

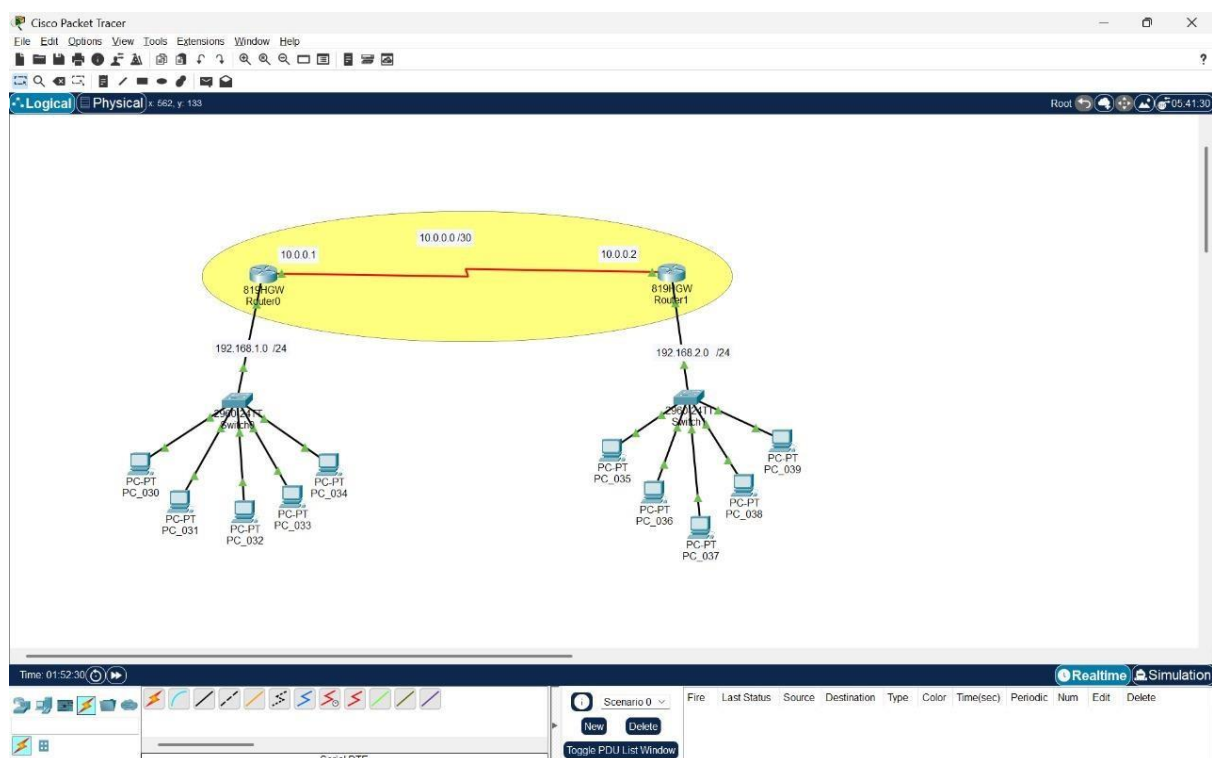
COMPUTER NETWORKS LAB EXAM 2

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:

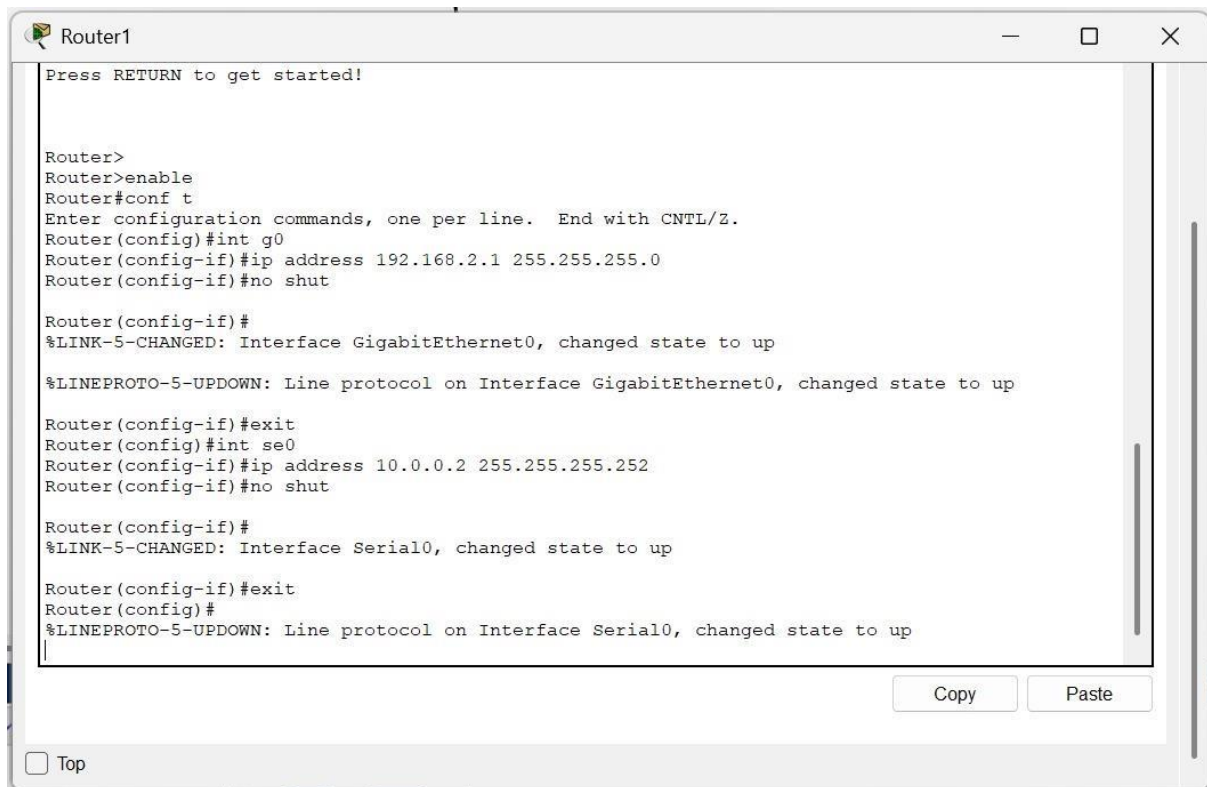
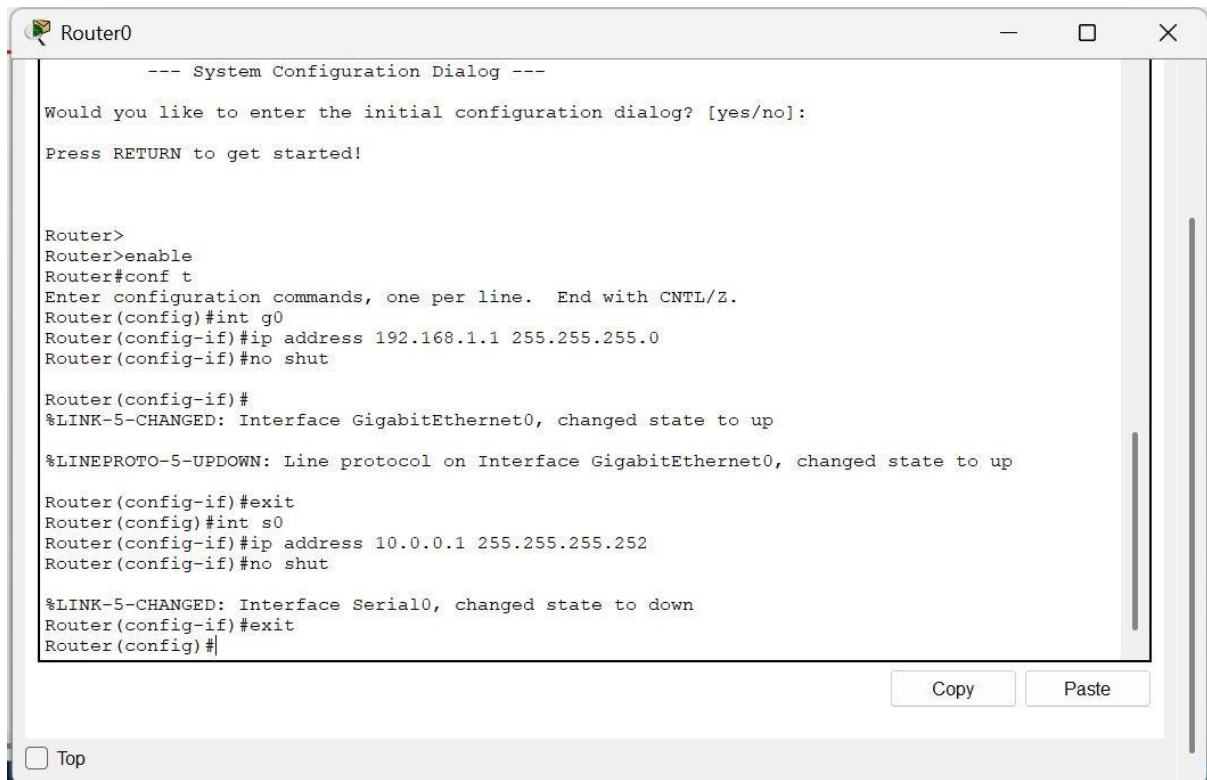


