

COMPUTER NETWORKS

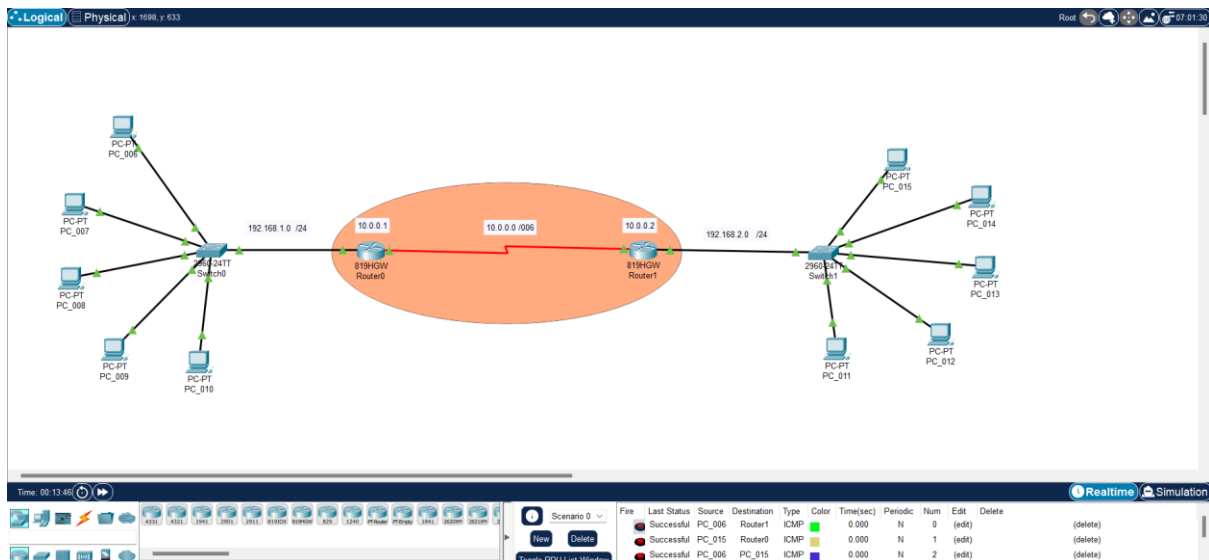
LAB EXAM 2

OBJECTIVE:

Set up and configure a network topology using RIP and OSPF routing protocols in Cisco Packet Tracer. Customize the network by assigning each computer a name and an IP address using the last three digits of your roll number.

STEPS TAKEN:

STEP 1:

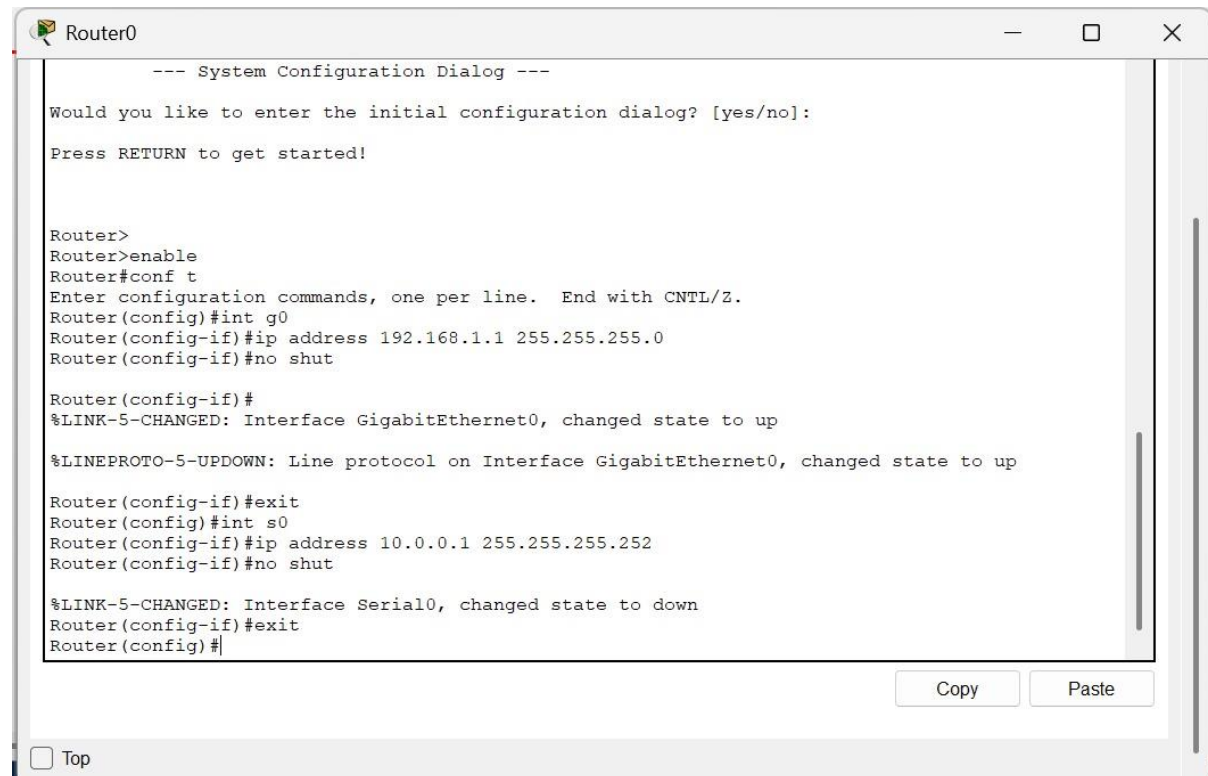


- Link the two routers with a Serial DCE-DTE cable.
- Connect the GigabitEthernet ports of R1 and R2 Routers to the Switch (SW0/SW1) ports with a straight-through cable.
- Connect PC_030 to PC_034 to SW1, PC_035 to PC_039 to SW2 with a straight cable.

STEP 2:

After typing the below commands on the Router, the connection is successful indicated by the green triangles on the cables below.

