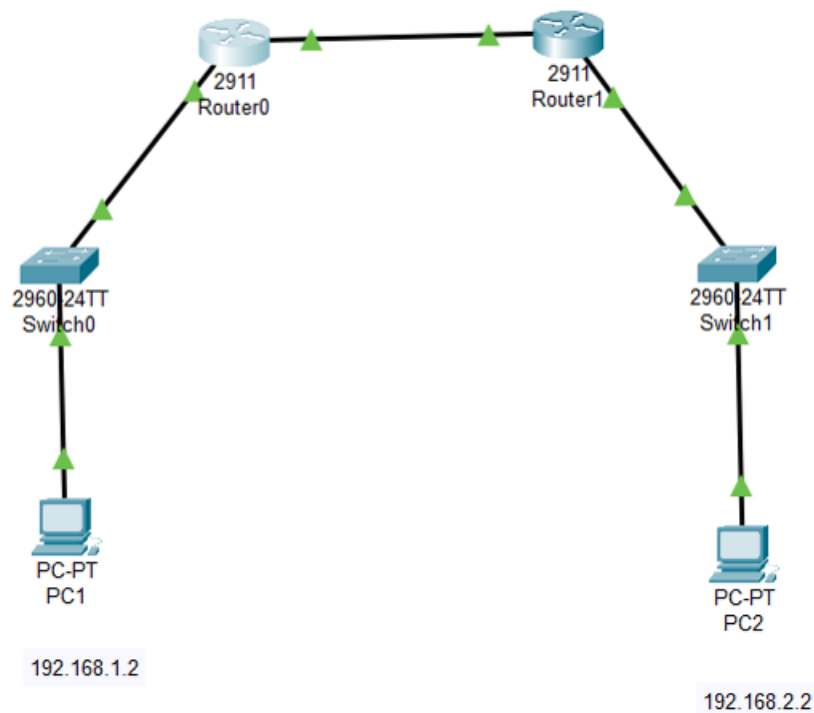


Q2. Manually configure static routes on a router to direct packets to different subnets. Use the ip route command and verify connectivity using ping and traceroute.

Simple network with two routers to enable communication between different subnets.



Router0 (Interfaces)

192.168.1.1/24 (Connected to PC1)

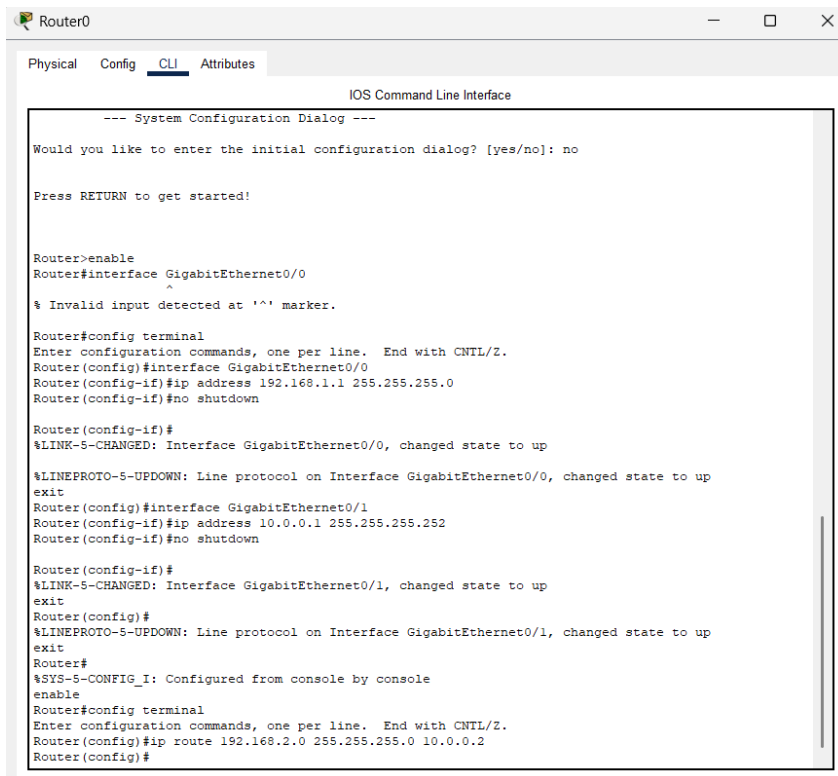
10.0.0.1/30 (Connected to Router1)

