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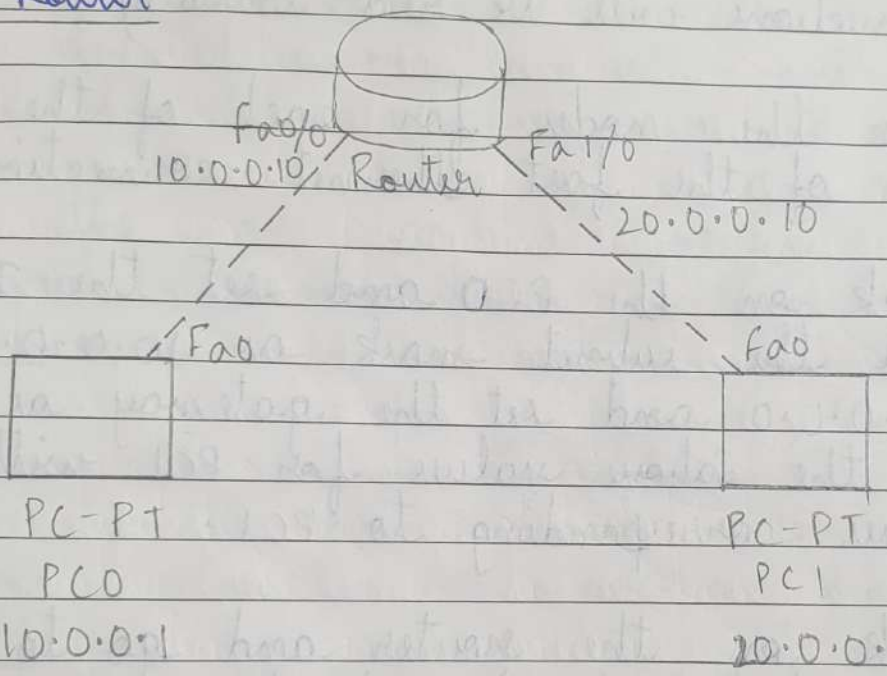
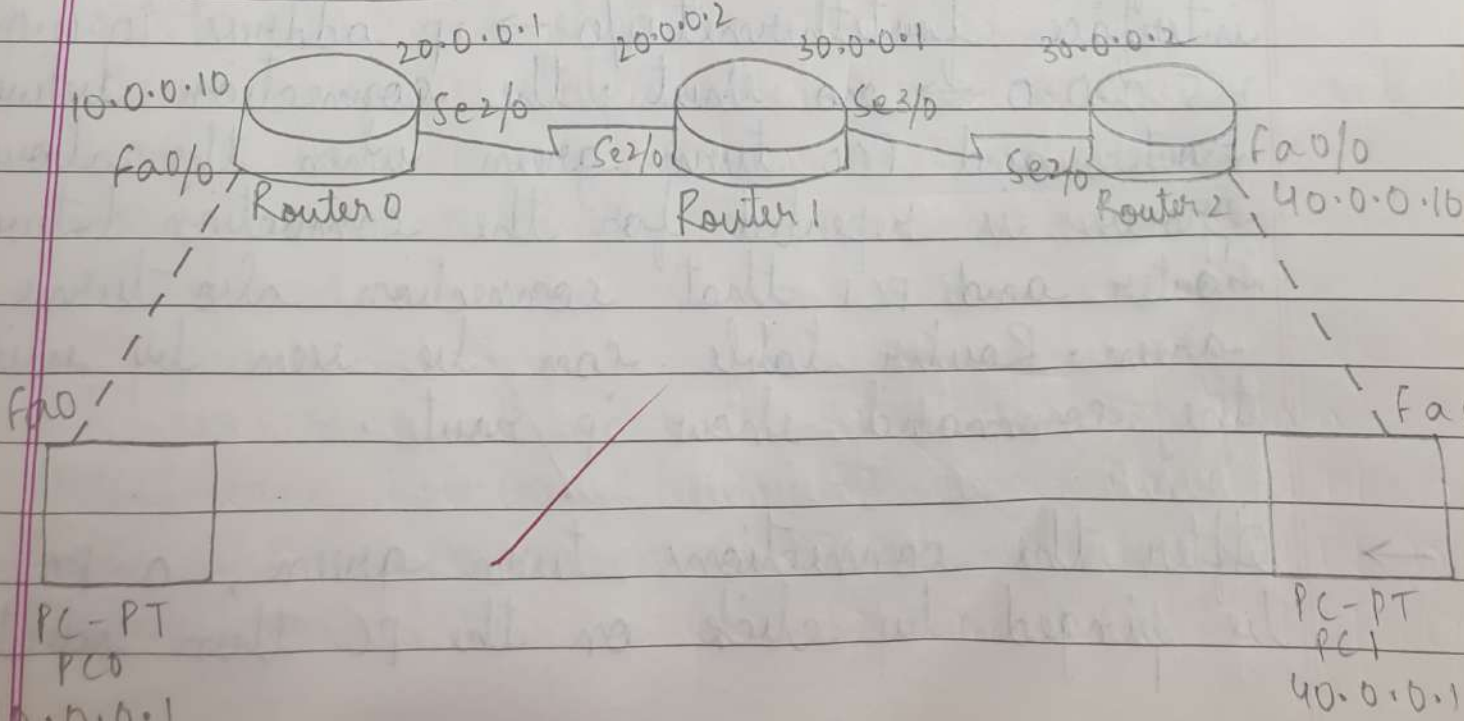
Aim: Configuring IP address to Routers in Packet Tracer. Explore the following messages: Ping Responses, Destination unreachable, Request timed out, Reply.

