

Course: Cloud and Network Security-C1-2026
Cyber Shujaa Program

Week 2: Examining Network Layers 1, 2 & 3
Assignment 1: Packet Tracer- build a Switch and Router Network

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Introduction

This assignment was carried out to help me understand basic networking concepts using Cisco Packet Tracer. Through this exercise, I learned how switches and routers work together to allow communication between devices in a network.

I built a simple network consisting of a switch, a router and the end devices, configured IP addresses and tested connectivity to ensure the network was working properly. This assignment helped me apply theory into practical networking skills.

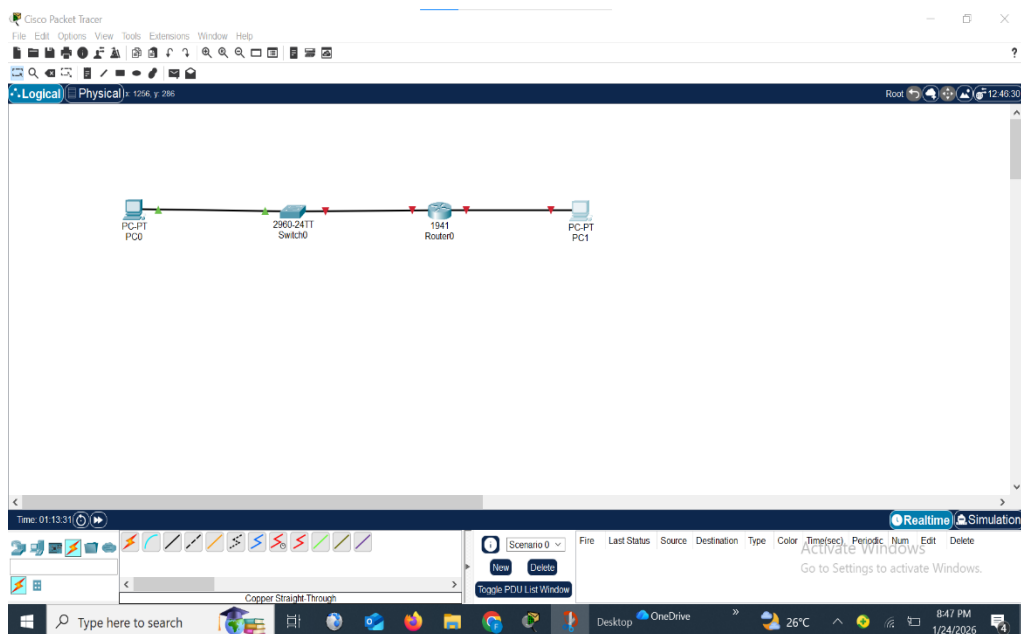
Objectives

The objectives of the assignment were:

1. To understand the functions of switches and routers in a network
2. To create a basic network topology
3. To configure IP addressing on network devices
4. To test and verify network connectivity

Lab – Build a Switch and Router Network

Topology



Here I verified the SDM using dual-ipv4-and-ipv6

S1# show sdm prefer

I used the command to assign the dual-ipv4-and-ipv6 template

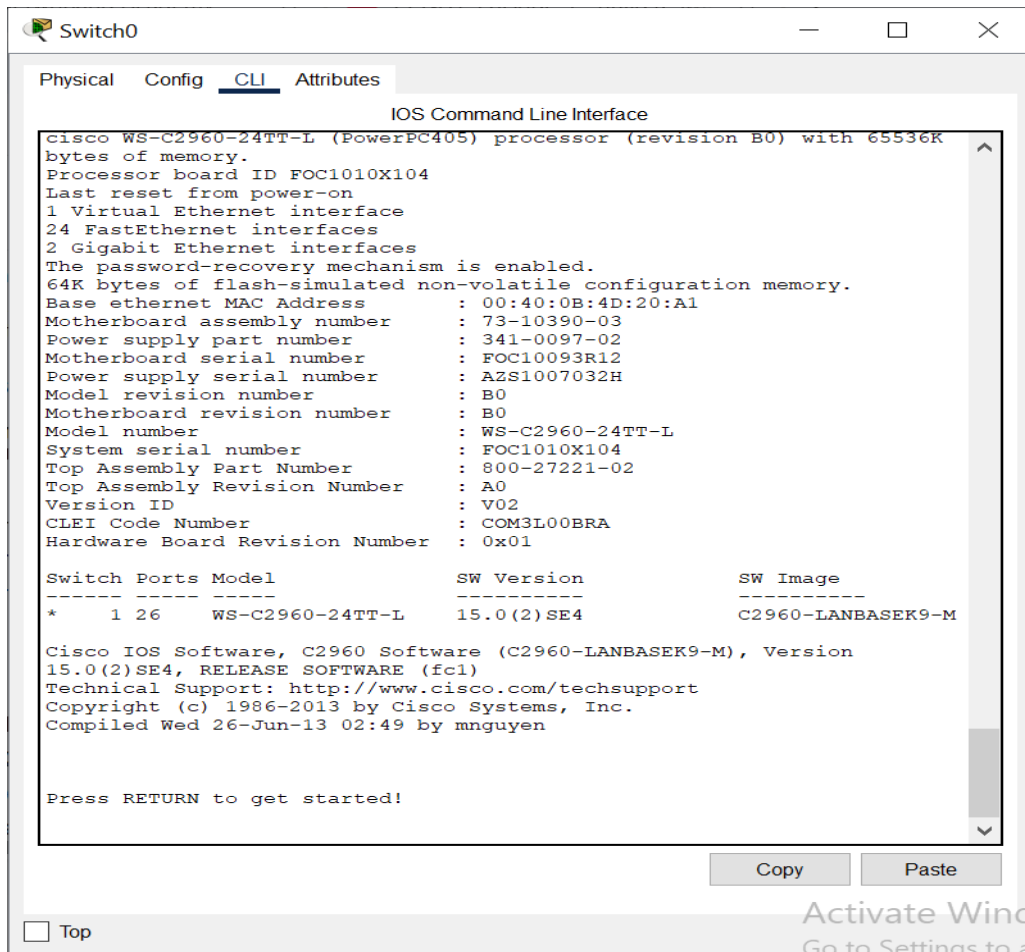
Default SDM template. S1# config terminal

S1 (config) # sdm prefer dual-ipv4-and-ipv6 default

S1 (config) # end

S1# reload

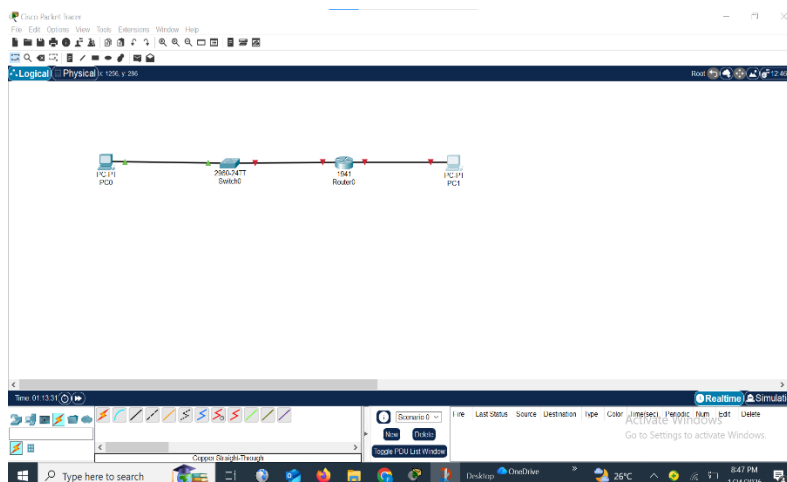
It is as shown below



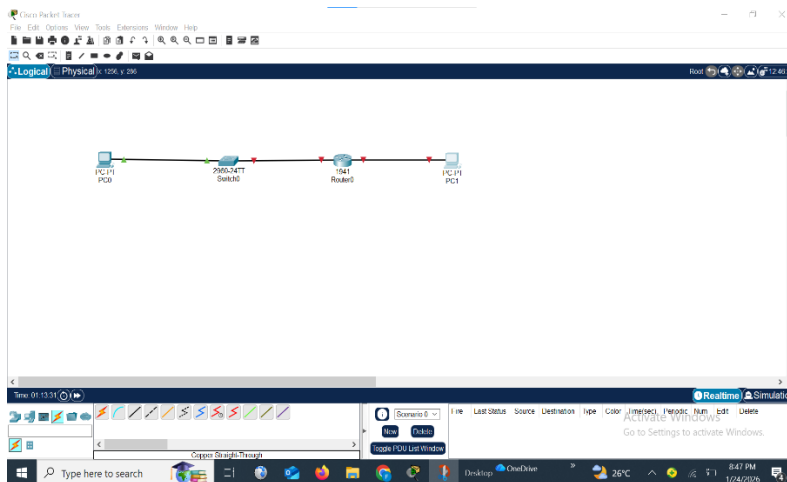
Part 1: Set up Topology and Initialize Devices

Step1: Cable the network as shown in the topology

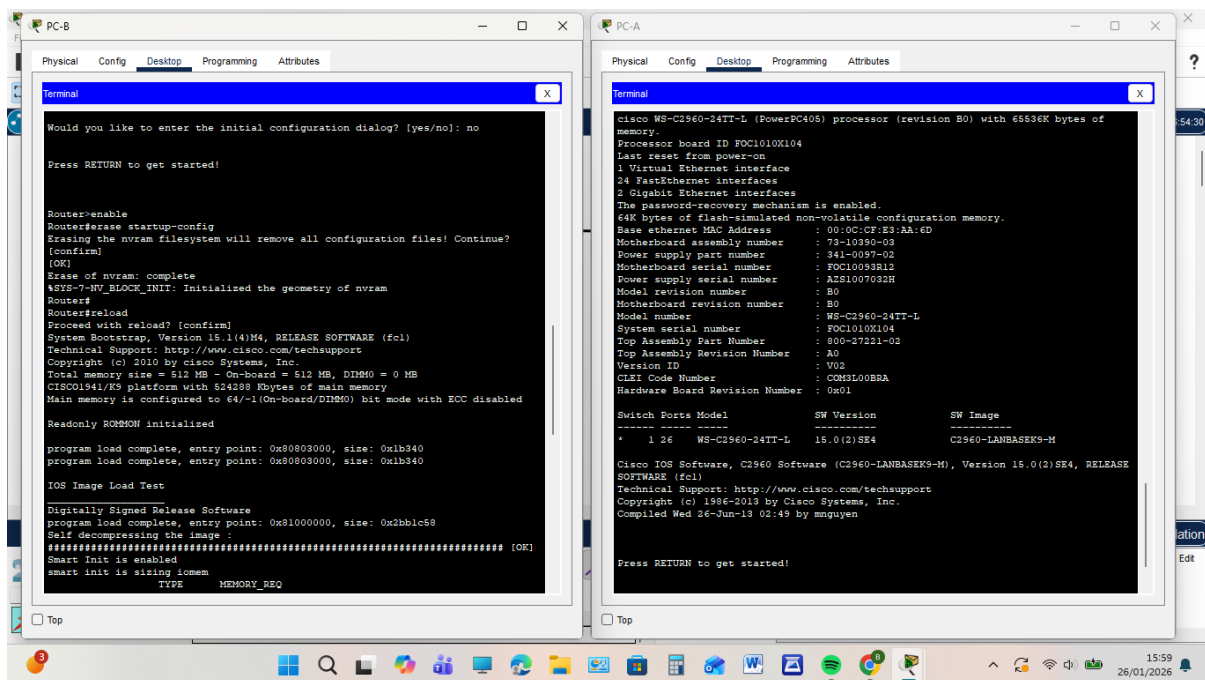
(a) This is the devices shown in the topology diagram with the cable



(b) After powering all the devices in the topology this is how the results I get



Step 2: Initialize and reload the router & switch

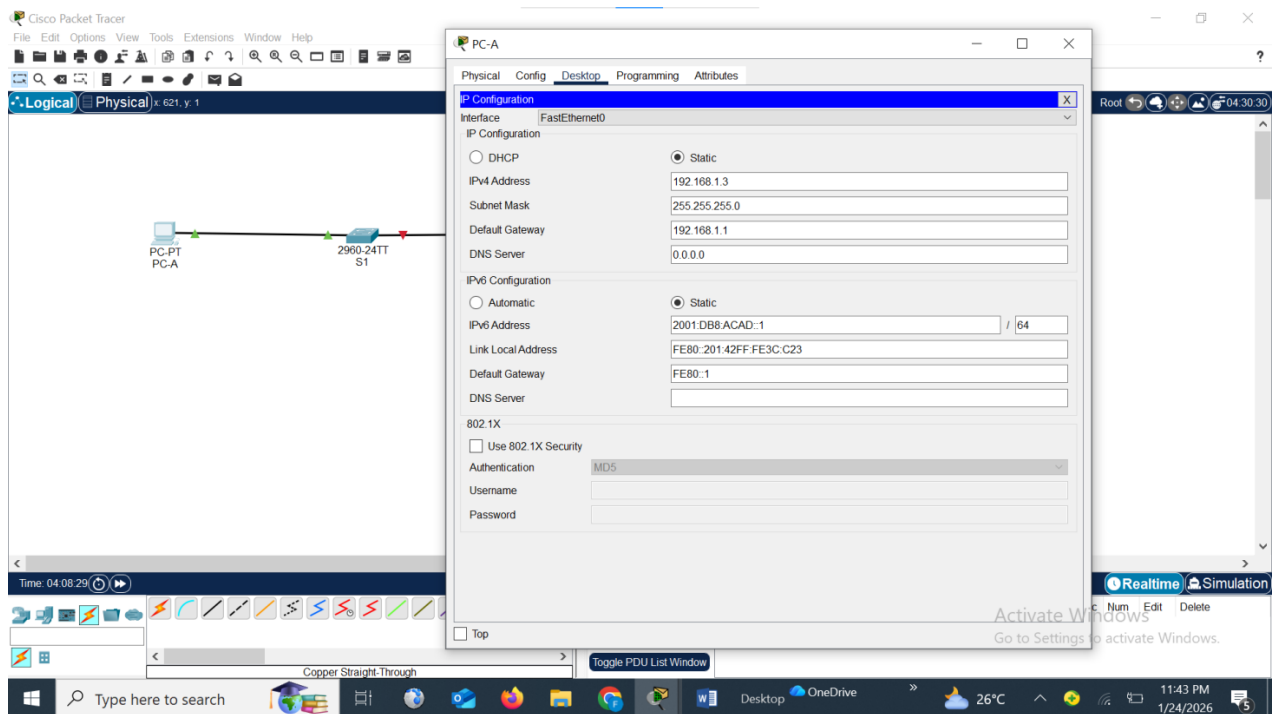


- Technically these are the pulling of the technical box brand new so it doesn't matter if this was to be done in the lab environment while changing the configurations, then when the reload take place the final results would be that switch and router is blank with no static configuration

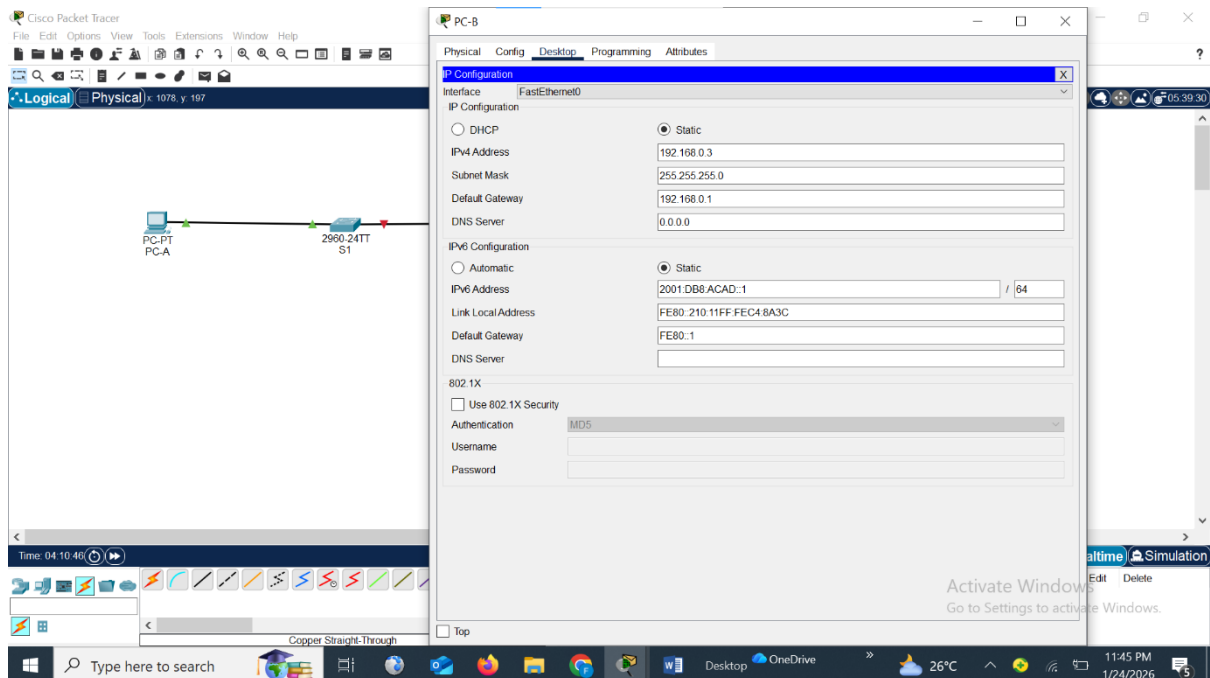
Part 2: Configure Devices and verify Connectivity

Step1: Assign static IP information to the PC interfaces

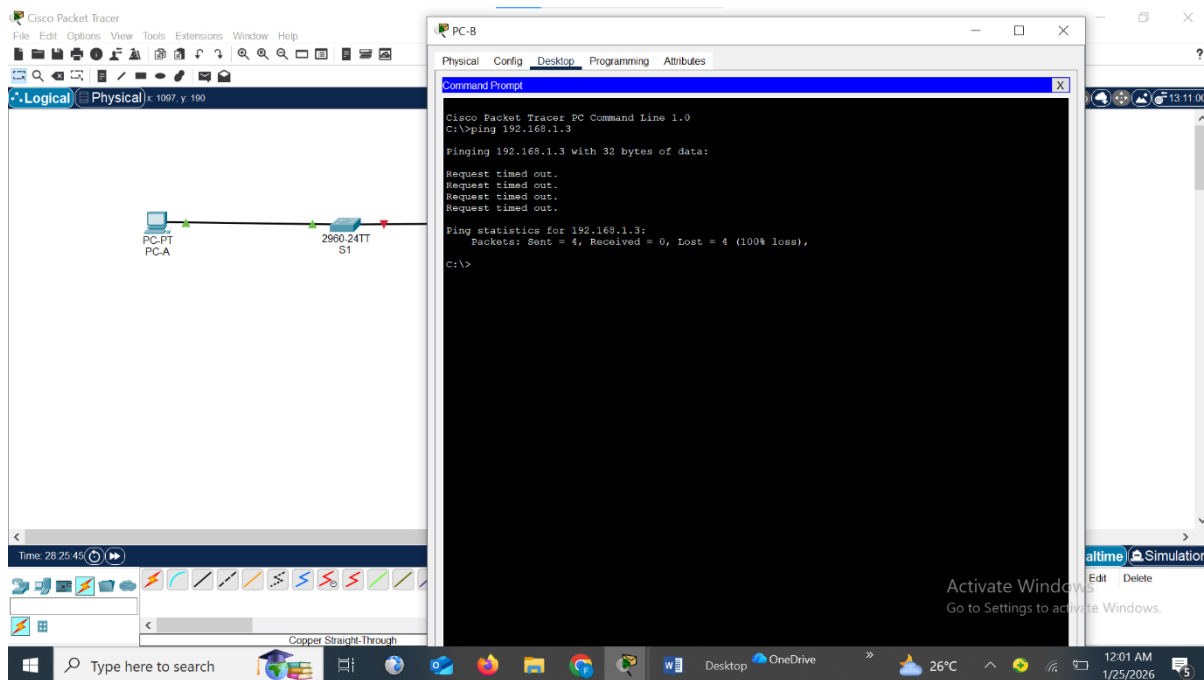
(a) I configured the IP address, subnet mask and the default gateway setting on PC-A as shown below



(b) I configured the IP address, subnet mask and the default gateway setting on PC-B as shown below



(c) I ping PC-B from a command prompt window on PC-A, the results were as follow

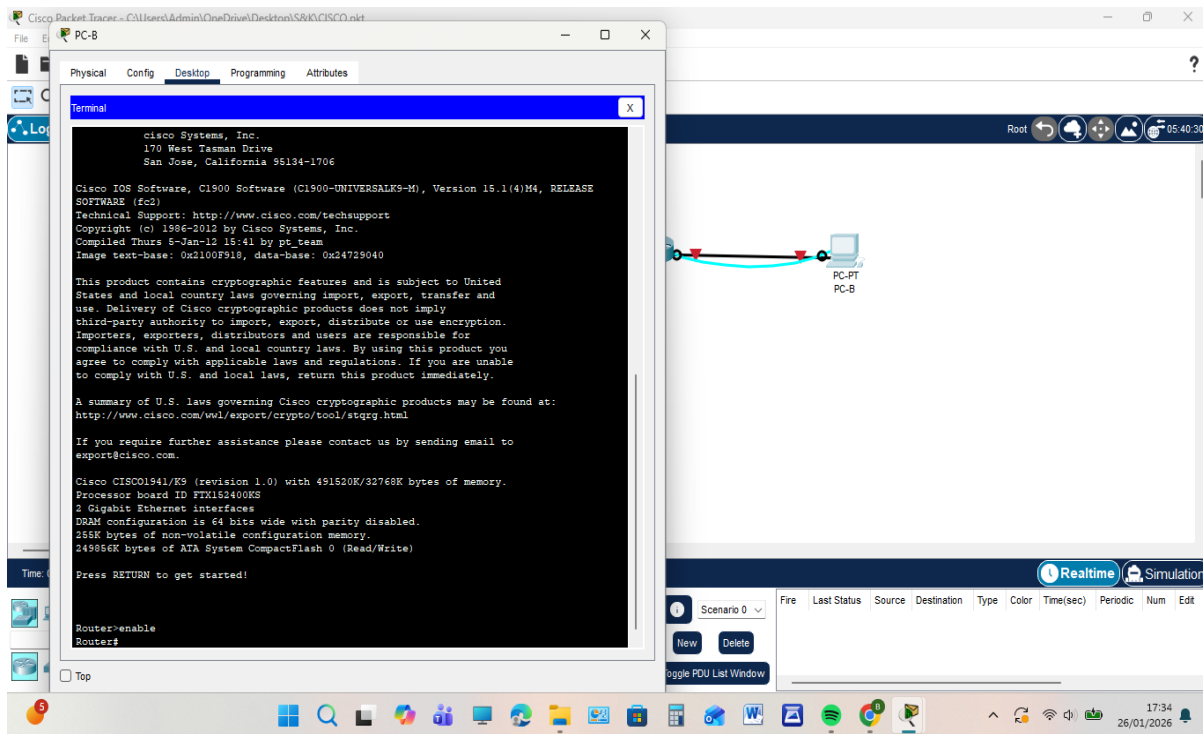


- The ping was not successful therefore I turned off the window firewall
- The ping was not successful because the Router interfaces the gateway has not been integrated so the layer 3 traffic has not been granted to the subnet

Step 2: configure the router

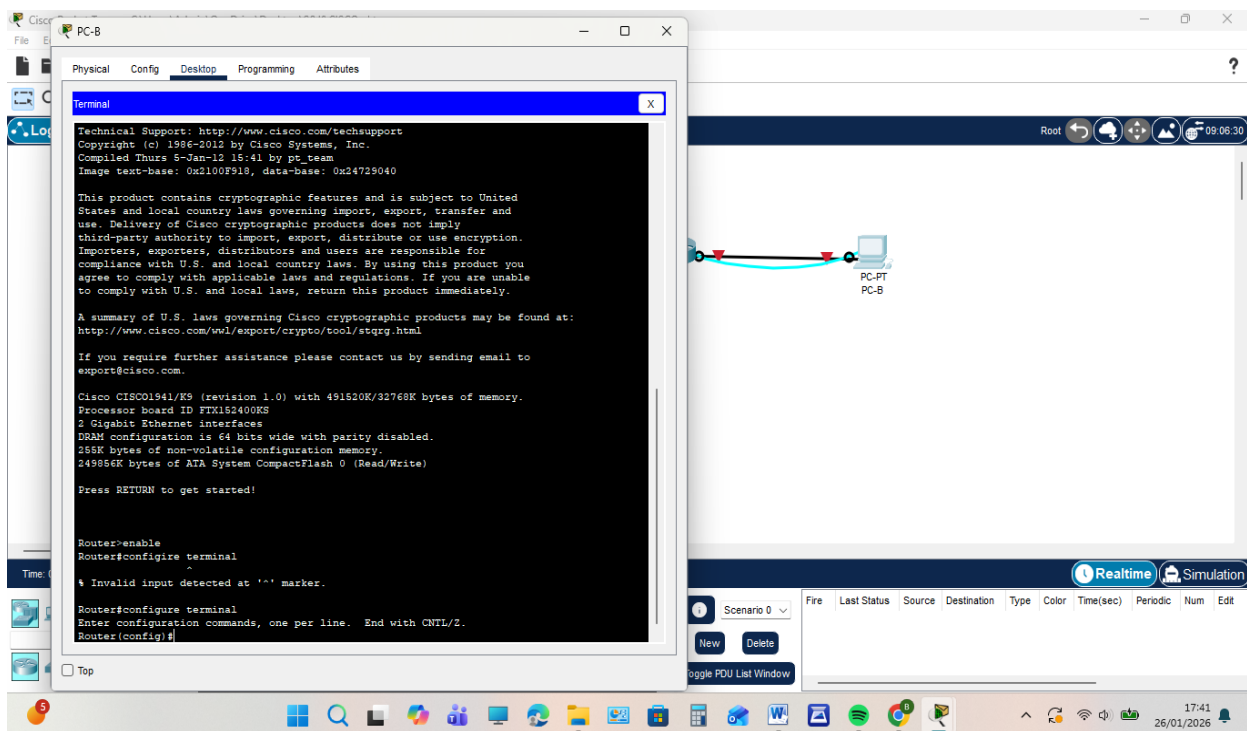
(a) The router was console and enabled privileged EXEC mode

Router> enable



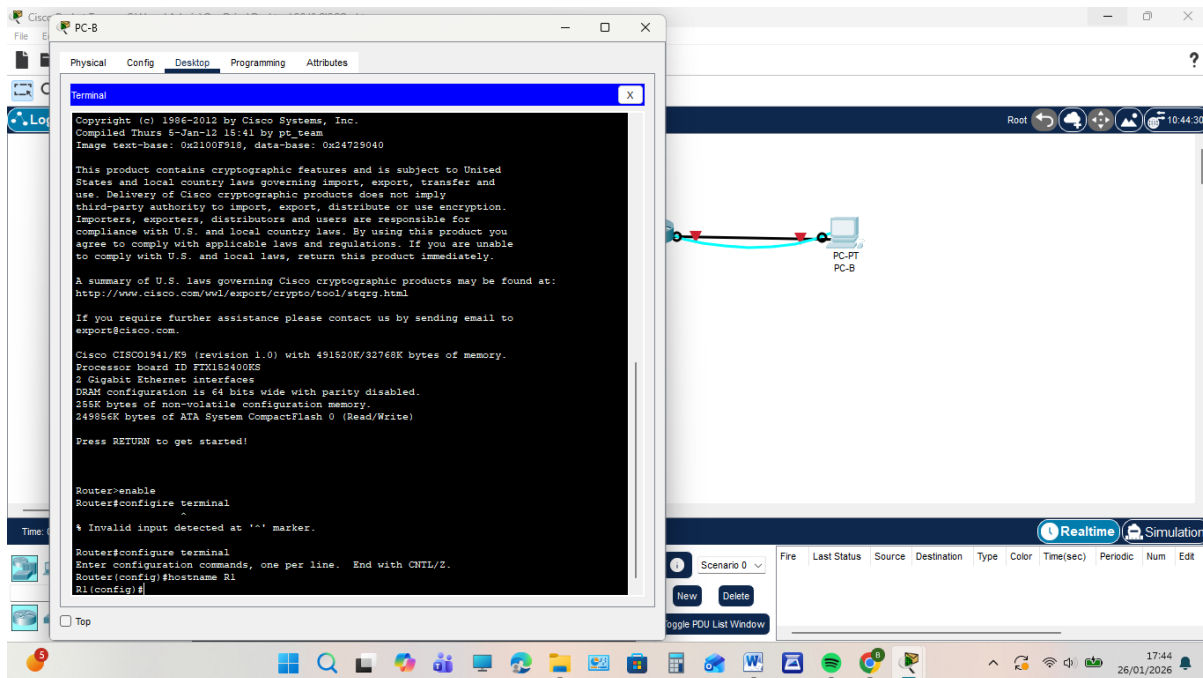
(b) The configuration mode was entered

Router# configure terminal

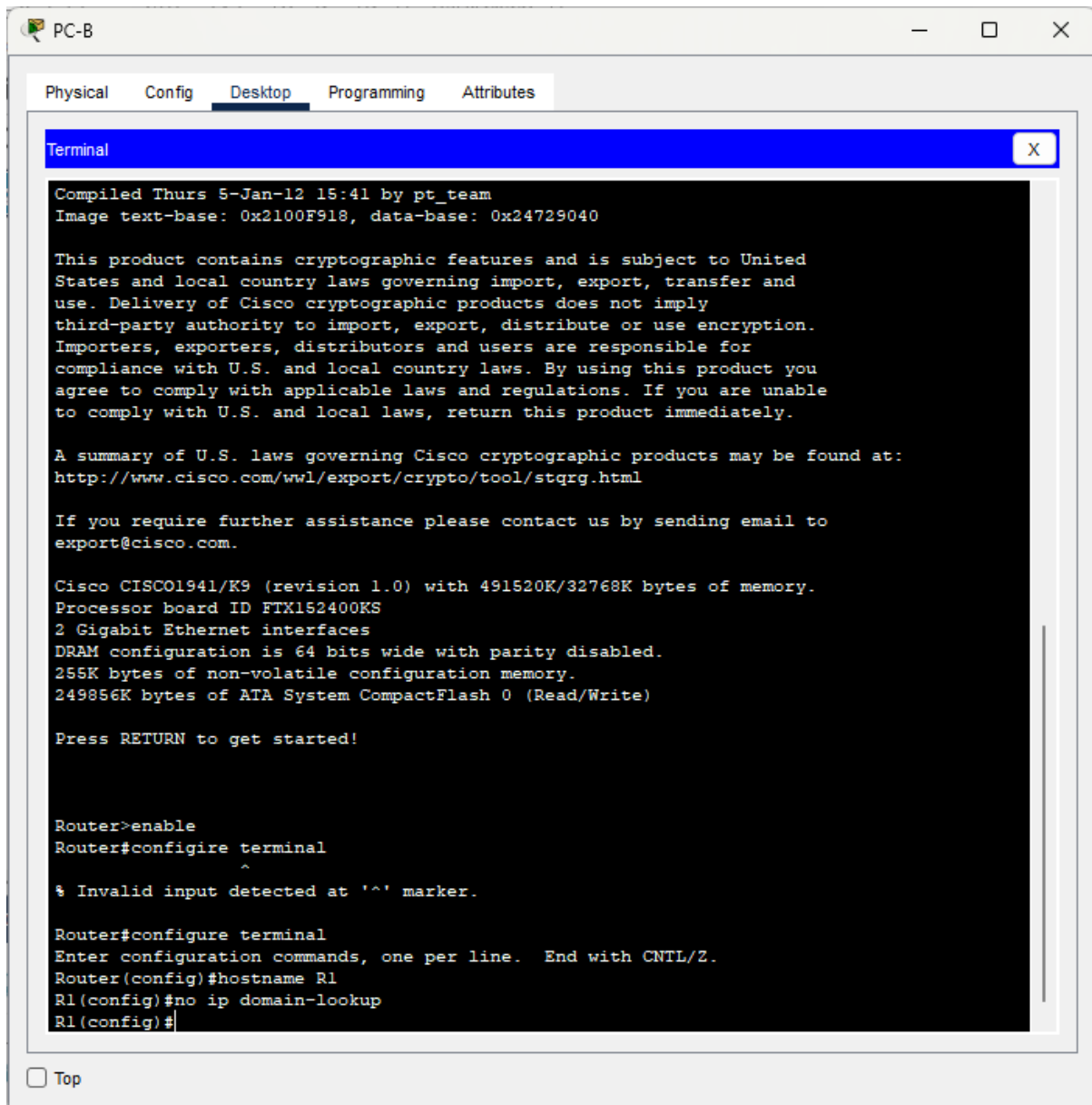


(c) The router was assigned a device name

Router (config) # hostname R1



(d) R1 (config) # no IP domain lookup



The screenshot shows a window titled "PC-B" with a tabbed interface. The "Desktop" tab is active, displaying a terminal window. The terminal output shows the router's boot sequence, including copyright information and hardware details. The user enters "enable" to reach the privileged EXEC mode, then "configure terminal" to enter configuration mode. They attempt to enter "configire terminal" (misspelled), which results in an error. They then correctly enter "configure terminal". Finally, they enter "hostname R1" and "no ip domain-lookup" to complete the configuration steps shown.

```
Compiled Thurs 5-Jan-12 15:41 by pt_team
Image text-base: 0x2100F918, data-base: 0x24729040

This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

Cisco CISC01941/K9 (revision 1.0) with 491520K/32768K bytes of memory.
Processor board ID FTX152400KS
2 Gigabit Ethernet interfaces
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!

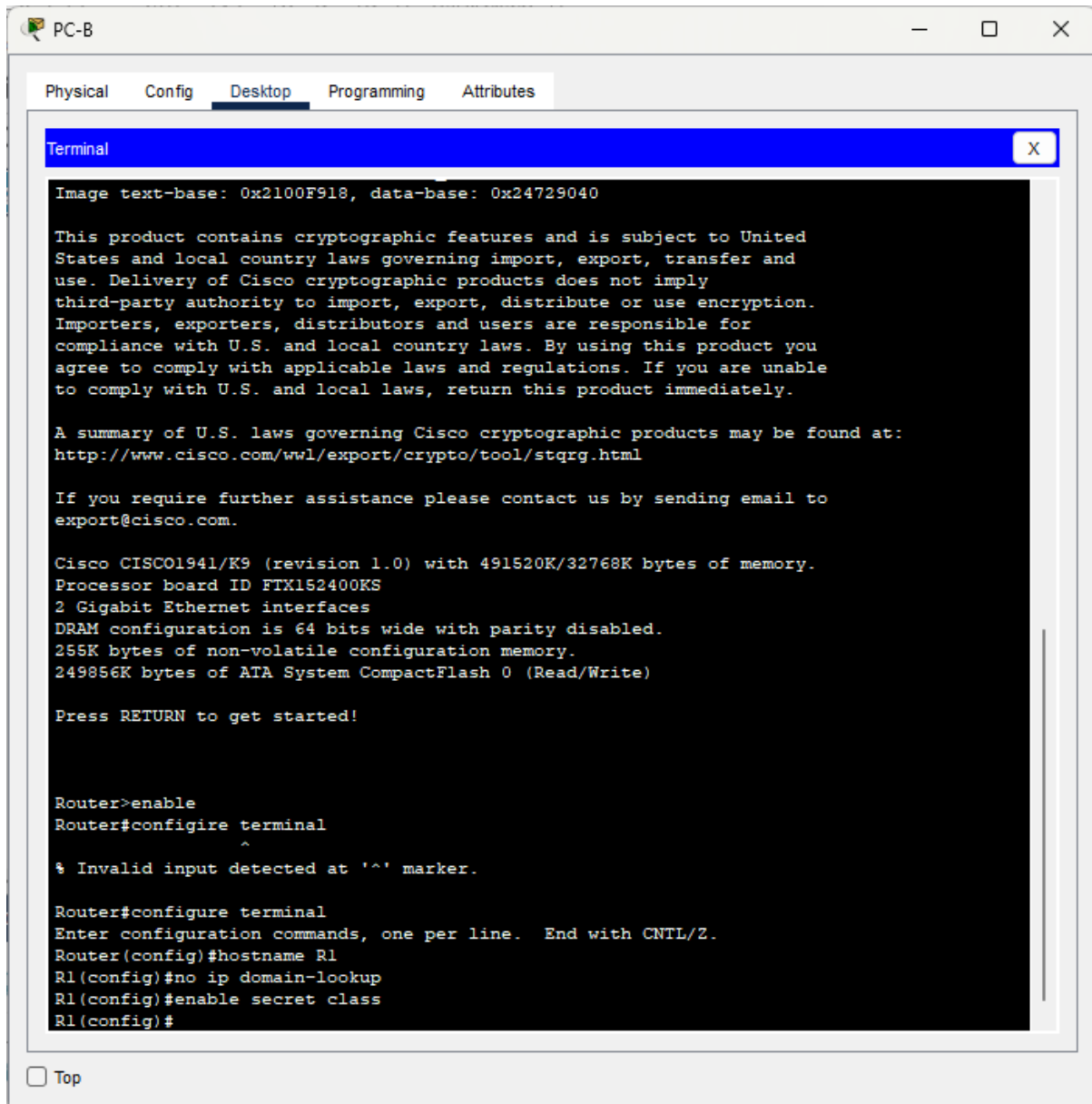
Router>enable
Router#configire terminal
      ^
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#no ip domain-lookup
R1(config)#
```

☐ Top

(e) Assign class as the privileged EXEC encrypted password

R1 (config) # enable secret class



The screenshot shows a terminal window titled "PC-B" with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, showing a terminal window with the following text:

```
Image text-base: 0x2100F918, data-base: 0x24729040

This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
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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!

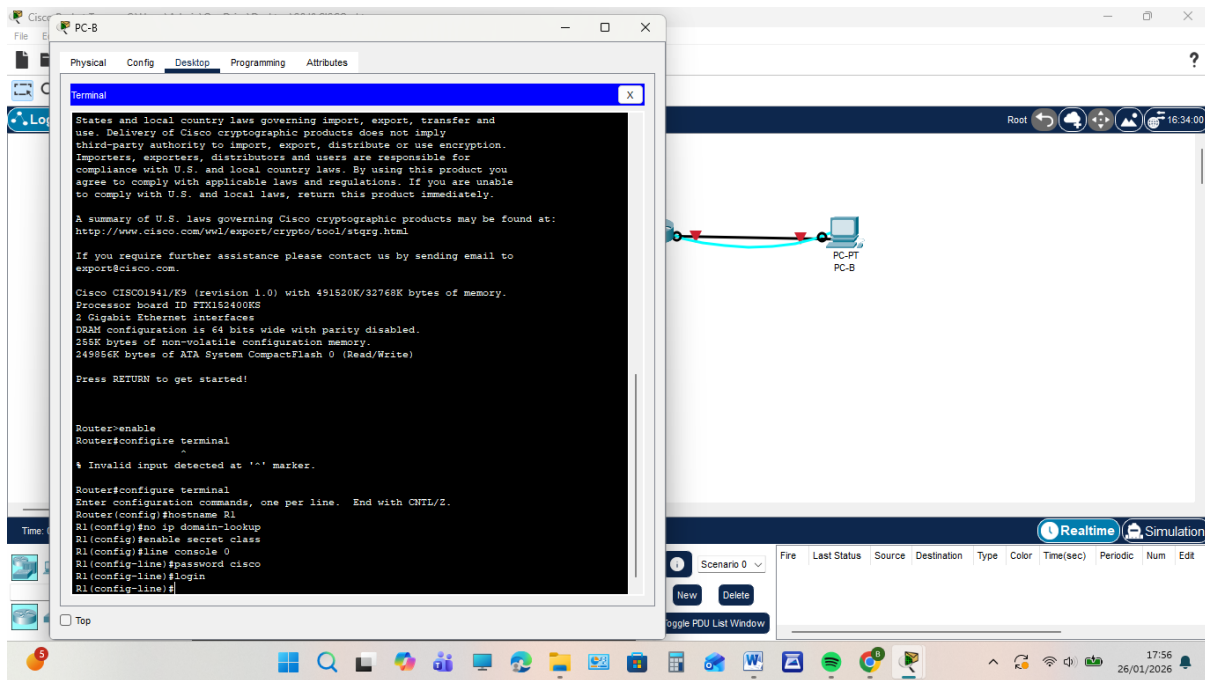
Router>enable
Router#configire terminal
      ^
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#no ip domain-lookup
R1(config)#enable secret class
R1(config)#
```

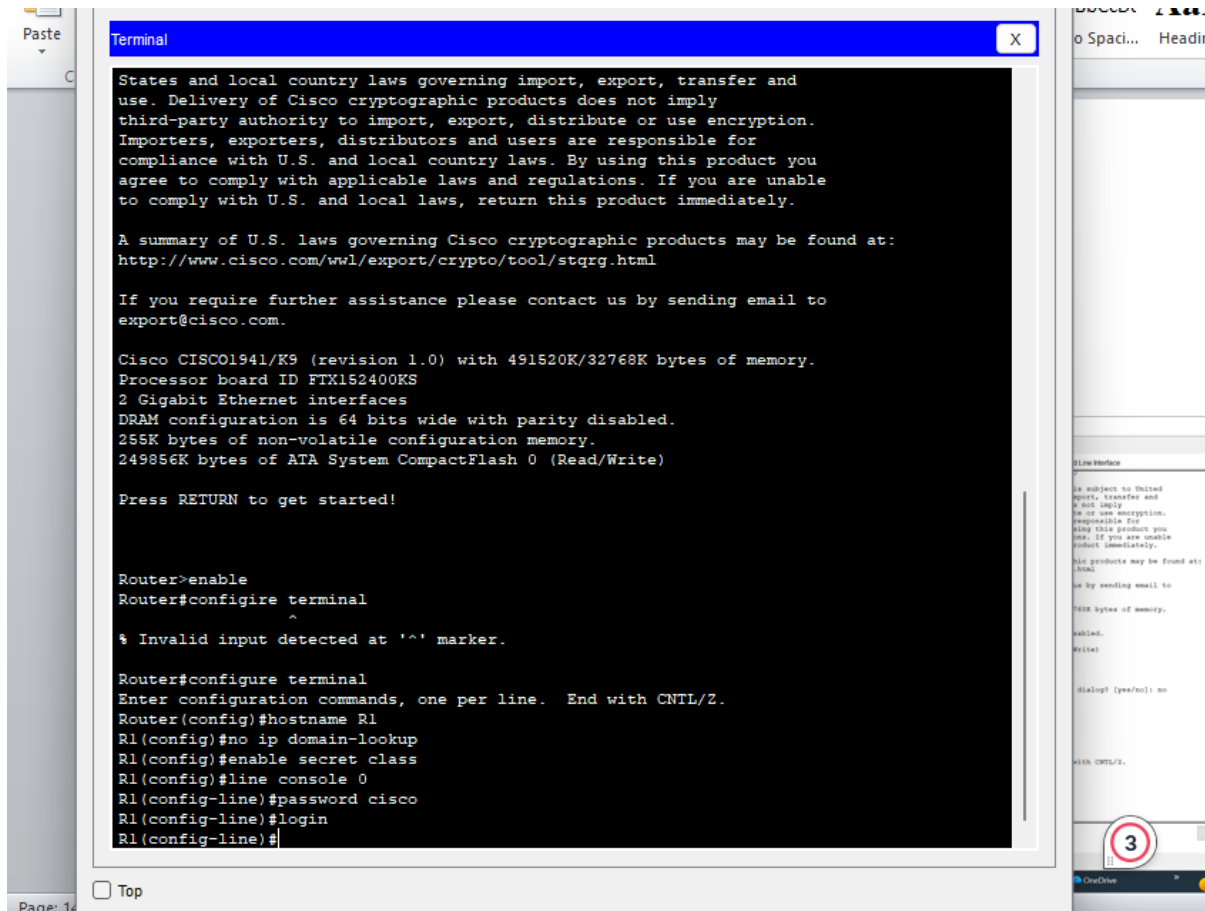
At the bottom of the terminal window, there is a checkbox labeled "Top".

(f) Assign cisco as the console password and enable login

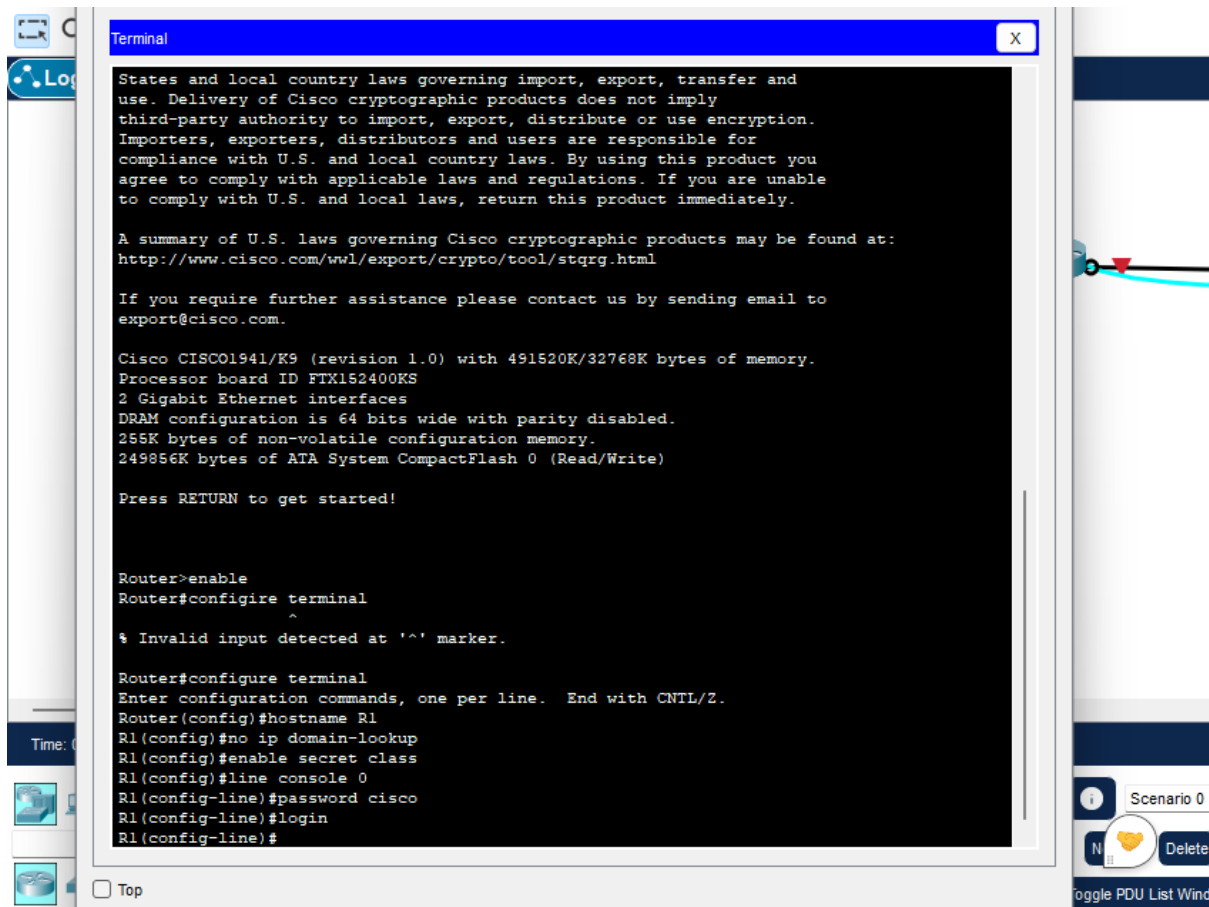
R1 (config) # line console 0



R2 (config-line) # password cisco



R1 (config-line) # login



The screenshot shows a terminal window titled "Terminal" with a blue header bar. The terminal displays the following text:

```

States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

Cisco CISC01941/K9 (revision 1.0) with 491520K/32768K bytes of memory.
Processor board ID FTX152400KS
2 Gigabit Ethernet interfaces
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!

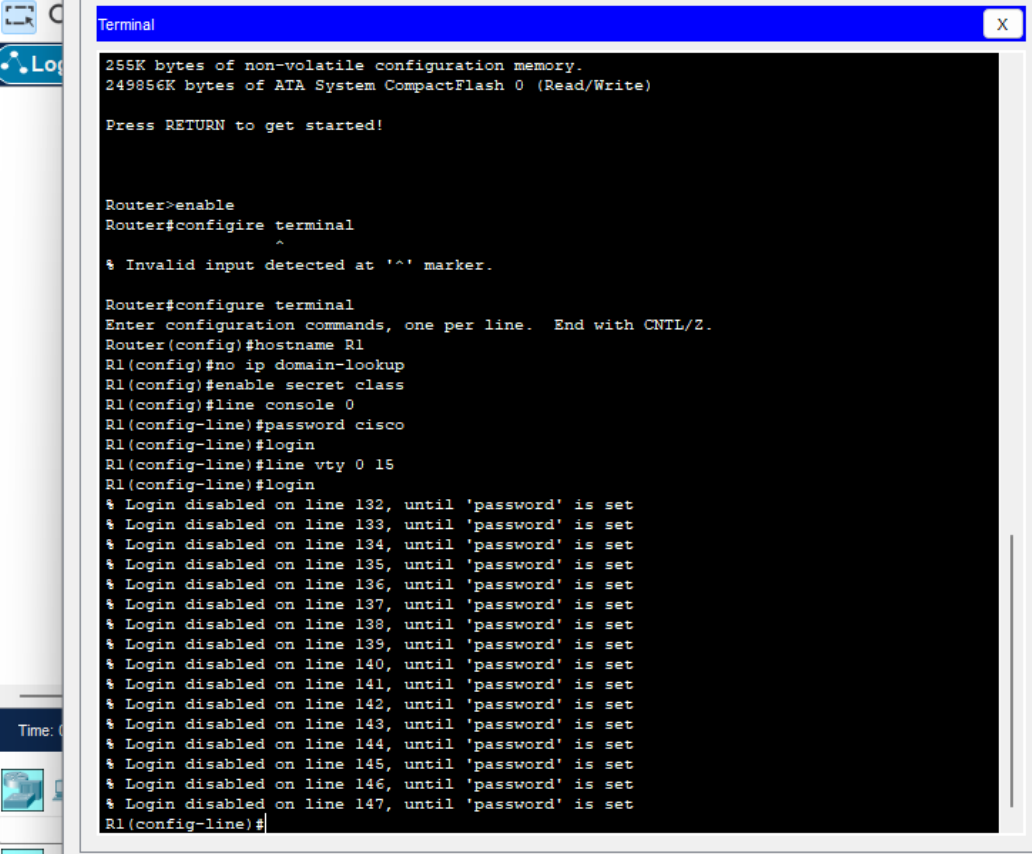
Router>enable
Router#configure terminal
      ^
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#no ip domain-lookup
R1(config)#enable secret class
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#
  
```

On the left side of the terminal window, there is a sidebar with a "Log" button and a "Time: 0" indicator. On the right side, there is a sidebar with a "Scenario 0" button, a "Delete" button, and a "Toggle PDU List Wind" button.

(g) Assign cisco as the VTY password & enable login

R1 (config) # line vty 0 4



The screenshot shows a terminal window with the following text:

```
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!

Router>enable
Router#configure terminal
      ^
% Invalid input detected at '^' marker.

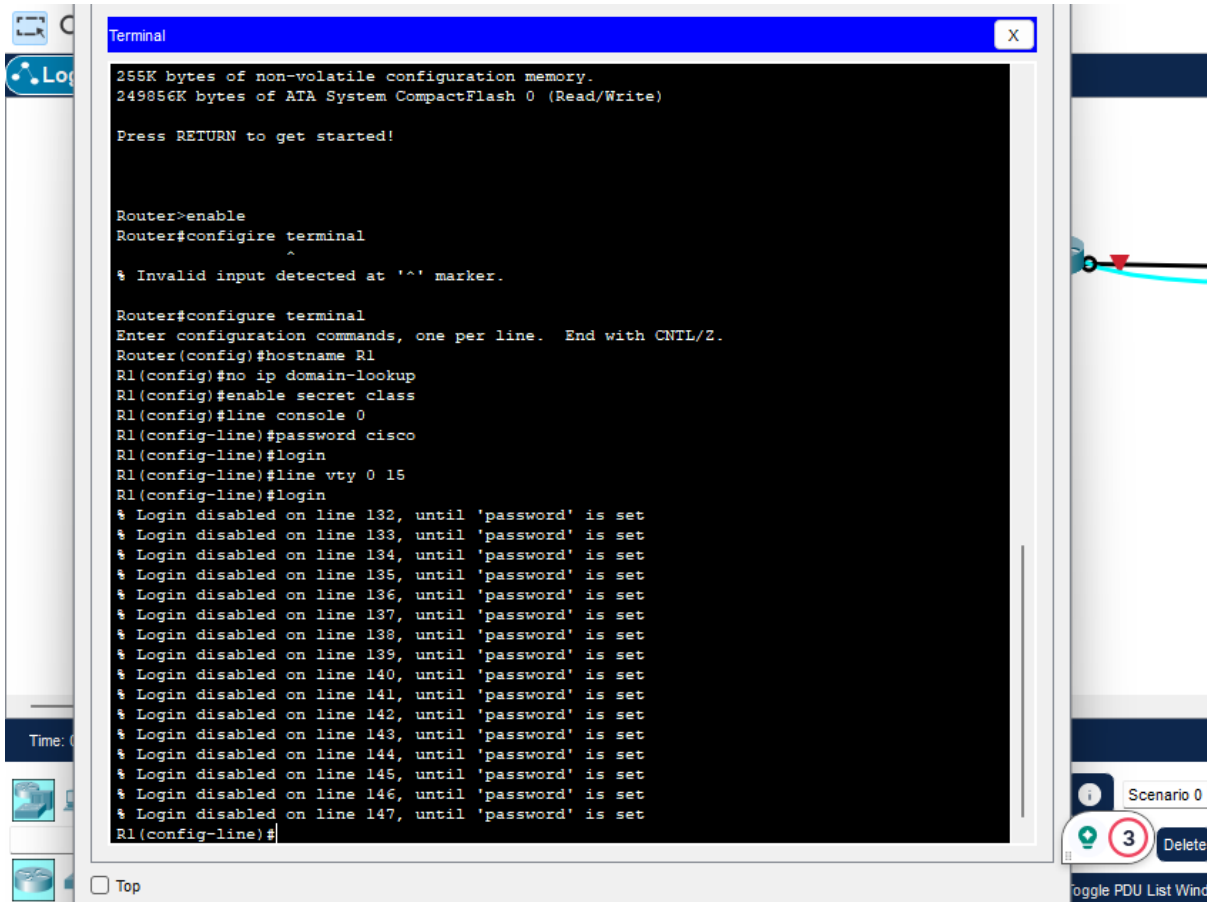
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#no ip domain-lookup
R1(config)#enable secret class
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#line vty 0 15
R1(config-line)#login
% Login disabled on line 132, until 'password' is set
% Login disabled on line 133, until 'password' is set
% Login disabled on line 134, until 'password' is set
% Login disabled on line 135, until 'password' is set
% Login disabled on line 136, until 'password' is set
% Login disabled on line 137, until 'password' is set
% Login disabled on line 138, until 'password' is set
% Login disabled on line 139, until 'password' is set
% Login disabled on line 140, until 'password' is set
% Login disabled on line 141, until 'password' is set
% Login disabled on line 142, until 'password' is set
% Login disabled on line 143, until 'password' is set
% Login disabled on line 144, until 'password' is set
% Login disabled on line 145, until 'password' is set
% Login disabled on line 146, until 'password' is set
% Login disabled on line 147, until 'password' is set
R1(config-line)#
```

On the right side of the terminal window, there is a sidebar with the following elements:

- A "Scenario 0" button.
- A "3" button with a green plus icon.
- A "Delete" button.
- A "Toggle PDU List Wind" button.

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

R1 (config-line) # password cisco



```
Terminal
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!

Router>enable
Router#configure terminal
^
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#no ip domain-lookup
R1(config)#enable secret class
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#line vty 0 15
R1(config-line)#login
% Login disabled on line 132, until 'password' is set
% Login disabled on line 133, until 'password' is set
% Login disabled on line 134, until 'password' is set
% Login disabled on line 135, until 'password' is set
% Login disabled on line 136, until 'password' is set
% Login disabled on line 137, until 'password' is set
% Login disabled on line 138, until 'password' is set
% Login disabled on line 139, until 'password' is set
% Login disabled on line 140, until 'password' is set
% Login disabled on line 141, until 'password' is set
% Login disabled on line 142, until 'password' is set
% Login disabled on line 143, until 'password' is set
% Login disabled on line 144, until 'password' is set
% Login disabled on line 145, until 'password' is set
% Login disabled on line 146, until 'password' is set
% Login disabled on line 147, until 'password' is set
R1(config-line)#
```

Time: 0

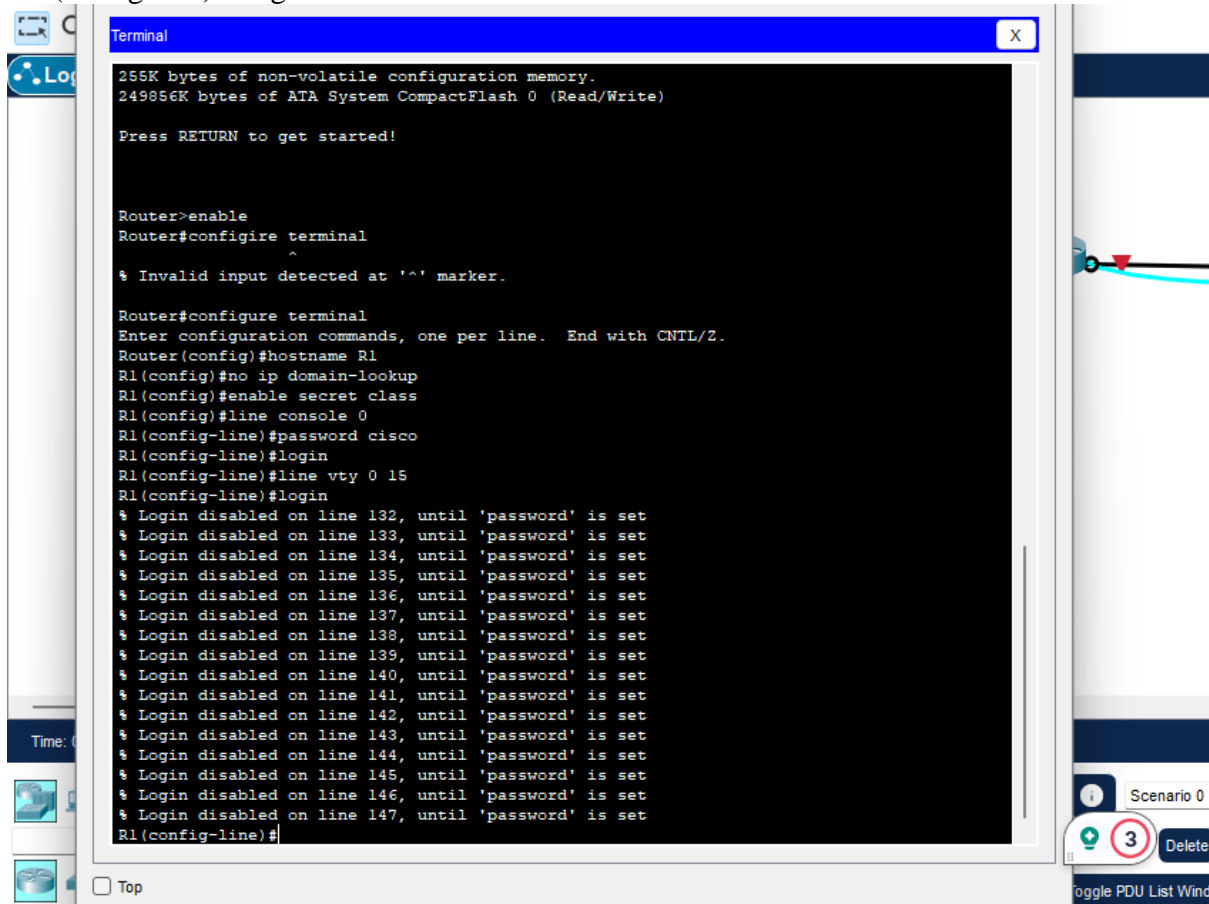
Scenario 0

3 Delete

Toggle PDU List Wind

Top

R1 (config-line) # login



```

Terminal
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

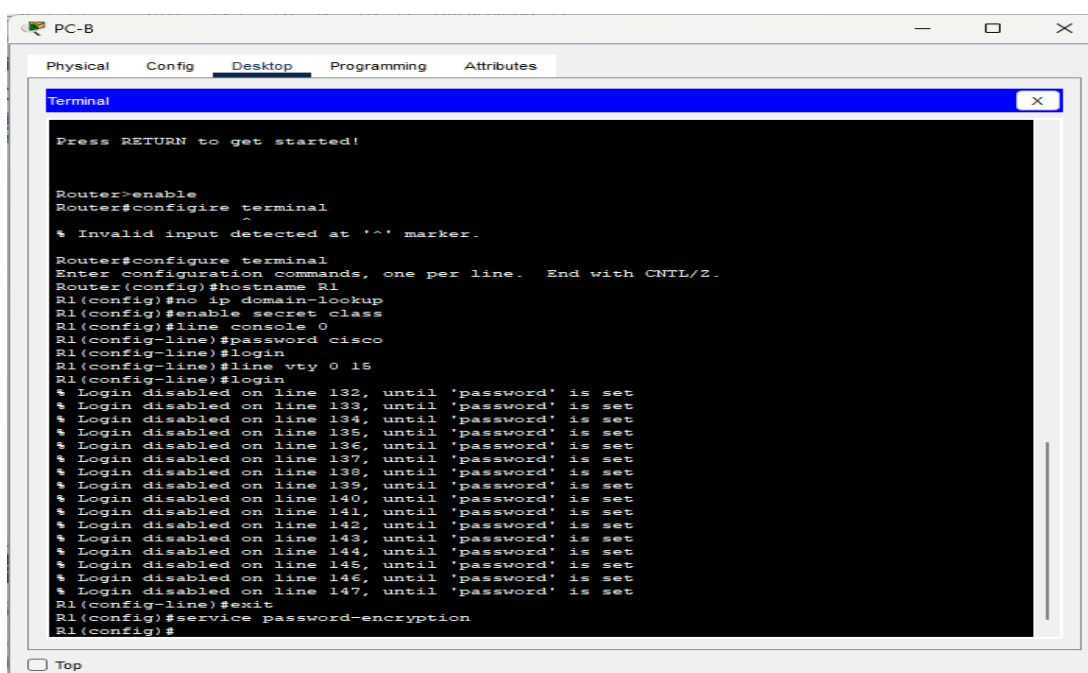
Press RETURN to get started!

Router>enable
Router#configure terminal
^
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#no ip domain-lookup
R1(config)#enable secret class
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#line vty 0 15
R1(config-line)#login
% Login disabled on line 132, until 'password' is set
% Login disabled on line 133, until 'password' is set
% Login disabled on line 134, until 'password' is set
% Login disabled on line 135, until 'password' is set
% Login disabled on line 136, until 'password' is set
% Login disabled on line 137, until 'password' is set
% Login disabled on line 138, until 'password' is set
% Login disabled on line 139, until 'password' is set
% Login disabled on line 140, until 'password' is set
% Login disabled on line 141, until 'password' is set
% Login disabled on line 142, until 'password' is set
% Login disabled on line 143, until 'password' is set
% Login disabled on line 144, until 'password' is set
% Login disabled on line 145, until 'password' is set
% Login disabled on line 146, until 'password' is set
% Login disabled on line 147, until 'password' is set
R1(config-line)#
  
