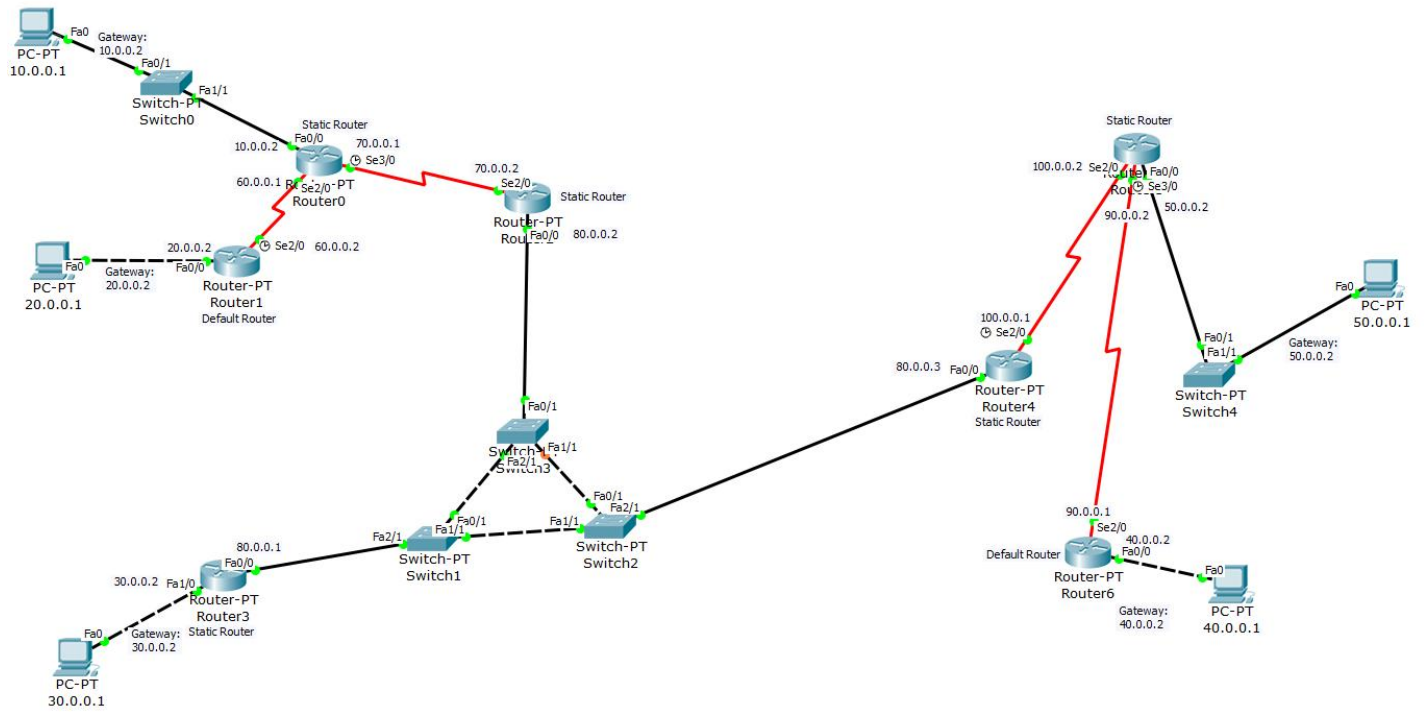



Experiment - 4(c)

Topology:



Router - 0 Configuration:

 Router0

Physical Config CLI

IOS Command Line Interface

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shutdown

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 Se2/0
Router(config-if)#ip address 60.0.0.1 255.0.0.0
Router(config-if)#no shutdown

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

Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state
to up

Router(config)#interface Se3/0
Router(config-if)#ip address 70.0.0.1 255.0.0.0
Router(config-if)#no shutdown

%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
```

Copy Paste

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 20.0.0.0 255.0.0.0 60.0.0.2
Router(config)#ip route 30.0.0.0 255.0.0.0 70.0.0.2
Router(config)#ip route 40.0.0.0 255.0.0.0 70.0.0.2
Router(config)#ip route 50.0.0.0 255.0.0.0 70.0.0.2
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

C    10.0.0.0/8 is directly connected, FastEthernet0/0
S    20.0.0.0/8 [1/0] via 60.0.0.2
S    30.0.0.0/8 [1/0] via 70.0.0.2
S    40.0.0.0/8 [1/0] via 70.0.0.2
S    50.0.0.0/8 [1/0] via 70.0.0.2
C    60.0.0.0/8 is directly connected, Serial2/0
C    70.0.0.0/8 is directly connected, Serial3/0
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 80.0.0.0 255.0.0.0 70.0.0.2
Router(config)#ip route 90.0.0.0 255.0.0.0 70.0.0.2
Router(config)#ip route 100.0.0.0 255.0.0.0 70.0.0.2
Router(config)#exit
Router#
```

Copy

Paste



IOS Command Line Interface

%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

```
C    10.0.0.0/8 is directly connected, FastEthernet0/0
S    20.0.0.0/8 [1/0] via 60.0.0.2
S    30.0.0.0/8 [1/0] via 70.0.0.2
S    40.0.0.0/8 [1/0] via 70.0.0.2
S    50.0.0.0/8 [1/0] via 70.0.0.2
C    60.0.0.0/8 is directly connected, Serial2/0
C    70.0.0.0/8 is directly connected, Serial3/0
S    80.0.0.0/8 [1/0] via 70.0.0.2
S    90.0.0.0/8 [1/0] via 70.0.0.2
S    100.0.0.0/8 [1/0] via 70.0.0.2
```

Router#config t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#no ip route 80.0.0.0 255.0.0.0 70.0.0.2

Router(config)#no ip route 90.0.0.0 255.0.0.0 70.0.0.2

Router(config)#no ip route 100.0.0.0 255.0.0.0 70.0.0.2

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

Copy

Paste



Router0



Physical

Config

CLI

IOS Command Line Interface

```
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
```

```
S   20.0.0.0/8 [1/0] via 60.0.0.2
```

```
S   30.0.0.0/8 [1/0] via 70.0.0.2
```

```
S   40.0.0.0/8 [1/0] via 70.0.0.2
```

```
S   50.0.0.0/8 [1/0] via 70.0.0.2
```

```
C   60.0.0.0/8 is directly connected, Serial2/0
```

```
C   70.0.0.0/8 is directly connected, Serial3/0
```

```
Router#
```


```
Router con0 is now available
```

```
Press RETURN to get started.
```

Copy

Paste

Router - 1 Configuration:

 Router1

Physical Config CLI

IOS Command Line Interface

Press RETURN to get started!