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 red 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) → donot 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 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 red 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 20.0.0.1 255.0.0.0 > no shut → ~~Sono~~ Second connection is established.

→ Router 2 is clicked > CLI > "no" > enable > config t > interface serial 2/0 > ip address 20.0.0.2 255.0.0.0 > no shut → With these first connection is established

→ Now, the correct reply is seen ~~from~~ 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, Recieved = 3, Lost = 1 (25% loss),
Approximate round trip times in ms
Minimum = 0ms, Maximum = 4ms, Average = 1ms

But when PC0 pings PC1 again or if PC1 reverse pings PC0 we get the out put when where all the 4 times ~~replied~~ reply is observed.

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3 - Routers

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

ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Reply from ~~40~~10.0.0.10: Destination host unreach
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 host = 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=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

Pinging statistics for 40.0.0.1
Packets: Sent = 4 Recieved = 3 Loss = 1 (25% Loss)

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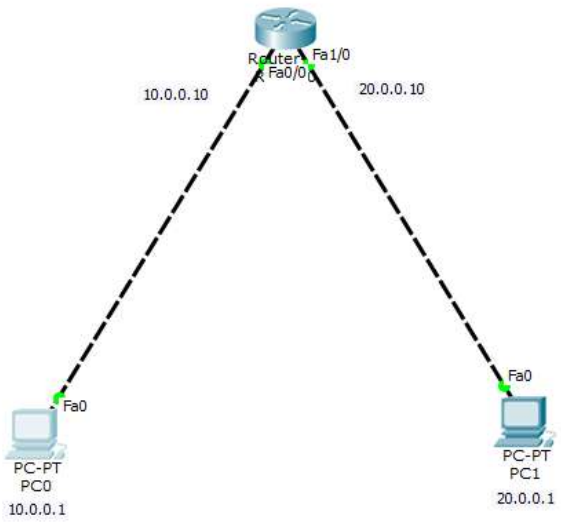
Router
Fa1/0
Fa0/0
10.0.0.10
20.0.0.10
Fa0
PC-PT
PC0
10.0.0.1
Fa0
PC-PT
PC1
20.0.0.1

```
Continue with configuration dialog? [yes/no]: no


Press RETURN to get started!
```

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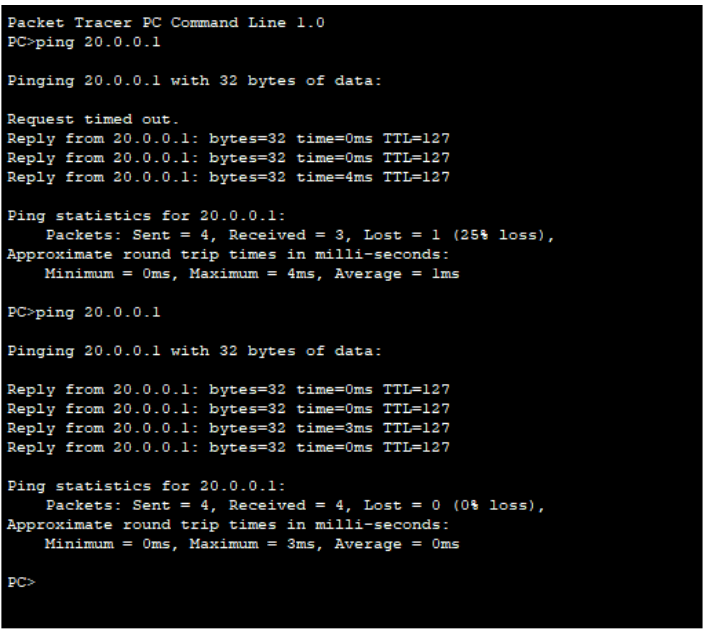
```
Router>enable
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.0.0.10 255.0.0.0
Router(config-if)#no shut

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)#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)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    10.0.0.0/8 is directly connected, FastEthernet0/0
C    20.0.0.0/8 is directly connected, FastEthernet1/0
Router#
```


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=4ms 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 = 4ms, Average = 1ms
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=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=3ms 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 = 3ms, Average = 0ms
PC>

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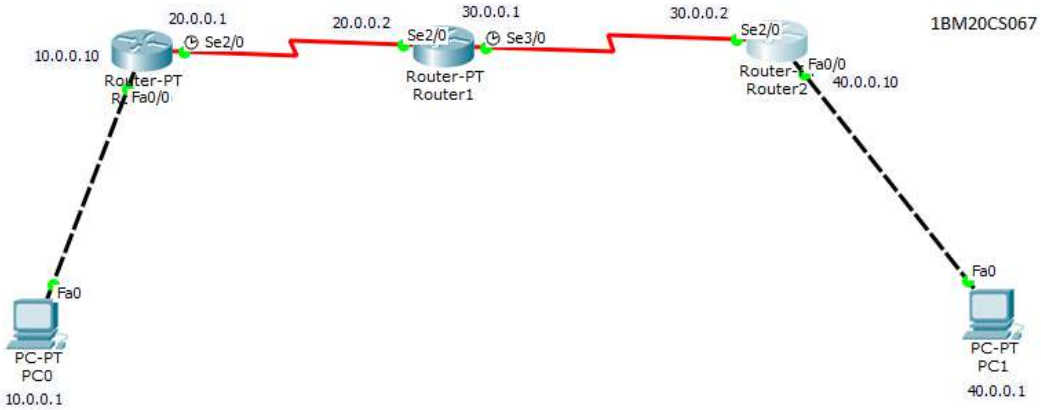
20.0.0.1
Se2/0
20.0.0.2
30.0.0.1
Se2/0
Se3/0
30.0.0.2
Se2/0
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10.0.0.10
Router-PT
Fa0/0
Router-PT
Router1
Router-PT
Router2
Fa0/0
40.0.0.10
Fa0
Fa0
PC-PT
PC0
10.0.0.1
PC-PT
PC1
40.0.0.1

```
Continue with configuration dialog? [yes/no]: no


Press RETURN to get started!
```

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```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
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)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#interface serial2/0
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, cinterface serial2/0
Router(config-if)#exit
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 40.0.0.10 255.0.0.0
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)#ip route 10.0.0.0 255.0.0.0 30.0.0.1
Router(config)#ip route 20.0.0.0 255.0.0.0 30.0.0.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

S    10.0.0.0/8 [1/0] via 30.0.0.1
S    20.0.0.0/8 [1/0] via 30.0.0.1
C    30.0.0.0/8 is directly connected, Serial2/0
C    40.0.0.0/8 is directly connected, FastEthernet0/0
Router#
```

```
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.
Request timed out.
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),

PC>ping 20.0.0.2

Pinging 20.0.0.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 20.0.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

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=7ms TTL=125
Reply from 40.0.0.1: bytes=32 time=9ms TTL=125
Reply from 40.0.0.1: bytes=32 time=8ms 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 = 7ms, Maximum = 9ms, Average = 8ms

PC>
```

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