



**VIT<sup>®</sup>**  
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**Course Code: BCSE353E**

**Course Name: Information Security Analysis and Audit**

**Assessment – 1**

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## Experiment 1: -

**Designing a Network with 3 Desktop, 3 switches (2960) and 3 Routers (2811) as shown below and do the Network Trouble shooting using Packet Tracer Tool. Use the Network Commands using CLI options of the Cisco Packet Tracer.**

### Steps:

- 1) First, we set up 3 PC PT 3 2811 and 2 2960-24TT routers as shown below



- 2) We connect with 2 network device Switches(Switch Number 2960)

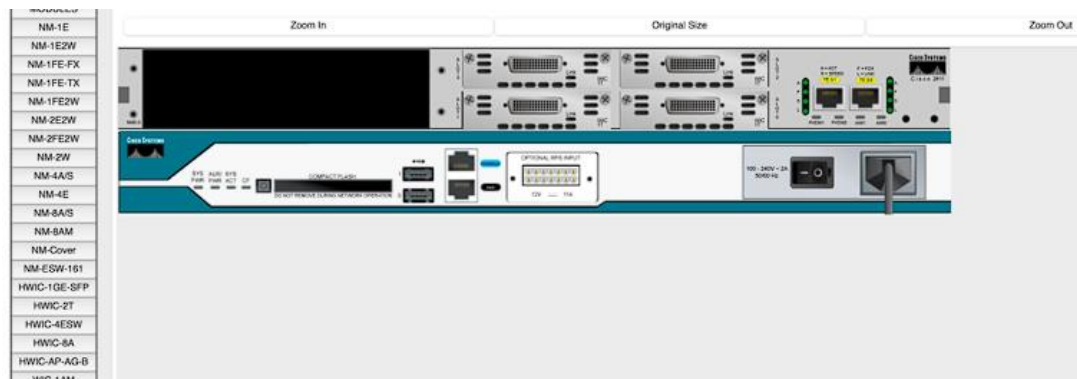


3) We place 3 routers (Router number 2811)

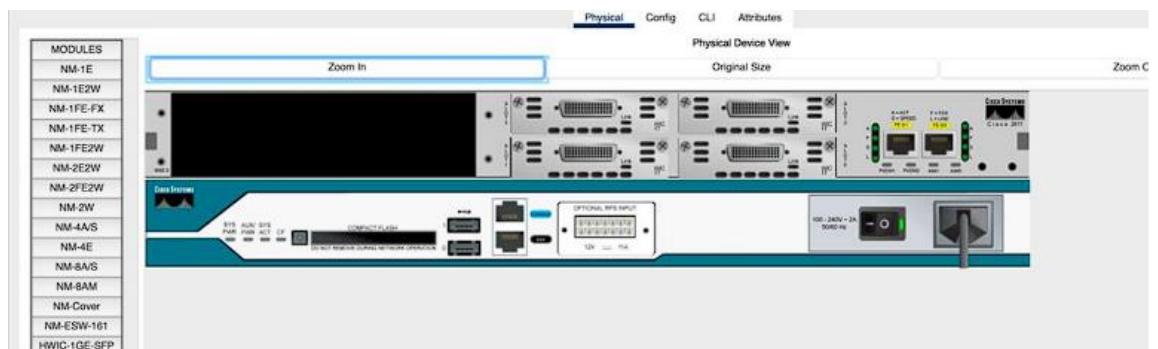


4) We need to make sure to add serial port interface to the given routers. It involves the following steps:

- Turn off the router to add serial port

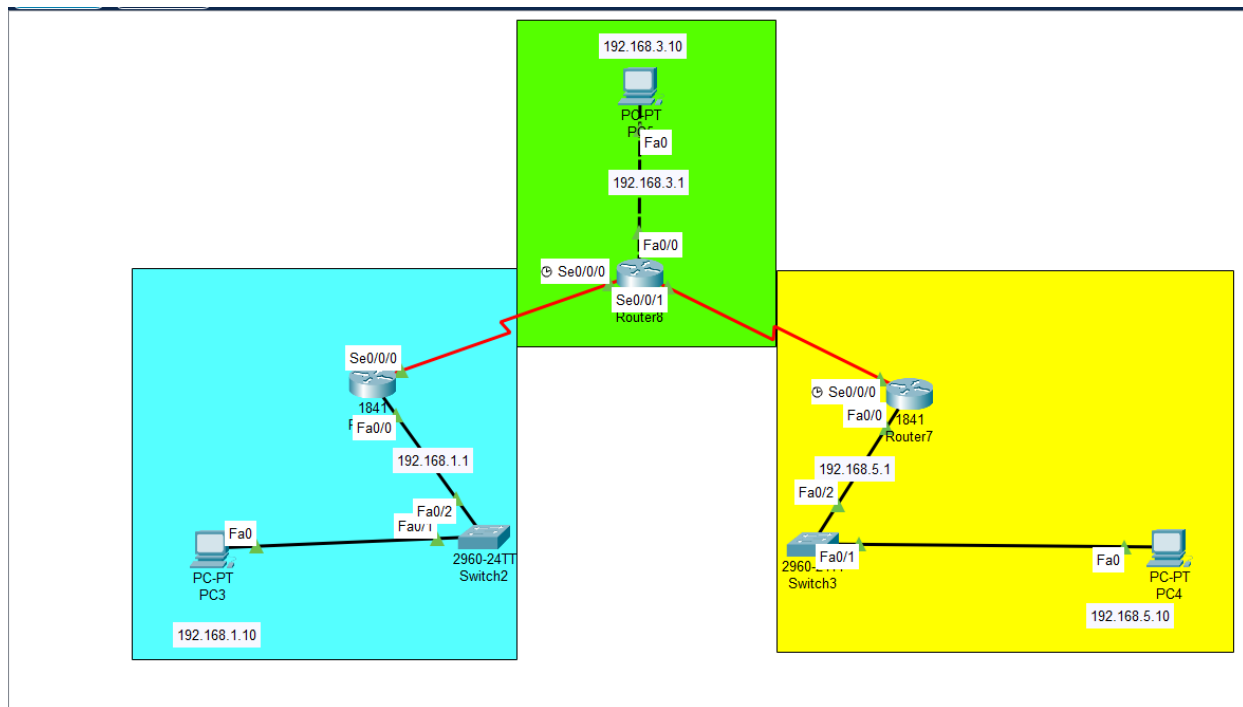


- Turn on the router again.



5) Make correct wire connections