- Link the two routers with a Serial DCE-DTE cable.
- Connect the GigabitEthernet ports of R1 and R2 Routers to the Switch (SW0/SW1) ports with a straight-through cable.
- Connect PC_030 to PC_034 to SW1, PC_035 to PC_039 to SW2 with a straight cable.

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.



The screenshot shows a configuration window for PC_030 with tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Config' tab is active, displaying the 'IP Configuration' section for the 'FastEthernet0' interface. The 'Static' radio button is selected for both IP and IPv6 configurations. The IPv4 settings are: IP Address 192.168.1.30, Subnet Mask 255.255.255.0, Default Gateway 192.168.1.1, and DNS Server 0.0.0.0. The IPv6 settings are: Static selected, Link Local Address FE80::202:17FF:FE4C:EC37, and empty fields for IPv6 Address, Default Gateway, and DNS Server. The '802.1X' section shows 'Use 802.1X Security' is unchecked, with 'Authentication' set to 'MD5' and empty fields for 'Username' and 'Password'.

IP Configuration	
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.1.30
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::202:17FF:FE4C:EC37
Default Gateway	
DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

STEP 3:

Setting up RIP Protocol on Router 0

Enabling RIP Configuration

The screenshot shows the 'Router0' configuration window with a command-line interface. The output shows that Interface Serial0 has changed state to down and then up. The configuration commands entered are: 'router rip', 'version 1', 'network 192.168.1.0', 'network 10.0.0.0', and 'no auto-summary'. The configuration is saved to the startup-config file. The 'Copy' and 'Paste' buttons are visible at the bottom right.

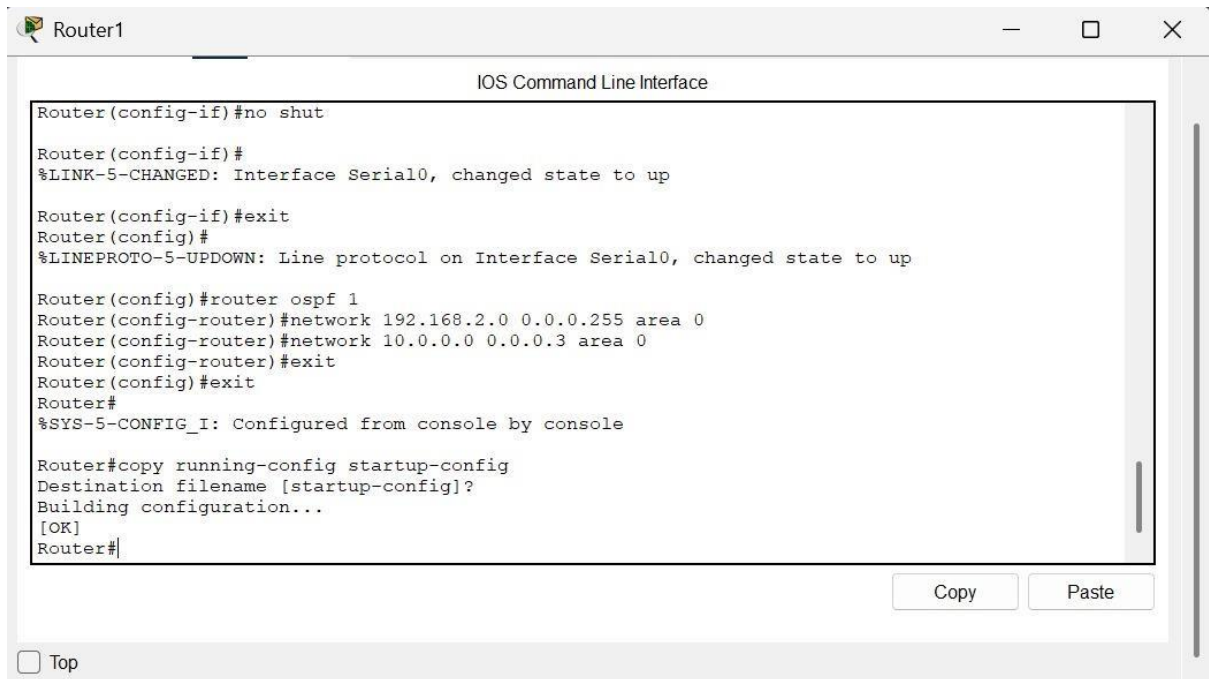
```
%LINK-5-CHANGED: Interface Serial0, changed state to down
Router(config-if)#exit
Router(config)#
%LINK-5-CHANGED: Interface Serial0, changed state to up

%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#
```

OSPF on Router 1



Router1

IOS Command Line Interface

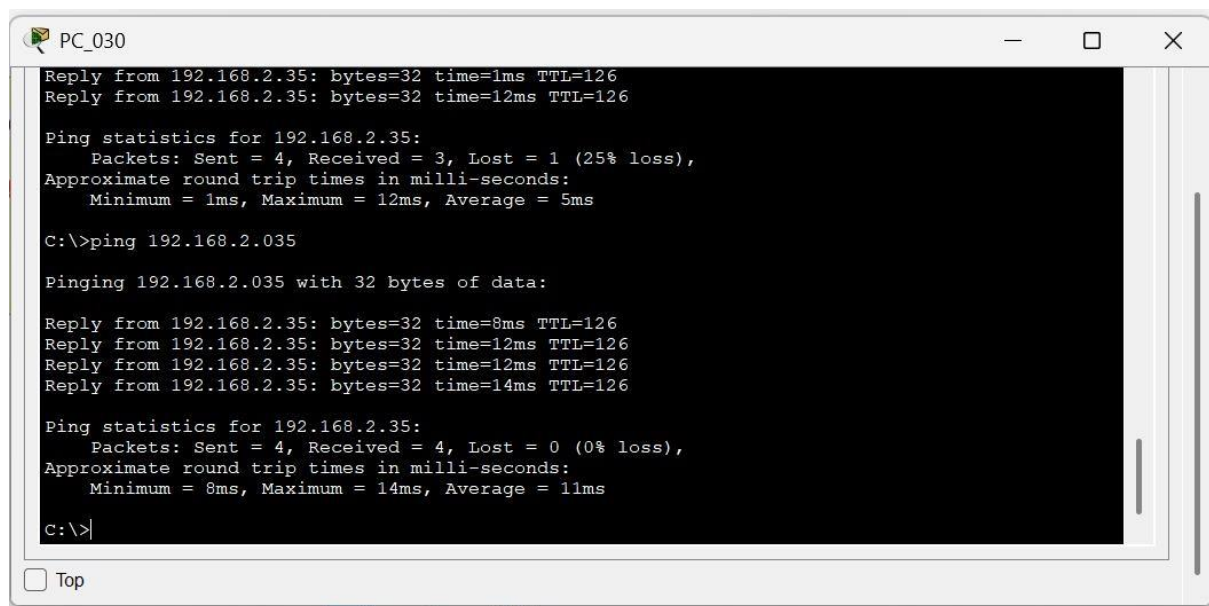
```
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0, changed state to up
Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0, changed state to up
Router(config)#router ospf 1
Router(config-router)#network 192.168.2.0 0.0.0.255 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#
```

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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:\>
```

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