

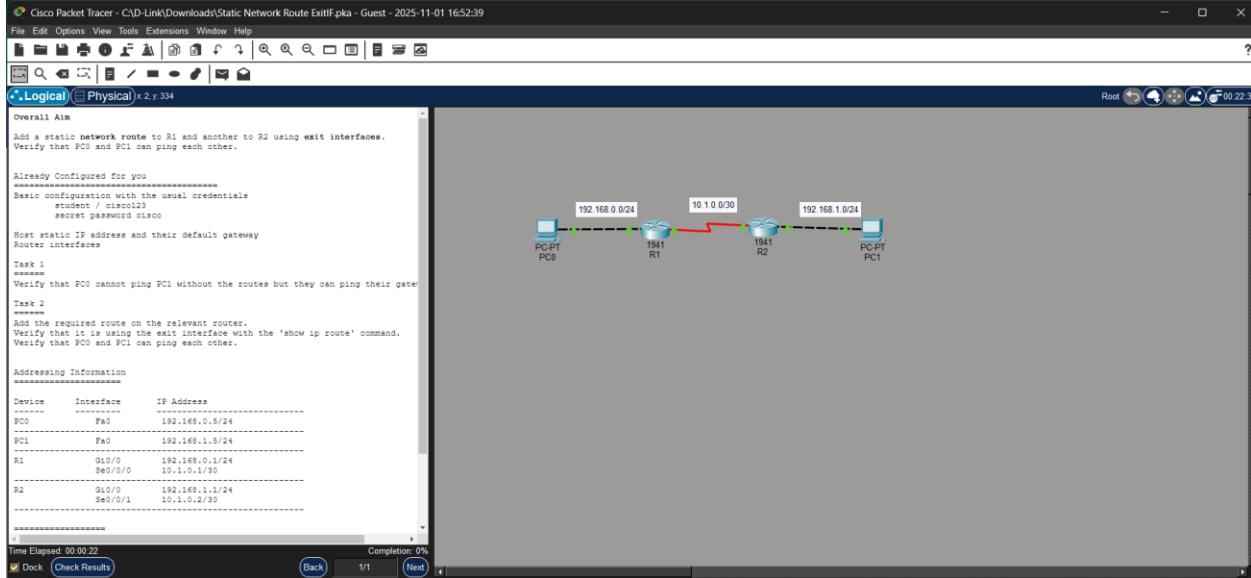
Assignment 8:

Introduction

In this assignment, you will:

1. Add a static network route to R1 and another to R2 using exit interfaces.
2. Verify that PC0 and PC1 can ping each other.

Already Configured for you:



- Basic configuration with the usual credentials
 - student / cisco123
 - secret password cisco
- Host static IP address and their default gateway
- Router interfaces

Instructions

Complete the following tasks:

1. Task 1

1. Verify that PC0 cannot ping PC1 without the routes but they can ping their gateways.

2. Task 2

1. Add the required route on the relevant router.
2. Verify that it is using the exit interface with the 'show ip route' command.
3. Verify that PC0 and PC1 can ping each other.

Addressing Information:

Addressing Information:

Device	Interface	IP Address
PC0	Fa0	192.168.0.5/24
PC1	Fa0	192.168.1.5/24
R1	Gi0/0	192.168.0.1/24
	Se0/0/0	10.1.0.1/30
R2	Gi0/0	192.168.1.1/24
	Se0/0/1	10.1.0.2/30

TASK 1: Verify initial connectivity.

- 1) From PC0, ping its gateway:

The screenshot shows the Cisco Packet Tracer Command Line interface running on a window titled "PC0". The interface has tabs at the top: Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is selected. Below the tabs is a "Command Prompt" window with a blue header bar containing the text "Command Prompt" and a close button "X". The main area of the window displays the output of several commands:

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

FastEthernet0 Connection:(default port)

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: FE80::290:21FF:FE49:5768
IPv6 Address.....: :::
IPv4 Address.....: 192.168.0.5
Subnet Mask.....: 255.255.255.0
Default Gateway.....: :::
                           192.168.0.1

Bluetooth Connection:

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: :::
IPv6 Address.....: :::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: :::
                           0.0.0.0

C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

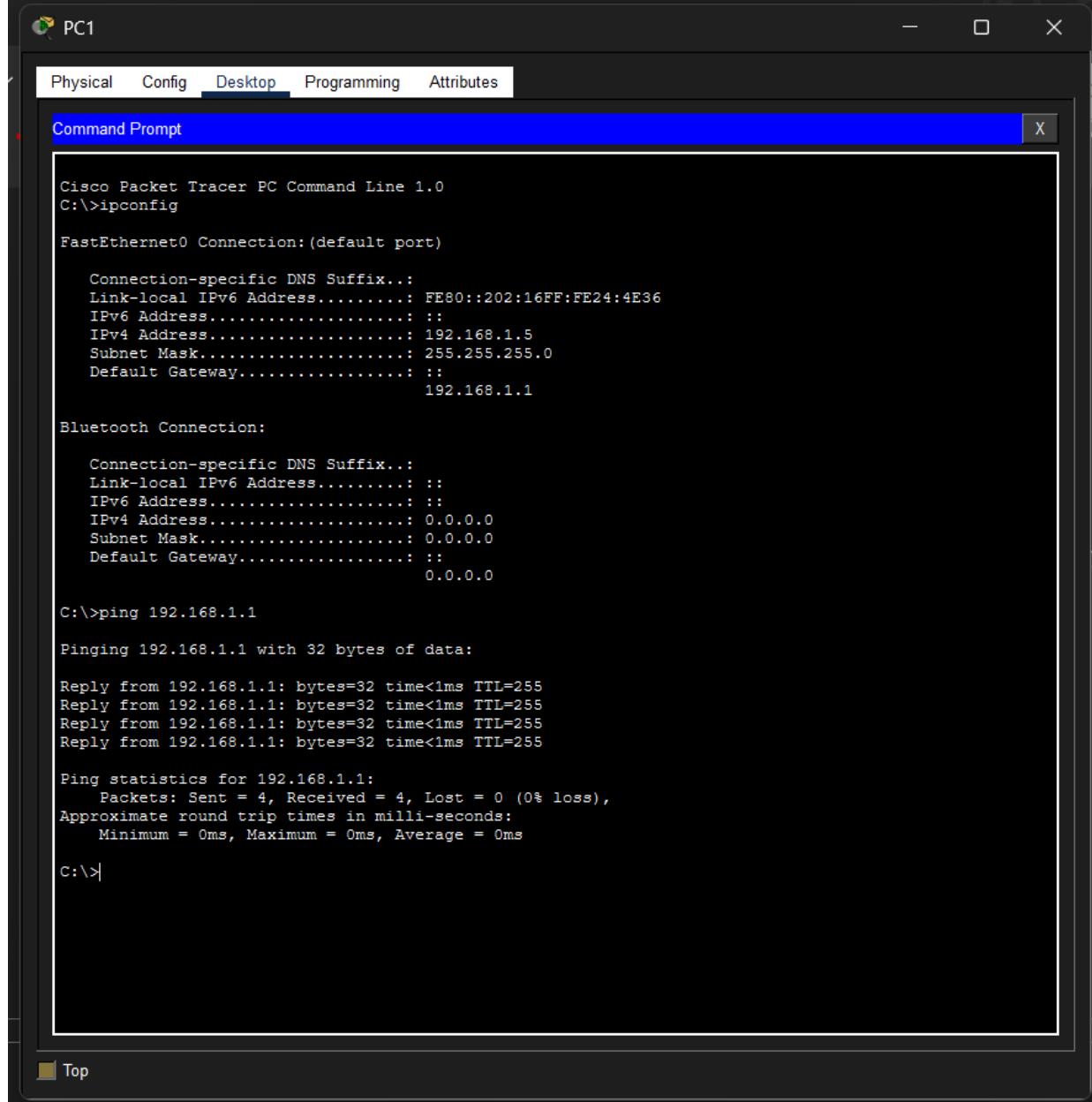
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

At the bottom left of the window, there is a "Top" button.

2) From PC1, ping its gateway:



The screenshot shows a Cisco Packet Tracer Command Prompt window titled "PC1". The window has tabs at the top: Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is selected. The main area displays the following command-line session:

```
Cisco Packet Tracer PC Command Line 1.0
C:>ipconfig

FastEthernet0 Connection:(default port)

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: FE80::202:16FF:FE24:4E36
IPv6 Address.....: ::
IPv4 Address.....: 192.168.1.5
Subnet Mask.....: 255.255.255.0
Default Gateway.....: ::
                           192.168.1.1

Bluetooth Connection:

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
                           0.0.0.0

C:>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

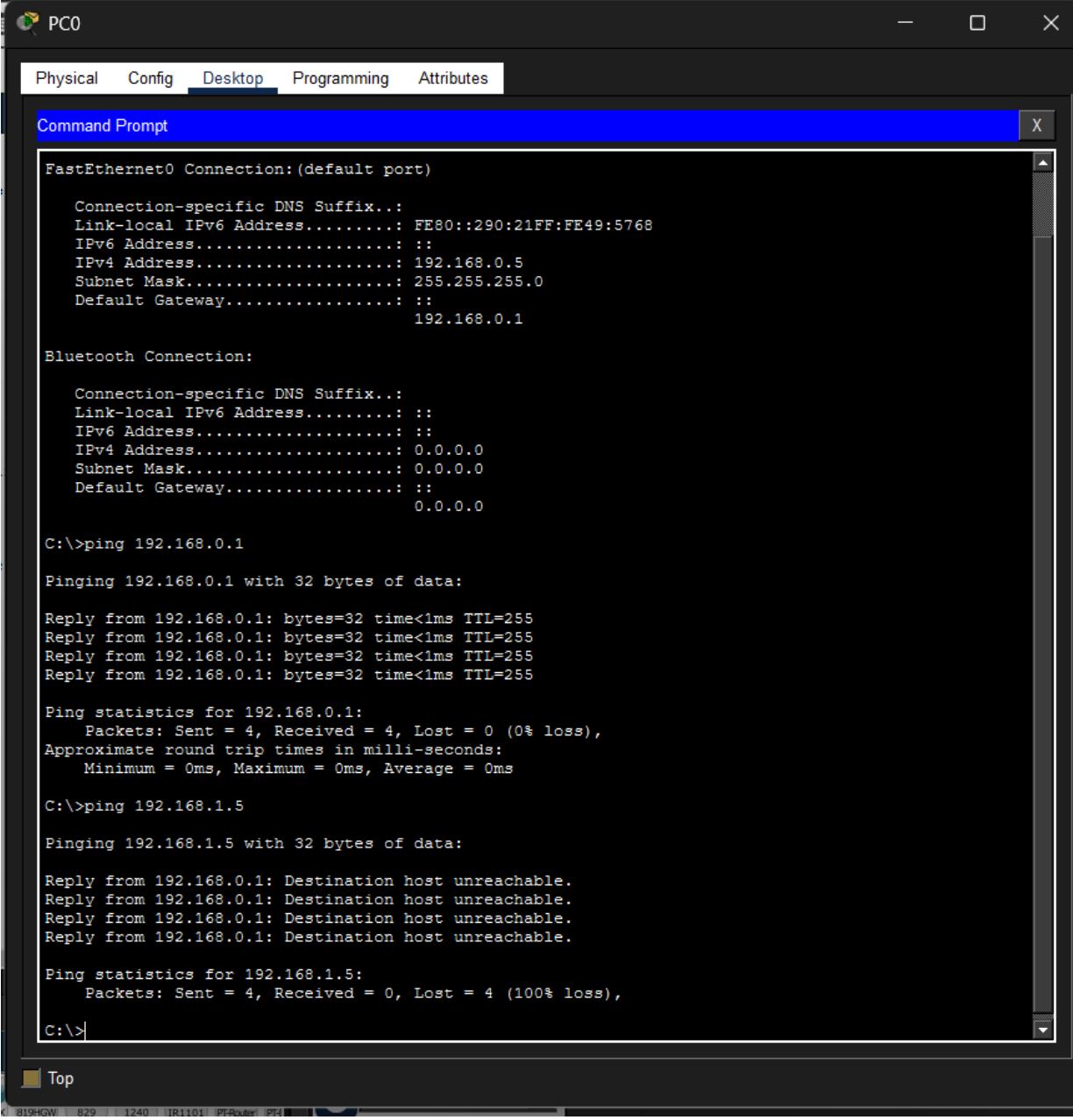
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:>
```

The window also includes a "Top" button at the bottom left.

3) From **PC0**, ping **PC1**:



The screenshot shows a Windows Command Prompt window titled "PC0". The window has tabs at the top: Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is selected. Below the tabs is a blue header bar with the text "Command Prompt" and a close button "X". The main area of the window displays the following text:

```
FastEthernet0 Connection: (default port)

Connection-specific DNS Suffix..:
Link-local IPv6 Address.....: FE80::290:21FF:FE49:5768
IPv6 Address.....: ::
IPv4 Address.....: 192.168.0.5
Subnet Mask.....: 255.255.255.0
Default Gateway.....: ::
                           192.168.0.1

Bluetooth Connection:

Connection-specific DNS Suffix..:
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
                           0.0.0.0

C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.0.1: Destination host unreachable.

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

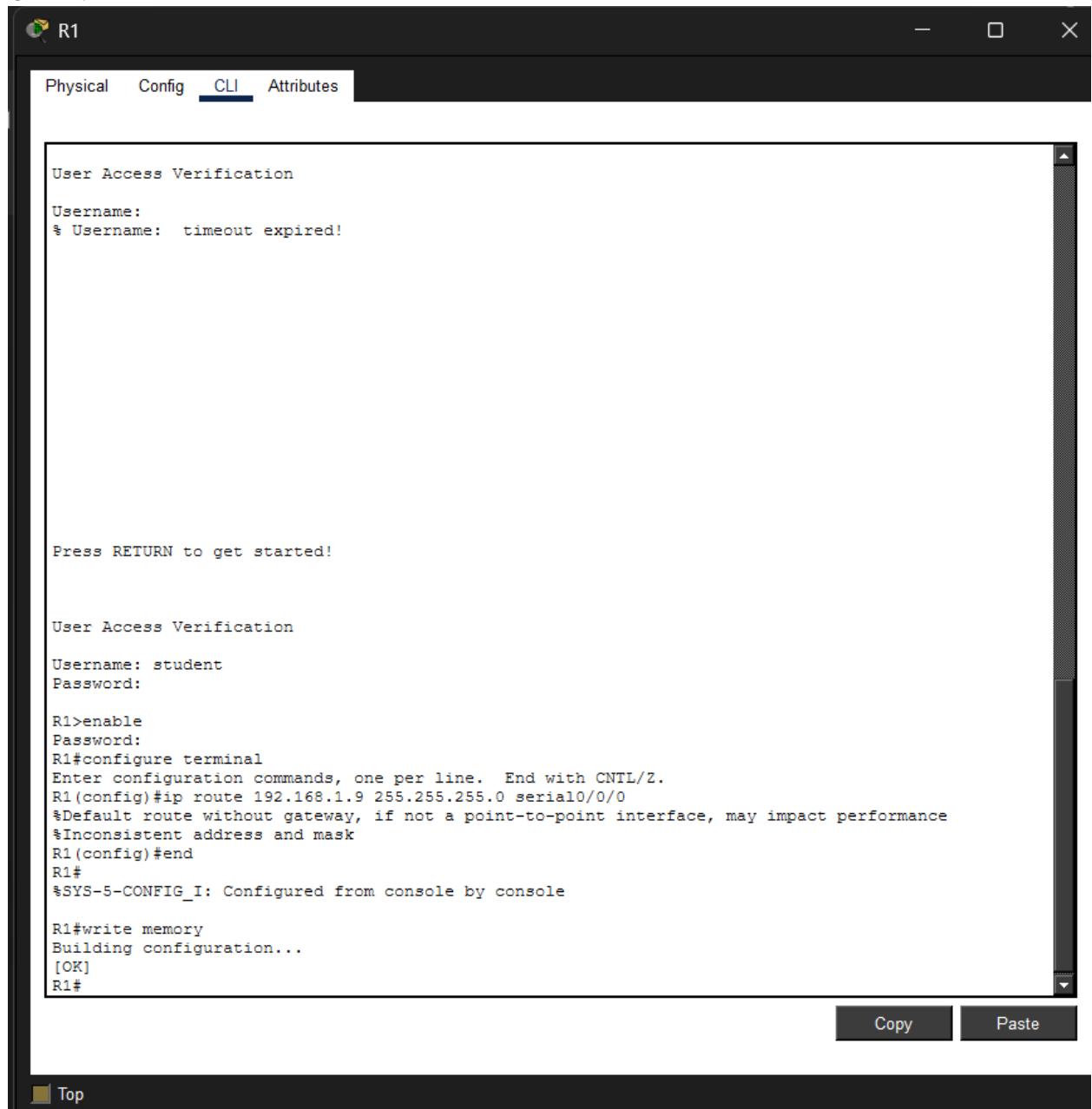
The command prompt ends with "C:\>" and a cursor. At the bottom of the window, there is a toolbar with icons for Top, 819HGW, 829, 1240, IR1101, PT-Power, and PT4.

Failed!

TASK 2: – Add static routes using **exit interfaces.**

We must tell each router how to reach the *remote LAN* via the *point-to-point interface*.

On R1:

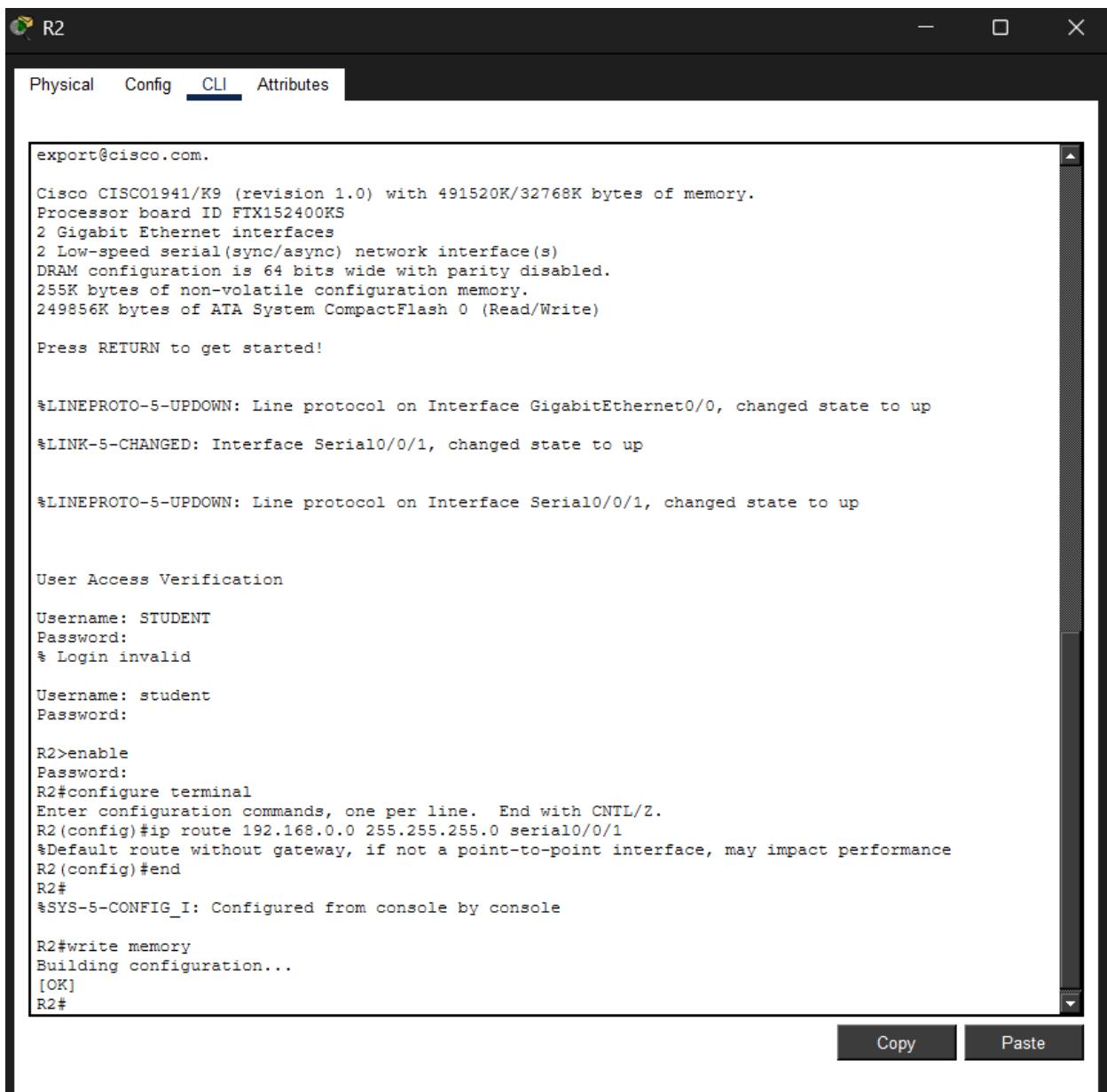


The screenshot shows a terminal window titled "R1". The tab bar at the top has four tabs: "Physical", "Config", "CLI" (which is selected), and "Attributes". The main window displays the following text:

```
User Access Verification  
Username:  
* Username: timeout expired!  
  
Press RETURN to get started!  
  
User Access Verification  
Username: student  
Password:  
  
R1>enable  
Password:  
R1#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
R1(config)#ip route 192.168.1.9 255.255.255.0 serial0/0/0  
*Default route without gateway, if not a point-to-point interface, may impact performance  
*Inconsistent address and mask  
R1(config)#end  
R1#  
*SYS-5-CONFIG_I: Configured from console by console  
  
R1#write memory  
Building configuration...  
[OK]  
R1#
```

At the bottom right of the terminal window are two buttons: "Copy" and "Paste". At the bottom left is a "Top" button.

On R2:



R2

Physical Config **CLI** Attributes

```
export@cisco.com.

Cisco CISCO1941/K9 (revision 1.0) with 491520K/32768K bytes of memory.
Processor board ID FTX152400KS
2 Gigabit Ethernet interfaces
2 Low-speed serial(sync/async) network interface(s)
DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up

User Access Verification

Username: STUDENT
Password:
% Login invalid

Username: student
Password:

R2>enable
Password:
R2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 192.168.0.0 255.255.255.0 serial0/0/1
%Default route without gateway, if not a point-to-point interface, may impact performance
R2(config)#end
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#write memory
Building configuration...
[OK]
R2#
```

Copy Paste

VERIFICATIONS: On both routers.

R1

Physical Config **CLI** Attributes

```
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

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C      10.1.0.0/30 is directly connected, Serial0/0/0
L      10.1.0.1/32 is directly connected, Serial0/0/0
        192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.0.0/24 is directly connected, GigabitEthernet0/0
L      192.168.0.1/32 is directly connected, GigabitEthernet0/0

R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#ip route 192.168.1.0 255.255.255.0 serial0/0/0
#Default route without gateway, if not a point-to-point interface, may impact performance
R1(config)#end
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#write memory
Building configuration...
[OK]
R1#show ip route
Codes: L - local, C - connected, S - static, 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

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C      10.1.0.0/30 is directly connected, Serial0/0/0
L      10.1.0.1/32 is directly connected, Serial0/0/0
        192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.0.0/24 is directly connected, GigabitEthernet0/0
L      192.168.0.1/32 is directly connected, GigabitEthernet0/0
S      192.168.1.0/24 is directly connected, Serial0/0/0

R1#
```

Copy Paste

Top

R2

Physical Config **CLI** Attributes

```
User Access Verification

Username: STUDENT
Password:
% Login invalid

Username: student
Password:

R2>enable
Password:
R2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 192.168.0.0 255.255.255.0 serial0/0/1
%Default route without gateway, if not a point-to-point interface, may impact performance
R2(config)#end
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#write memory
Building configuration...
[OK]
R2#show ip route
Codes: L - local, C - connected, S - static, 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

      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C        10.1.0.0/30 is directly connected, Serial0/0/1
L        10.1.0.2/32 is directly connected, Serial0/0/1
S        192.168.0.0/24 is directly connected, Serial0/0/1
          192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/24 is directly connected, GigabitEthernet0/0
L        192.168.1.1/32 is directly connected, GigabitEthernet0/0

R2#
```

Copy Paste

Top

From PC0 ping PC1:

The screenshot shows a Windows Command Prompt window titled "PC0". The window has a dark theme with a blue header bar. The menu bar includes "Physical", "Config", "Desktop", "Programming", and "Attributes". The title bar says "Command Prompt". The main area displays the output of several ping commands. The first two pings are successful, showing replies from 192.168.0.1. Subsequent pings to 192.168.1.5 result in "Destination host unreachable" errors. Finally, a ping to 192.168.1.5 succeeds with a low latency.

```
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.0.1: Destination host unreachable.

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.0.1: Destination host unreachable.

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.1.5: bytes=32 time=1ms TTL=126
Reply from 192.168.1.5: bytes=32 time=1ms TTL=126
Reply from 192.168.1.5: bytes=32 time=3ms TTL=126
Reply from 192.168.1.5: bytes=32 time=20ms TTL=126

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 20ms, Average = 6ms

C:\>
```

From PC1 ping PC0:

PC1

Physical Config Desktop Programming Attributes

Command Prompt

```
Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: FE80::202:16FF:FE24:4E36
IPv6 Address.....: :::
IPv4 Address.....: 192.168.1.5
Subnet Mask.....: 255.255.255.0
Default Gateway.....: :::
                                         192.168.1.1

Bluetooth Connection:

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: :::
IPv6 Address.....: :::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: :::
                                         0.0.0.0

C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.0.5

Pinging 192.168.0.5 with 32 bytes of data:

Reply from 192.168.0.5: bytes=32 time=1ms TTL=126
Reply from 192.168.0.5: bytes=32 time=3ms TTL=126
Reply from 192.168.0.5: bytes=32 time=1ms TTL=126
Reply from 192.168.0.5: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.0.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 1ms

C:\>
```

Top

X 819HGW 829 1240 IR1101 PT-Router PR

100% Completion of pka:

