Q) Configure default route, static route to the Router.

Topology:
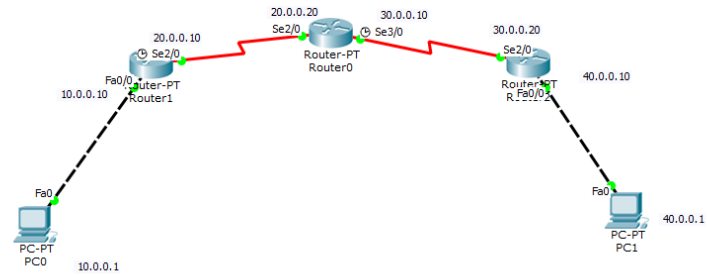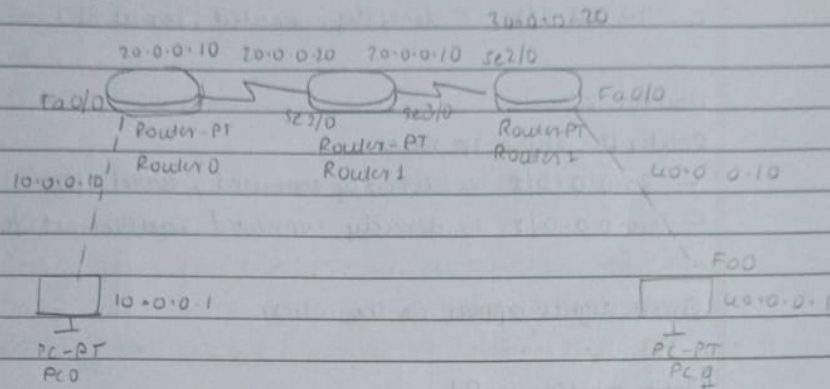

Fig: Default routing in router0

3. Configure default route, static route to the Router.

Aim : To configure default route, static route to Router.

Topology :

Procedure

Follow first 4 steps of expt 2b and create the above topology

step 5: Set up IP address of PC0 to 10.0.0.1 and PC2 to 40.0.0.10

Setup Gateway of PC0 to 10.0.0.10 and PC1 to 40.0.0.10

step 6: Configure IP address of Router0, Router1 and Router 2 using steps of expt 2B. to

IP Route table

Router 0

Route # show ip route
C 10.0.0.0/8 is directly connected to Fastethernet 40
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, FastEthernet 0/0

Green lights appear on the wires.

Static routing in R1

     ip route   10.0.0.0   255.0.0.0   20.0.0.10
     ip route   40.0.0.0   155.0.0.0   20.0.0.20

Setting up default routing in Router0 and Router2

Router 0
Router(config)# ip route 0.0.0.0 0.0.0.0 20.0.0.20
R0   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, serial 2/0
S*   0.0.0.0/0   [1/0] via 20.0.0.20

Router 2
Router(config)# ip route 0.0.0.0 0.0.0.0 20.00.10
     exit
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, FastEthernet 0/0
C 0.0.0.0/0 [1/0] via 30.0.0.10

Ping output:
PC 0
PC> ping 40.0.0.1

Pinging 20.0.0.1 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 status for 40.0.0.1
    Packets: Sent=4, Received=3, Cost=1 (25% loss)
Approximate round trip times in milli-seconds:
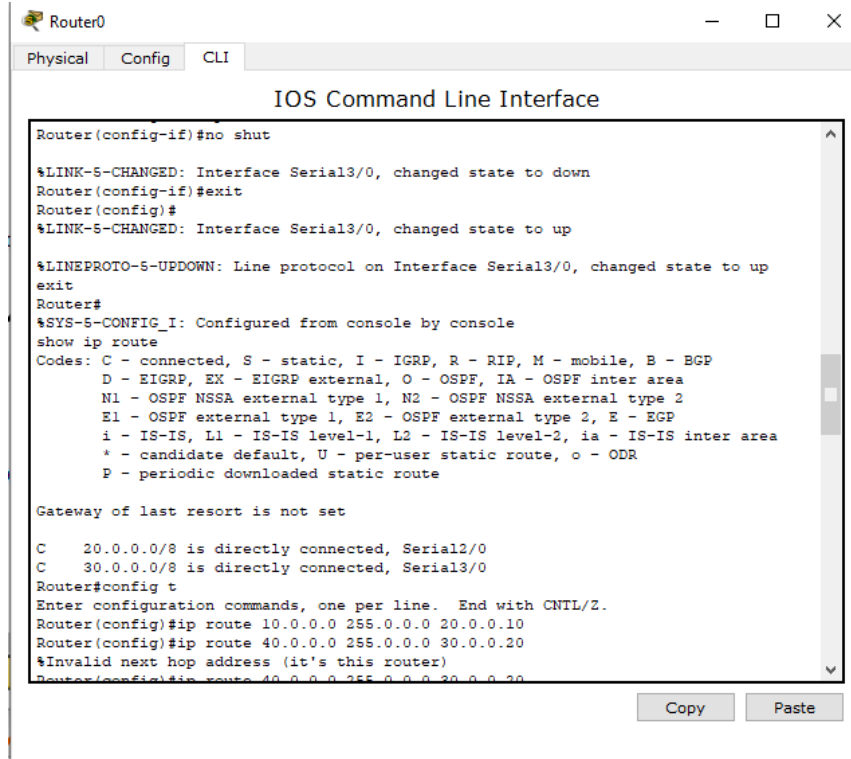   Maximum=2ms, Minimum=2ms, Average=2ms