with each end device, network device and router as shown.

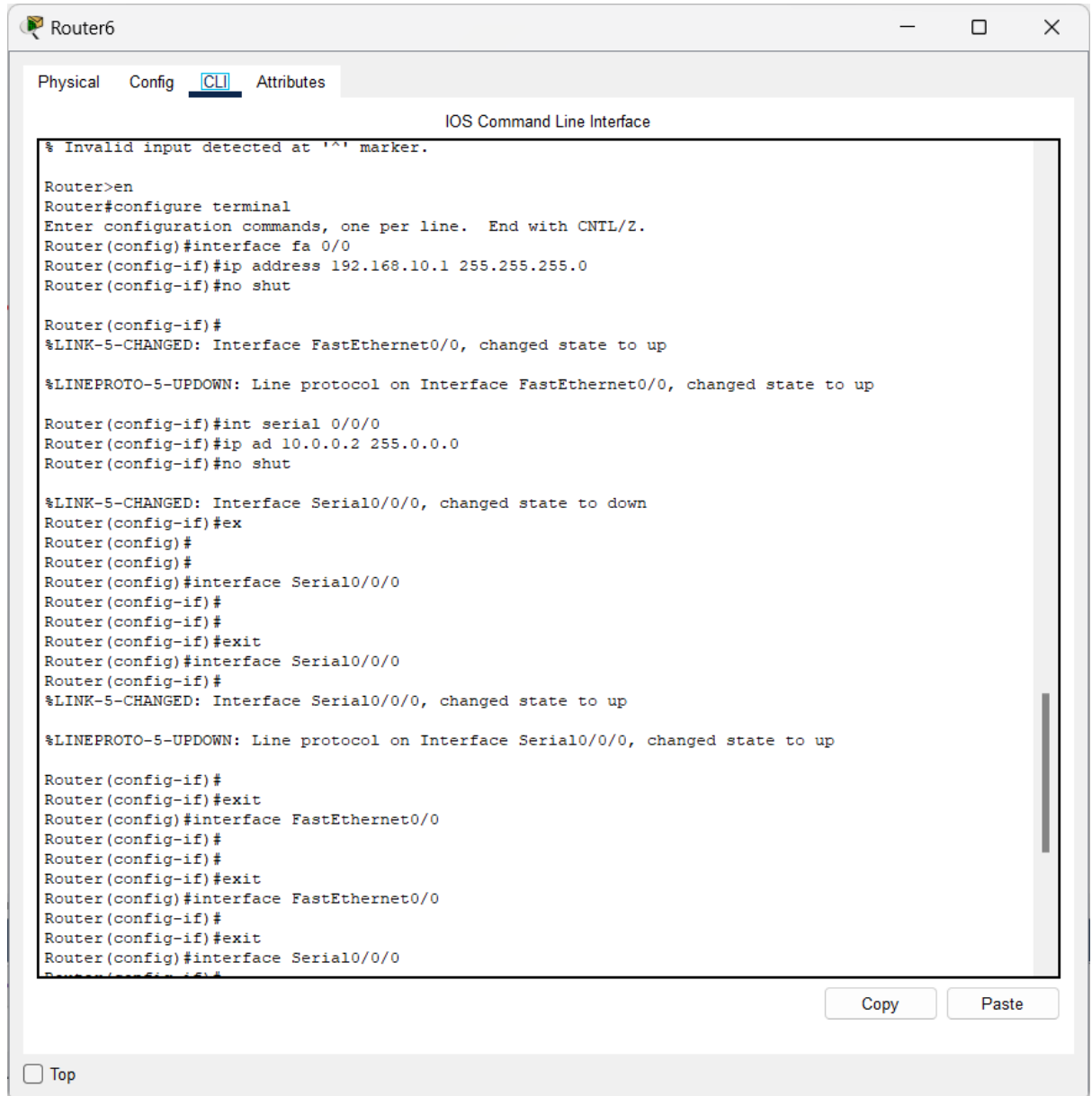
6) We finally create our circuit as follows:



## 7) We configure the IP addresses of each PC

### For Router 1:

CLI commands are as follows:



The screenshot shows a web-based CLI interface for a device named Router6. The interface has tabs for Physical, Config, CLI (selected), and Attributes. The CLI tab displays the IOS Command Line Interface. The terminal output shows the following commands and responses:

```
% Invalid input detected at '^' marker.

Router>en
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fa 0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
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)#int serial 0/0/0
Router(config-if)#ip ad 10.0.0.2 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
Router(config-if)#ex
Router(config)#
Router(config)#
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

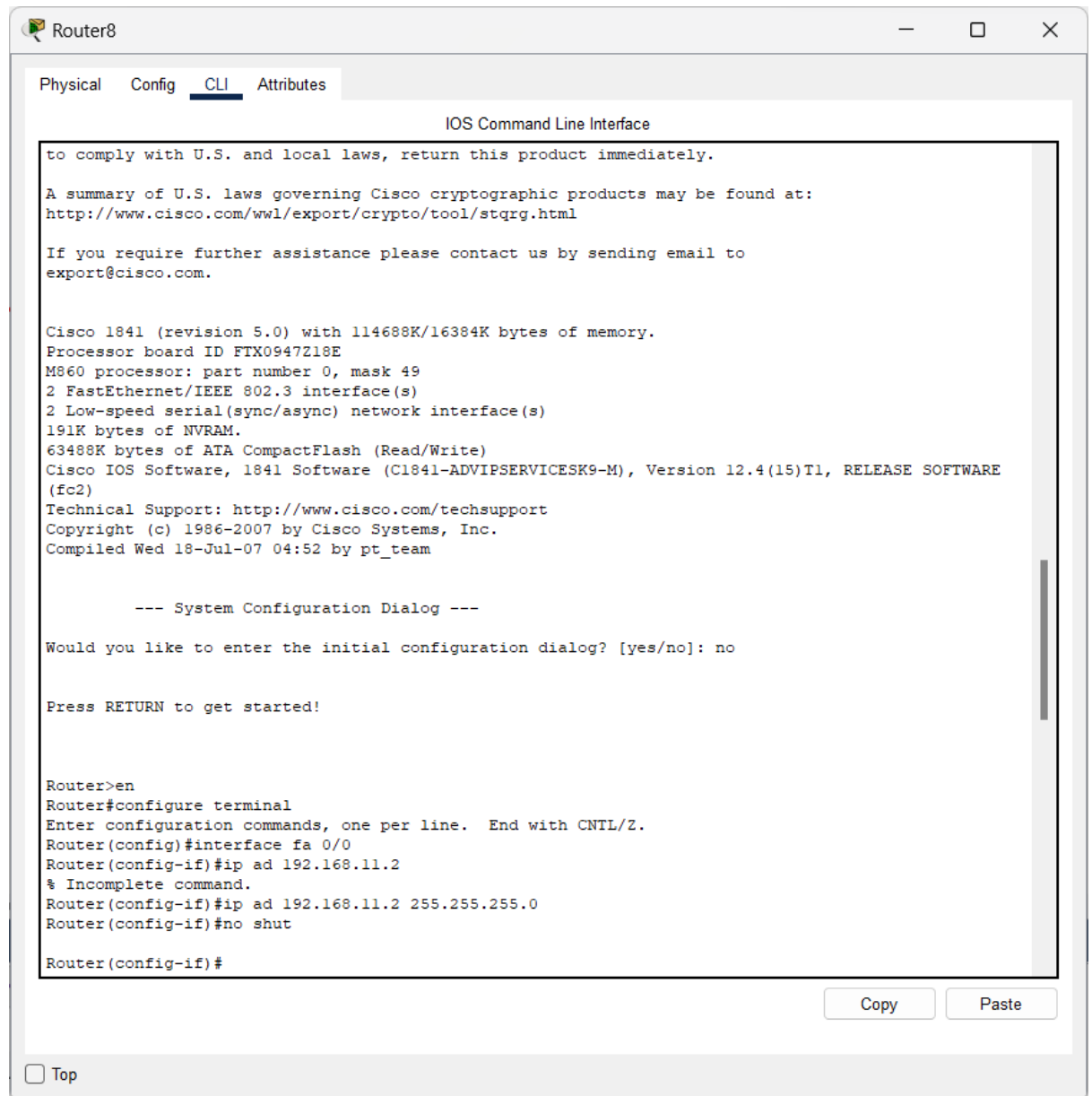
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
```