Click on the R1 Router you made in the setup, and open the settings. After that, go to the CLI tab. Use the commands below to give IP addresses to R1's GigabitEthernet and Serial ports.



```
Router0
--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]:
Press RETURN to get started!

Router>
Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shut

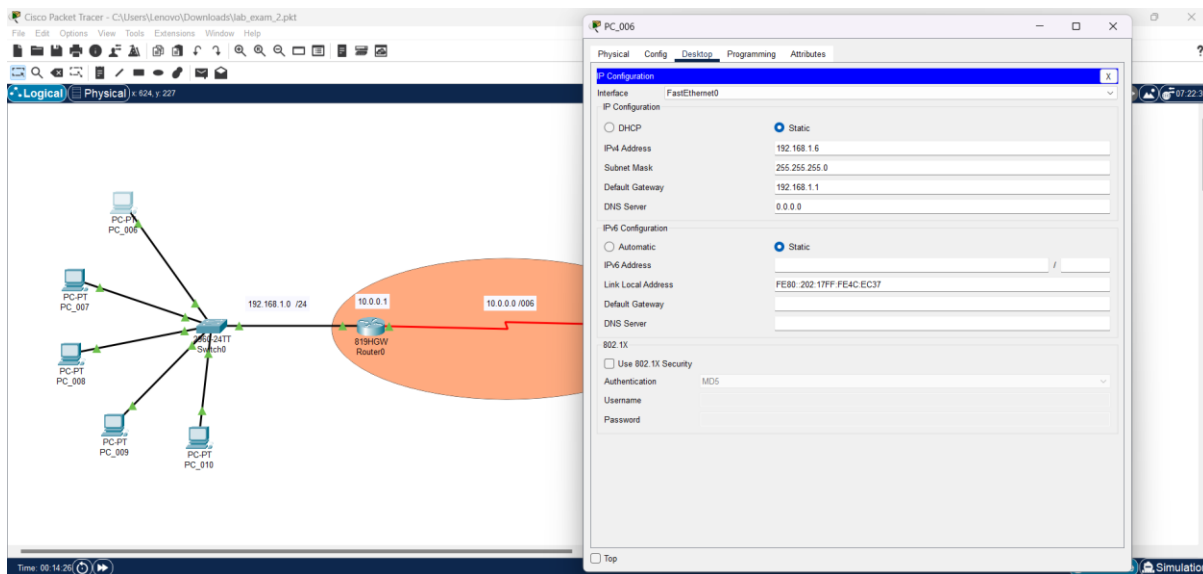
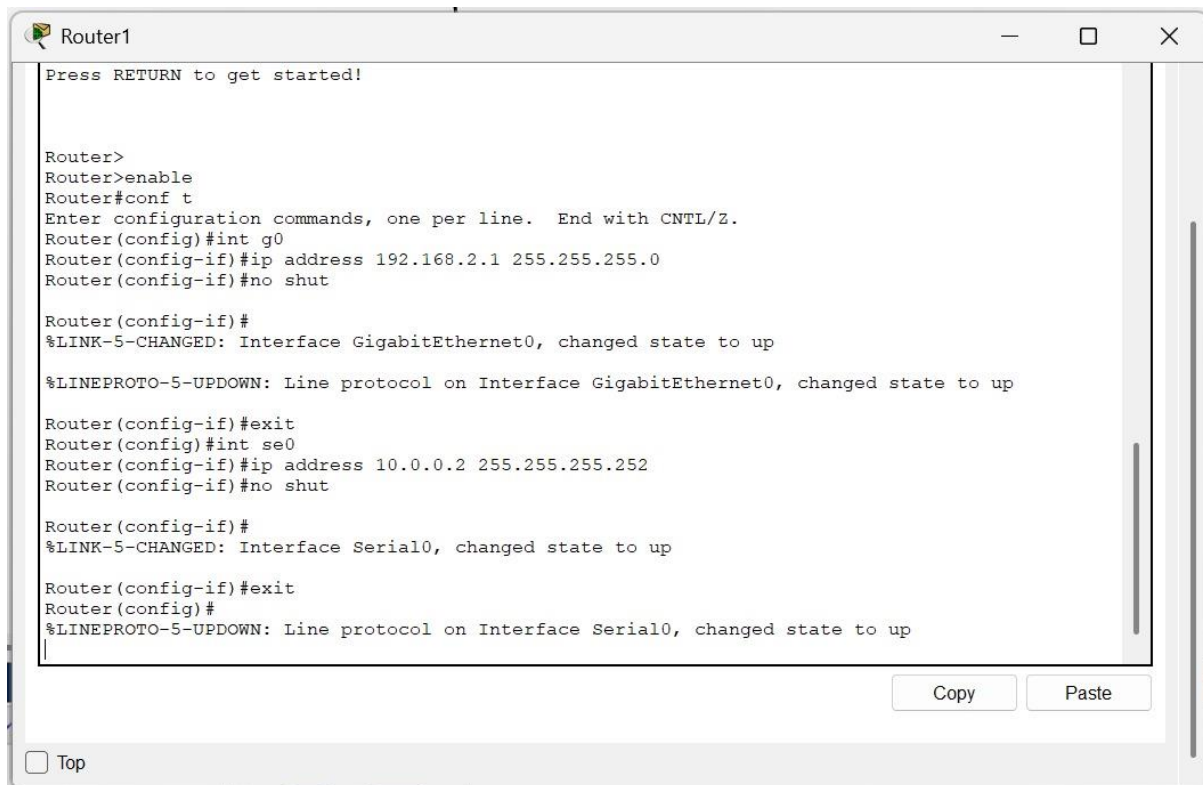
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0, changed state to up

Router(config-if)#exit
Router(config)#int s0
Router(config-if)#ip address 10.0.0.1 255.255.255.252
Router(config-if)#no shut

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

Copy Paste

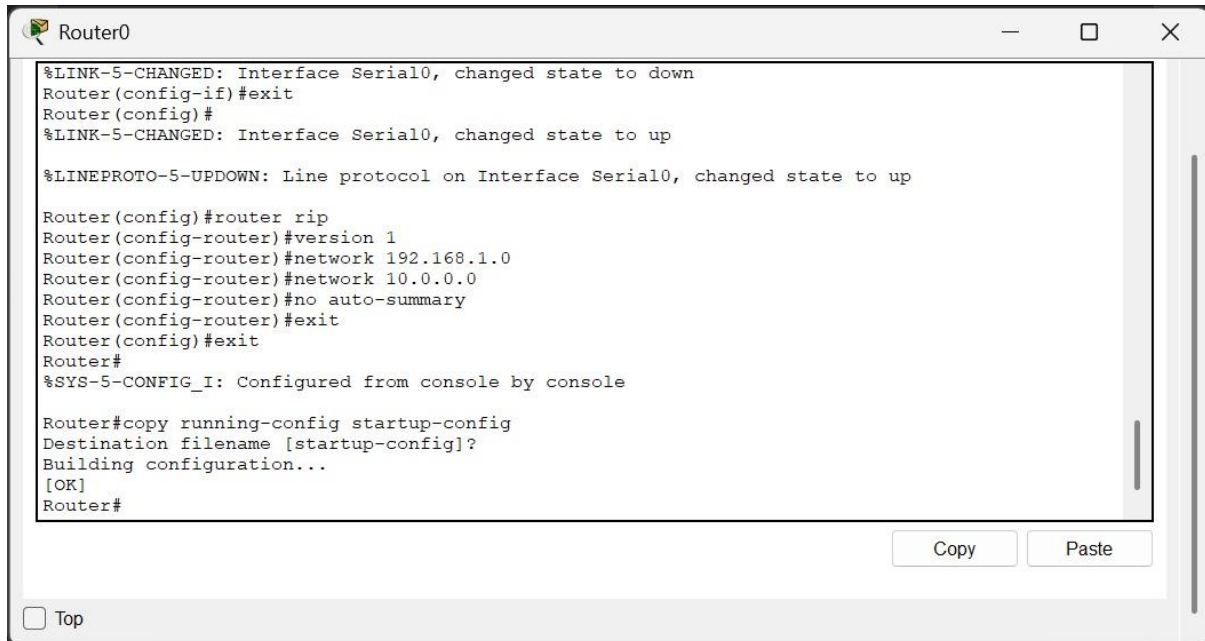
☐ Top



STEP 3:

Setting up RIP Protocol on Router 0

Enabling RIP Configuration



The screenshot shows a terminal window titled "Router0". The terminal output displays the configuration of the RIP protocol. It starts with a message about the Serial0 interface state changing to down, followed by the user exiting the interface configuration. Then, the line protocol on Serial0 changes to up. The user enters the configuration mode for the RIP protocol, sets the version to 1, and defines two networks: 192.168.1.0 and 10.0.0.0. After exiting the configuration, the user saves the running configuration to the startup configuration. The terminal shows the following commands and messages:

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

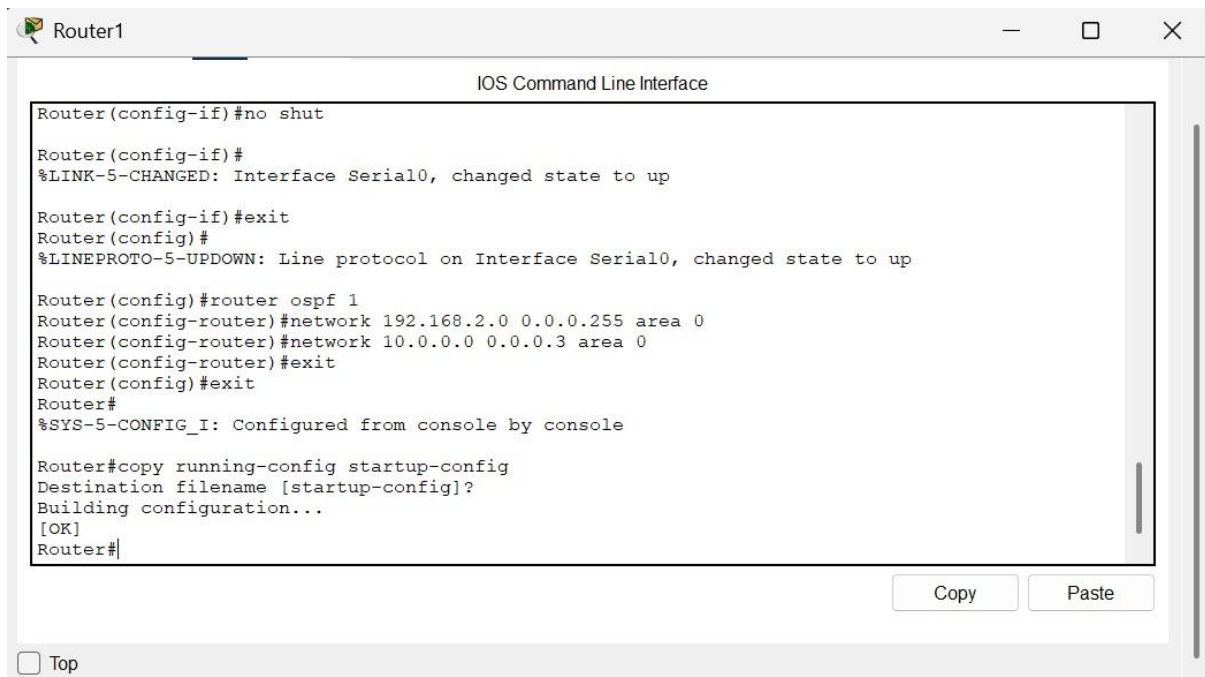
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0, changed state to up

Router(config)#router rip
Router(config-router)#version 1
Router(config-router)#network 192.168.1.0
Router(config-router)#network 10.0.0.0
Router(config-router)#no auto-summary
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

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

At the bottom of the window, there are "Copy" and "Paste" buttons, and a "Top" button with a checkbox.

OSPF on Router 1



The screenshot shows a terminal window titled "Router1" with the subtitle "IOS Command Line Interface". The terminal output displays the configuration of the OSPF protocol. It starts with the user entering the configuration mode for the Serial0 interface and disabling it. Then, the line protocol on Serial0 changes to up. The user exits the interface configuration and enters the configuration mode for the OSPF protocol. They set the area to 0 and define two networks: 192.168.2.0/24 and 10.0.0.0/24. After exiting the configuration, the user saves the running configuration to the startup configuration. The terminal shows the following commands and messages:

```
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0, changed state to up

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

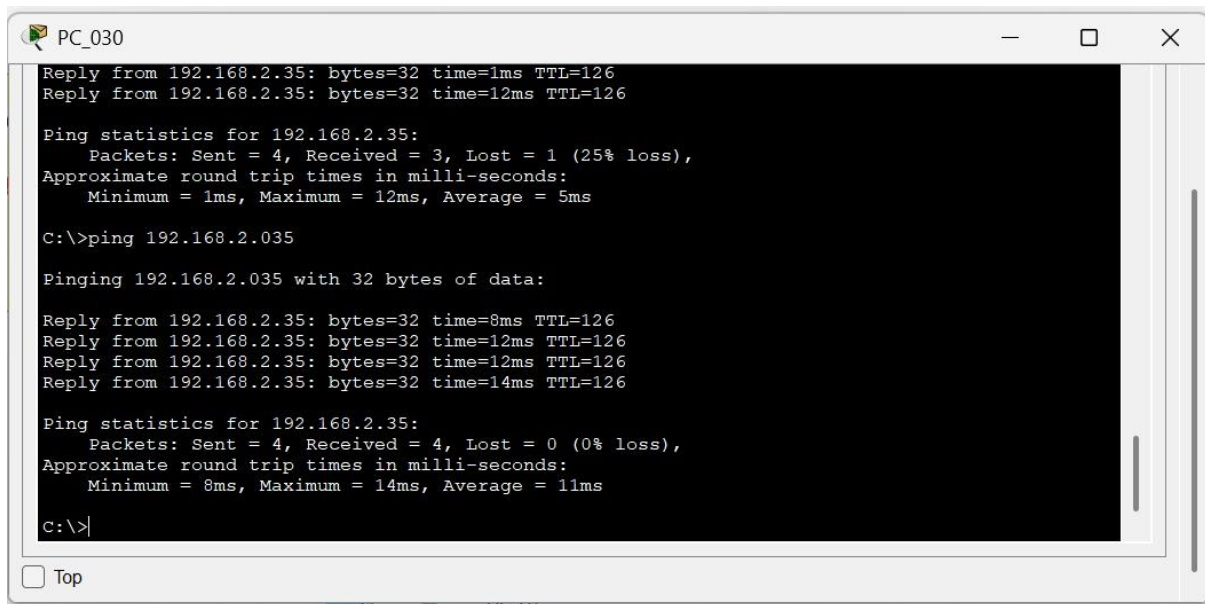
Router(config)#router ospf 1
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0
Router(config-router)#network 10.0.0.0 0.0.0.3 area 0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

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

At the bottom of the window, there are "Copy" and "Paste" buttons, and a "Top" button with a checkbox.

STEP 4:

Pinging to check the connectivity



```
PC_030
Reply from 192.168.2.35: bytes=32 time=1ms TTL=126
Reply from 192.168.2.35: bytes=32 time=12ms TTL=126

Ping statistics for 192.168.2.35:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 12ms, Average = 5ms

C:\>ping 192.168.2.035

Pinging 192.168.2.035 with 32 bytes of data:

Reply from 192.168.2.35: bytes=32 time=8ms TTL=126
Reply from 192.168.2.35: bytes=32 time=12ms TTL=126
Reply from 192.168.2.35: bytes=32 time=12ms TTL=126
Reply from 192.168.2.35: bytes=32 time=14ms TTL=126

Ping statistics for 192.168.2.35:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 14ms, Average = 11ms

C:\>|
```

☐ Top