Observation:
  Through default routing we configure the network here

  When we ping PC1 to PC0 first packet is lost but after that all are transmitted. We don't have to set routing for each and every router manually here.

13/7/2023

Commands:
Router0

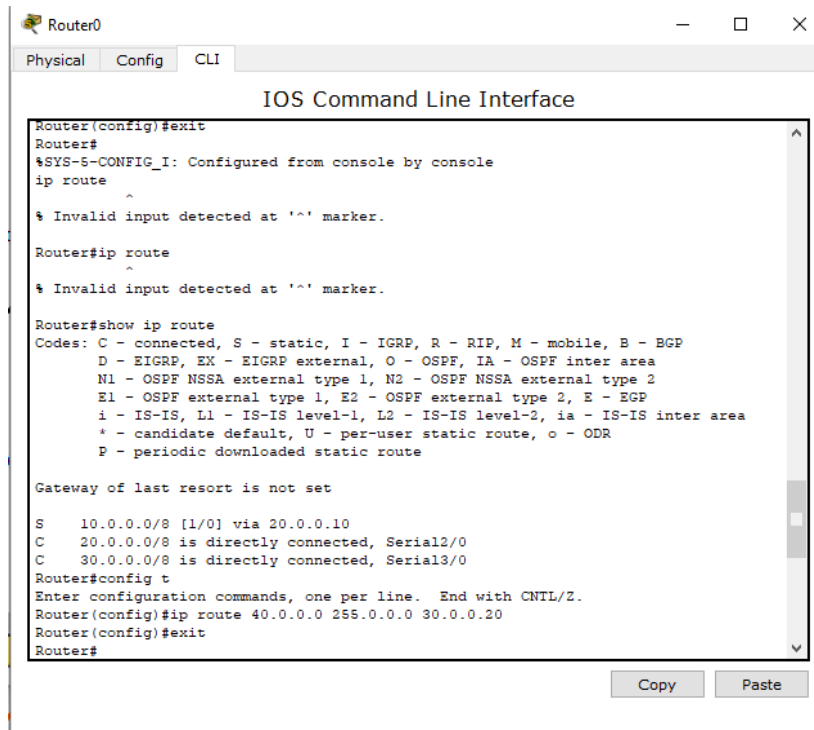Physical | Config | CLI

IOS Command Line Interface

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

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#exit
Router(config)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
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    20.0.0.0/8 is directly connected, Serial2/0
C    30.0.0.0/8 is directly connected, Serial3/0
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 10.0.0.0 255.0.0.0 20.0.0.10
Router(config)#ip route 40.0.0.0 255.0.0.0 30.0.0.20
%Invalid next hop address (it's this router)
Router(config)#ip route 40.0.0.0 255.0.0.0 30.0.0.20
```

Copy | Paste

Router0

Physical | Config | CLI

IOS Command Line Interface

```
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
ip route
         ^
% Invalid input detected at '^' marker.

Router#ip route
          ^
% Invalid input detected at '^' marker.

