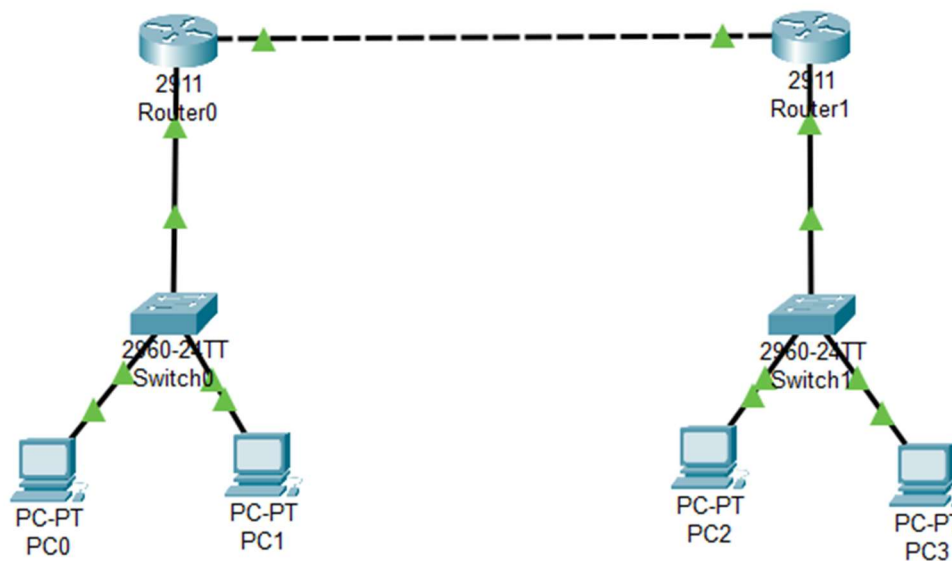


## LINUX NETWORKING MODULE 6 ASSESSMENT SOLUTION

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2. 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.

Topology:



IP Configuration:

PC	Interface	IP Configuration	IPv4 Address	Subnet Mask	Default Gateway	DNS Server
PC0	FastEthernet0	Static	192.168.1.10	255.255.255.0	192.168.1.1	0.0.0.0
PC1	FastEthernet0	Static	192.168.1.11	255.255.255.0	192.168.1.1	0.0.0.0
PC2	FastEthernet0	Static	192.168.2.10	255.255.255.0	192.168.2.1	0.0.0.0
PC3	FastEthernet0	Static	192.168.2.11	255.255.255.0	192.168.2.1	0.0.0.0

## Static Route with IP route:

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0,
ip address 192.168.1.1 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
ip address 10.0.0.1 255.0.0.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 10.0.0.1 255.255.255.252
Router(config-if)#exit
Router(config)#ip route 192.168.2.0 255.255.255.0 10.0.0.2
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wriwrite memory
Building configuration...
[OK]
```

Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
Router#enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
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
ip address 192.168.2.1 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
ip address 10.0.0.2 255.0.0.0
Router(config-if)#ip address 10.0.0.2 255.255.255.252
Router(config-if)#exit
Router(config)#ip route 192.168.1.0 255.255.255.0 10.0.0.1
Router(config)#ip route 192.168.1.0 255.255.255.0 10.0.0.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wriwrite memory
Building configuration...
[OK]
```

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

Network

Mask

Next Hop

Network Address

192.168.2.0/24 via 10.0.0.2

Router1

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

Network

Mask

Next Hop

Network Address

192.168.1.0/24 via 10.0.0.1

## Ping and Traceroute Test:

From PC0, ping PC2: ping 192.168.2.10 and Traceroute tracert 192.168.2.10

From PC1, ping PC3: ping 192.168.2.11 and Traceroute tracert 192.168.2.11

PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 15ms, Average = 4ms

C:\>tracert 192.168.2.10

Tracing route to 192.168.2.10 over a maximum of 30 hops:
  0  0 ms    0 ms    0 ms    192.168.1.1
  1  0 ms    0 ms    0 ms    10.0.0.2
  2  17 ms   0 ms    0 ms    192.168.2.10

Trace complete.
```

PC1

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.11

Pinging 192.168.2.11 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.11:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.2.11

Pinging 192.168.2.11 with 32 bytes of data:

Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 14ms, Average = 3ms

C:\>tracert 192.168.2.11

Tracing route to 192.168.2.11 over a maximum of 30 hops:
  0  0 ms    0 ms    0 ms    192.168.1.1
  1  0 ms    0 ms    0 ms    10.0.0.2
  2  0 ms    0 ms    0 ms    192.168.2.11

Trace complete.

C:\>
```