
exit
```

```
Router (config) # interface serial 3/0
```

```
Router (config-if) # ip address 30.0.0.10 255.0.0.0
```

```
Router (config-if) # no shut
```

```
exit
```

```
Router (config) # end
```

In Router 2

Router > enable.

Router # config t.

Router(config) # interface serial 2/0

Router(config-if) # ip address 80.0.0.90 255.0.0.0

Router(config-if) # no shut.

exit

Router(config) # interface fastethernet 0/0

Router(config-if) # ip address 40.0.0.10 255.0.0.0

Router(config-if) # no shut.

exit.

Router(config) exit

IP Router Table:-

Router 0:

Router # show ip route

C 10.0.0.0/8 is directly connected, Fast Ethernet 0/0

C 20.0.0.0/8 is directly connected, serial 2/0

Router 1:

Router # show ip route

C 20.0.0.0/8 is directly connected, serial 2/0

C 30.0.0.0/8 is directly connected, serial 3/0

Router 2:

Router # show ip route

C 30.0.0.0/8 is directly connected, serial 2/0

C 40.0.0.0/8 is directly connected, Fast Ethernet 0/0

ping output in PC.

PC> ping 40.0.0.1

pinging 40.0.0.1 with 52 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

ping statistics for 40.0.0.1:

packets: sent=4 received=0 lost=4 (100% loss)

Observation:

Green light appears on the wires when no shut is written.

Now configure the router which does not have data of other network. Add the network in CLI

In all 3 Routers CLI write config t then set route.

Router 0:

ip route 30.0.0.0 255.0.0.0 20.0.0.20

ip route 40.0.0.0 255.0.0.0 20.0.0.20

Router 1:

ip route 10.0.0.0 255.0.0.0 20.0.0.10

ip route 40.0.0.0 255.0.0.0 30.0.0.20

Router 2:

ip route 20.0.0.0 255.0.0.0 30.0.0.10

ip route 10.0.0.0 255.0.0.0 30.0.0.10

new IP route table
enit

Router 0.

C 10.0.0.0/8 is directly connected, FastEthernet 0/0
C 20.0.0.0/8 is directly connected, serial 2/0
S 30.0.0.0/8 [1/0] via 20.0.0.20
S 40.0.0.0/8 [1/0] via 20.0.0.20

Router 1.

S 10.0.0.0/8 [1/0] via 20.0.0.10
C 20.0.0.0/8 is directly connected serial 2/0
C 30.0.0.0/8 is directly connected serial 3/0
S 40.0.0.0/8 [1/0] via 30.0.0.20

Router 2.

S 10.0.0.0/8 [1/0] via 30.0.0.10
S 20.0.0.0/8 [1/0] via 30.0.0.10
C 30.0.0.0/8 is directly connected, serial 2/0
C 40.0.0.0/8 is directly connected, FastEthernet 0/0

Ping messages

PC> ping 40.0.0.1

pinging 40.0.0.1 with 32 bytes of data.

Request timed out.

Reply	from	40.0.0.1	bytes = 32	time = 2ms	TTL = 125
Reply	from	40.0.0.1	bytes = 32	time = 2ms	TTL = 125
Reply	from	40.0.0.1	bytes = 32	time = 2ms	TTL = 125

Ping statistics for 40.0.0.1

packets sent = 4, Received = 3, lost = 1 (25% loss)

Approximate round trip time in milli-seconds

Minimum = 2ms, Maximum = 2ms, Average = 2ms

net 0/0

/0

Observation:

In first ping destination host was unreachable as Router 0 has no knowledge about the network 30.0.0.0 and 40.0.0.0 and the packets got stuck or lost.

After this ip route is explicitly

Now on pinging there is 25% loss in first time, the following one's has no loss.

line

0/0.

= 125

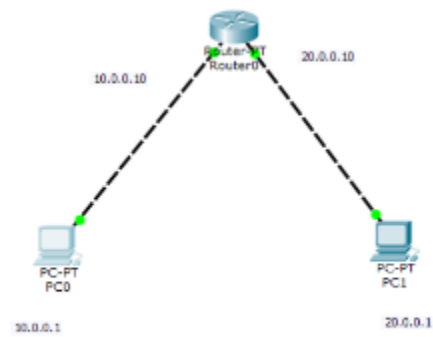
L = 125

TL = 125

OUTPUT SCREENS:

TOPOLOGY

PROGRAM 2.1



PROGRAM 2.2



OUTPUT: PROGRAM 2.1

Command Prompt

```
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 screenshot displays the Packet Tracer interface. The central workspace shows a network topology with a central router (Router0) connected to two PCs (PC0 and PC1). PC0 has IP 10.0.0.1 and PC1 has IP 20.0.0.1. The router has interfaces 10.0.0.10 and 20.0.0.10. The interface at the bottom shows the simulation controls, including a timeline, power cycle devices, and play controls. The event list on the right shows a list of events, including a successful ping from PC0 to PC1.

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	
	565.355	--	Router0	CDP	
	565.355	--	Router0	CDP	
	565.356	Router0	PC0	CDP	
	565.356	Router0	PC1	CDP	

Time	00:27:16.137	Power Cycle Devices	PLAY CONTROLS	Back	Auto Capture / Play	Capture / Forward	Event List	Simulation
Last Status	Successful	Source	Destination	Type	Color	Time(sec)	Periodic	Num
		PC0	PC1	ICMP		0.000	N	0

PROGRAM 2.2

PC1

Physical Config Desktop Custom Interface

Command Prompt

```
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=8ms 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

PC>
```

PC0

Physical Config Desktop Custom Interface

Command Prompt

```
Packet Tracer 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),

PC>
```


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

Simulation Panel

Event List

Vis.	Time(sec)	Last De	At Dev	Type	Info
	20.315	--	Router1	CDP	
	28.316	Router1	PC0	CDP	
	28.316	Router1	Router2	CDP	
	45.862	--	Router1	CDP	
	45.862	--	Router1	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, PAgE, POP3, RADIUS, RDP, RDPv6, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, 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 DCL

Scenario 0

New Delete

Toggle PDU List Window

Event List Simulation

Fire	Last Status	Source	Destination	Type	Color	Time(s)	Period	Num	Edit	Delete
	Successful	PC0	PC1	ICMP		0.000	N	0	(edit)	(delete)