Router1 (Interfaces)

10.0.0.2/30 (Connected to Router0)

192.168.2.1/24 (Connected to PC2)

Router 0:



The screenshot shows the Router0 CLI interface with the following configuration steps:

```
Router0
Physical Config CLI Attributes
IOS Command Line Interface

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>enable
Router#interface GigabitEthernet0/0
^
% Invalid input detected at '^' marker.

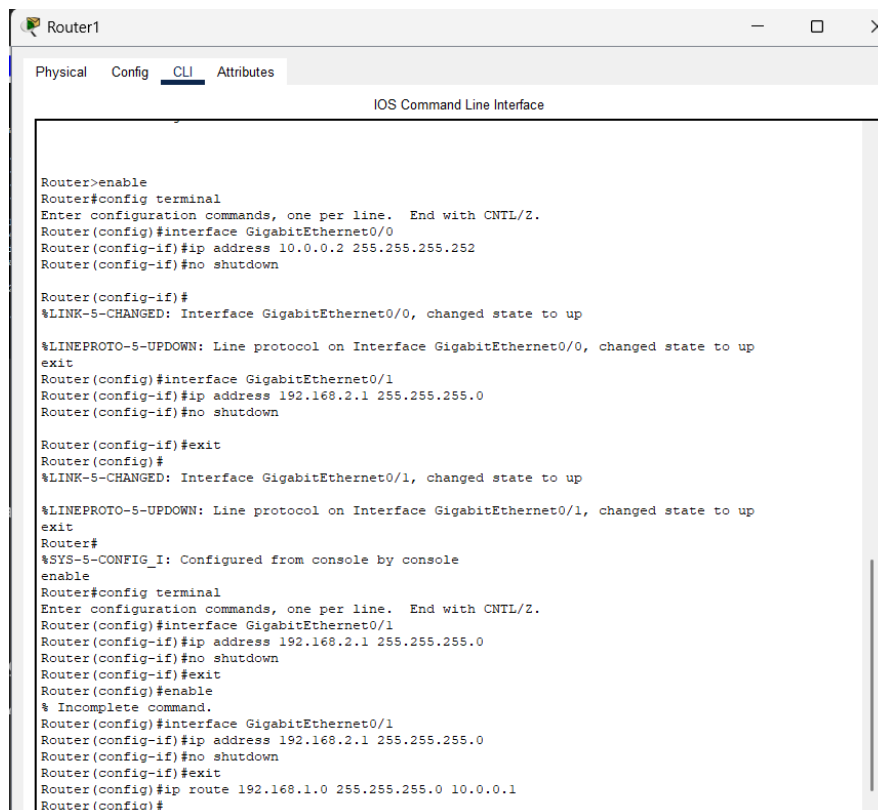
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 10.0.0.1 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.2.0 255.255.255.0 10.0.0.2
Router(config)#
```

Router 1:



The screenshot shows the Router1 CLI interface with the following configuration steps:

```
Router1
Physical Config CLI Attributes
IOS Command Line Interface

Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ip address 10.0.0.2 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown

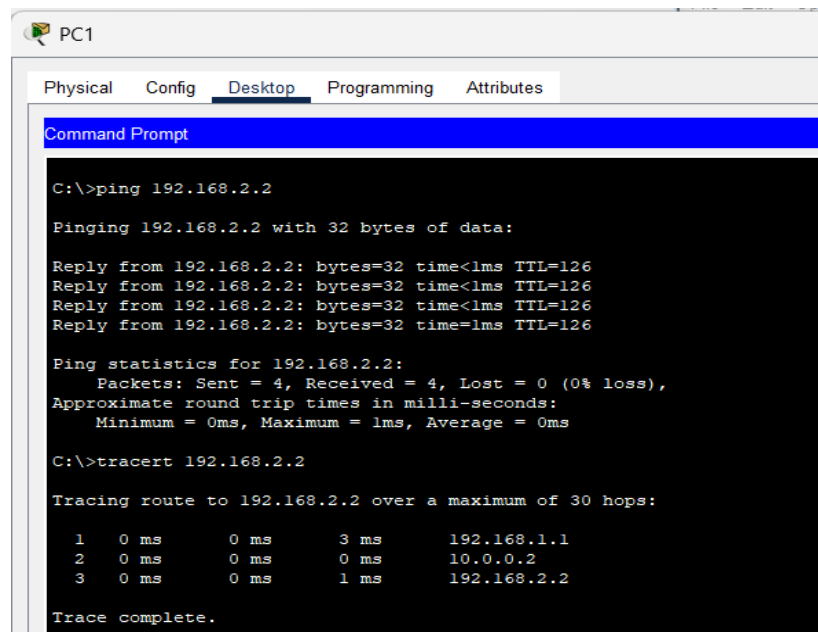
Router(config-if)#exit
Router(config)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#enable
% Incomplete command.
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#ip route 192.168.1.0 255.255.255.0 10.0.0.1
Router(config)#
```

Since routers do not automatically know about each other's networks, we manually added static routes.

Router0: ip route 192.168.2.0 255.255.255.0 10.0.0.2

Router1: ip route 192.168.1.0 255.255.255.0 10.0.0.1



PC1

Physical Config **Desktop** Programming Attributes

Command Prompt

```
C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Reply from 192.168.2.2: bytes=32 time<1ms TTL=126
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126
Reply from 192.168.2.2: bytes=32 time=1ms TTL=126

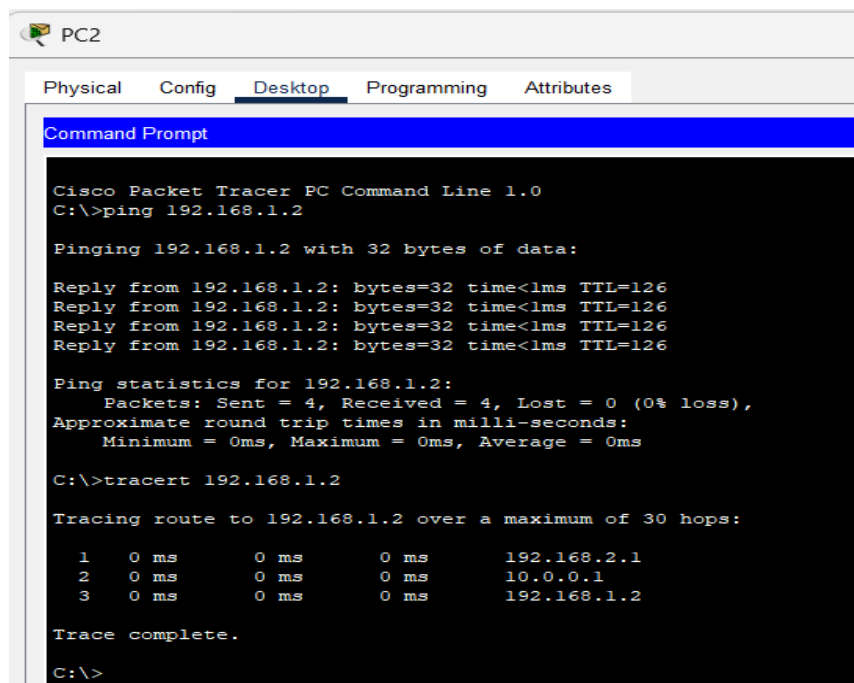
Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>tracert 192.168.2.2

Tracing route to 192.168.2.2 over a maximum of 30 hops:

  0  0 ms    0 ms    3 ms    192.168.1.1
  1  0 ms    0 ms    0 ms    10.0.0.2
  2  0 ms    0 ms    1 ms    192.168.2.2

Trace complete.
```



PC2

Physical Config **Desktop** Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>tracert 192.168.1.2

Tracing route to 192.168.1.2 over a maximum of 30 hops:

  0  0 ms    0 ms    0 ms    192.168.2.1
  1  0 ms    0 ms    0 ms    10.0.0.1
  2  0 ms    0 ms    0 ms    192.168.1.2

Trace complete.

C:\>
```

Static routing was successfully configured, allowing communication between two different subnets.

Ping and traceroute results confirm that packets travel correctly between the devices.