```

(h) Encrypt the plaintext passwords

R1 (config) # service password-encryption



```

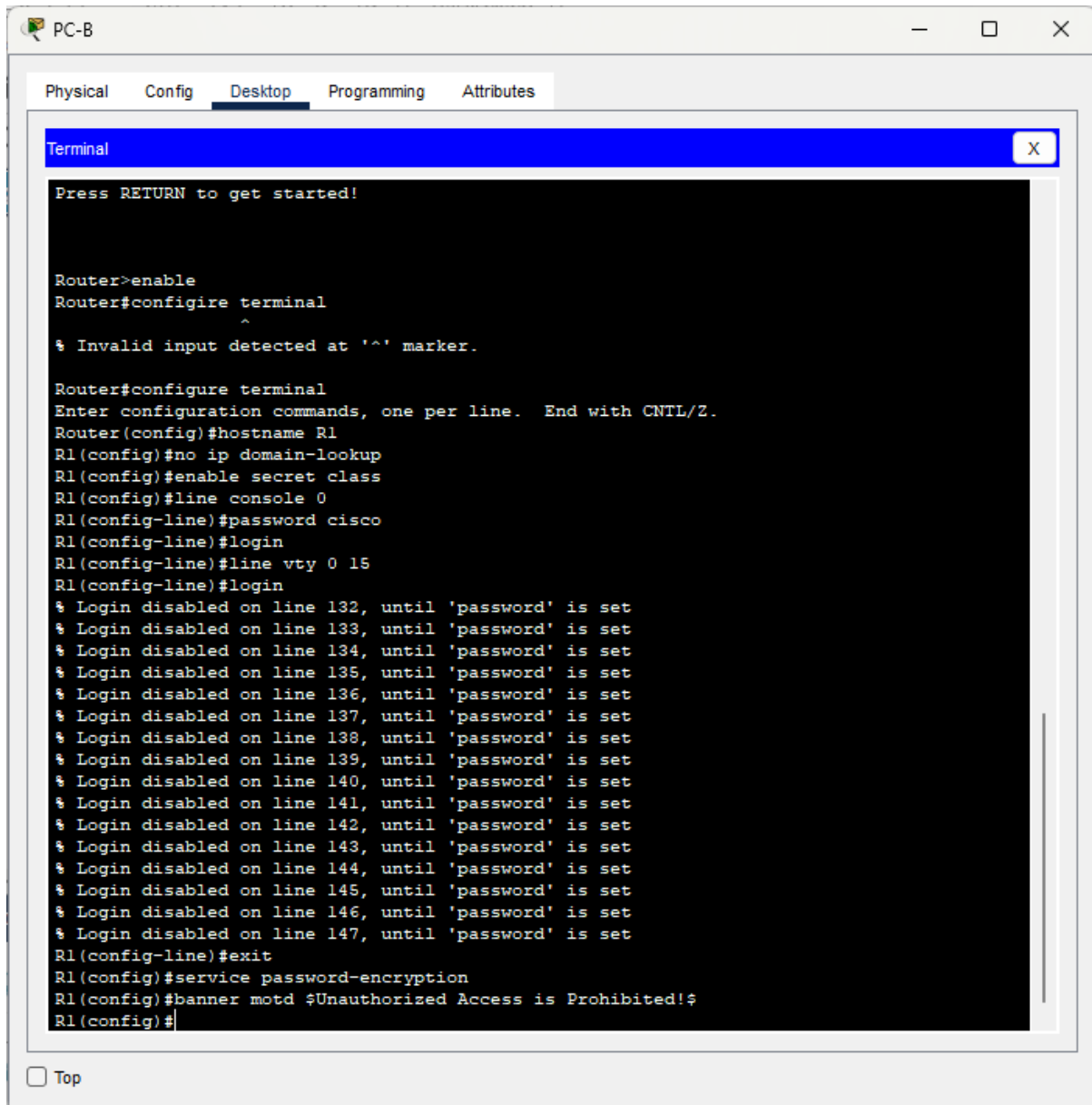
PC-B
Physical Config Desktop Programming Attributes
Terminal
Press RETURN to get started!

Router>enable
Router#configure terminal
^
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#no ip domain-lookup
R1(config)#enable secret class
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#line vty 0 15
R1(config-line)#login
% Login disabled on line 132, until 'password' is set
% Login disabled on line 133, until 'password' is set
% Login disabled on line 134, until 'password' is set
% Login disabled on line 135, until 'password' is set
% Login disabled on line 136, until 'password' is set
% Login disabled on line 137, until 'password' is set
% Login disabled on line 138, until 'password' is set
% Login disabled on line 139, until 'password' is set
% Login disabled on line 140, until 'password' is set
% Login disabled on line 141, until 'password' is set
% Login disabled on line 142, until 'password' is set
% Login disabled on line 143, until 'password' is set
% Login disabled on line 144, until 'password' is set
% Login disabled on line 145, until 'password' is set
% Login disabled on line 146, until 'password' is set
% Login disabled on line 147, until 'password' is set
R1(config-line)#exit
R1(config)#service password-encryption
R1(config)#
  
```

(i) Create a banner that warns anyone accessing the device that unauthorized access is prohibited

R1 (config) # banner motd \$Authorized Users Only! \$



```

PC-B
Physical  Config  Desktop  Programming  Attributes
Terminal
Press RETURN to get started!

Router>enable
Router#configure terminal
^
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#no ip domain-lookup
R1(config)#enable secret class
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
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R1(config-line)#login
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% Login disabled on line 138, until 'password' is set
% Login disabled on line 139, until 'password' is set
% Login disabled on line 140, until 'password' is set
% Login disabled on line 141, until 'password' is set
% Login disabled on line 142, until 'password' is set
% Login disabled on line 143, until 'password' is set
% Login disabled on line 144, until 'password' is set
% Login disabled on line 145, until 'password' is set
% Login disabled on line 146, until 'password' is set
% Login disabled on line 147, until 'password' is set
R1(config-line)#exit
R1(config)#service password-encryption
R1(config)#banner motd $Unauthorized Access is Prohibited!$
R1(config)#
  
```

(j) Configure & activate both interfaces on the router

R1 (config) # interface g0/0/0

R1 (config-if) # ip address 192.168.0.1 255.255.255.0

R1 (config-if) # ipv6 address 2001:db8:acad:: 1/64

R1 (config-if) # ipv6 address FE80::1 link-local

R1 (config-if) # no shutdown

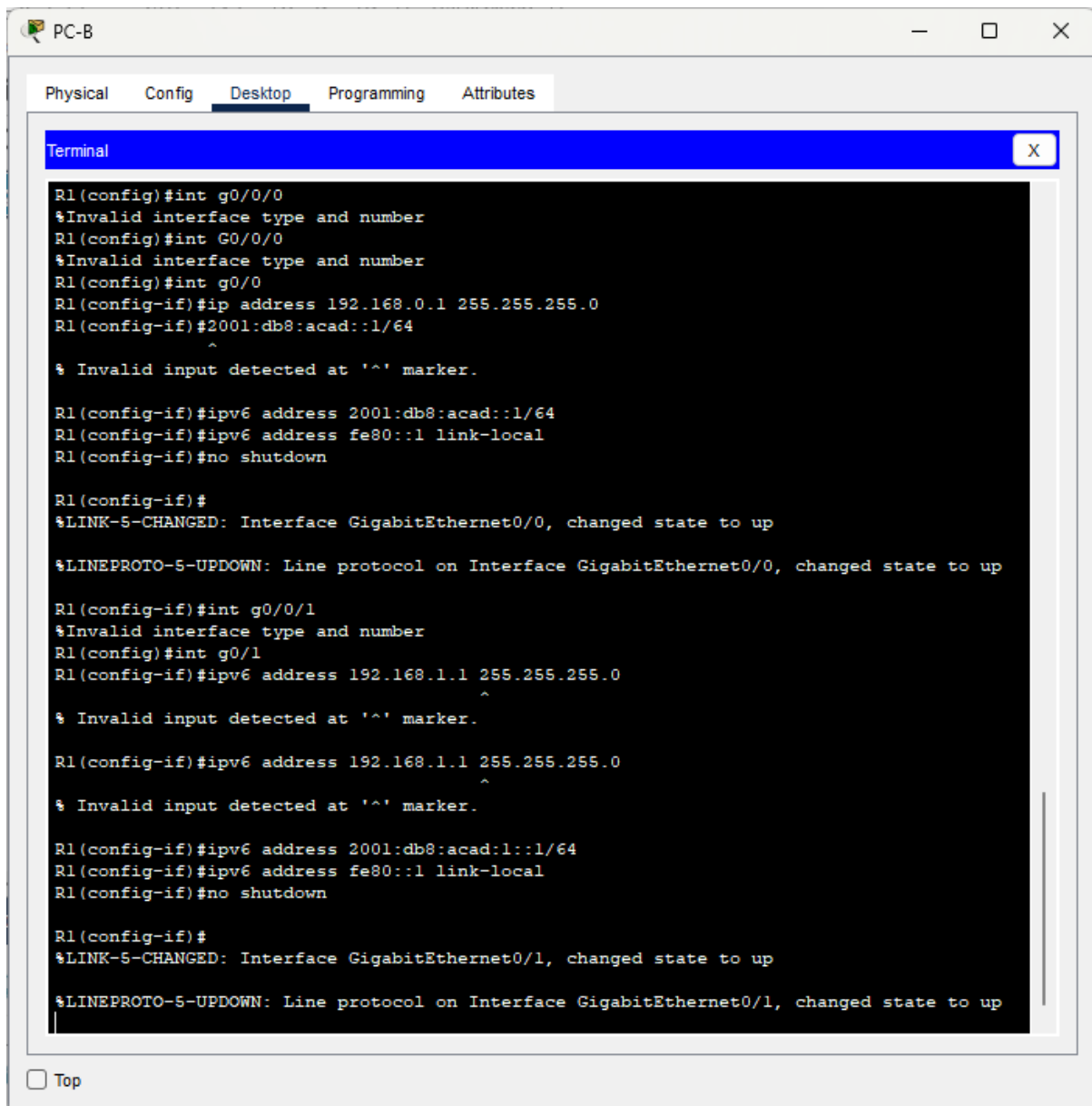
R1 (config-if) # exit

R1 (config) # interface g0/0/1

R1 (config-if) # ip address 192.168.1.1 255.255.255.0

R1 (config-if) # ipv6 address 2001:db8:acad:1::1/64

R1 (config-if) # ipv6 address fe80::1 link-local



```
PC-B
Physical Config Desktop Programming Attributes
Terminal
R1(config)#int g0/0/0
%Invalid interface type and number
R1(config)#int G0/0/0
%Invalid interface type and number
R1(config)#int g0/0
R1(config-if)#ip address 192.168.0.1 255.255.255.0
R1(config-if)#2001:db8:acad::1/64
^
% Invalid input detected at '^' marker.

R1(config-if)#ipv6 address 2001:db8:acad::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

R1(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

R1(config-if)#int g0/0/1
%Invalid interface type and number
R1(config)#int g0/1
R1(config-if)#ip address 192.168.1.1 255.255.255.0
^
% Invalid input detected at '^' marker.

R1(config-if)#ipv6 address 192.168.1.1 255.255.255.0
^
% Invalid input detected at '^' marker.

R1(config-if)#ipv6 address 2001:db8:acad:1::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

R1(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

☐ Top
```

Lab –Build a Switch and Router Network

R1 (config-if) # no shutdown

R1 (Config-if) # exit

(k) R1 (config) # interface g0/0/1

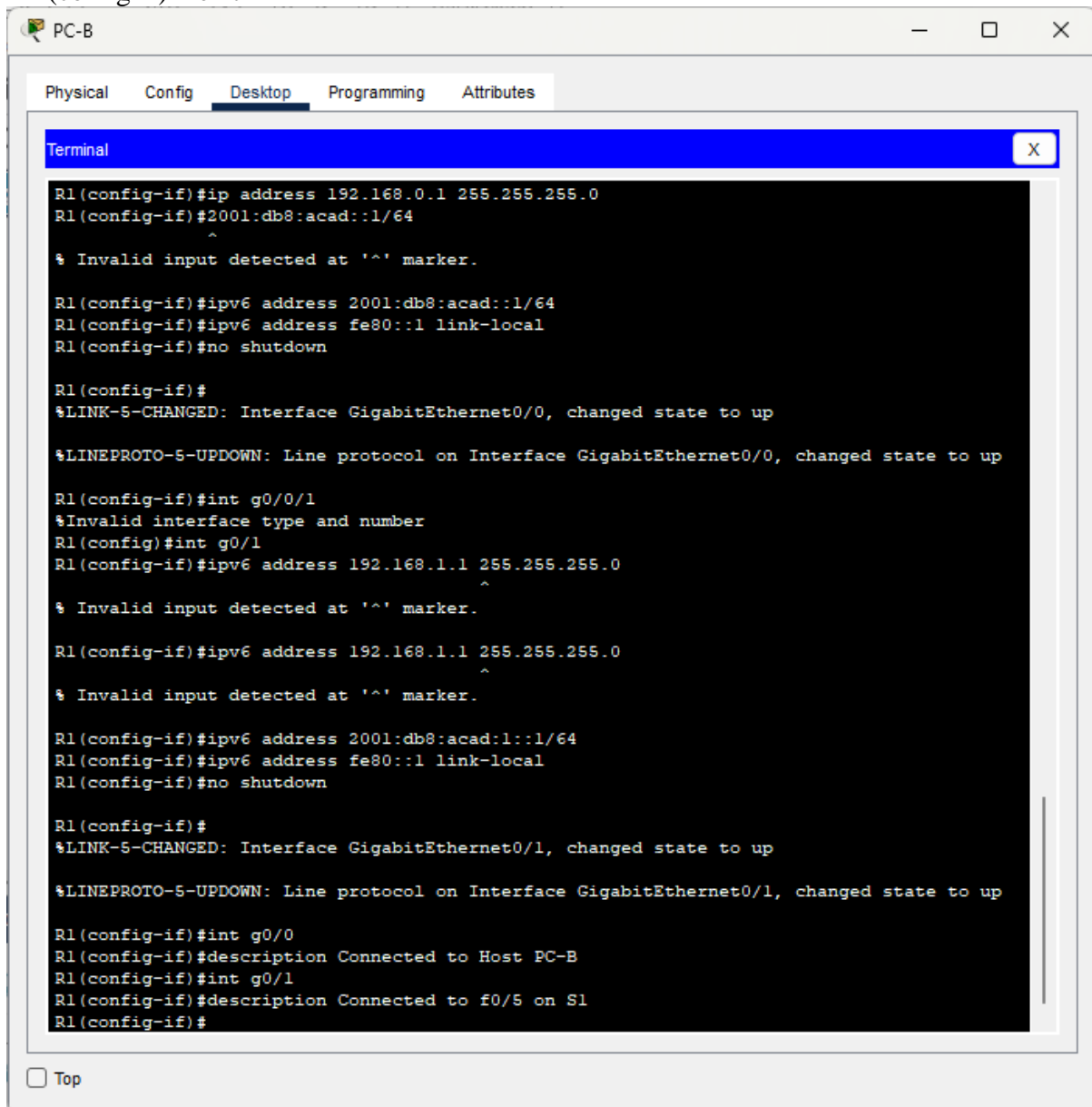
R1 (config-if) description Connected to F0/5 on S1

R1 (config-if) # exit

R1 (config) # interface g0/0/0

R1 (config-if) # description Connected to the Host PC-B

R1 (config-if) # exit



```
PC-B
Physical  Config  Desktop  Programming  Attributes
Terminal
R1(config-if)#ip address 192.168.0.1 255.255.255.0
R1(config-if)#2001:db8:acad::1/64
^
% Invalid input detected at '^' marker.

R1(config-if)#ipv6 address 2001:db8:acad::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

R1(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

R1(config-if)#int g0/0/1
%Invalid interface type and number
R1(config)#int g0/1
R1(config-if)#ip address 192.168.1.1 255.255.255.0
^
% Invalid input detected at '^' marker.

R1(config-if)#ipv6 address 192.168.1.1 255.255.255.0
^
% Invalid input detected at '^' marker.

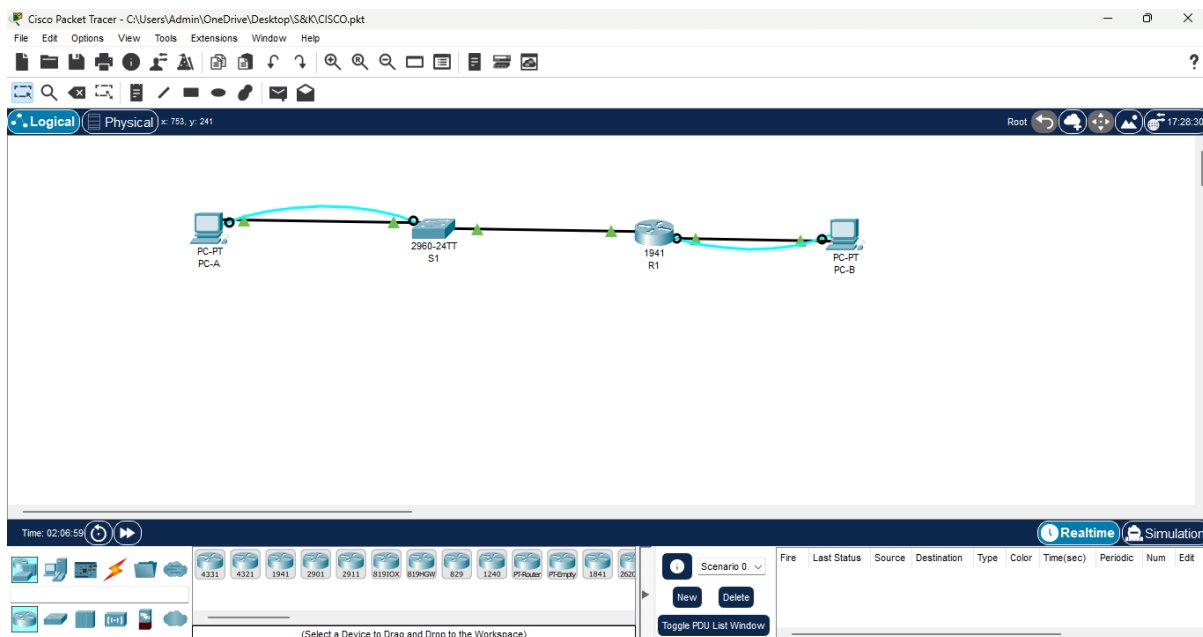
R1(config-if)#ipv6 address 2001:db8:acad:1::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

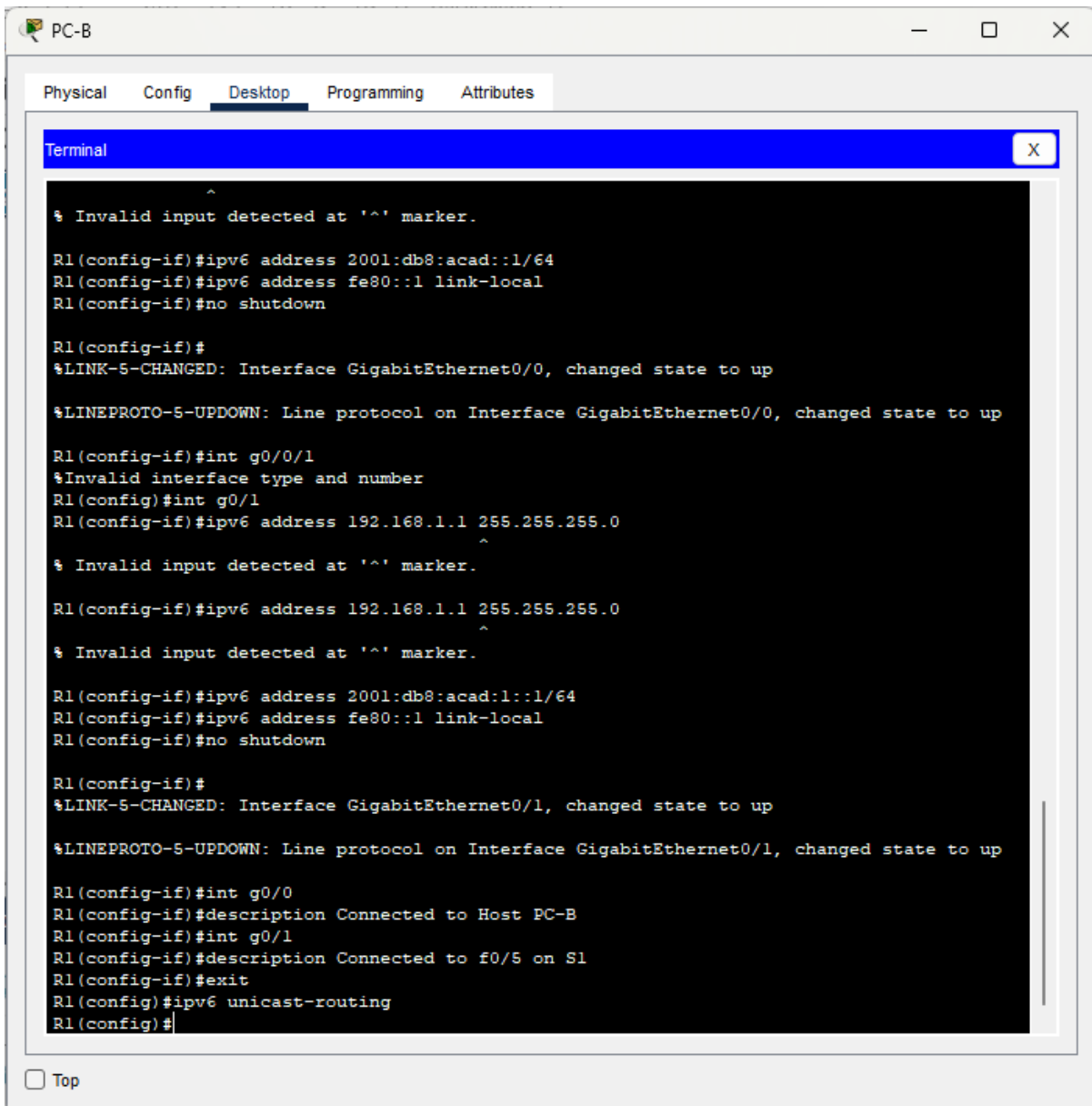
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

R1(config-if)#int g0/0
R1(config-if)#description Connected to Host PC-B
R1(config-if)#int g0/1
R1(config-if)#description Connected to f0/5 on S1
R1(config-if)#
```

☐ Top



(l) R1 (config) # ipv6 unicast-routing



```
PC-B
Physical Config Desktop Programming Attributes
Terminal
% Invalid input detected at '^' marker.
R1(config-if)#ipv6 address 2001:db8:acad::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

R1(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

R1(config-if)#int g0/0/1
%Invalid interface type and number
R1(config)#int g0/1
R1(config-if)#ipv6 address 192.168.1.1 255.255.255.0
% Invalid input detected at '^' marker.
R1(config-if)#ipv6 address 192.168.1.1 255.255.255.0
% Invalid input detected at '^' marker.
R1(config-if)#ipv6 address 2001:db8:acad:1::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

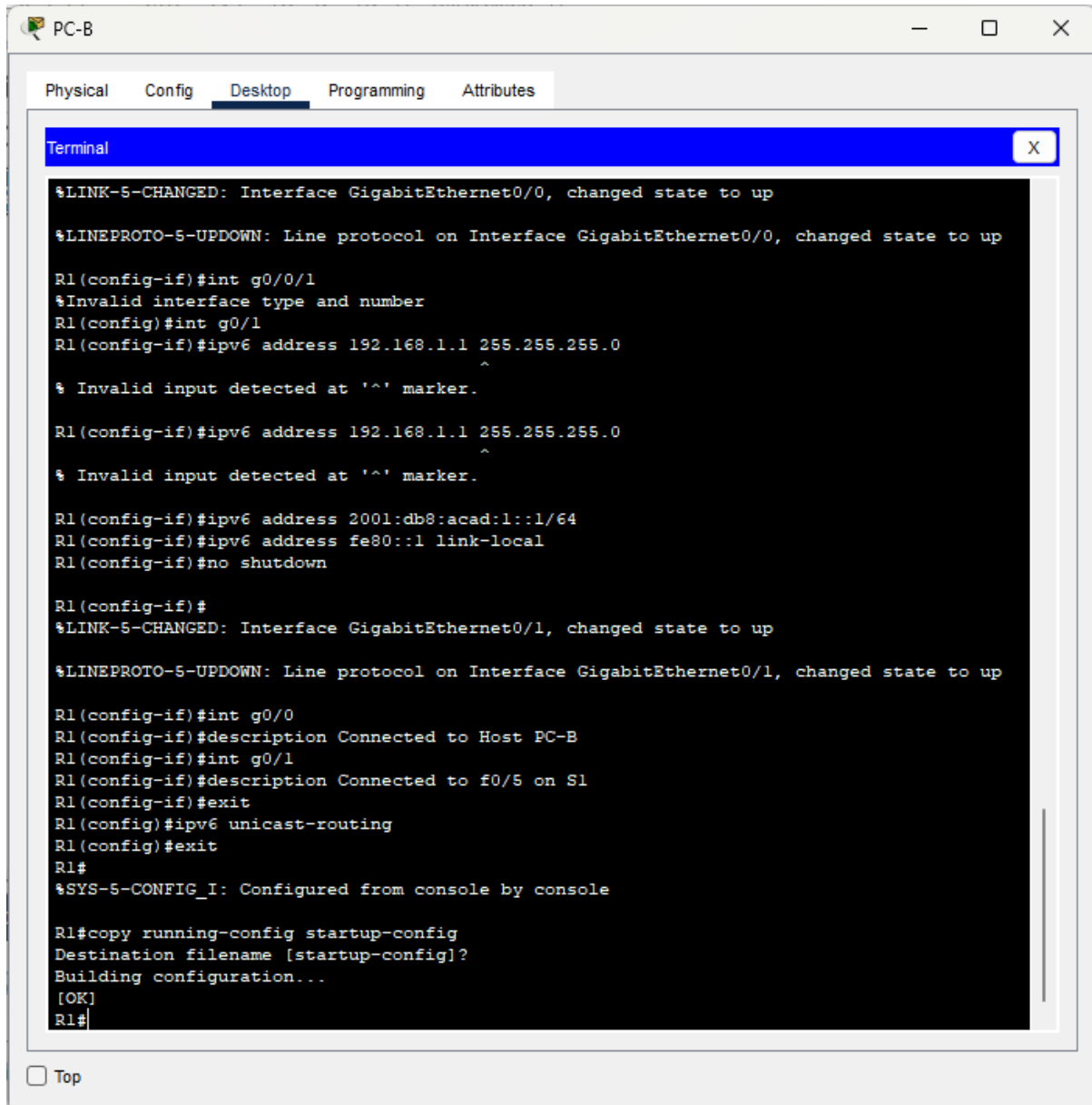
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

R1(config-if)#int g0/0
R1(config-if)#description Connected to Host PC-B
R1(config-if)#int g0/1
R1(config-if)#description Connected to f0/5 on S1
R1(config-if)#exit
R1(config)#ipv6 unicast-routing
R1(config)#
```

☐ Top

(m) R1 (config) # exit

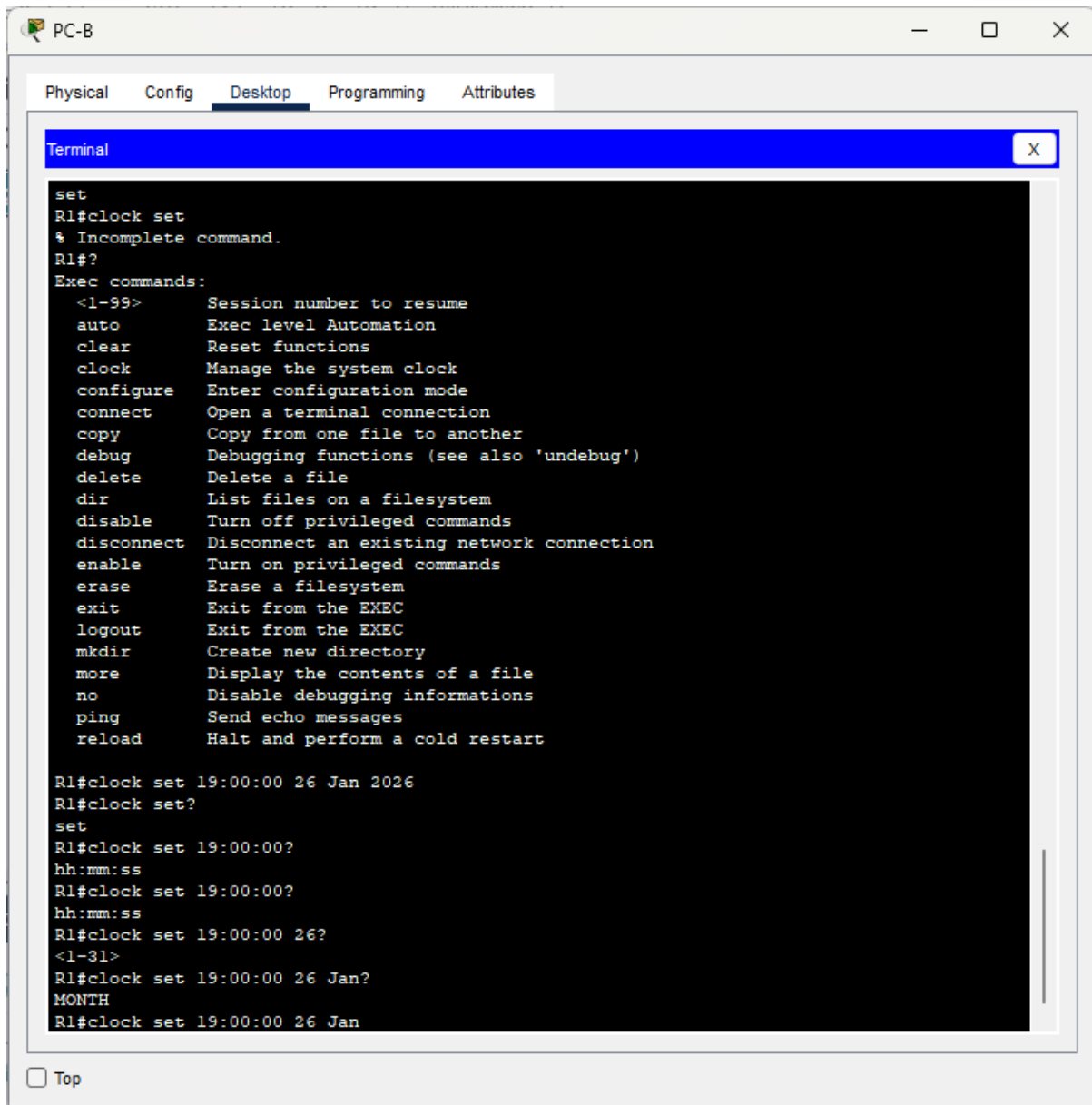
R1# copy running-config startup-config



```
PC-B
Physical  Config  Desktop  Programming  Attributes
Terminal
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
R1(config-if)#int g0/0/1
%Invalid interface type and number
R1(config)#int g0/1
R1(config-if)#ipv6 address 192.168.1.1 255.255.255.0
^
% Invalid input detected at '^' marker.
R1(config-if)#ipv6 address 192.168.1.1 255.255.255.0
^
% Invalid input detected at '^' marker.
R1(config-if)#ipv6 address 2001:db8:acad:1::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown
R1(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
R1(config-if)#int g0/0
R1(config-if)#description Connected to Host PC-B
R1(config-if)#int g0/1
R1(config-if)#description Connected to f0/5 on S1
R1(config-if)#exit
R1(config)#ipv6 unicast-routing
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

☐ Top

(n) R1# clock set where I set the clock



The screenshot shows a terminal window titled "PC-B" with tabs for Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is active, and a "Terminal" window is open. The terminal displays the following commands and output:

```
set
R1#clock set
% Incomplete command.
R1#?
Exec commands:
<1-99>      Session number to resume
auto        Exec level Automation
clear       Reset functions
clock       Manage the system clock
configure   Enter configuration mode
connect     Open a terminal connection
copy        Copy from one file to another
debug       Debugging functions (see also 'undebug')
delete      Delete a file
dir         List files on a filesystem
disable     Turn off privileged commands
disconnect  Disconnect an existing network connection
enable      Turn on privileged commands
erase       Erase a filesystem
exit        Exit from the EXEC
logout      Exit from the EXEC
mkdir       Create new directory
more        Display the contents of a file
no          Disable debugging informations
ping        Send echo messages
reload      Halt and perform a cold restart

R1#clock set 19:00:00 26 Jan 2026
R1#clock set?
set
R1#clock set 19:00:00?
hh:mm:ss
R1#clock set 19:00:00?
hh:mm:ss
R1#clock set 19:00:00 26?
<1-31>
R1#clock set 19:00:00 26 Jan?
MONTH
R1#clock set 19:00:00 26 Jan
```

At the bottom of the terminal window, there is a checkbox labeled "Top".

(o) Ping PC-B from CMD window on PC-A

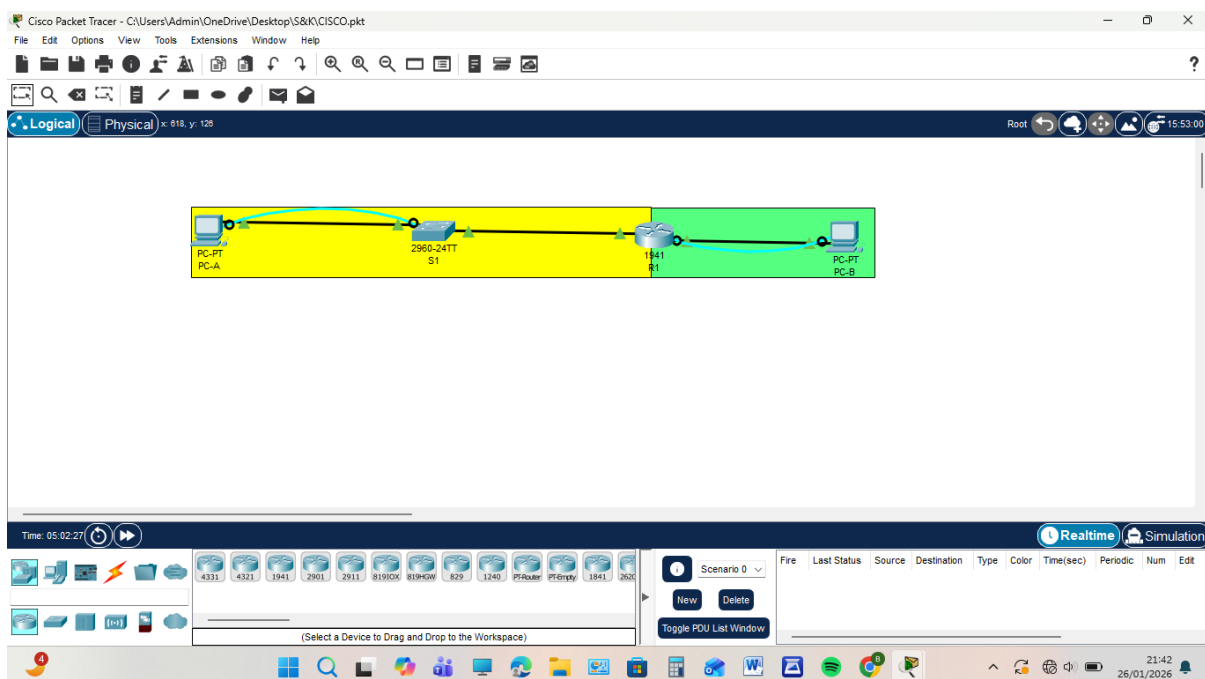
```
C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=9ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=3ms TTL=128
Reply from 192.168.1.3: bytes=32 time=4ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 4ms

C:\>
```

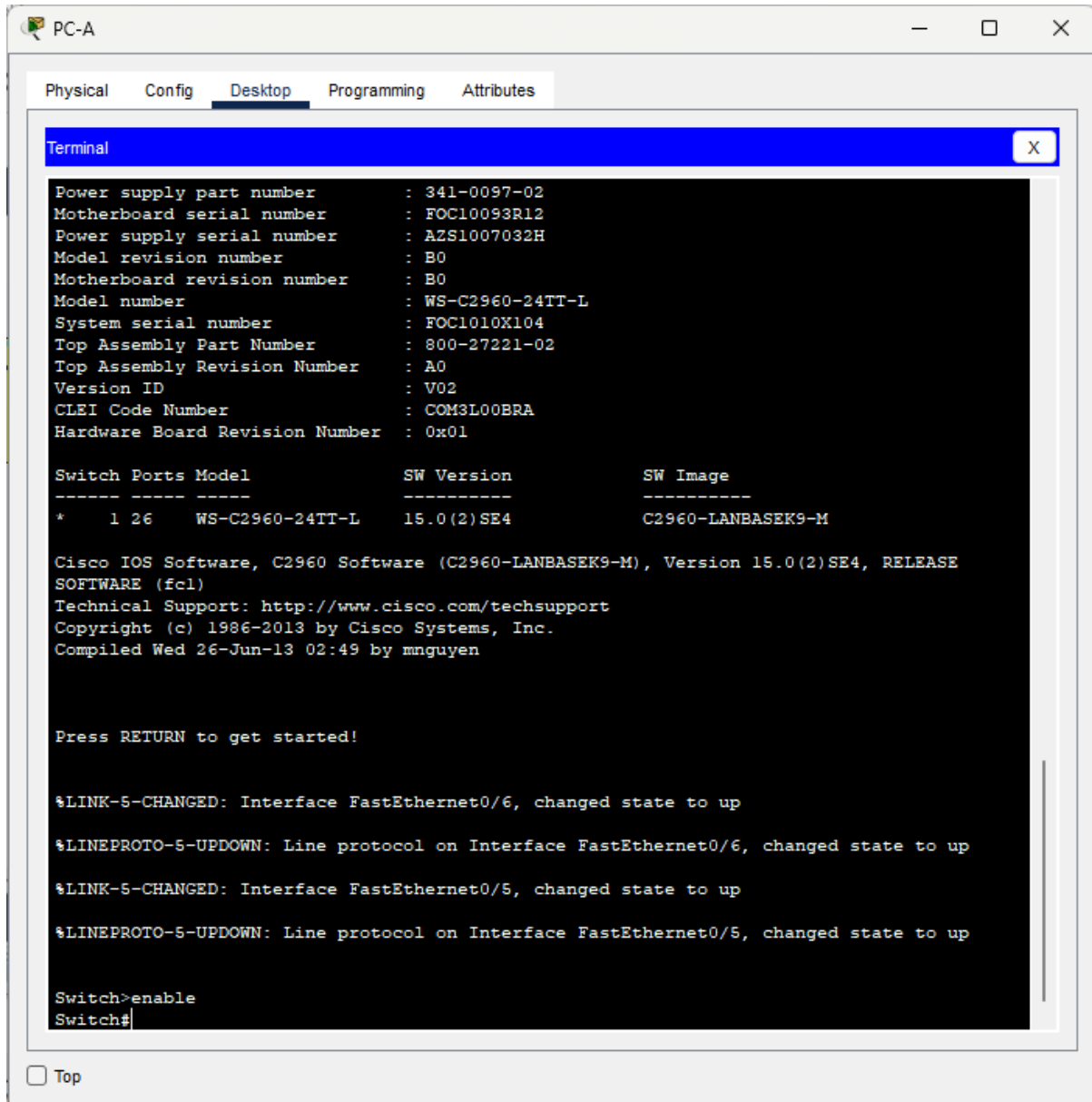


The router is being in traffic across the two subnets, the yellow part is the first and the green part is the second subnet each which will turn off the interfaces which are connected through the basis

Step3: Configure the switch

(a) Console into the switch and enable privileged EXEC mode

Here I console the switch



```
PC-A
Physical Config Desktop Programming Attributes
Terminal
Power supply part number      : 341-0097-02
Motherboard serial number    : FOC10093R12
Power supply serial number    : AZS1007032H
Model revision number        : B0
Motherboard revision number   : B0
Model number                  : WS-C2960-24TT-L
System serial number          : FOC1010X104
Top Assembly Part Number      : 800-27221-02
Top Assembly Revision Number  : A0
Version ID                    : V02
CLEI Code Number              : COM3L00BRA
Hardware Board Revision Number : 0x01

Switch Ports Model          SW Version  SW Image
-----
*  1 26  WS-C2960-24TT-L  15.0(2)SE4  C2960-LANBASEK9-M

Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE
SOFTWARE (fcl)
Technical Support: http://www.cisco.com/techsupport
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Compiled Wed 26-Jun-13 02:49 by mnnguyen

Press RETURN to get started!

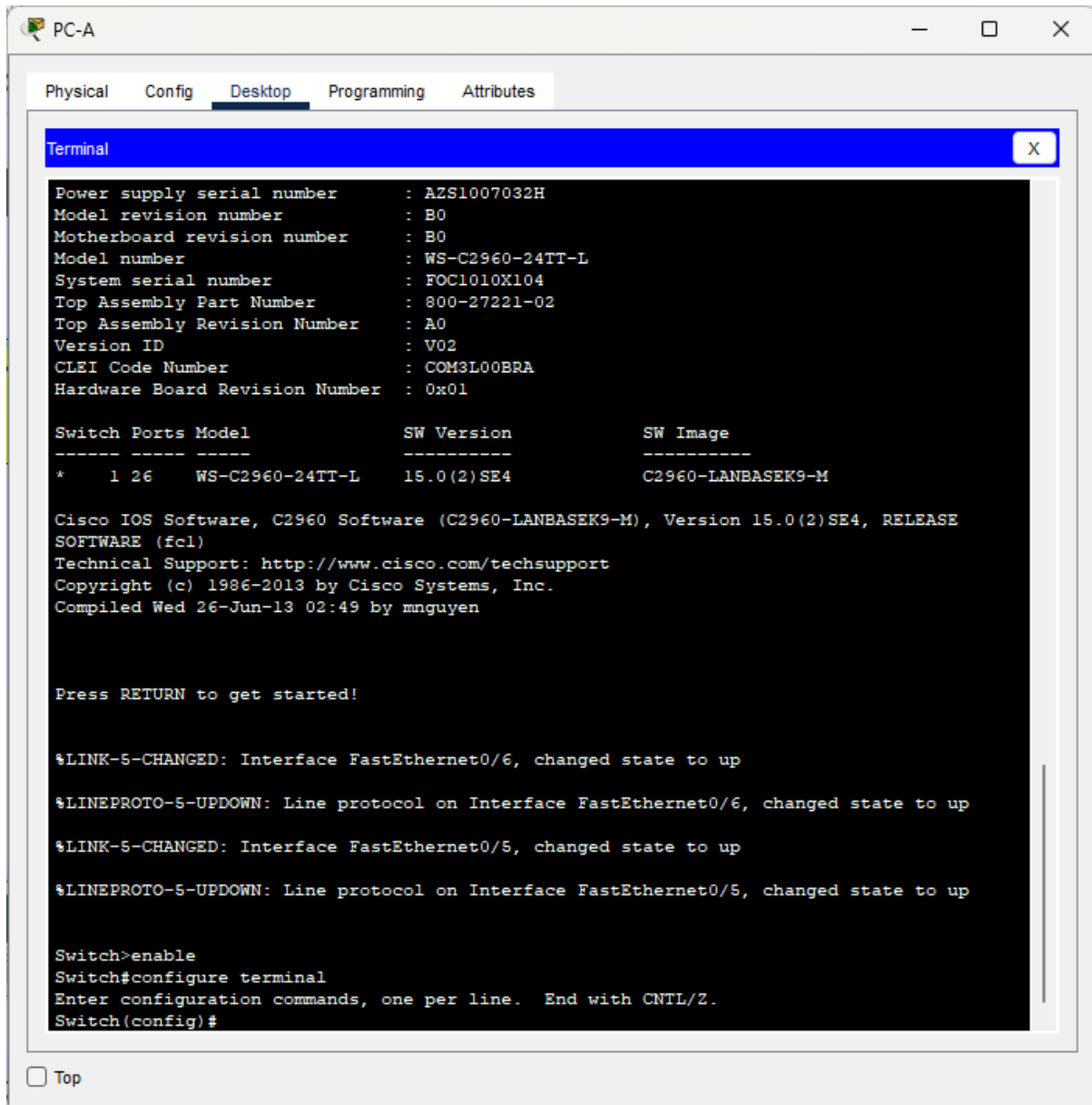
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up

Switch>enable
Switch#
```

☐ Top

(b) Enter configuration mode

It's in a configuration mode



The screenshot shows a window titled "PC-A" with a tabbed interface. The "Desktop" tab is active, displaying a terminal window. The terminal output shows the following information:

```
Power supply serial number : AZS1007032H
Model revision number      : B0
Motherboard revision number : B0
Model number               : WS-C2960-24TT-L
System serial number       : FOC1010X104
Top Assembly Part Number   : 800-27221-02
Top Assembly Revision Number : A0
Version ID                 : V02
CLEI Code Number          : COM3L00BRA
Hardware Board Revision Number : 0x01
```

| Switch | Ports | Model | SW Version | SW Image |
|--------|-------|-----------------|------------|-------------------|
| * | 1 26 | WS-C2960-24TT-L | 15.0(2)SE4 | C2960-LANBASEK9-M |

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Compiled Wed 26-Jun-13 02:49 by mnguyen

Press RETURN to get started!

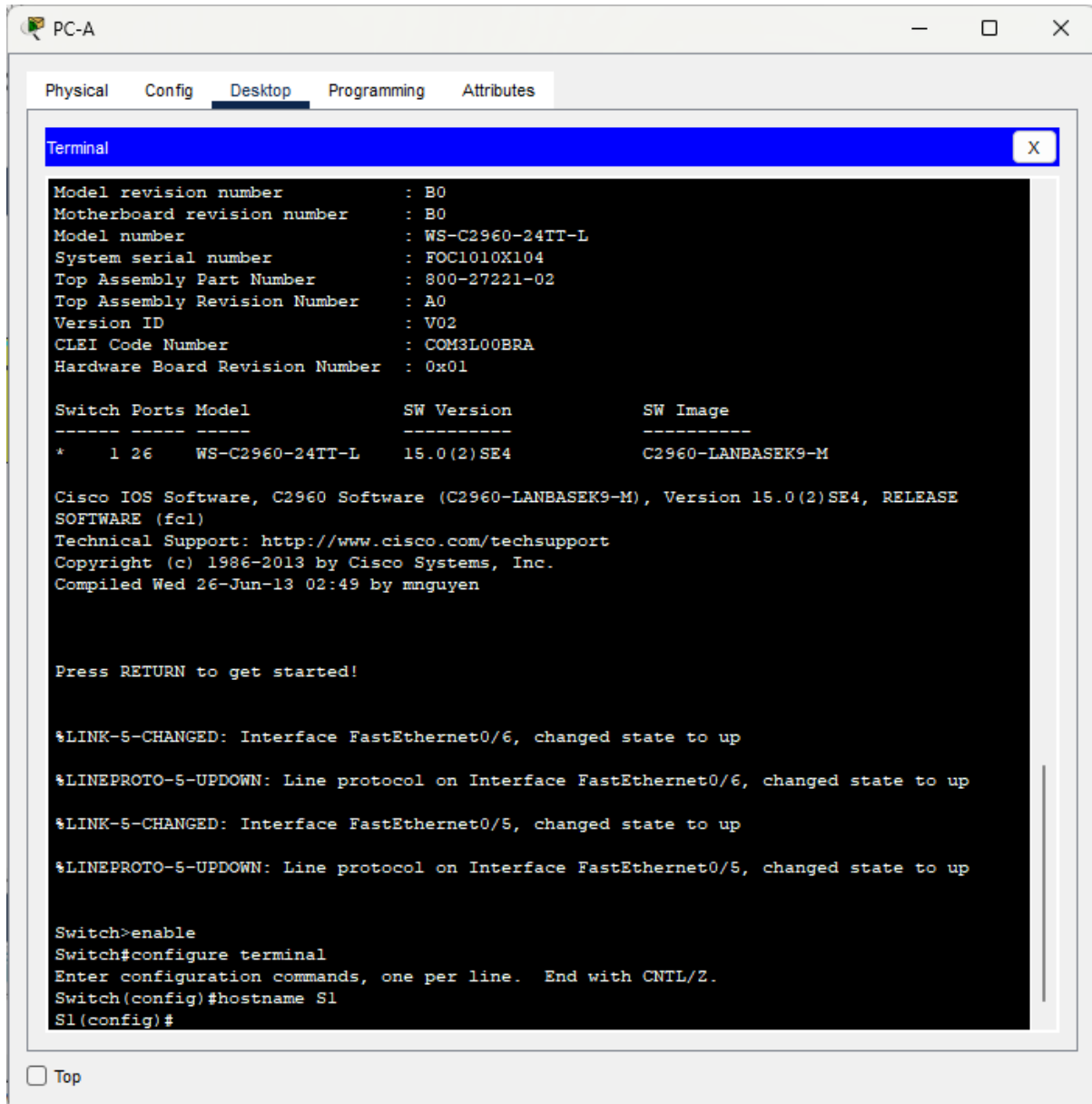
```
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up
```

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
```

At the bottom of the window, there is a checkbox labeled "Top".

(c) Assign a device name to the switch

I assigned it a device name, enable



The screenshot shows a PC window titled "PC-A" with a tabbed interface. The "Desktop" tab is active, displaying a terminal window. The terminal output shows the following information:

```
Model revision number      : B0
Motherboard revision number : B0
Model number               : WS-C2960-24TT-L
System serial number       : FOC1010X104
Top Assembly Part Number   : 800-27221-02
Top Assembly Revision Number : A0
Version ID                 : V02
CLEI Code Number           : COM3L00BRA
Hardware Board Revision Number : 0x01
```

| Switch | Ports | Model | SW Version | SW Image |
|--------|-------|-----------------|------------|-------------------|
| * | 1 26 | WS-C2960-24TT-L | 15.0(2)SE4 | C2960-LANBASEK9-M |

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Technical Support: <http://www.cisco.com/techsupport>
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Compiled Wed 26-Jun-13 02:49 by mnnguyen

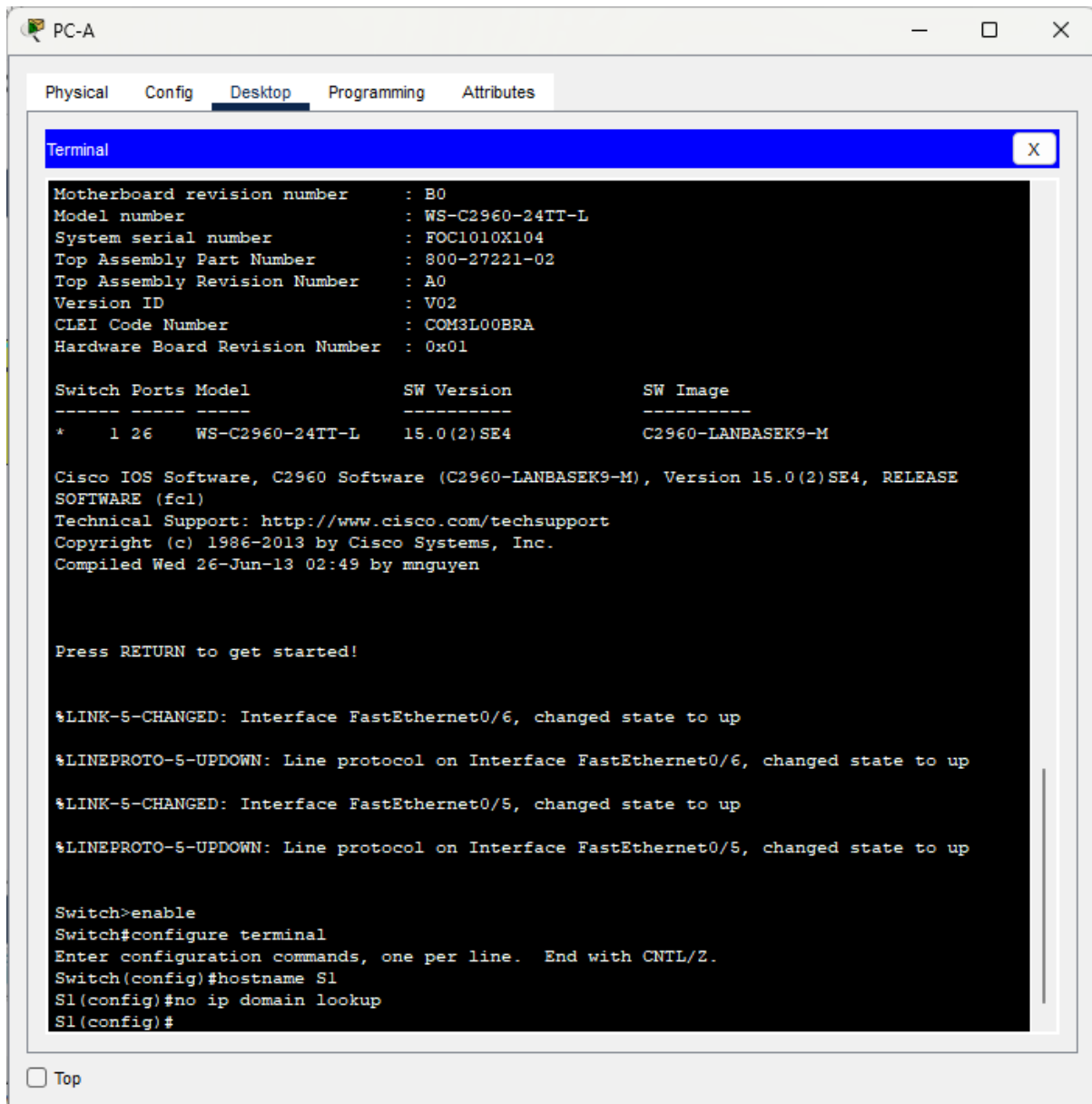
Press RETURN to get started!

```
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up
```

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S1
S1(config)#
```

At the bottom of the PC window, there is a checkbox labeled "Top" which is currently unchecked.

(d) Disable DNS lookup



PC-A

Physical Config **Desktop** Programming Attributes

Terminal

```

Motherboard revision number : B0
Model number                : WS-C2960-24TT-L
System serial number        : FOC1010X104
Top Assembly Part Number    : 800-27221-02
Top Assembly Revision Number : A0
Version ID                  : V02
CLEI Code Number            : COM3L00BRA
Hardware Board Revision Number : 0x01

Switch Ports Model          SW Version  SW Image
-----
*    1 26    WS-C2960-24TT-L   15.0(2)SE4   C2960-LANBASEK9-M

Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE
SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
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Compiled Wed 26-Jun-13 02:49 by mnnguyen

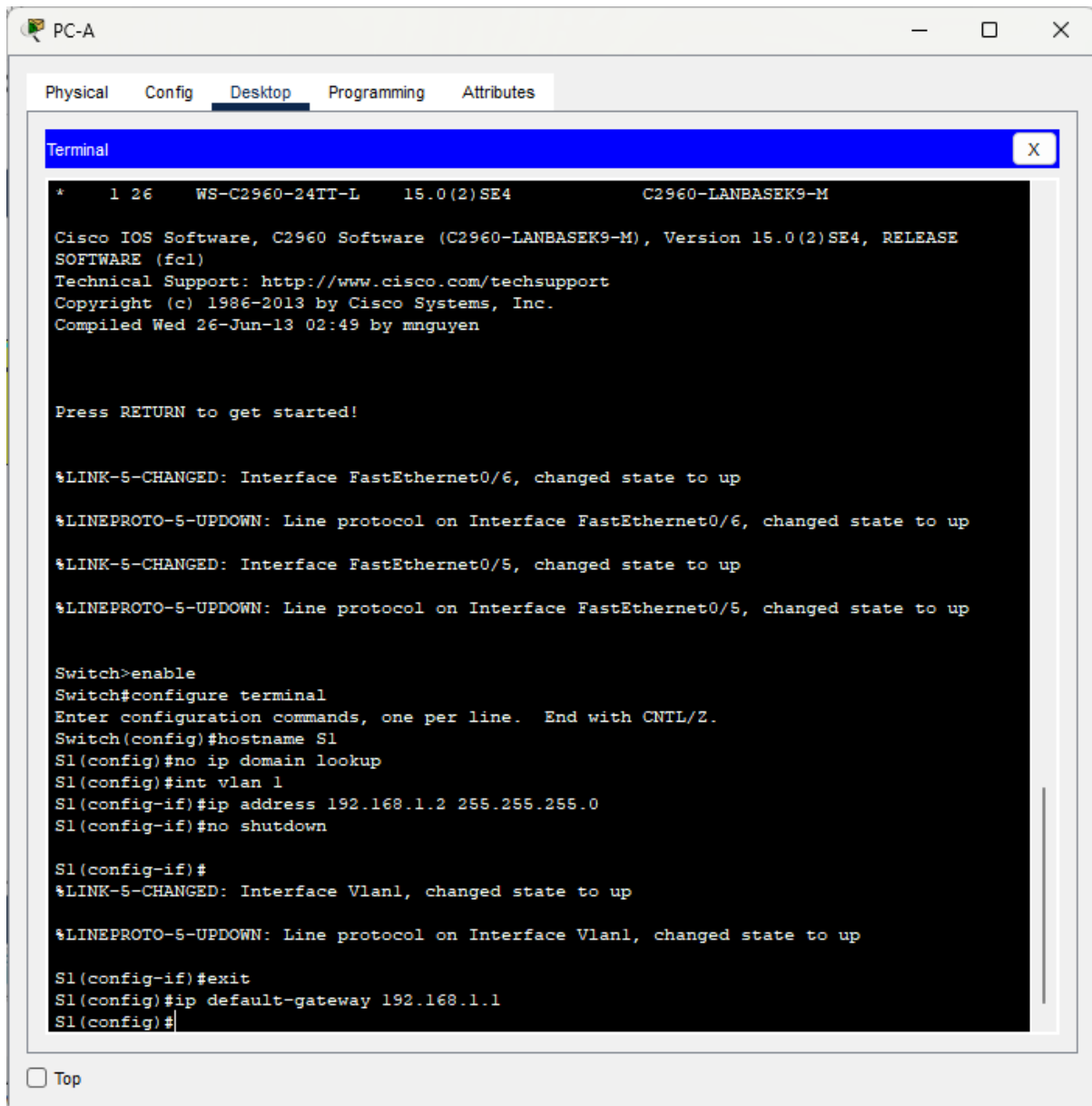
Press RETURN to get started!

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S1
S1(config)#no ip domain lookup
S1(config)#
  
```

☐ Top

(e) Configure and activate the VLAN interface on the switch S1



The screenshot shows a terminal window titled "PC-A" with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a terminal window titled "Terminal". The terminal output shows the following sequence of commands and messages:

```
* 1 26 WS-C2960-24TT-L 15.0(2)SE4 C2960-LANBASEK9-M

Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE
SOFTWARE (fc1)
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Press RETURN to get started!

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S1
S1(config)#no ip domain lookup
S1(config)#int vlan 1
S1(config-if)#ip address 192.168.1.2 255.255.255.0
S1(config-if)#no shutdown

S1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

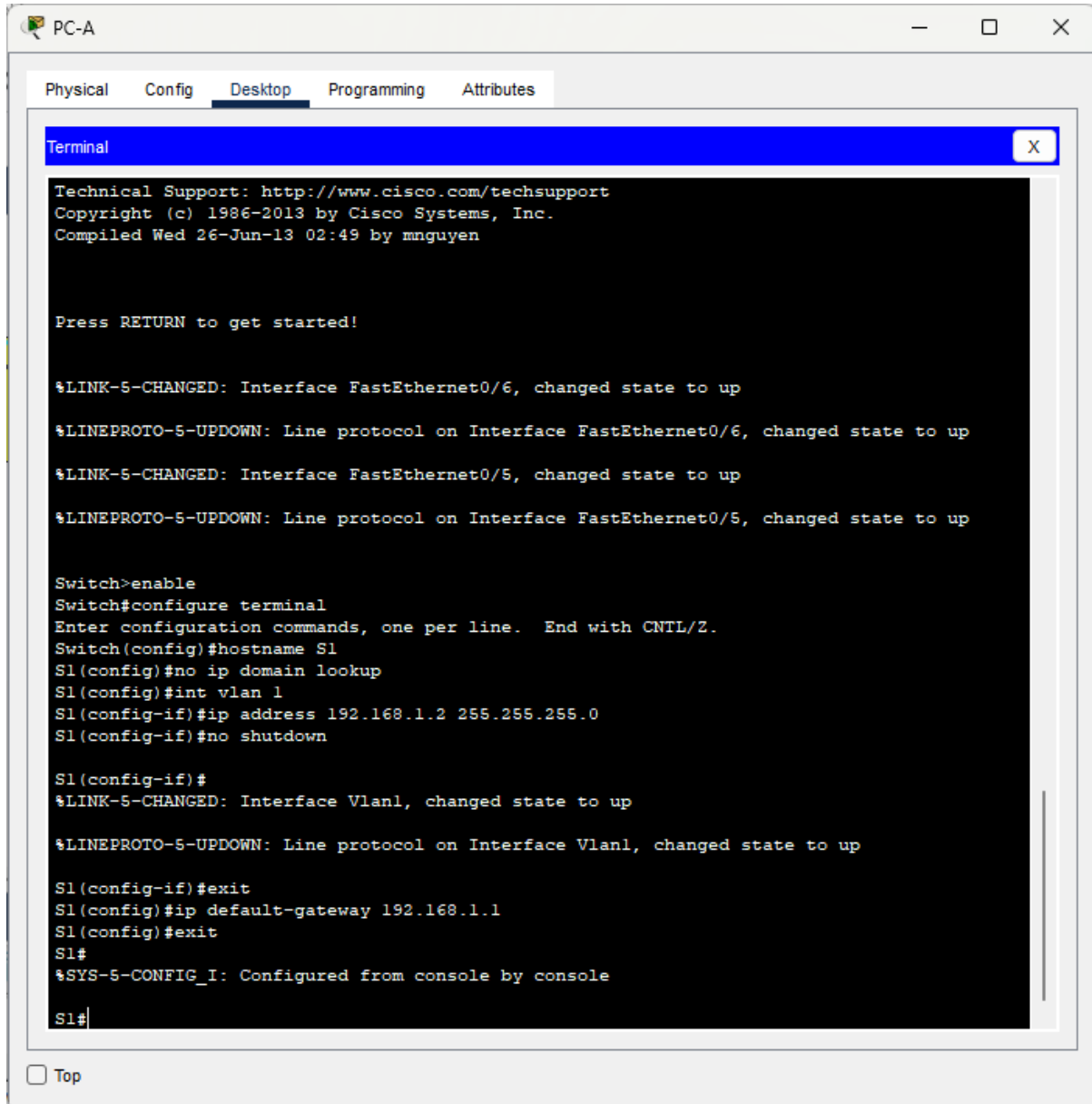
S1(config-if)#exit
S1(config)#ip default-gateway 192.168.1.1
S1(config)#
```

At the bottom of the terminal window, there is a checkbox labeled "Top" which is currently unchecked.

(f) Configure the default gateway for the switch S1

```
S1(config) # ip default-gateway 192.168.1.1
```

```
S1( config-if) # exit
```



The screenshot shows a window titled "PC-A" with tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is active, displaying a terminal window. The terminal output shows the configuration of switch S1, including enabling the terminal, setting the hostname to S1, configuring the interface Vlan1 with IP address 192.168.1.2, and setting the default gateway to 192.168.1.1. The terminal also displays system messages about interface state changes.

```
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Press RETURN to get started!

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S1
S1(config)#no ip domain lookup
S1(config)#int vlan 1
S1(config-if)#ip address 192.168.1.2 255.255.255.0
S1(config-if)#no shutdown

S1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

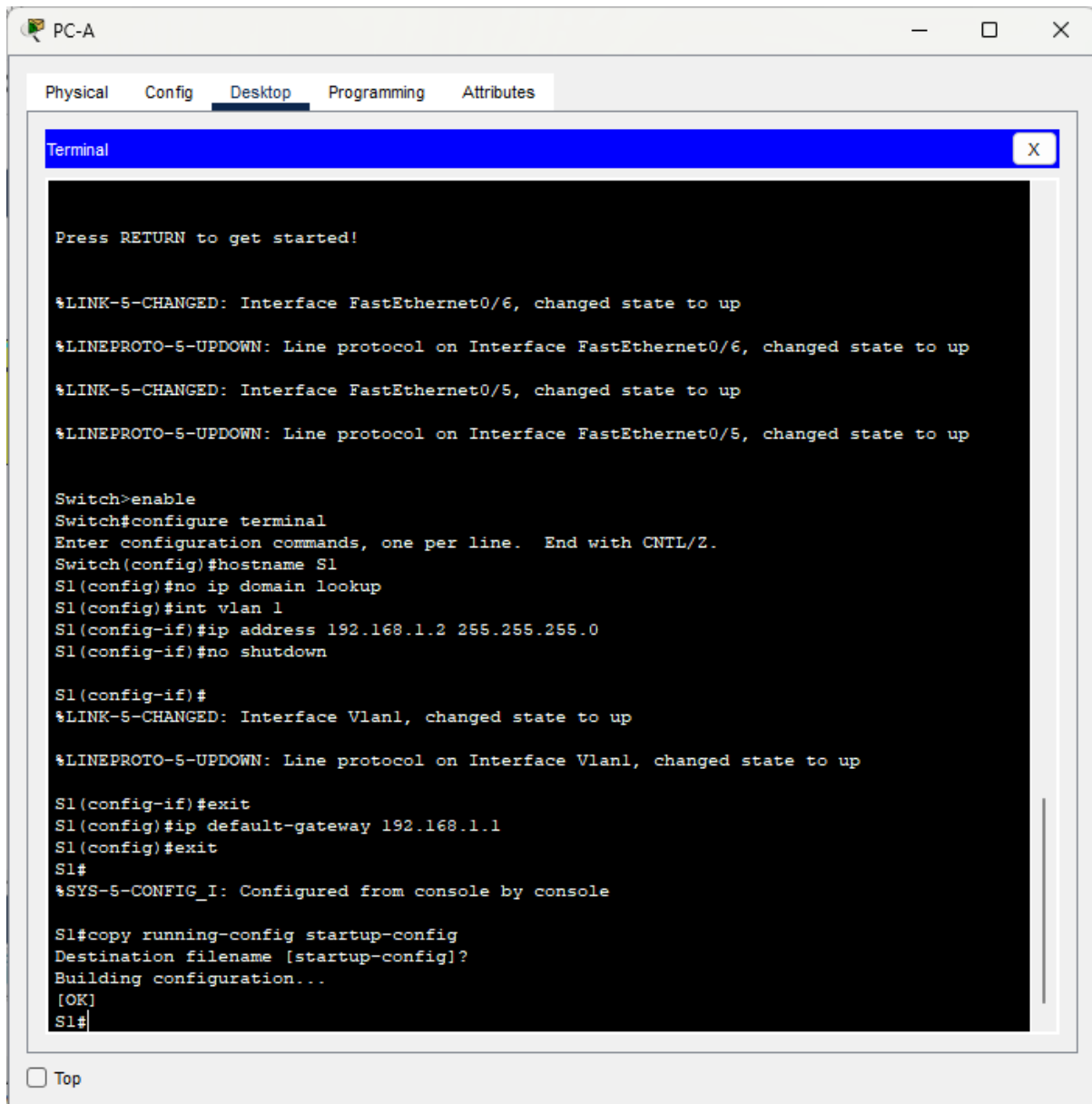
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

S1(config-if)#exit
S1(config)#ip default-gateway 192.168.1.1
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console

S1#
```

☐ Top

(g) Save the running configuration to the startup configuration file



PC-A

Physical Config Desktop Programming Attributes

Terminal

```
Press RETURN to get started!

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S1
S1(config)#no ip domain lookup
S1(config)#int vlan 1
S1(config-if)#ip address 192.168.1.2 255.255.255.0
S1(config-if)#no shutdown

S1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

S1(config-if)#exit
S1(config)#ip default-gateway 192.168.1.1
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console

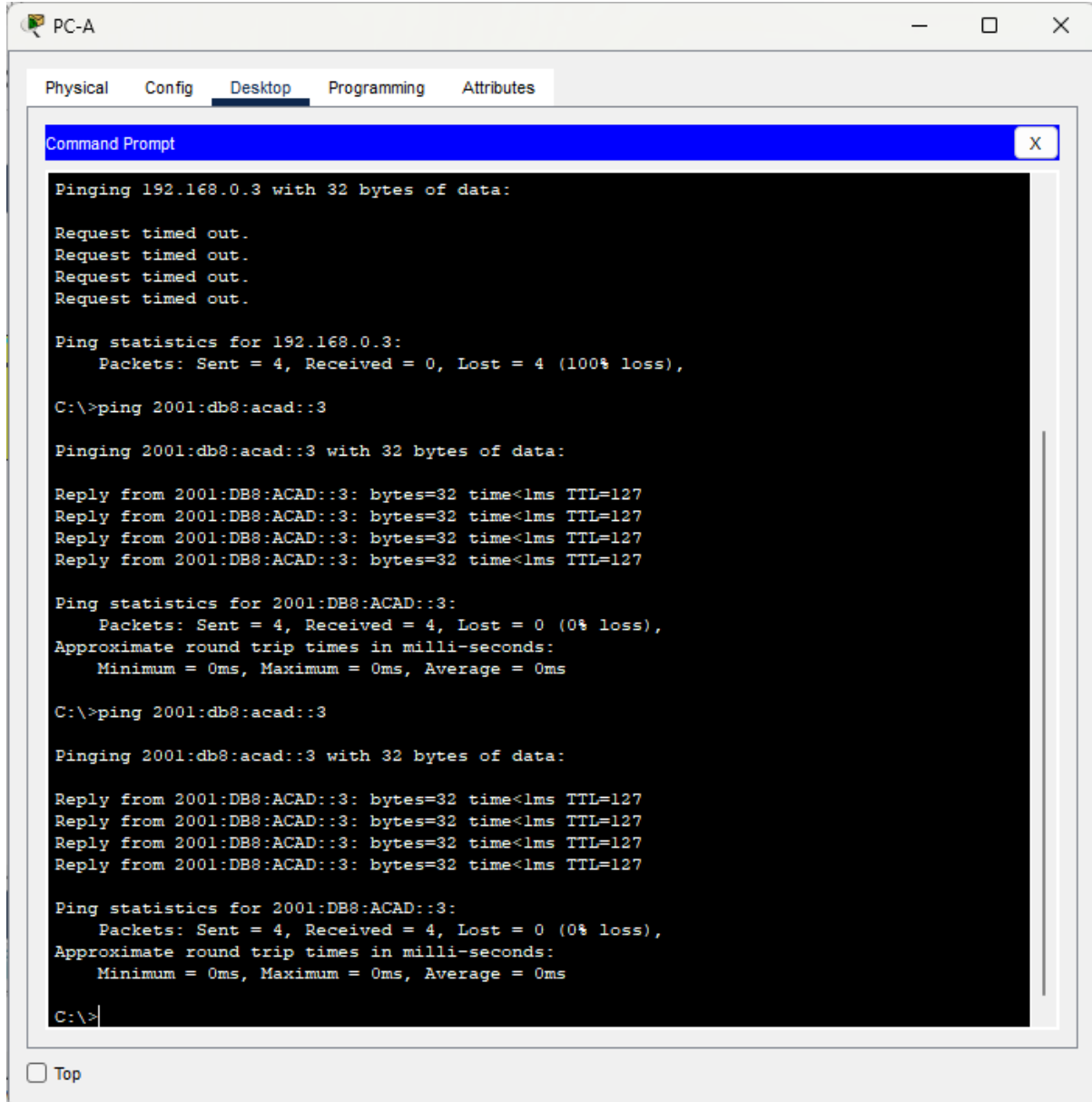
S1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
S1#
```

☐ Top

Step4: Verify connectivity end-to-end connectivity

(a) From PC-A, ping PC-B

The pinging was successful as shown below



```
PC-A
Physical Config Desktop Programming Attributes
Command Prompt
Pinging 192.168.0.3 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.0.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 2001:db8:acad::3

Pinging 2001:db8:acad::3 with 32 bytes of data:

Reply from 2001:DB8:ACAD::3: bytes=32 time<lms TTL=127
Reply from 2001:DB8:ACAD::3: bytes=32 time<lms TTL=127
Reply from 2001:DB8:ACAD::3: bytes=32 time<lms TTL=127
Reply from 2001:DB8:ACAD::3: bytes=32 time<lms TTL=127

Ping statistics for 2001:DB8:ACAD::3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 2001:db8:acad::3

Pinging 2001:db8:acad::3 with 32 bytes of data:

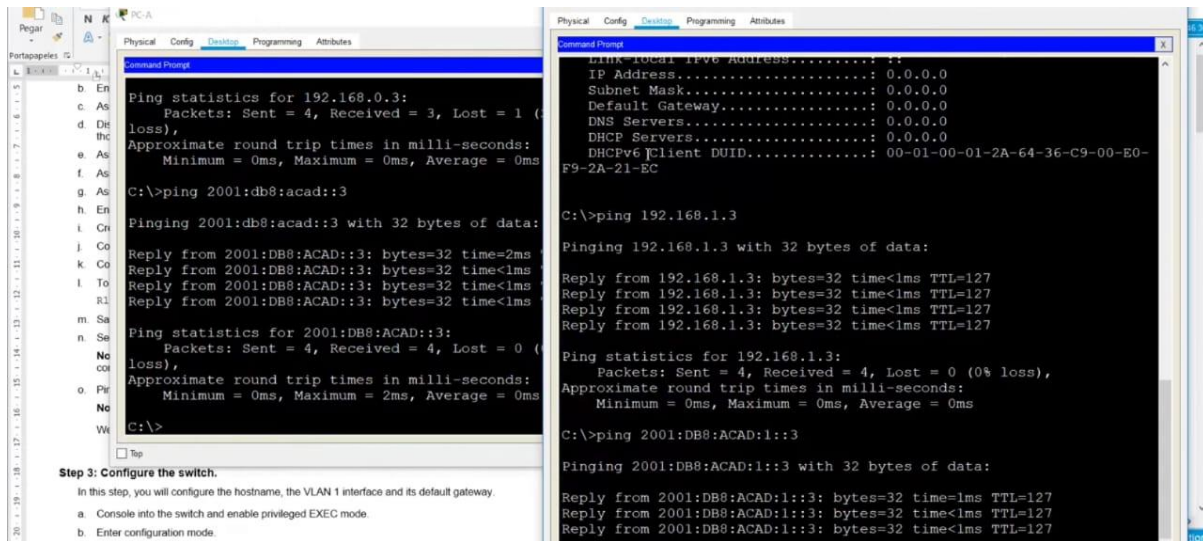
Reply from 2001:DB8:ACAD::3: bytes=32 time<lms TTL=127
Reply from 2001:DB8:ACAD::3: bytes=32 time<lms TTL=127
Reply from 2001:DB8:ACAD::3: bytes=32 time<lms TTL=127
Reply from 2001:DB8:ACAD::3: bytes=32 time<lms TTL=127

Ping statistics for 2001:DB8:ACAD::3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

☐ Top

(b) From S1, ping PC-B-all the ping were successfully



The image shows two screenshots of a network switch configuration and ping results. The left screenshot shows the configuration of the switch, and the right screenshot shows the ping results.

Left Screenshot: Configuration

```

PC-A
Physical Config Desktop Programming Attributes
Command Prompt
Ping statistics for 192.168.0.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 2001:db8:acad::3
Pinging 2001:db8:acad::3 with 32 bytes of data:
Reply from 2001:DB8:ACAD::3: bytes=32 time=2ms
Reply from 2001:DB8:ACAD::3: bytes=32 time<1ms
Reply from 2001:DB8:ACAD::3: bytes=32 time<1ms
Reply from 2001:DB8:ACAD::3: bytes=32 time<1ms
Ping statistics for 2001:DB8:ACAD::3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 2ms, Average = 0ms
C:\>

```

Right Screenshot: Ping Results

```

Physical Config Desktop Programming Attributes
Command Prompt
LINK-10001 IPv6 ADDRESS.....:
IP Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: 0.0.0.0
DNS Servers.....: 0.0.0.0
DHCP Servers.....: 0.0.0.0
DHCPv6 Client DUID.....: 00-01-00-01-2A-64-36-C9-00-E0-F9-2A-21-EC
C:\>ping 192.168.1.3
Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time<1ms TTL=127
Reply from 192.168.1.3: bytes=32 time<1ms TTL=127
Reply from 192.168.1.3: bytes=32 time<1ms TTL=127
Reply from 192.168.1.3: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.1.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 2001:DB8:ACAD:1::3
Pinging 2001:DB8:ACAD:1::3 with 32 bytes of data:
Reply from 2001:DB8:ACAD:1::3: bytes=32 time=1ms TTL=127
Reply from 2001:DB8:ACAD:1::3: bytes=32 time<1ms TTL=127
Reply from 2001:DB8:ACAD:1::3: bytes=32 time<1ms TTL=127

```

Step 3: Configure the switch.

In this step, you will configure the hostname, the VLAN 1 interface and its default gateway.

- Console into the switch and enable privileged EXEC mode.
- Enter configuration mode.

Part 3: Display Device Information

Step1: Display the routing table on the router

(a) Show ip route

```

config Desktop Programming Attributes
min.55 Current time
clock set 22:40:00 ?
B1> Day of the month
TH Month of the year
clock set 22:40:00 5 ?
TH Month of the year
clock set 22:40:00 5 Jan ?
93-2035> Year
show ip route
: L - local, C - connected, S - static, R - RIP, M - mobile, B
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type
E1 - OSPF external type 1, E2 - OSPF external type 2, E -
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-
ter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
ay of last resort is not set
192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks
192.168.0.0/24 is directly connected, GigabitEthernet0/0/0
192.168.0.1/32 is directly connected, GigabitEthernet0/0/0
192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
192.168.1.0/24 is directly connected, GigabitEthernet0/0/1
192.168.1.1/32 is directly connected, GigabitEthernet0/0/1

```

- C are used to connect subnet while L are locally the face

❖ Two are connected networks

- 192.168.0.0 Gigabit Ethernet 0/0/0
- 192.168.1.0 Gigabit Ethernet 0/0/0

(b) Show ipv6 route

```

Physical  Config  Desktop  Programming  Attributes
-----
R1#show ip route
R1 - periodic downloaded static route

Gateway of last resort is not set

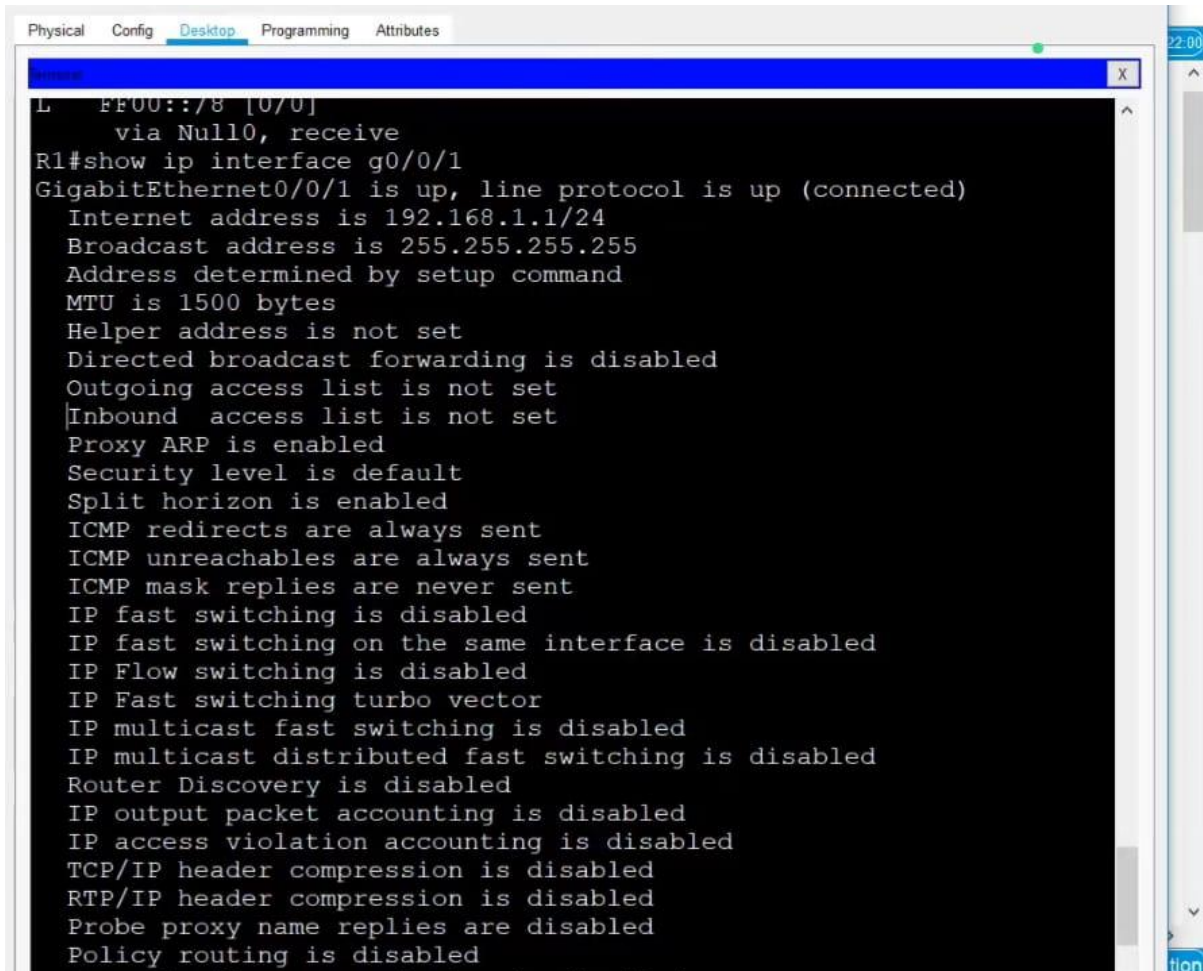
    192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.0.0/24 is directly connected, GigabitEthernet0/0/0
L       192.168.0.1/32 is directly connected, GigabitEthernet0/0/0
    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.0/24 is directly connected, GigabitEthernet0/0/1
L       192.168.1.1/32 is directly connected, GigabitEthernet0/0/1

R1#show ipv6 route
IPv6 Routing Table - 5 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
        U - Per-user Static route, M - MIPv6
        I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS
summary
        O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 -
OSPF ext 2
        ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
        D - EIGRP, EX - EIGRP external
C   2001:DB8:ACAD::/64 [0/0]
    via GigabitEthernet0/0/0, directly connected
L   2001:DB8:ACAD::1/128 [0/0]
    via GigabitEthernet0/0/0, receive
C   2001:DB8:ACAD:1::/64 [0/0]
    via GigabitEthernet0/0/1, directly connected
L   2001:DB8:ACAD:1::1/128 [0/0]
    via GigabitEthernet0/0/1, receive
L   FF00::/8 [0/0]
    via Null0, receive
R1#

```

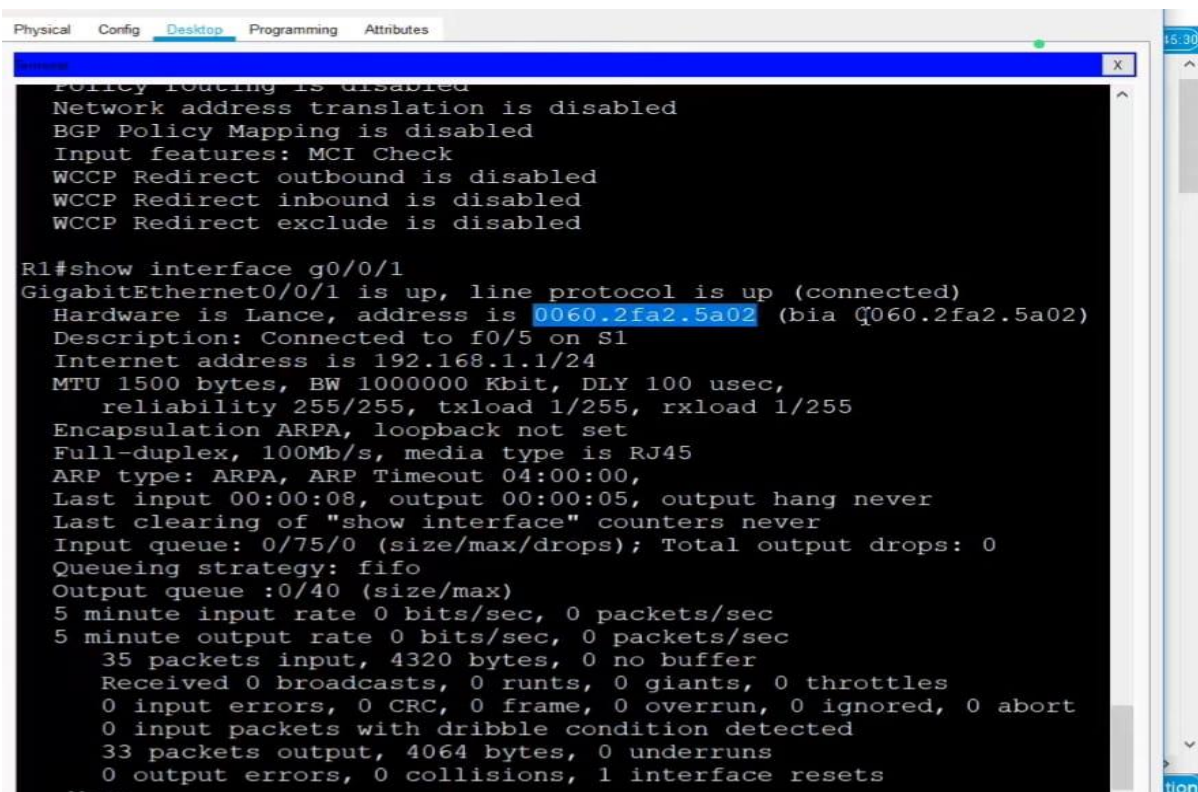
Step2: Display interface information on the router R1

(a) Show ip interface g0/0/1



```
Physical  Config  Desktop  Programming  Attributes
R1#show ip interface g0/0/1
GigabitEthernet0/0/1 is up, line protocol is up (connected)
  Internet address is 192.168.1.1/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Outgoing access list is not set
  Inbound access list is not set
  Proxy ARP is enabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachable are always sent
  ICMP mask replies are never sent
  IP fast switching is disabled
  IP fast switching on the same interface is disabled
  IP Flow switching is disabled
  IP Fast switching turbo vector
  IP multicast fast switching is disabled
  IP multicast distributed fast switching is disabled
  Router Discovery is disabled
  IP output packet accounting is disabled
  IP access violation accounting is disabled
  TCP/IP header compression is disabled
  RTP/IP header compression is disabled
  Probe proxy name replies are disabled
  Policy routing is disabled
```


The Media Access Control (MAC) address of the G0/1 interface 0060.2fa2.5a02

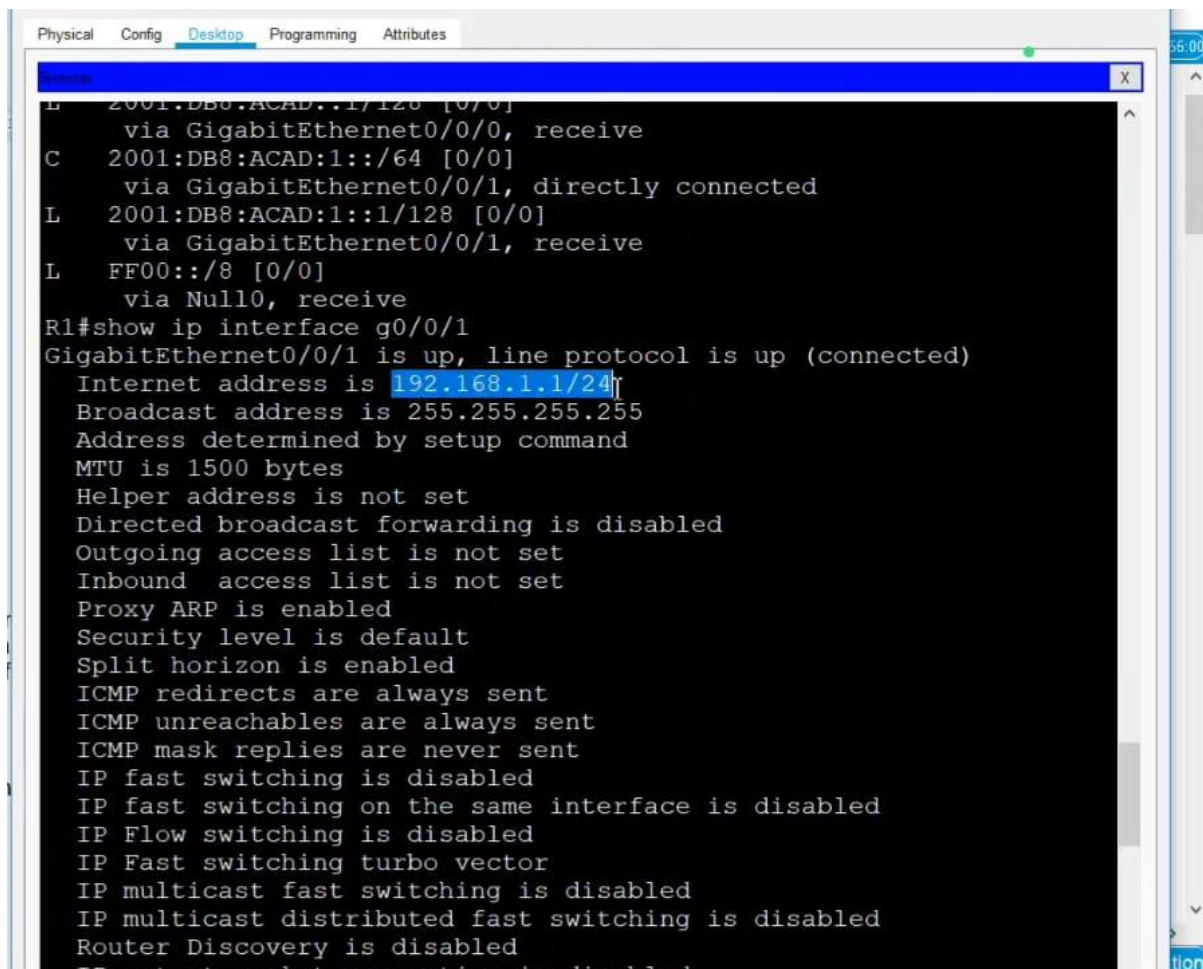


```
Physical  Config  Desktop  Programming  Attributes
-----
Policy routing is disabled
Network address translation is disabled
BGP Policy Mapping is disabled
Input features: MCI Check
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled

R1#show interface g0/0/1
GigabitEthernet0/0/1 is up, line protocol is up (connected)
Hardware is Lance, address is 0060.2fa2.5a02 (bia 0060.2fa2.5a02)
Description: Connected to f0/5 on S1
Internet address is 192.168.1.1/24
MTU 1500 bytes, BW 1000000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Full-duplex, 100Mb/s, media type is RJ45
ARP type: ARPA, ARP Timeout 04:00:00,
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  35 packets input, 4320 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  0 input packets with dribble condition detected
  33 packets output, 4064 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
```

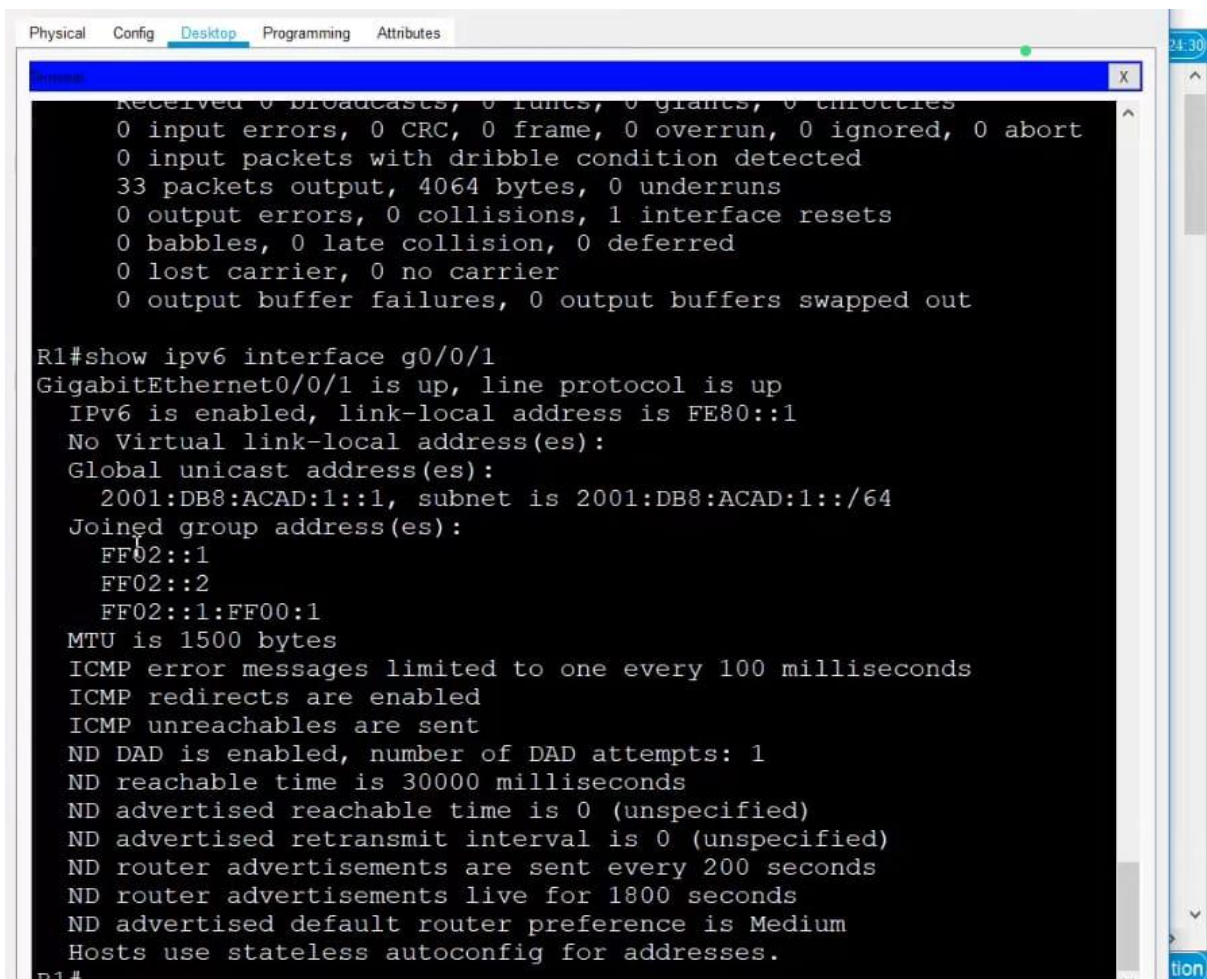
The internet address displayed in this command

❖ 192.168.1.1/24



```
Physical  Config  Desktop  Programming  Attributes
Console
L  2001:DB8:ACAD:1::1/128 [0/0]
    via GigabitEthernet0/0/0, receive
C  2001:DB8:ACAD:1::/64 [0/0]
    via GigabitEthernet0/0/1, directly connected
L  2001:DB8:ACAD:1::1/128 [0/0]
    via GigabitEthernet0/0/1, receive
L  FF00::/8 [0/0]
    via Null0, receive
R1#show ip interface g0/0/1
GigabitEthernet0/0/1 is up, line protocol is up (connected)
  Internet address is 192.168.1.1/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Outgoing access list is not set
  Inbound access list is not set
  Proxy ARP is enabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachable are always sent
  ICMP mask replies are never sent
  IP fast switching is disabled
  IP fast switching on the same interface is disabled
  IP Flow switching is disabled
  IP Fast switching turbo vector
  IP multicast fast switching is disabled
  IP multicast distributed fast switching is disabled
  Router Discovery is disabled
  IP output packet accounting is disabled
```


(b) Show ip interface interface command



```

Physical  Config  Desktop  Programming  Attributes
-----
Received 0 broadcasts, 0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
33 packets output, 4064 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

R1#show ip interface g0/0/1
GigabitEthernet0/0/1 is up, line protocol is up
IPv6 is enabled, link-local address is FE80::1
No Virtual link-local address(es):
Global unicast address(es):
  2001:DB8:ACAD:1::1, subnet is 2001:DB8:ACAD:1::/64
Joined group address(es):
  FF02::1
  FF02::2
  FF02::1:FF00:1
MTU is 1500 bytes
ICMP error messages limited to one every 100 milliseconds
ICMP redirects are enabled
ICMP unreachable are sent
ND DAD is enabled, number of DAD attempts: 1
ND reachable time is 30000 milliseconds
ND advertised reachable time is 0 (unspecified)
ND advertised retransmit interval is 0 (unspecified)
ND router advertisements are sent every 200 seconds
ND router advertisements live for 1800 seconds
ND advertised default router preference is Medium
Hosts use stateless autoconfig for addresses.
R1#
  
```

Step 3: Display a summary list of the interfaces on the router and switch

(a) Enter the show ip interface brief command on the router R1

R1# show ip interface brief

```

Physical Config Desktop Programming Attributes
0 dropped, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

R1#show ipv6 interface g0/0/1
GigabitEthernet0/0/1 is up, line protocol is up
IPv6 is enabled, link-local address is FE80::1
No Virtual link-local address(es):
Global unicast address(es):
  2001:DB8:ACAD:1::1, subnet is 2001:DB8:ACAD:1::/64
Joined group address(es):
  FF02::1
  FF02::2
  FF02::1:FF00:1
MTU is 1500 bytes
ICMP error messages limited to one every 100 milliseconds
ICMP redirects are enabled
ICMP unreachable are sent
ND DAD is enabled, number of DAD attempts: 1
ND reachable time is 30000 milliseconds
ND advertised reachable time is 0 (unspecified)
ND advertised retransmit interval is 0 (unspecified)
ND router advertisements are sent every 200 seconds
ND router advertisements live for 1800 seconds
ND advertised default router preference is Medium
Hosts use stateless autoconfig for addresses.

R1#show ip interface brief
Interface      IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  192.168.0.1    YES manual up          up
GigabitEthernet0/0/1  192.168.1.1    YES manual up          up
Vlan1          unassigned      YES NVRAM  administratively down down
R1#

```

(b) To see the Ipv6 interface brief command on R1. R1# show ipv6 interface brief

```

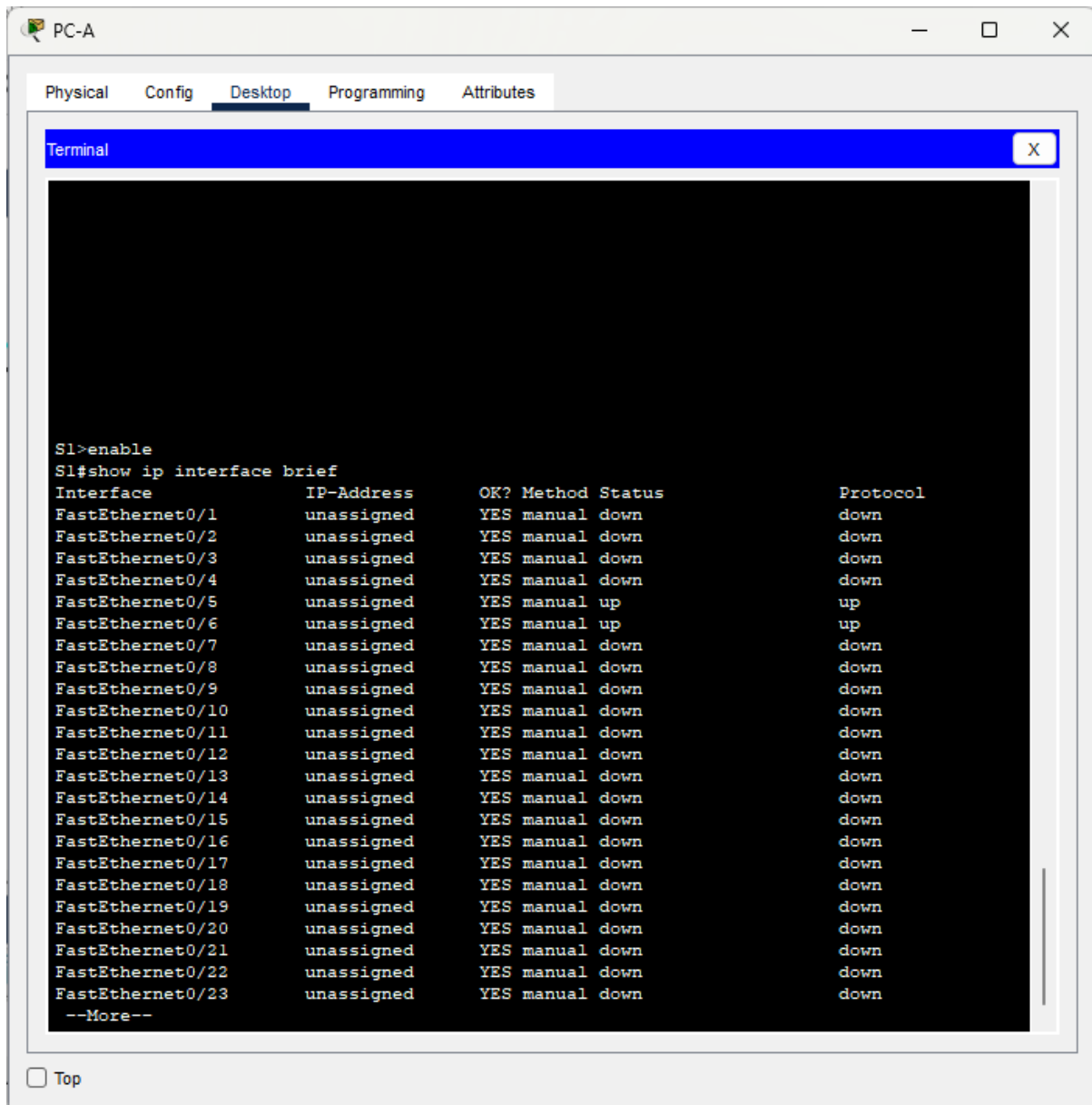
Physical Config Desktop Programming Attributes
2001:DB8:ACAD:1::1, subnet is 2001:DB8:ACAD:1::/64
Joined group address(es):
  FF02::1
  FF02::2
  FF02::1:FF00:1
MTU is 1500 bytes
ICMP error messages limited to one every 100 milliseconds
ICMP redirects are enabled
ICMP unreachable are sent
ND DAD is enabled, number of DAD attempts: 1
ND reachable time is 30000 milliseconds
ND advertised reachable time is 0 (unspecified)
ND advertised retransmit interval is 0 (unspecified)
ND router advertisements are sent every 200 seconds
ND router advertisements live for 1800 seconds
ND advertised default router preference is Medium
Hosts use stateless autoconfig for addresses.

R1#show ip interface brief
Interface      IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  192.168.0.1    YES manual up          up
GigabitEthernet0/0/1  192.168.1.1    YES manual up          up
Vlan1          unassigned      YES NVRAM  administratively down down
R1#show ipv6 interface brief
GigabitEthernet0/0/0    [up/up]
  FE80::1
  2001:DB8:ACAD::1
GigabitEthernet0/0/1    [up/up]
  FE80::1
  2001:DB8:ACAD:1::1
Vlan1                  [administratively down/down]
  unassigned
R1#

```

(c) Enter the show ip interface brief command on the switch S1

S1# show ip interface brief



The screenshot shows a PC-A window with a terminal window open. The terminal displays the output of the 'show ip interface brief' command on switch S1. The output is a table with columns: Interface, IP-Address, OK?, Method, Status, and Protocol. The table lists 24 interfaces (FastEthernet0/1 to FastEthernet0/23). All interfaces have an IP-Address of 'unassigned' and a Status of 'down'. The Protocol column shows 'down' for most interfaces, 'up' for FastEthernet0/5 and FastEthernet0/6, and 'down' for FastEthernet0/17, FastEthernet0/18, FastEthernet0/19, FastEthernet0/20, FastEthernet0/21, FastEthernet0/22, and FastEthernet0/23. The terminal also shows the command 'S1#enable' and the prompt 'S1#'. A 'Top' button is visible at the bottom left of the terminal window.

```
S1>enable
S1#show ip interface brief
Interface                IP-Address      OK? Method Status  Protocol
FastEthernet0/1          unassigned      YES manual down    down
FastEthernet0/2          unassigned      YES manual down    down
FastEthernet0/3          unassigned      YES manual down    down
FastEthernet0/4          unassigned      YES manual down    down
FastEthernet0/5          unassigned      YES manual up      up
FastEthernet0/6          unassigned      YES manual up      up
FastEthernet0/7          unassigned      YES manual down    down
FastEthernet0/8          unassigned      YES manual down    down
FastEthernet0/9          unassigned      YES manual down    down
FastEthernet0/10         unassigned      YES manual down    down
FastEthernet0/11         unassigned      YES manual down    down
FastEthernet0/12         unassigned      YES manual down    down
FastEthernet0/13         unassigned      YES manual down    down
FastEthernet0/14         unassigned      YES manual down    down
FastEthernet0/15         unassigned      YES manual down    down
FastEthernet0/16         unassigned      YES manual down    down
FastEthernet0/17         unassigned      YES manual down    down
FastEthernet0/18         unassigned      YES manual down    down
FastEthernet0/19         unassigned      YES manual down    down
FastEthernet0/20         unassigned      YES manual down    down
FastEthernet0/21         unassigned      YES manual down    down
FastEthernet0/22         unassigned      YES manual down    down
FastEthernet0/23         unassigned      YES manual down    down
--More--
```

Reflection questions

(1) R1 (config-if) # no shutdown

```

Physical  Config  Desktop  Programming  Attributes
-----
R1#show ip interface brief
Interface                IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0     192.168.0.1     YES manual up          up
GigabitEthernet0/0/1     192.168.1.1     YES manual up          up
Vlan1                    unassigned      YES NVRAM  administratively down down
R1#show ipv6 interface brief
GigabitEthernet0/0/0     [up/up]
FE80::1
2001:DB8:ACAD::1
GigabitEthernet0/0/1     [up/up]
FE80::1
2001:DB8:ACAD:1::1
Vlan1                    [administratively down/down]
unassigned
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int g0/0/1
R1(config-if)#no shutdown
R1(config-if)#

```

(2) What would happen if you had incorrectly configured interface G0/0/1 on the router with an IP address of 192.168.1.2

- Nothing will happen the packets to be sent to the default gateway network won't reach the destination

Conclusion

This assignment successfully demonstrated how a switch and a router can be used to build a simple network in Cisco Packet Tracer. By configuring the devices and assigning IP addresses, I was able to establish communication between the connected devices.

The practical exercise improved my understanding of basic networking concepts and enhanced my skills in designing, configuring and testing a network. This knowledge is important for real-world networking and system administration tasks