At the bottom of the CLI window, there are 'Copy' and 'Paste' buttons. Below the CLI window, there is a 'Top' button with a checkbox.

## For router 2:

CLI commands are as follows:



The screenshot shows a web-based interface for a Cisco Router8. The top navigation bar includes tabs for Physical, Config, CLI (selected), and Attributes. The main content area is titled "IOS Command Line Interface" and displays the following text:

```
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 1841 (revision 5.0) with 114688K/16384K bytes of memory.
Processor board ID FTX0947Z18E
M860 processor: part number 0, mask 49
2 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
191K bytes of NVRAM.
63488K bytes of ATA CompactFlash (Read/Write)
Cisco IOS Software, 1841 Software (C1841-ADVIPSERVICESK9-M), Version 12.4(15)T1, RELEASE SOFTWARE
(fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

--- System Configuration Dialog ---

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

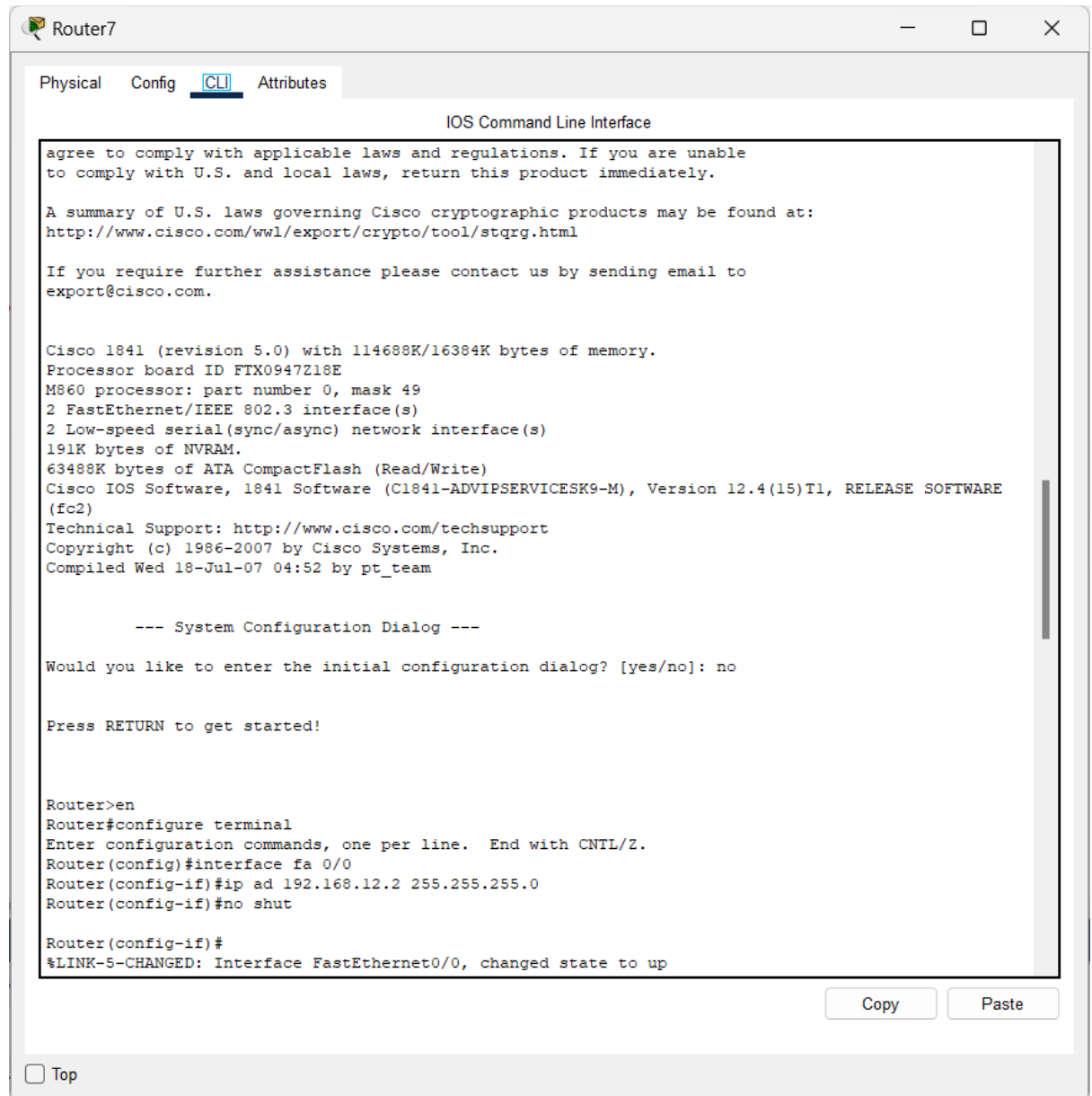
Press RETURN to get started!

Router>en
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fa 0/0
Router(config-if)#ip ad 192.168.11.2
% Incomplete command.
Router(config-if)#ip ad 192.168.11.2 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
```

At the bottom right of the CLI window, there are "Copy" and "Paste" buttons. At the bottom left, there is a "Top" link.

### For Router 3:

IP V.4 Address is set as 13.10.10.10 for the PC-3 and default Gateway is set as 13.10.10.1



8) We configure the IP V.4 address of each router as follows:

### Router 1:

```
Router(config-if)#int serial 0/0/0
Router(config-if)#ip ad 10.0.0.2 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
Router(config-if)#ex
Router(config)#
Router(config)#
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#
```

☐ Top

### Router 2:

```
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

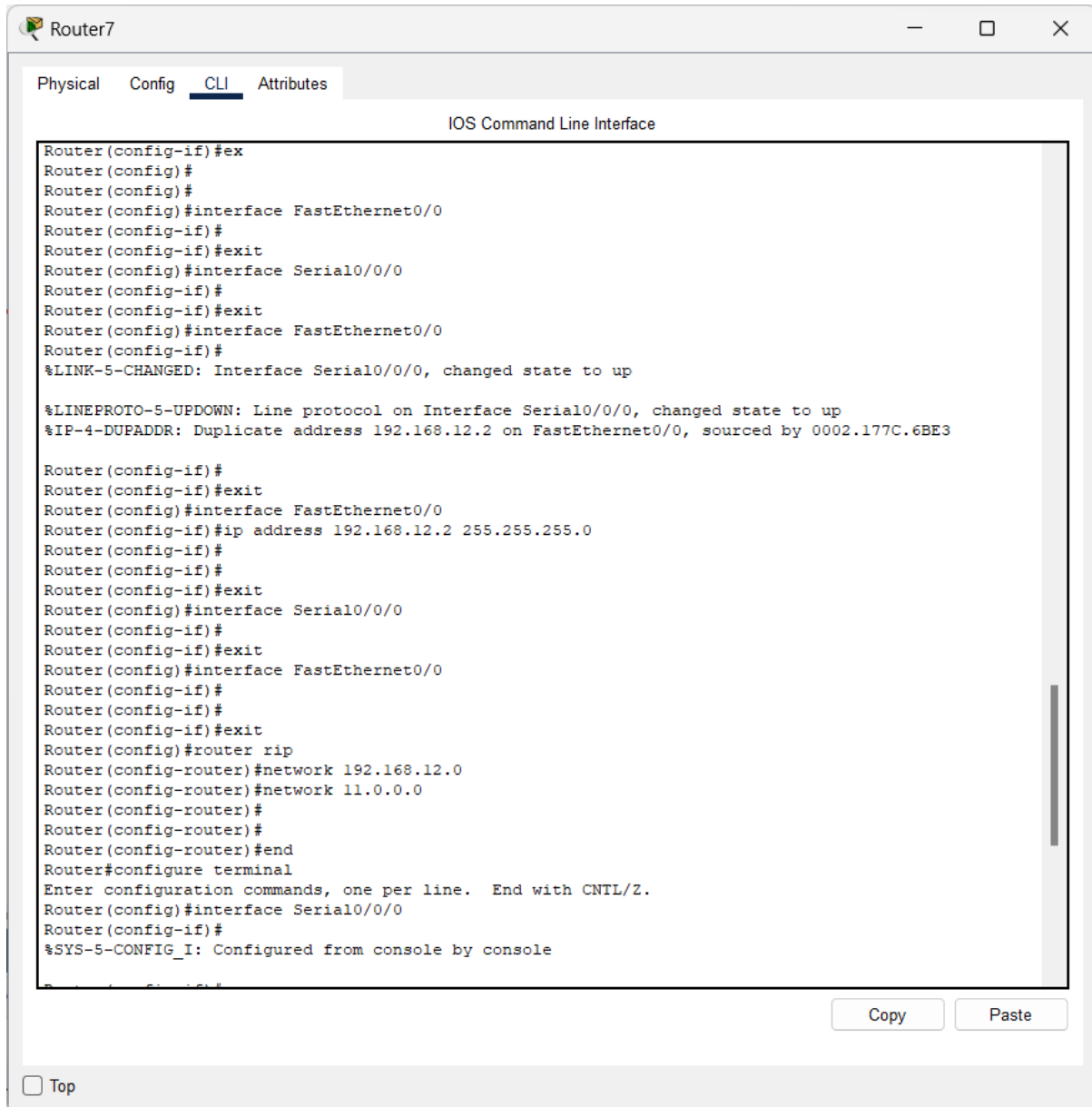
Router(config-if)#interface serial 0/0/1
Router(config-if)#ip ad 11.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%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
```