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip address 20.0.0.2
% Incomplete command.
Router(config-if)#ip address 20.0.0.2 255.0.0.0
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 Se2/0
Router(config-if)#ip address 60.0.0.2 255.0.0.0
Router(config-if)#no shutdown

%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
```

Copy Paste

IOS Command Line Interface

```
Router>enable
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

C    20.0.0.0/8 is directly connected, FastEthernet0/0
C    60.0.0.0/8 is directly connected, Serial2/0
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 0.0.0.0 255.0.0.0 60.0.0.1
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 60.0.0.1 to network 0.0.0.0
```

Copy

Paste



Router1



Physical

Config

CLI

IOS Command Line Interface

Gateway of last resort is 60.0.0.1 to network 0.0.0.0

```
|
*    0.0.0.0/8 is subnetted, 1 subnets
S*    0.0.0.0 [1/0] via 60.0.0.1
C    20.0.0.0/8 is directly connected, FastEthernet0/0
C    60.0.0.0/8 is directly connected, Serial2/0
```

Router#config t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#no ip route 0.0.0.0 255.0.0.0 60.0.0.1

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

```
C    20.0.0.0/8 is directly connected, FastEthernet0/0
C    60.0.0.0/8 is directly connected, Serial2/0
```

Router#config t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#ip route 0.0.0.0 255.0.0.0 60.0.0.1

Router(config)#exit

Router#

%SYS-5-CONFIG_I: Configured from console by console

Copy

Paste



Router1



Physical

Config

CLI

IOS Command Line Interface

%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 60.0.0.1 to network 0.0.0.0

* 0.0.0.0/8 is subnetted, 1 subnets
S* 0.0.0.0 [1/0] via 60.0.0.1
C 20.0.0.0/8 is directly connected, FastEthernet0/0
C 60.0.0.0/8 is directly connected, Serial2/0

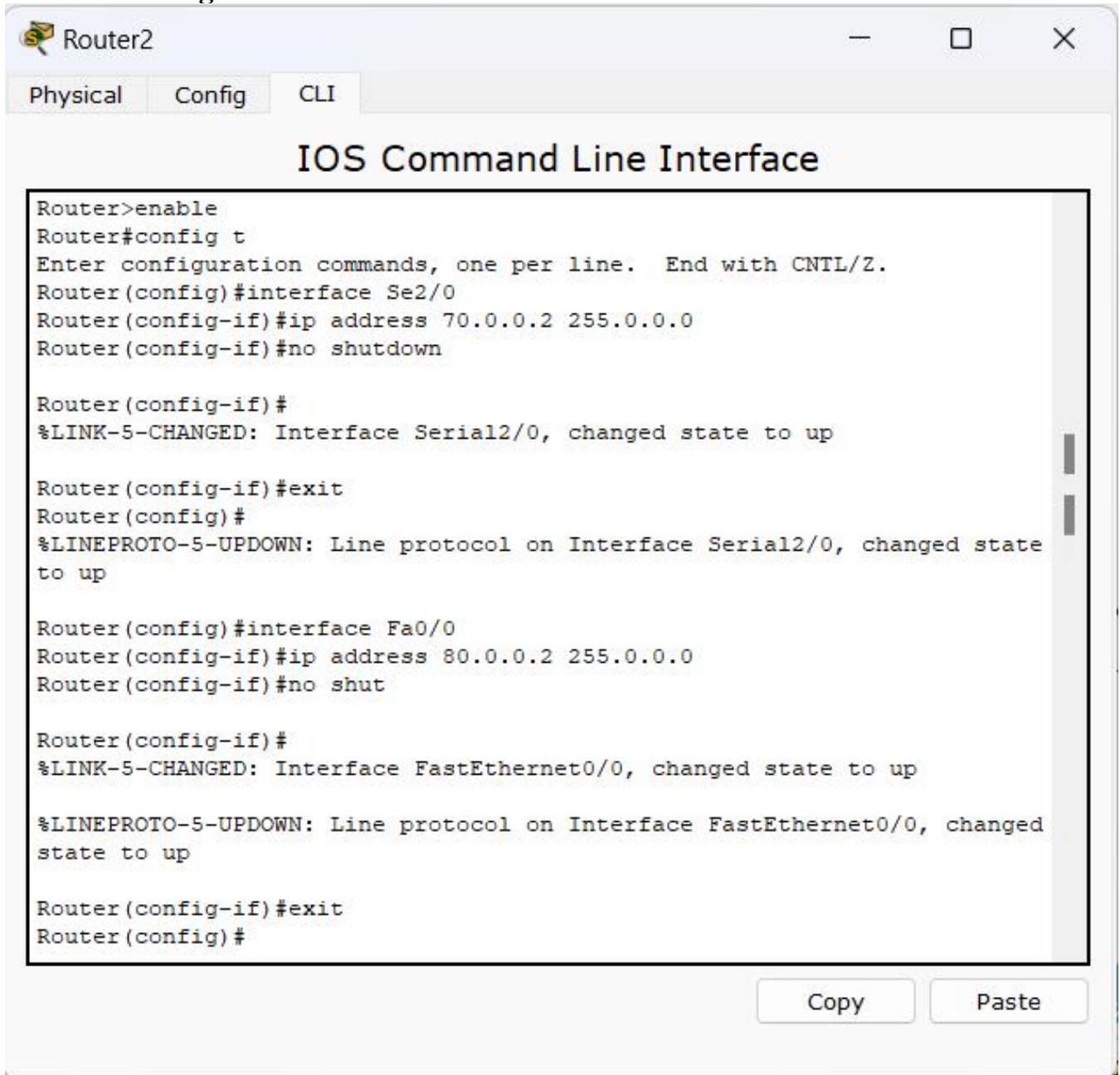
Router#

Router con0 is now available

Copy

Paste

Router - 2 Configuration:



The screenshot shows a web-based interface for configuring a router named 'Router2'. The interface has three tabs: 'Physical', 'Config', and 'CLI'. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The terminal window shows the following commands and output:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Se2/0
Router(config-if)#ip address 70.0.0.2 255.0.0.0
Router(config-if)#no shutdown

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

Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#interface Fa0/0
Router(config-if)#ip address 80.0.0.2 255.0.0.0
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)#
```

At the bottom right of the CLI window, there are two buttons: 'Copy' and 'Paste'.

IOS Command Line Interface

```
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
```

```
C    70.0.0.0/8 is directly connected, Serial2/0
```

```
C    80.0.0.0/8 is directly connected, FastEthernet0/0
```

```
Router>enable
```

```
Router#config t
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#ip route 30.0.0.0 255.0.0.0 80.0.0.2
```

```
%Invalid next hop address (it's this router)
```

```
Router(config)#ip route 30.0.0.0 255.0.0.0 80.0.0.1
```

```
Router(config)#ip route 40.0.0.0 255.0.0.0 80.0.0.3
```

```
Router(config)#ip route 50.0.0.0 255.0.0.0 80.0.0.3
```

```
Router(config)#ip route 10.0.0.0 255.0.0.0 70.0.0.1
```

```
Router(config)#ip route 20.0.0.0 255.0.0.0 70.0.0.1
```

```
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
```

Copy

Paste



Router2



Physical

Config

CLI

IOS Command Line Interface

Gateway of last resort is not set

S 10.0.0.0/8 [1/0] via 70.0.0.1

S 20.0.0.0/8 [1/0] via 70.0.0.1

S 30.0.0.0/8 [1/0] via 80.0.0.1

S 40.0.0.0/8 [1/0] via 80.0.0.3

S 50.0.0.0/8 [1/0] via 80.0.0.3

C 70.0.0.0/8 is directly connected, Serial2/0

C 80.0.0.0/8 is directly connected, FastEthernet0/0


Router#

Router con0 is now available

Copy

Paste

Router - 3 Configuration:

 Router3

Physical Config CLI

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Fa1/0
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#no shutdown

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)#no shutdown
Router(config-if)#exit
Router(config)#interface Fa0/0
Router(config-if)#ip address 80.0.0.1 255.0.0.0
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)#
```

Copy Paste

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 0.0.0.0 255.0.0.0 80.0.0.2
Router(config)#ip route 0.0.0.0 255.0.0.0 80.0.0.3
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 80.0.0.2 to network 0.0.0.0

*    0.0.0.0/8 is subnetted, 1 subnets
S*    0.0.0.0 [1/0] via 80.0.0.2
        [1/0] via 80.0.0.3
C    30.0.0.0/8 is directly connected, FastEthernet1/0
C    80.0.0.0/8 is directly connected, FastEthernet0/0
```

Copy

Paste

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 0.0.0.0 255.0.0.0 80.0.0.2
Router(config)#ip route 0.0.0.0 255.0.0.0 80.0.0.3
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 80.0.0.2 to network 0.0.0.0

*    0.0.0.0/8 is subnetted, 1 subnets
S*      0.0.0.0 [1/0] via 80.0.0.2
          [1/0] via 80.0.0.3
C      30.0.0.0/8 is directly connected, FastEthernet1/0
C      80.0.0.0/8 is directly connected, FastEthernet0/0
```

Copy

Paste

IOS Command Line Interface

```
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#no ip route 0.0.0.0 255.0.0.0 80.0.0.3
Router(config)#no ip route 0.0.0.0 255.0.0.0 80.0.0.2
Router(config)#ip route 10.0.0.0 255.0.0.0 80.0.0.2
Router(config)#ip route 20.0.0.0 255.0.0.0 80.0.0.2
Router(config)#ip route 40.0.0.0 255.0.0.0 80.0.0.3
Router(config)#ip route 50.0.0.0 255.0.0.0 80.0.0.3
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 80.0.0.2
S    20.0.0.0/8 [1/0] via 80.0.0.2
C    30.0.0.0/8 is directly connected, FastEthernet1/0
S    40.0.0.0/8 [1/0] via 80.0.0.3
S    50.0.0.0/8 [1/0] via 80.0.0.3
C    80.0.0.0/8 is directly connected, FastEthernet0/0
Router#
```

Copy

Paste

Router - 4 Configuration:

Router4

Physical Config CLI

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip address 80.0.0.3 255.0.0.0
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 Se2/0
Router(config-if)#ip address 100.0.0.1
% Incomplete command.
Router(config-if)#ip address 100.0.0.1 255.0.0.0
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
```

Copy Paste

Router4

Physical Config CLI

IOS Command Line Interface

```
Router>enable
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 80.0.0.2
Router(config)#ip route 20.0.0.0 255.0.0.0 80.0.0.2
Router(config)#ip route 30.0.0.0 255.0.0.0 80.0.0.1
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 80.0.0.2
S    20.0.0.0/8 [1/0] via 80.0.0.2
S    30.0.0.0/8 [1/0] via 80.0.0.1
C    80.0.0.0/8 is directly connected, FastEthernet0/0
C    100.0.0.0/8 is directly connected, Serial2/0
```

Copy Paste

IOS Command Line Interface

```
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 40.0.0.0 255.0.0.0 100.0.0.2
Router(config)#ip route 50.0.0.0 255.0.0.0 100.0.0.2
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 80.0.0.2
S    20.0.0.0/8 [1/0] via 80.0.0.2
S    30.0.0.0/8 [1/0] via 80.0.0.1
S    40.0.0.0/8 [1/0] via 100.0.0.2
S    50.0.0.0/8 [1/0] via 100.0.0.2
C    80.0.0.0/8 is directly connected, FastEthernet0/0
C    100.0.0.0/8 is directly connected, Serial2/0
Router#
```

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Router - 5 Configuration:

 Router5

Physical Config CLI

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip address 100.0.0.2 255.0.0.0
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 Fa0/0
Router(config-if)#ip address 50.0.0.2 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#interface Se2/0
Router(config-if)#ip address 100.0.0.2 255.0.0.0
Router(config-if)#no shut

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

Router(config-if)#exi
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state
to
Router(config-if)#exit
Router(config)#interface Se3/0
Router(config-if)#ip address 90.0.0.2 255.0.0.0
Router(config-if)#no shut

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state
to up
```

Copy Paste

IOS Command Line Interface

```
Router>enable
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 90.0.0.1
Router(config)#ip route 30.0.0.0 255.0.0.0 100.0.0.1
Router(config)#ip route 20.0.0.0 255.0.0.0 100.0.0.1
Router(config)#ip route 10.0.0.0 255.0.0.0 100.0.0.1
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

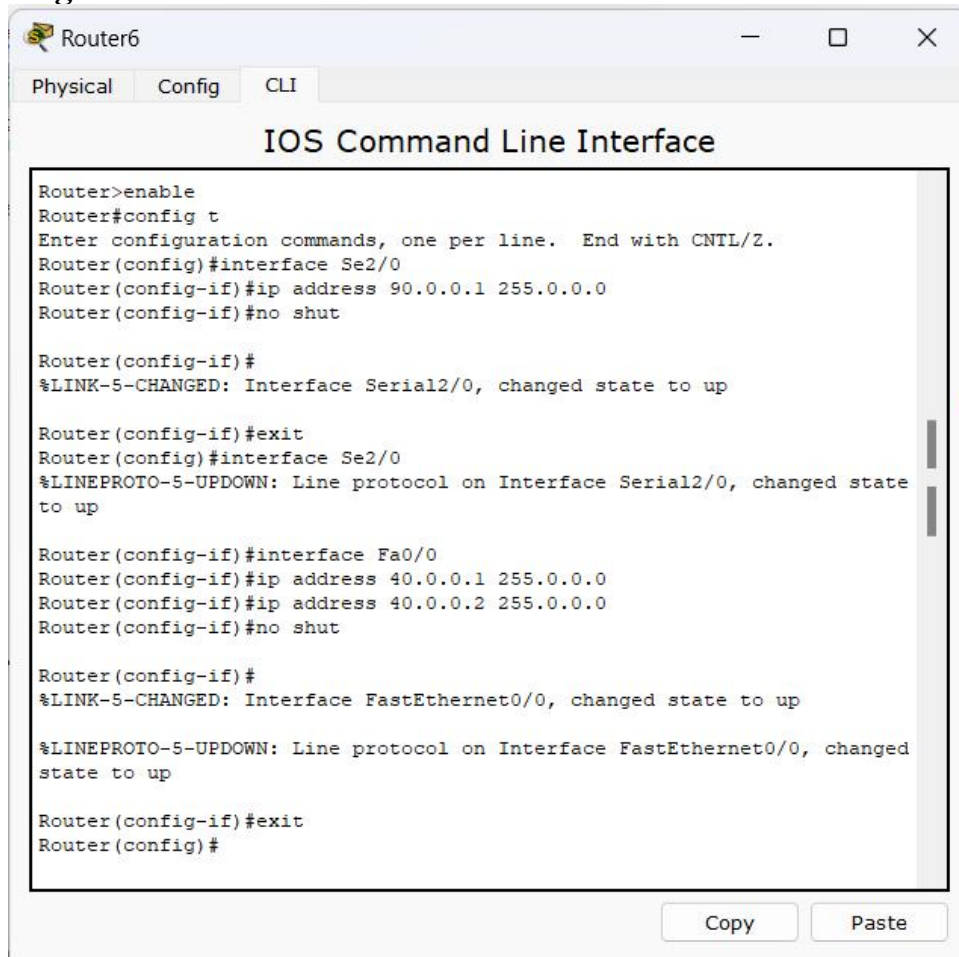
Gateway of last resort is not set

S    10.0.0.0/8 [1/0] via 100.0.0.1
S    20.0.0.0/8 [1/0] via 100.0.0.1
S    30.0.0.0/8 [1/0] via 100.0.0.1
S    40.0.0.0/8 [1/0] via 90.0.0.1
C    50.0.0.0/8 is directly connected, FastEthernet0/0
C    90.0.0.0/8 is directly connected, Serial3/0
C    100.0.0.0/8 is directly connected, Serial2/0
Router#
```

Copy

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Router - 6 Configuration:



The screenshot shows the Router6 CLI window with the 'Config' tab selected. The title bar says 'Router6'. Below the tabs, the title 'IOS Command Line Interface' is displayed. The main text area contains the following commands and their outputs:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Se2/0
Router(config-if)#ip address 90.0.0.1 255.0.0.0
Router(config-if)#no shut

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

Router(config-if)#exit
Router(config)#interface Se2/0
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state
to up

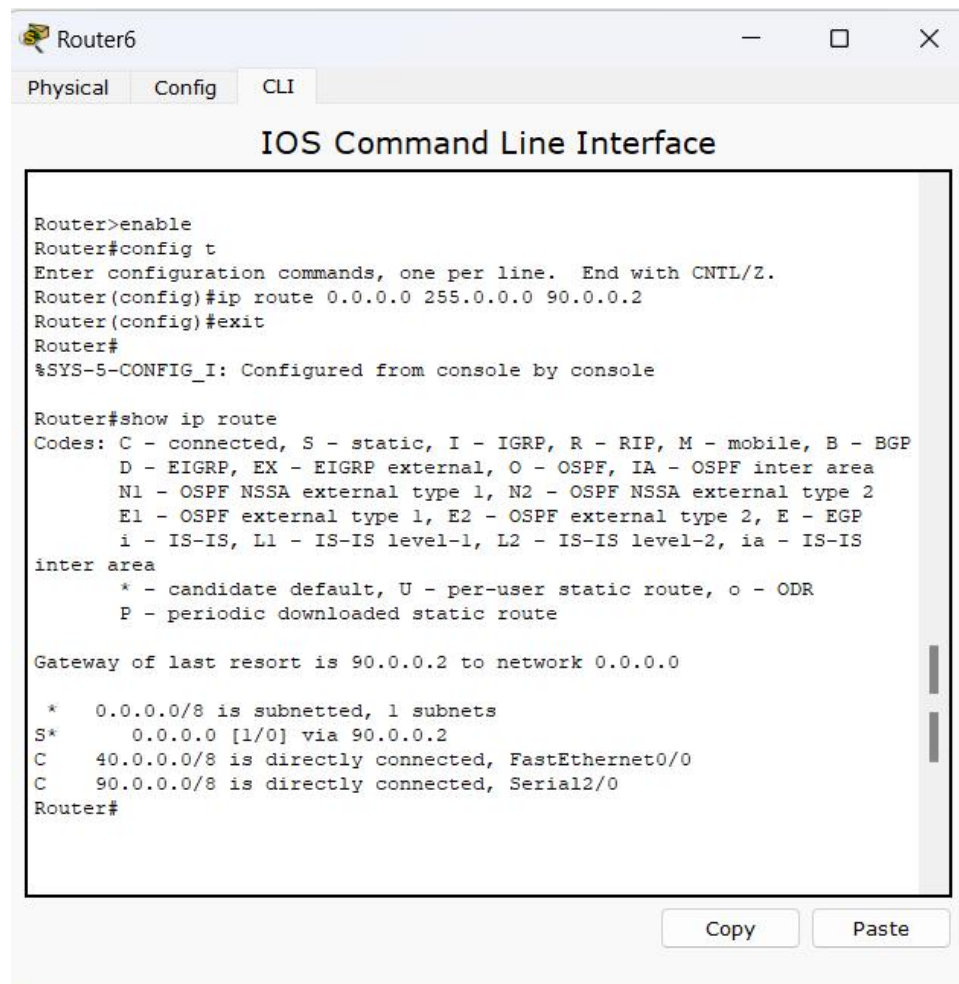
Router(config-if)#interface Fa0/0
Router(config-if)#ip address 40.0.0.1 255.0.0.0
Router(config-if)#ip address 40.0.0.2 255.0.0.0
Router(config-if)#no shut

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)#
```

At the bottom right, there are 'Copy' and 'Paste' buttons.



