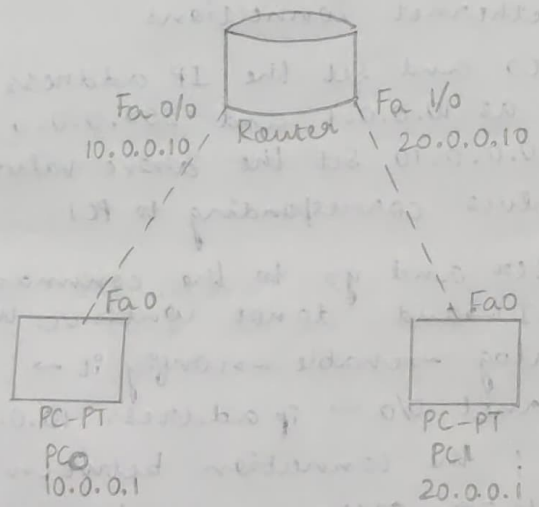
17/11/22 LAB-2

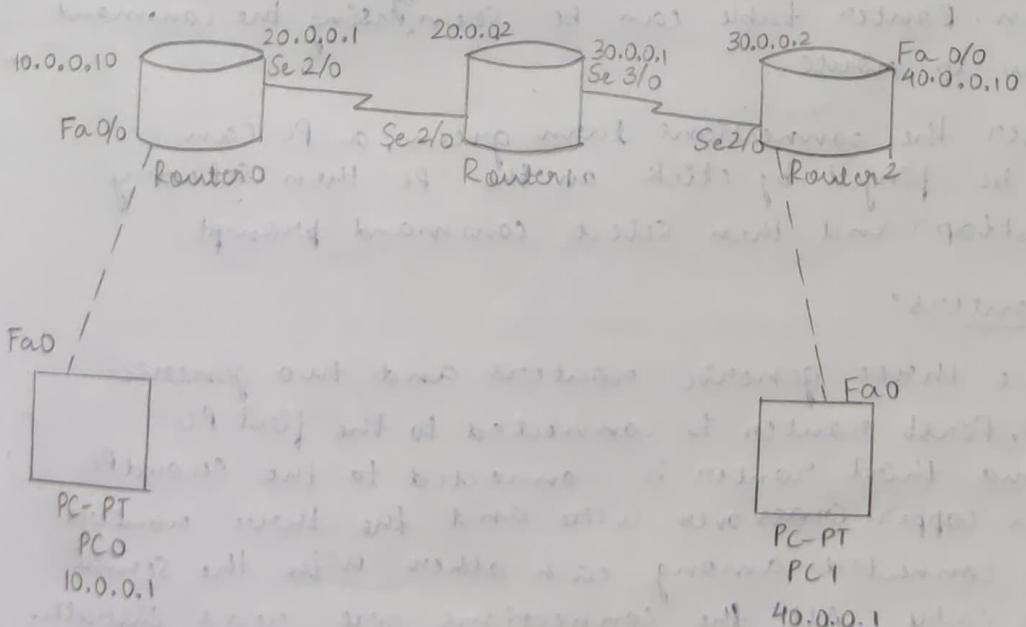
AIM: Configuring IP address to Routers in Packet Tracer. Explore the following messages: Ping Responses, Destination unreachable, Request timed out, Reply.

Topology:

One-Router:



Three-router:



Procedure:

One - Router

→ Place two generic PC's and a generic router and the router is connected to each of the PC's with a copper cross wire. The connections will be read initially.

→ Place the nodes for each of the PC's and each of the fast ethernet connections

→ Click on the PC0 and set the IP address and the Subnet mask as 10.0.0.1 and 255.0.0.0 and set the gateway as 10.0.0.10. Set the above values for PC1 with the values corresponding to PC1

→ Click on the router and go to the command line interface (CLI) → and do not continue with configuration dialog → enable → config t → interface fastethernet 0/0 → ip address 10.0.0.10 255.0.0.0 → no shut ; the connection between router and PC0 turn green when the above process is repeated for the connection between router and PC1 that connection also turns green. Router table can be seen by using the command show ip route.

→ After the connections turn green, a PC can be pinged by click on the PC then selecting desktop and then select command prompt.

3 - routers:

→ Place three generic routers and two generic PC's. First router is connected to the first PC and third router is connected to the second PC by a copper cross over wire and the three routers are connected among each other with the serial DCE cable. All the connections are read initially

→ Place the nodes and the router and PC is connected through fast ethernet while the routers are connected through serial

→ Each of the PC is clicked and the IP address, Subnet mask and gateway is set for each of the PC with the corresponding values

→ Router 1 is clicked > CLI > "no" > enable > config t > interface fastethernet 0/0 > ip address 10.0.0.10 255.0.0.0> no shut → with these the first connection is established.
config t > interface serial 2/0 > ip address 20.0.0.10 255.0.0.0> no shut → second connection is established

→ Router 2 is clicked > CLI > "no" > enable > config t > interface serial 2/0 > ip address 10.0.0.2 255.0.0.0> no shut → with these first connection is established.
Config t> interface serial 3/0 > ip address 30.0.0.1 255.0.0.0 > no shut → with these second connections established.

→ After all the above steps all green lights are glown and when the PC1 is pinged from PC0 → we get the reply, Destination unreachable

→ When the router 20.0.0.2 is pinged by PC0 the reply, request timed out is seen. The above replies are seen because the routers are not trained for the non-connected LAN's

→ Router 1 is trained by using
ip route 30.0.0.0 255.0.0.0 20.0.0.2
ip route 40.0.0.0 255.0.0.0 20.0.0.2
Router 2 is trained by
ip route 10.0.0.0 255.0.0.0 20.0.0.1
ip route 40.0.0.0 255.0.0.0 30.0.0.2
Router 3 is trained by
ip route 10.0.0.0 255.0.0.0 30.0.0.1
ip route 20.0.0.0 255.0.0.0 30.0.0.1

→ Now, the correct reply is seen when PC1 is pinged by PC0

Observations:

One-Router

When PC0 pings PC1 for the first time we get
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, host = 1 (25% loss)
Approximate round trip times in ms
Minimum = 0 ms, Maximum = 4ms, Average = 1ms

But when PC0 pings PC1 again or if PC1 reverse pings PC0 we get the output when where all the 4 times reply is observed

3-Routers:

Before the routers are trained and PC1 is pinged by PC0 and Router2 we get

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
Reply from 10.0.0.10: Destination host unreachable

Pinging Statistics 40.0.0.1
Packets: Sent = 4 Received = 0 host = 4 (100% Loss)

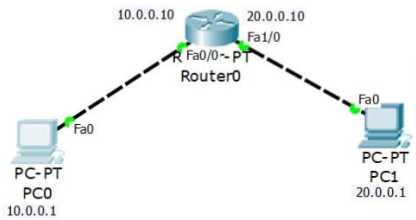
ping 20.0.0.2
Request timed out
Request timed out
Request timed out
Request timed out

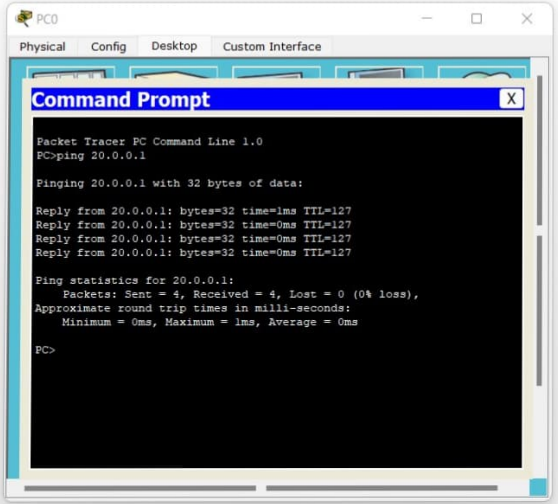
Pinging Statistics 20.0.0.2
Packets: Sent = 4 Received = 0 Lost = 4 (100% Loss)

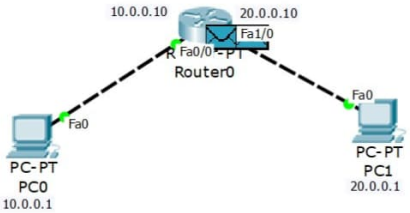
After the routers are trained:

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

Pinging Statistics for 40.0.0.1
Packets: Sent = 4 Received = 9 Loss = 1 (25% Loss)


10.0.0.10
20.0.0.10
Fa1/0
Fa0/0
Router0
Fa0
Fa0
PC-PT
PC0
10.0.0.1
PC-PT
PC1
20.0.0.1


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data:
Reply from 20.0.0.1: bytes=32 time=1ms 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
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Ping statistics for 20.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>



Simulation Panel

Event List

Vis.	Time(sec)	Last Devi	At Devi	Type	Info
	0.002	--	PC0	ICMP	
	0.003	PC0	Router0	ICMP	
	0.003	--	Router0	ARP	
	0.004	Router0	PC1	ARP	
	0.005	PC1	Router0	ARP	
	3.769	--	Router0	CDP	
	3.769	--	Router0	CDP	

Reset Simulation | Constant Delay | Capturing...

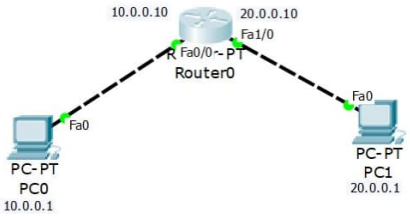
Play Controls

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, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters | Show All/None



Router0

Physical Config CLI

IOS Command Line Interface

```
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 10.0.0.10 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
state to up

Router(config-if)#exit
Router(config)#
Router(config)#interface FastEthernet1/0
Router(config-if)#ip address 20.0.0.10 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed
state to up

Router(config-if)#exit
Router(config)#
```

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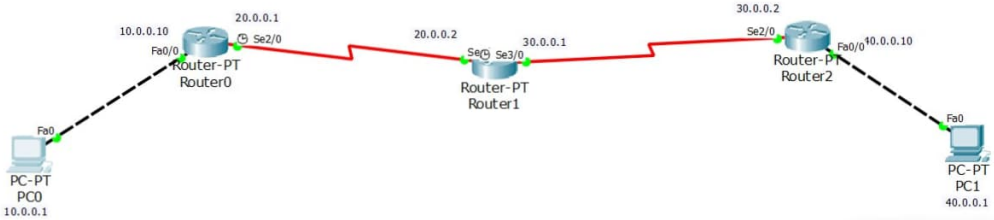


PC0

Physical | Config | Desktop | Custom Interface

Command Prompt X

```
Packet Tracer PC Command Line 1.0
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=3ms 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 times in milli-seconds:
    Minimum = 2ms, Maximum = 3ms, Average = 2ms

PC>
```

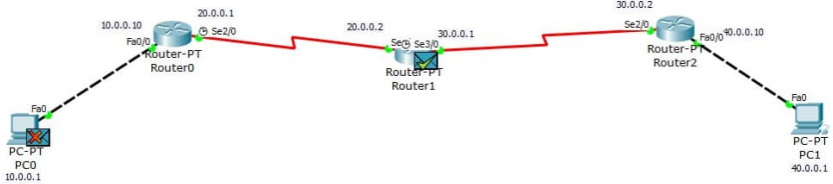
Time: 00:30:43 | Power Cycle Devices | Fast Forward Time

Connections

Automatically Choose Connection Type

Scenario 0 | New | Delete | Toggle PDU List Window

Fire | Last Status



Simulation Panel

Event List

Vis.	Time(sec)	Last Devi	At Devi	Type	Info
	0.722	--	Router1	CDP	
	0.723	Router1	Router0	CDP	
	0.723	Router1	Router2	CDP	
	18.504	--	Router0	CDP	
	18.504	--	Router0	CDP	
	18.505	Router0	PC0	CDP	
	18.505	Router0	Router1	CDP	

Reset Simulation | Constant Delay | Captured to: 18.505 s

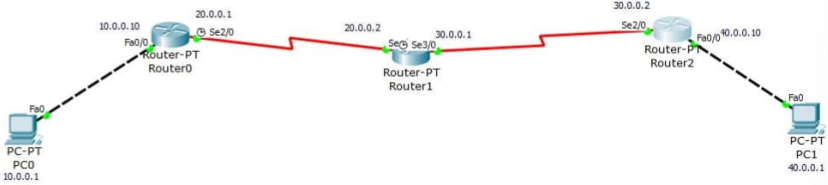
Play Controls

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, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters | Show All/None



Router2

Physical Config CLI

IOS Command Line Interface

```
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#exit
Router(config)#
Router(config)#interface Serial2/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#ip address 40.0.0.10 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#
Router(config)#interface Serial2/0
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
```

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