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 20.0.0.10
C    20.0.0.0/8 is directly connected, Serial2/0
C    30.0.0.0/8 is directly connected, Serial3/0
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 40.0.0.0 255.0.0.0 30.0.0.20
Router(config)#exit
Router#
```
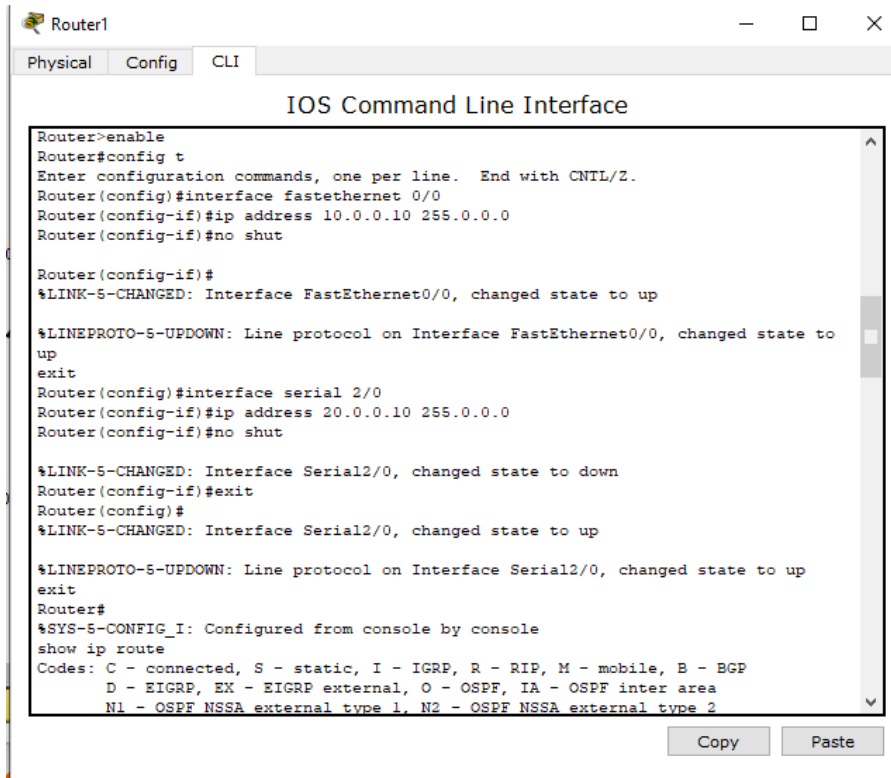
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Router1

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet 0/0
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
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

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
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
```
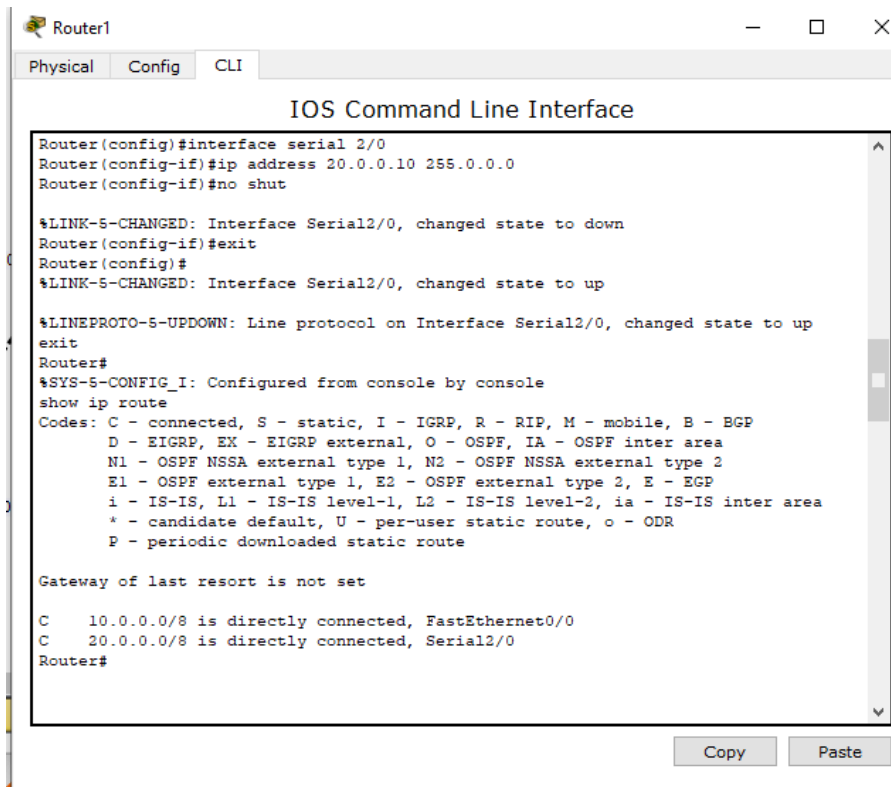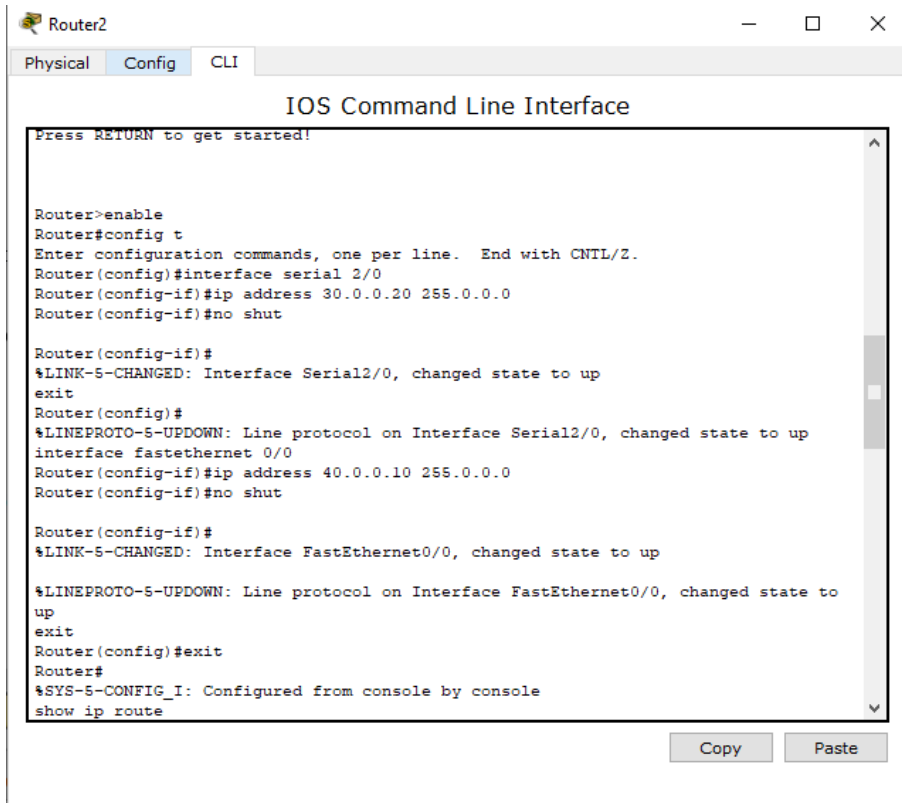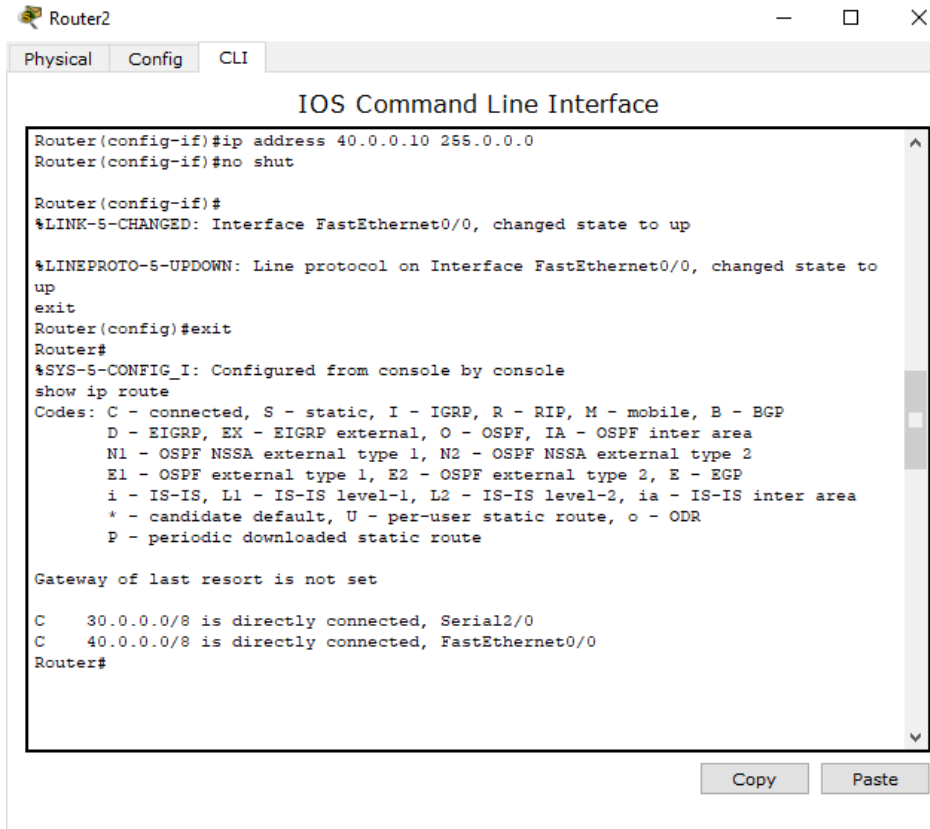
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IOS Command Line Interface

```
Router(config)#interface serial 2/0
Router(config-if)#ip address 20.0.0.10 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
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, Serial2/0
Router#
```
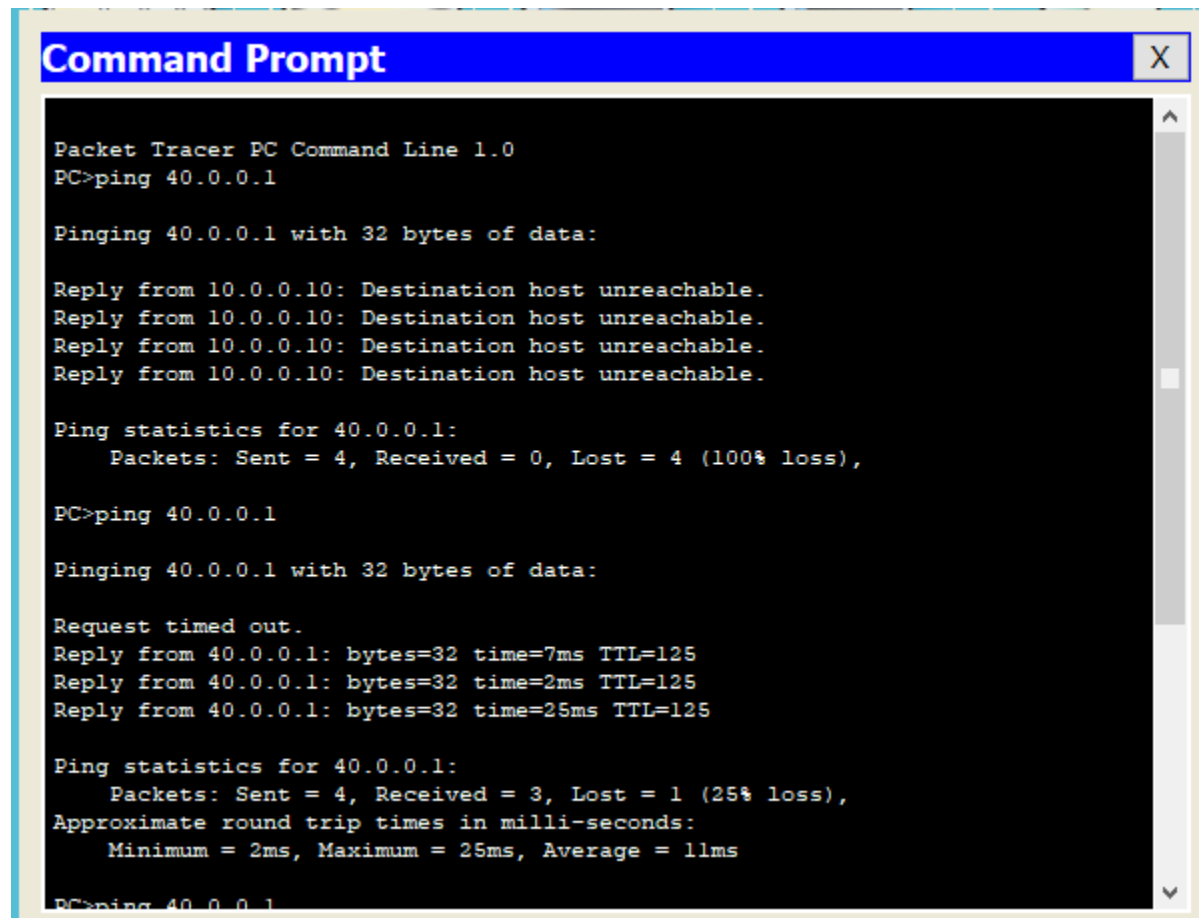
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Router2:

Ping output

```
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:

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.

Ping statistics for 40.0.0.1:
    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=2ms TTL=125
Reply from 40.0.0.1: bytes=32 time=25ms 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 = 25ms, Average = 11ms

PC>ping 40.0.0.1
```

Command Prompt ☒

```
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=2ms TTL=125
Reply from 40.0.0.1: bytes=32 time=25ms 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 = 25ms, Average = 11ms

PC>ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Reply from 40.0.0.1: bytes=32 time=12ms TTL=125
Reply from 40.0.0.1: bytes=32 time=9ms TTL=125
Reply from 40.0.0.1: bytes=32 time=22ms TTL=125
Reply from 40.0.0.1: bytes=32 time=19ms TTL=125

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 9ms, Maximum = 22ms, Average = 15ms

PC>
```