The screenshot shows the Router6 CLI window with the 'Config' tab selected. The title bar says 'Router6'. Below the tabs, the title 'IOS Command Line Interface' is displayed. The main text area contains the following commands and their outputs:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 0.0.0.0 255.0.0.0 90.0.0.2
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

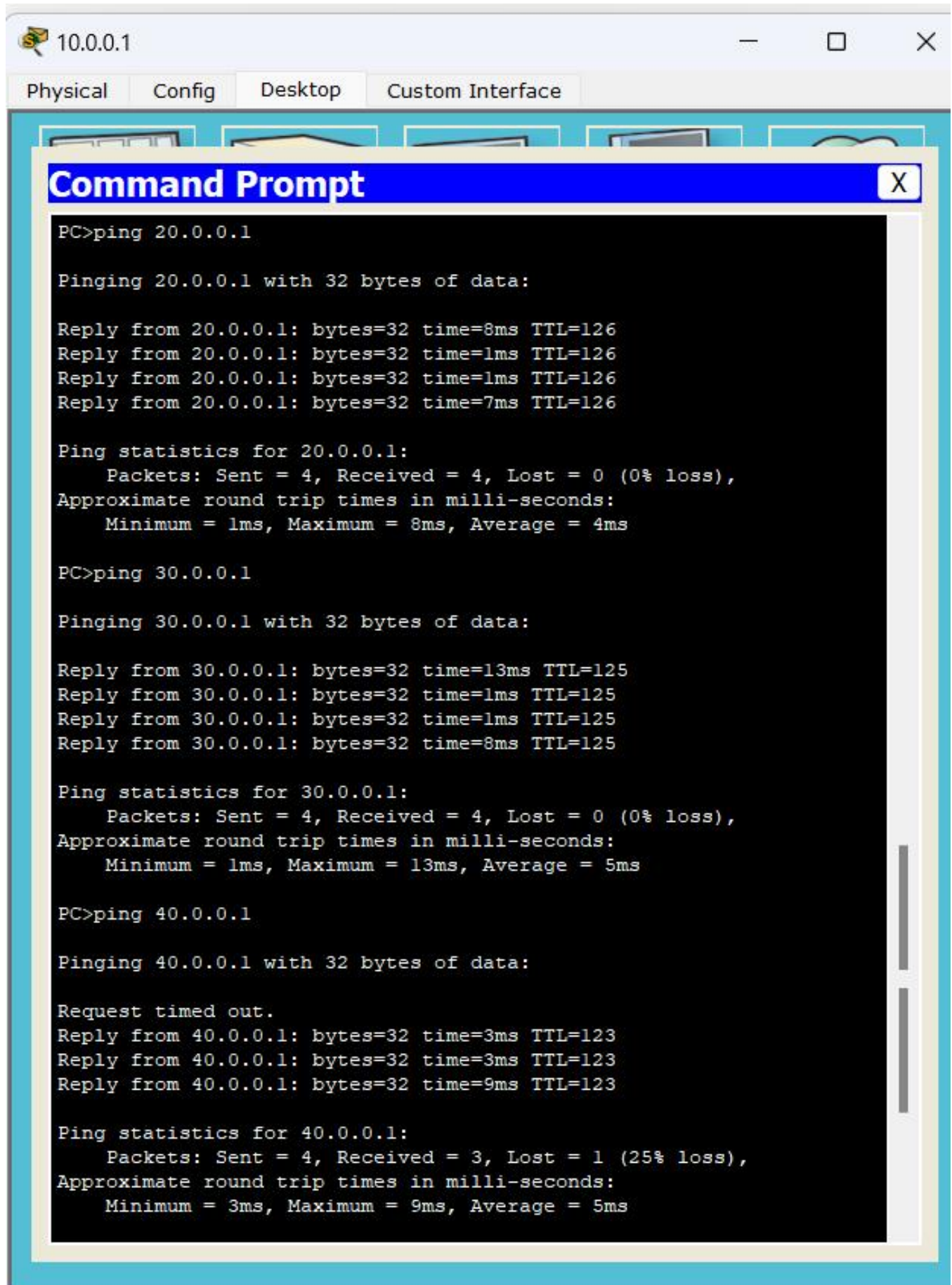
Gateway of last resort is 90.0.0.2 to network 0.0.0.0

*    0.0.0.0/8 is subnetted, 1 subnets
S*    0.0.0.0 [1/0] via 90.0.0.2
C    40.0.0.0/8 is directly connected, FastEthernet0/0
C    90.0.0.0/8 is directly connected, Serial2/0
Router#
```

At the bottom right, there are 'Copy' and 'Paste' buttons.

Output (Ping Messages):

PC - 1 to All other PCs:



```
10.0.0.1
Physical Config Desktop Custom Interface

Command Prompt
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=8ms TTL=126
Reply from 20.0.0.1: bytes=32 time=1ms TTL=126
Reply from 20.0.0.1: bytes=32 time=1ms TTL=126
Reply from 20.0.0.1: bytes=32 time=7ms TTL=126

Ping statistics for 20.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 8ms, Average = 4ms

PC>ping 30.0.0.1

Pinging 30.0.0.1 with 32 bytes of data:

Reply from 30.0.0.1: bytes=32 time=13ms TTL=125
Reply from 30.0.0.1: bytes=32 time=1ms TTL=125
Reply from 30.0.0.1: bytes=32 time=1ms TTL=125
Reply from 30.0.0.1: bytes=32 time=8ms TTL=125

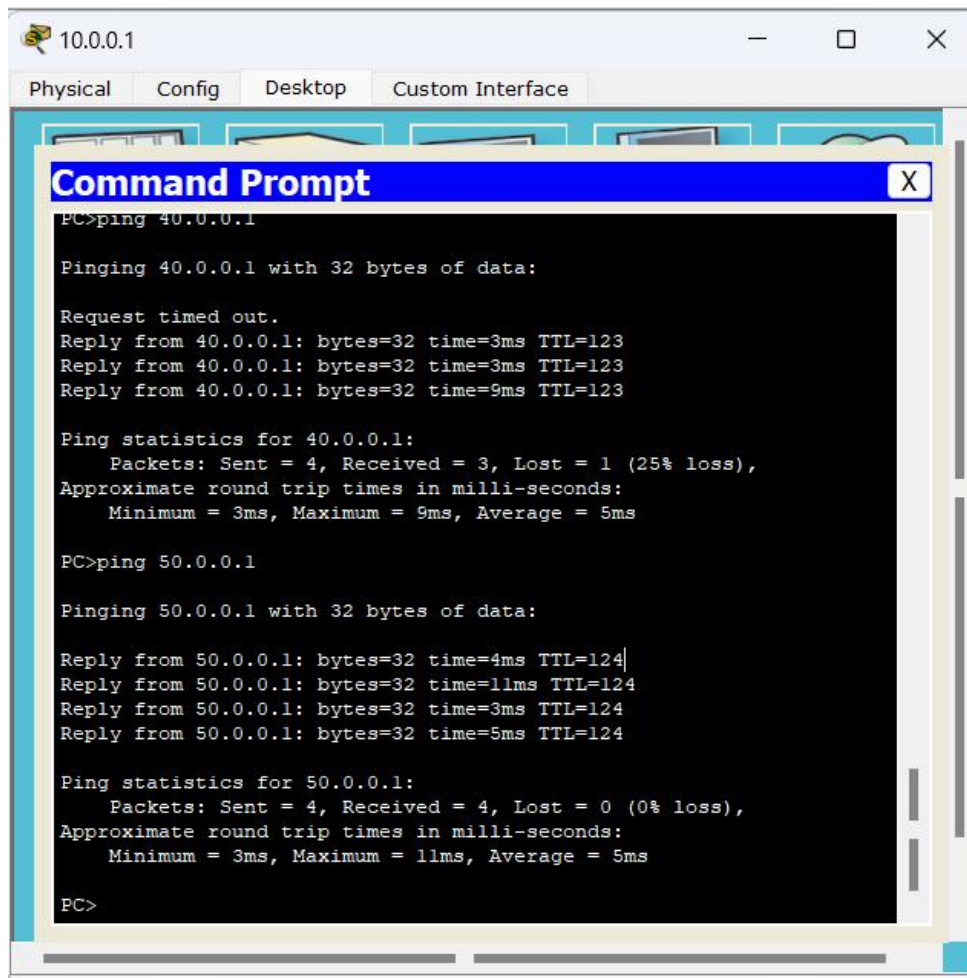
Ping statistics for 30.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 13ms, Average = 5ms

PC>ping 40.0.0.1

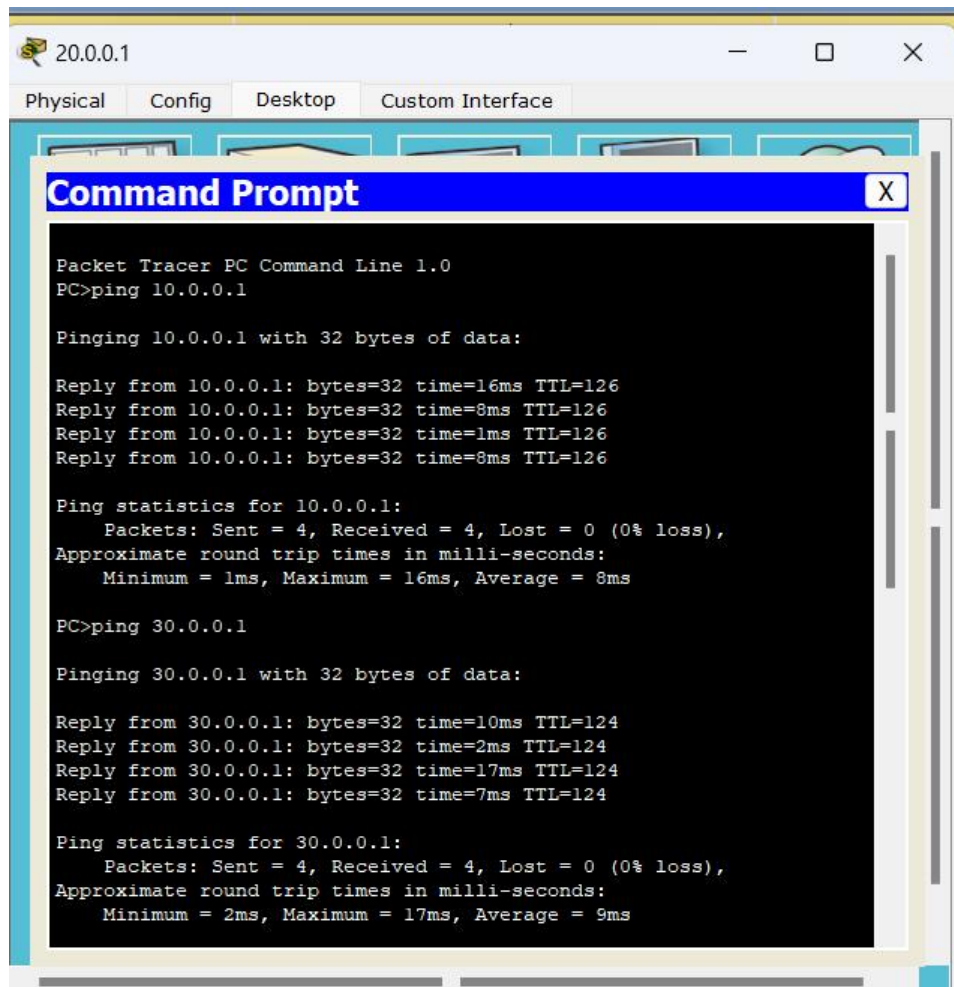
Pinging 40.0.0.1 with 32 bytes of data:

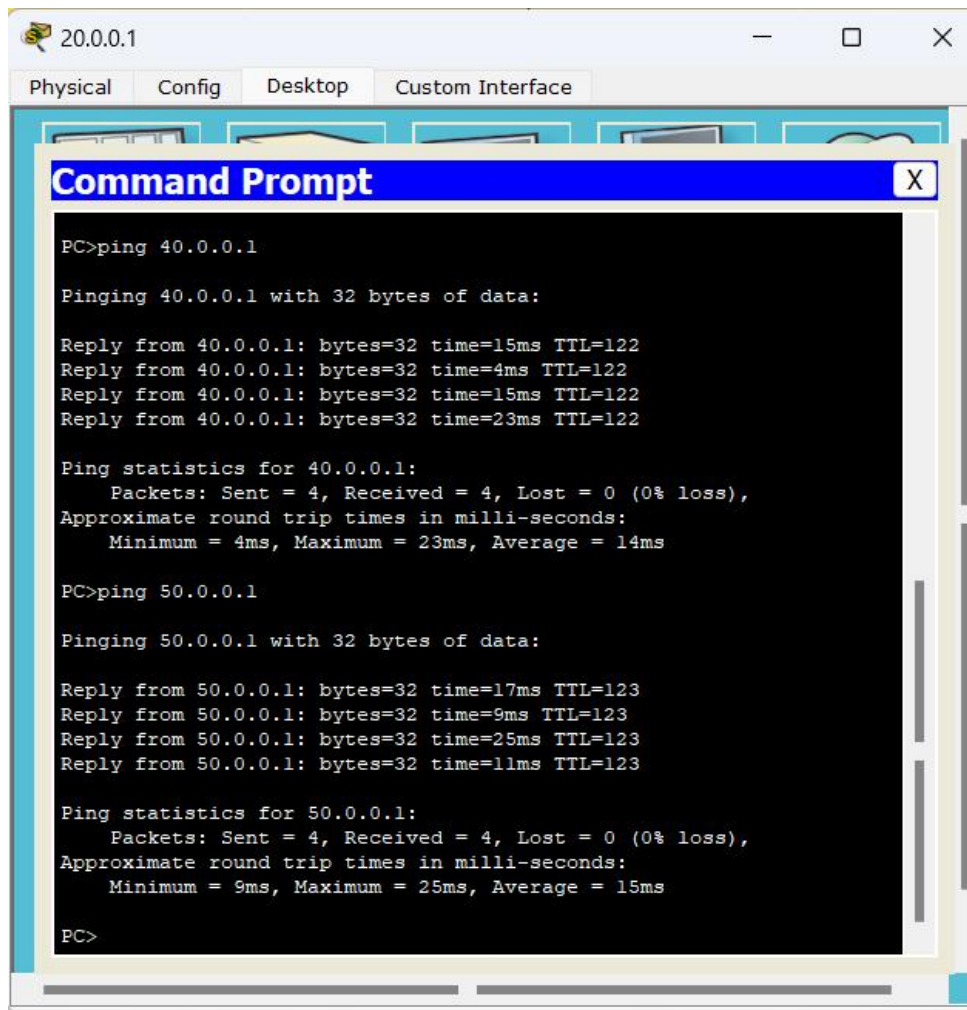
Request timed out.
Reply from 40.0.0.1: bytes=32 time=3ms TTL=123
Reply from 40.0.0.1: bytes=32 time=3ms TTL=123
Reply from 40.0.0.1: bytes=32 time=9ms TTL=123