## Router 3:



The screenshot shows a window titled "Router7" with a tabbed interface. The "CLI" tab is selected, displaying the "IOS Command Line Interface". The terminal shows the following sequence of commands and messages:

```
Router(config-if)#ex
Router(config)#
Router(config)#
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
%IP-4-DUPADDR: Duplicate address 192.168.12.2 on FastEthernet0/0, sourced by 0002.177C.6BE3

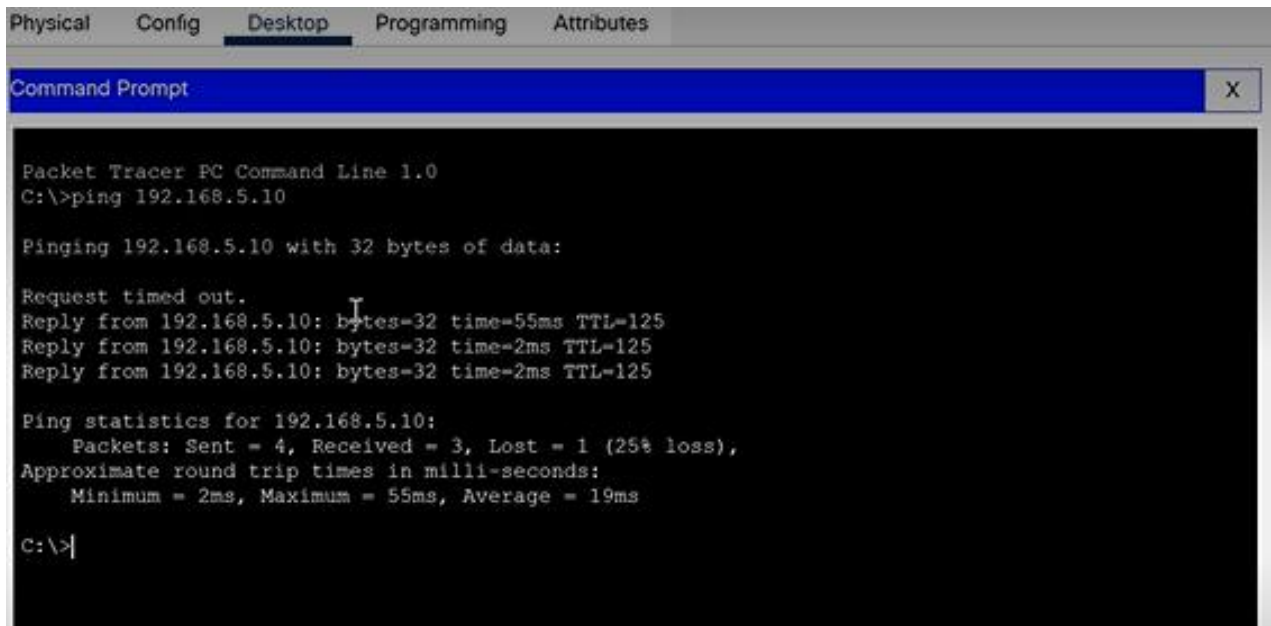
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.12.2 255.255.255.0
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 192.168.12.0
Router(config-router)#network 11.0.0.0
Router(config-router)#
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Serial0/0/0
Router(config-if)#
%SYS-5-CONFIG_I: Configured from console by console
```

At the bottom of the window, there is a "Top" button and a "Copy" button. A "Paste" button is also visible on the right side of the terminal area.

## Observation and results:

Finally, after configuring everything. We use the Ping command to transmit data in form of Packets.

a) From PC0 to PC1 & PC2



The screenshot shows the Packet Tracer PC Command Line 1.0 interface. The 'Desktop' tab is selected. The command prompt displays the following output for the command 'ping 192.168.5.10':

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.5.10

Pinging 192.168.5.10 with 32 bytes of data:

Request timed out.
Reply from 192.168.5.10: bytes=32 time=55ms TTL=125
Reply from 192.168.5.10: bytes=32 time=2ms TTL=125
Reply from 192.168.5.10: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.5.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 55ms, Average = 19ms

C:\>
```

```
C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Request timed out.
Reply from 192.168.3.10: bytes=32 time=1ms TTL=126
Reply from 192.168.3.10: bytes=32 time=1ms TTL=126
Reply from 192.168.3.10: bytes=32 time=2ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

## b) From PC1 to PC0 and PC2

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time=18ms TTL=126
Reply from 192.168.1.10: bytes=32 time=3ms TTL=126
Reply from 192.168.1.10: bytes=32 time=1ms TTL=126
Reply from 192.168.1.10: bytes=32 time=3ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 18ms, Average = 6ms

C:\>ping 192.168.5.10

Pinging 192.168.5.10 with 32 bytes of data:

Reply from 192.168.5.10: bytes=32 time=3ms TTL=126
Reply from 192.168.5.10: bytes=32 time=1ms TTL=126
Reply from 192.168.5.10: bytes=32 time=3ms TTL=126
Reply from 192.168.5.10: bytes=32 time=4ms TTL=126

Ping statistics for 192.168.5.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 4ms, Average = 2ms

C:\>|
```

## c) From PC2 to PC1 &amp; PC0

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time=1ms TTL=126
Reply from 192.168.3.10: bytes=32 time=2ms TTL=126
Reply from 192.168.3.10: bytes=32 time=1ms TTL=126
Reply from 192.168.3.10: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time=4ms TTL=125
Reply from 192.168.1.10: bytes=32 time=2ms TTL=125
Reply from 192.168.1.10: bytes=32 time=2ms TTL=125
Reply from 192.168.1.10: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 4ms, Average = 2ms

C:\>|
```