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 9ms, Average = 5ms
```

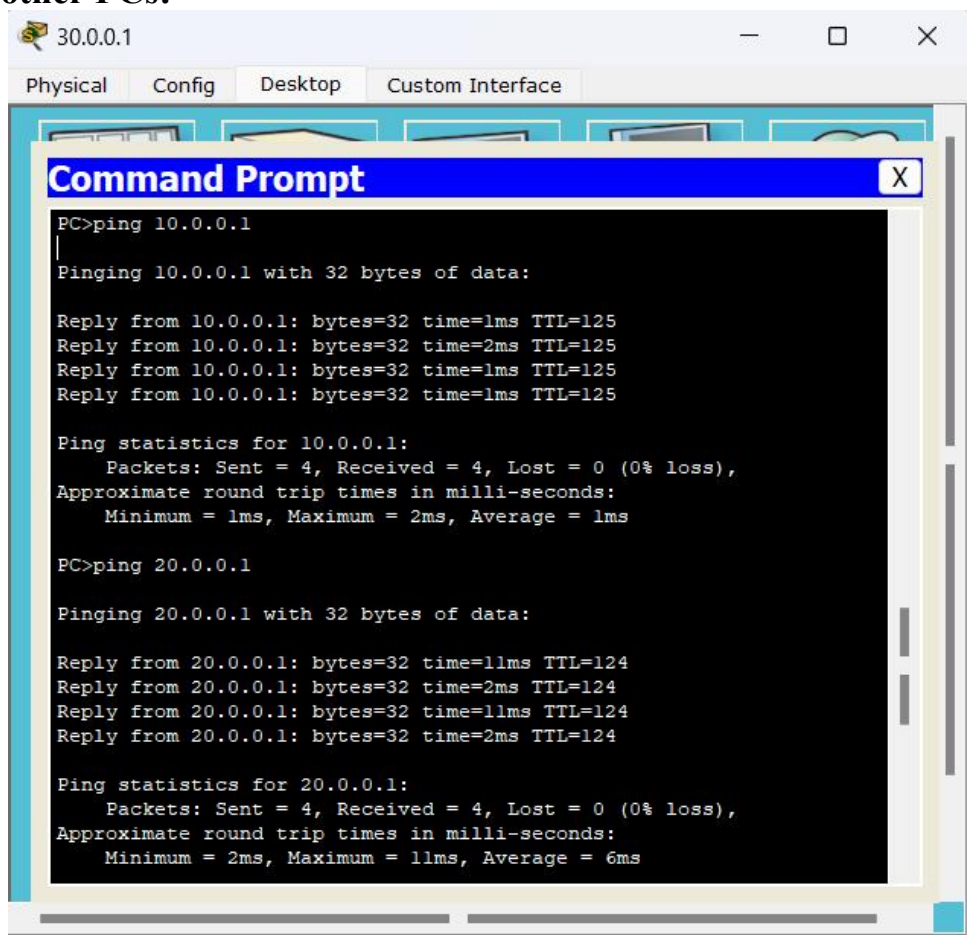


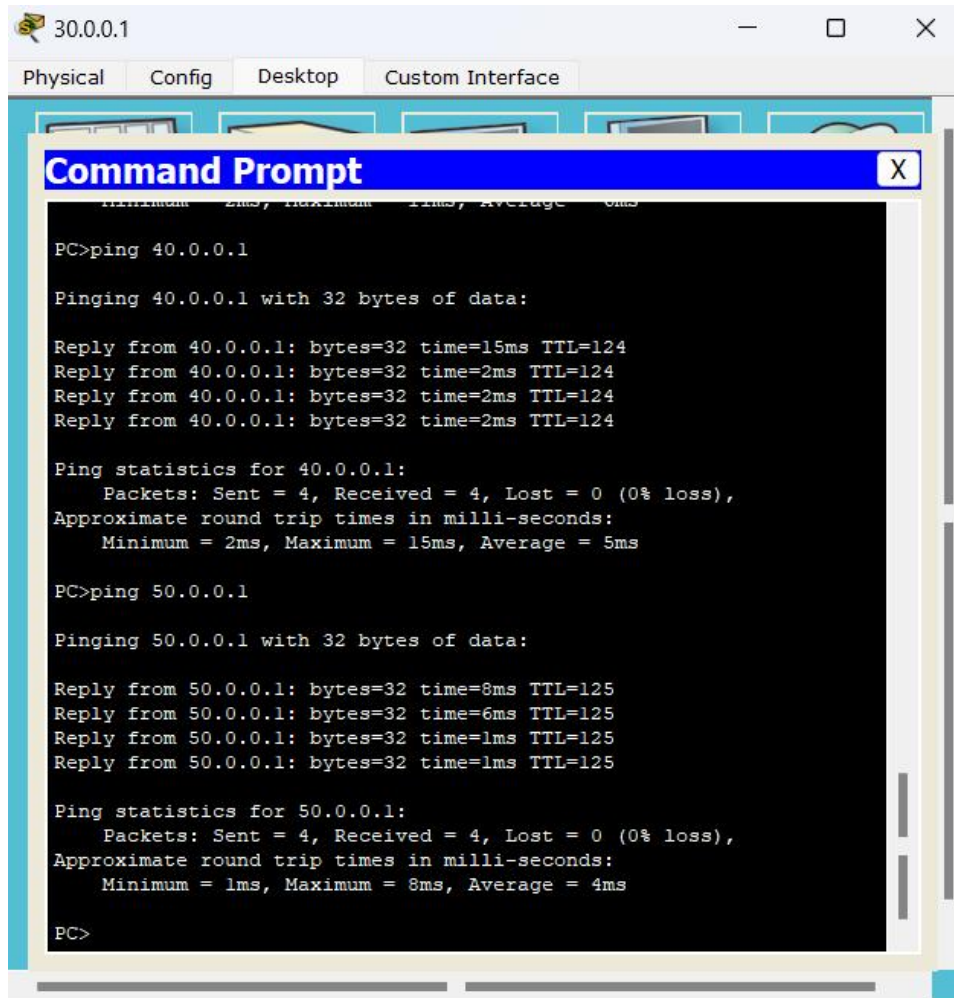
PC - 1 to All other PCs:



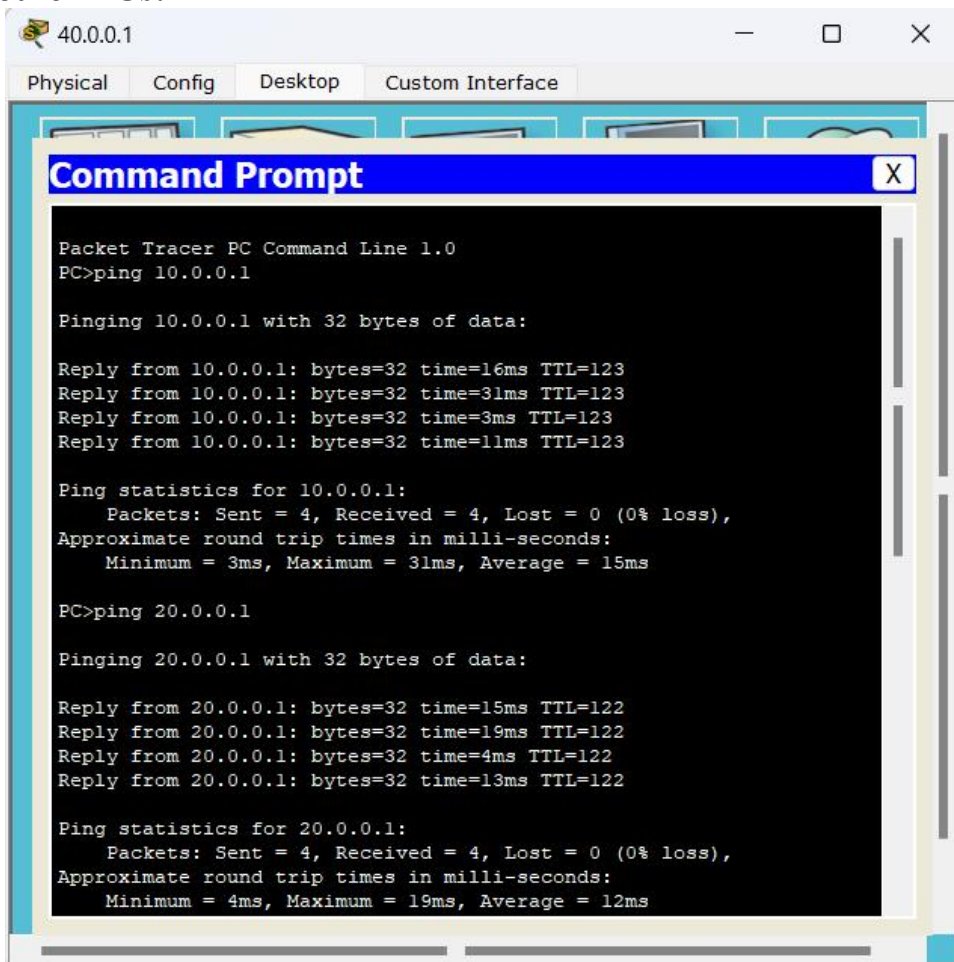


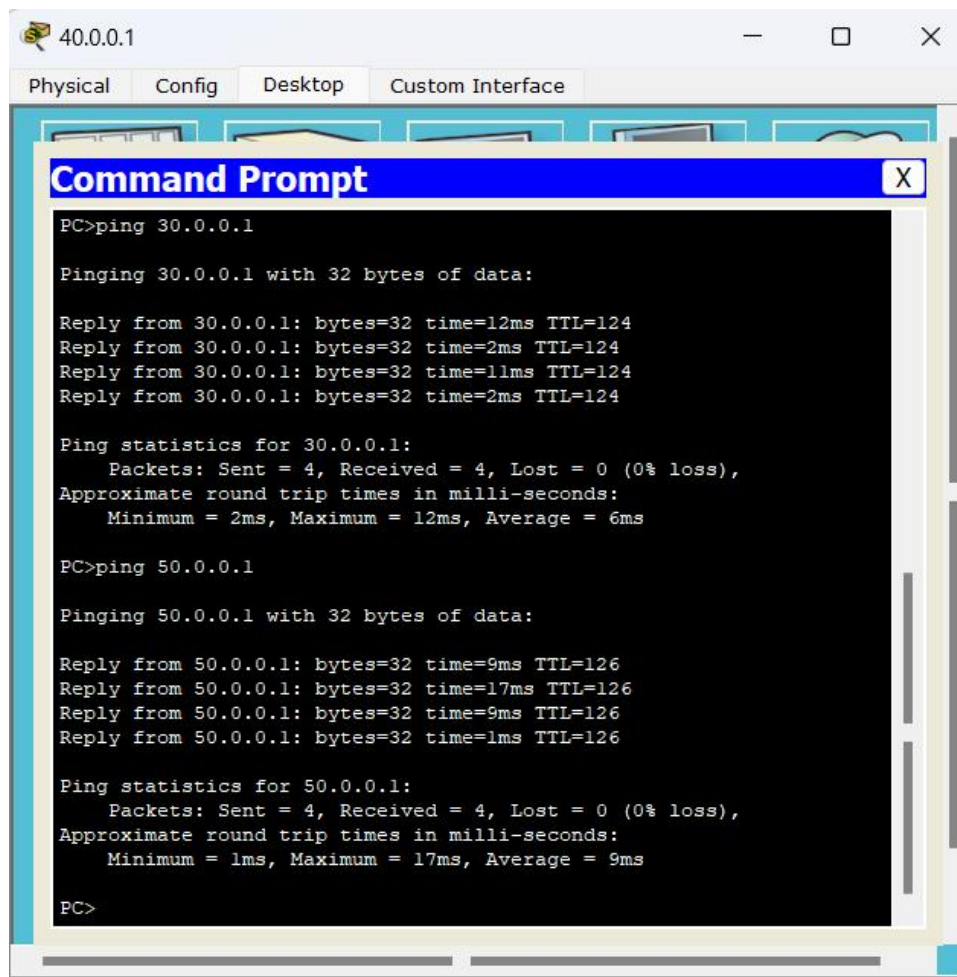
PC - 3 to All other PCs:





PC - 4 to All other PCs:





PC - 5 to All other PCs:

