RIP CONFIGURATION FOR 2 ROUTER

Objective:

The objective of this configuration is to establish communication between two separate networks using RIP (Routing Information Protocol) on Cisco routers. RIP is a distance-vector routing protocol that allows routers to exchange routing information and build routing tables based on the number of hops required to reach a destination network.

Theory:

RIP is a dynamic routing protocol that uses hop count as its metric for determining the best path to a destination network. Each router maintains a routing table that contains information about the networks it knows and the distance (hop count) to reach those networks. RIP uses broadcast or multicast updates to exchange routing information with neighboring routers.

Connection:

The network topology consists of the following components:

Routers:

- Router R1
- Router R2

Switches:

- Switch0 (connected to Router R1)
- Switch1 (connected to Router R2)

End Devices:

- PC0 (connected to Switch0)
- PC1 (connected to Switch1)

Connection Lines:

- FastEthernet 0/0 on Router R1 is connected to Switch0
- FastEthernet 0/0 on Router R2 is connected to Switch1
- FastEthernet 0/1 on Router R1 is connected to FastEthernet 0/1 on Router R2 through a dedicated link

RIP Configuration:

The Routing Information Protocol (RIP) is a distance-vector routing protocol used to dynamically learn and advertise routes between routers. The configuration steps for RIP on each router are as follows:

RIP configuration for Router R1 – interface FA0/0

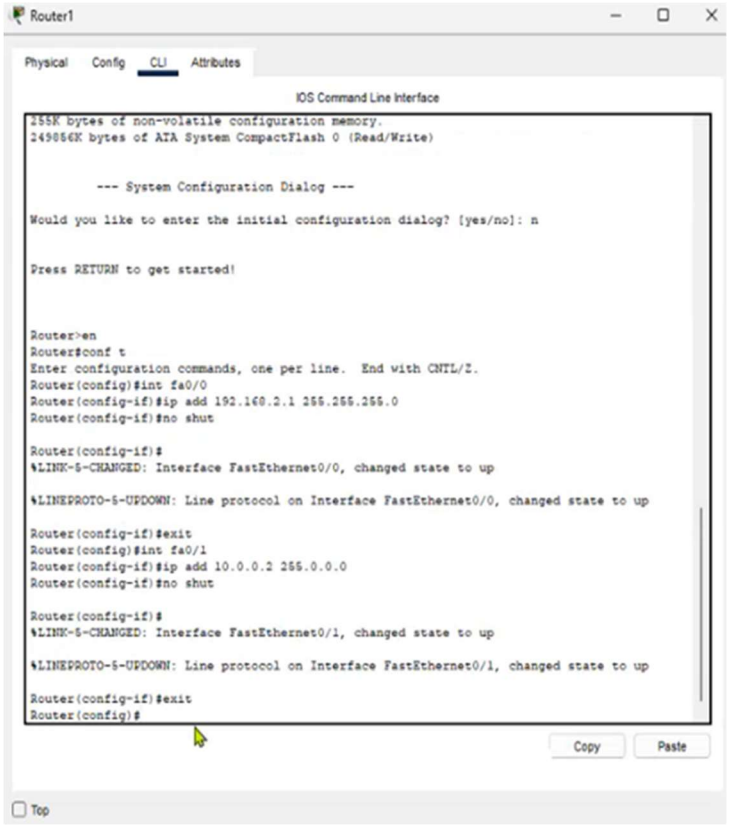
```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip add 192.168.1.1 255.255.255.0
Router(config-if)#no shut

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
^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
```

RIP configuration for Router R1 – interface 0/1



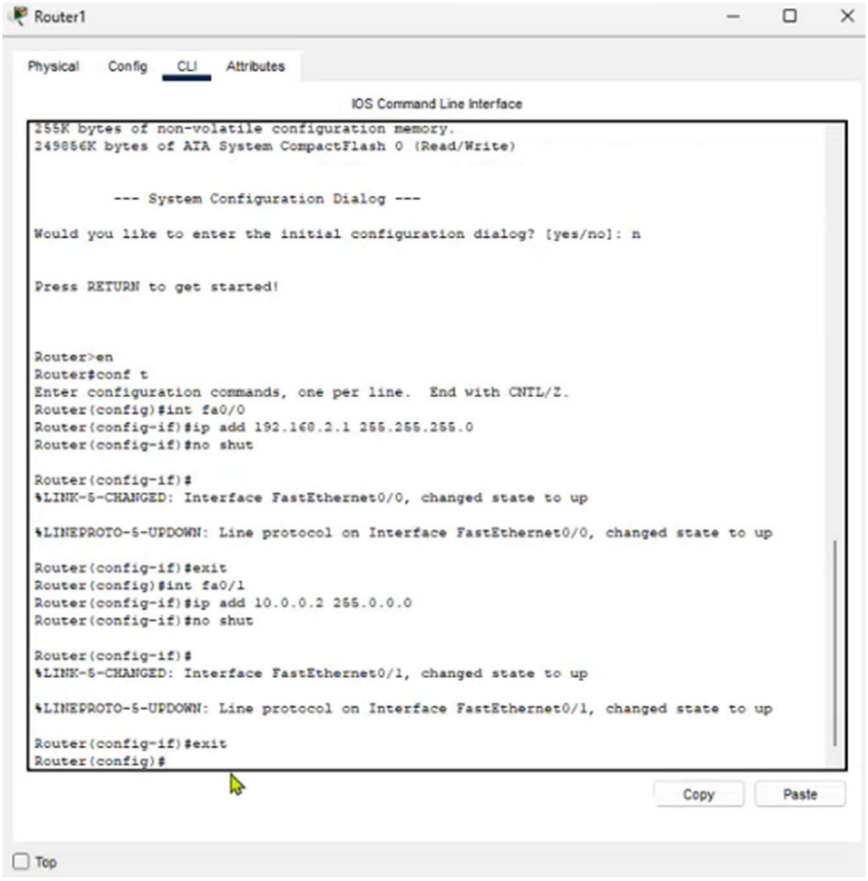

```
Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/1
Router(config-if)#ip add 10.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
```

RIP configuration for Router R2 – interface FA0/0 & FA0/1




```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip add 192.168.2.1 255.255.255.0
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)#exit
Router(config)#int fa0/1
Router(config-if)#ip add 10.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to
up

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

Network Addressing:

Router R1:

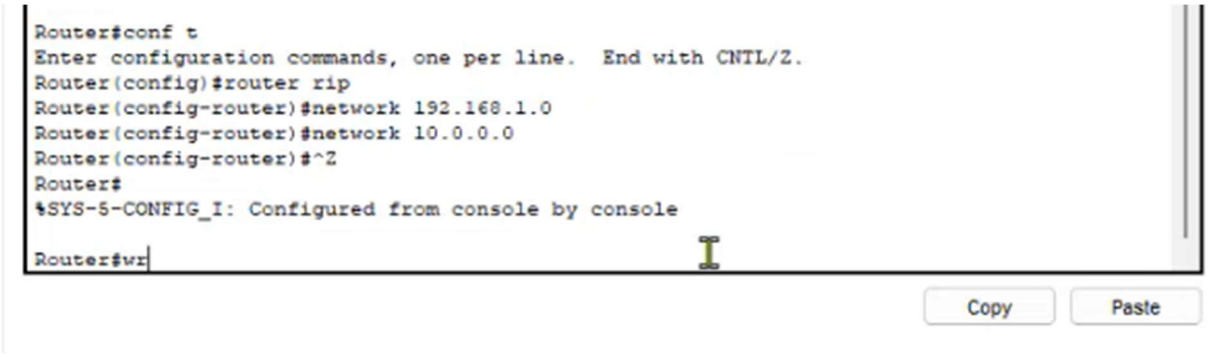
- FastEthernet0/0: 192.168.1.1/24
- FastEthernet0/1: 10.0.0.1/8

Router R2:

- FastEthernet0/0: 192.168.2.1/24
- FastEthernet0/1: 10.0.0.2/8

RIP Configurations on both R1 & R2 routers

Go to Router R1




```
Router#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#network 192.168.1.0

Router(config-router)#network 10.0.0.0

Router(config-router)#^Z

Router#
```

%SYS-5-CONFIG_I: Configured from console by console

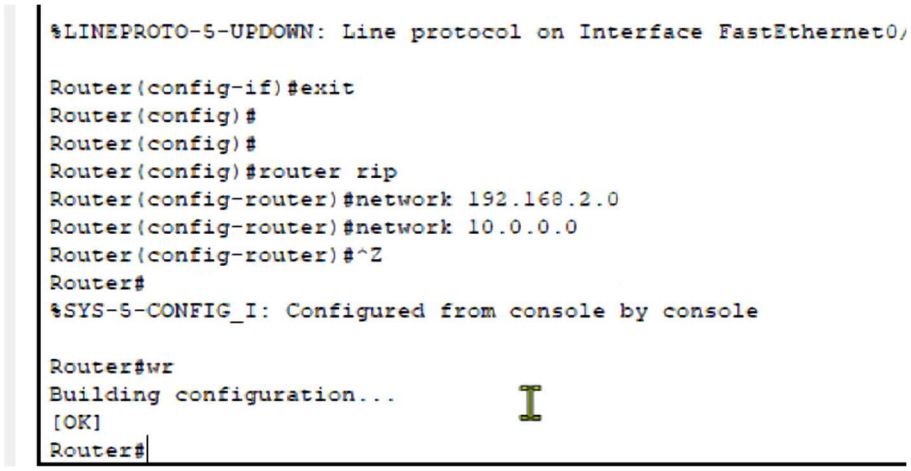
Router#wr

Building configuration...

[OK]

Router#

Go to Router R2



Router(config)#

Router(config)#router rip

Router(config-router)#*network 192.168.2.0*

Router(config-router)#*network 10.0.0.0*

Router(config-router)#^Z

Router#

%SYS-5-CONFIG_I: Configured from console by console

Router#wr

Building configuration...

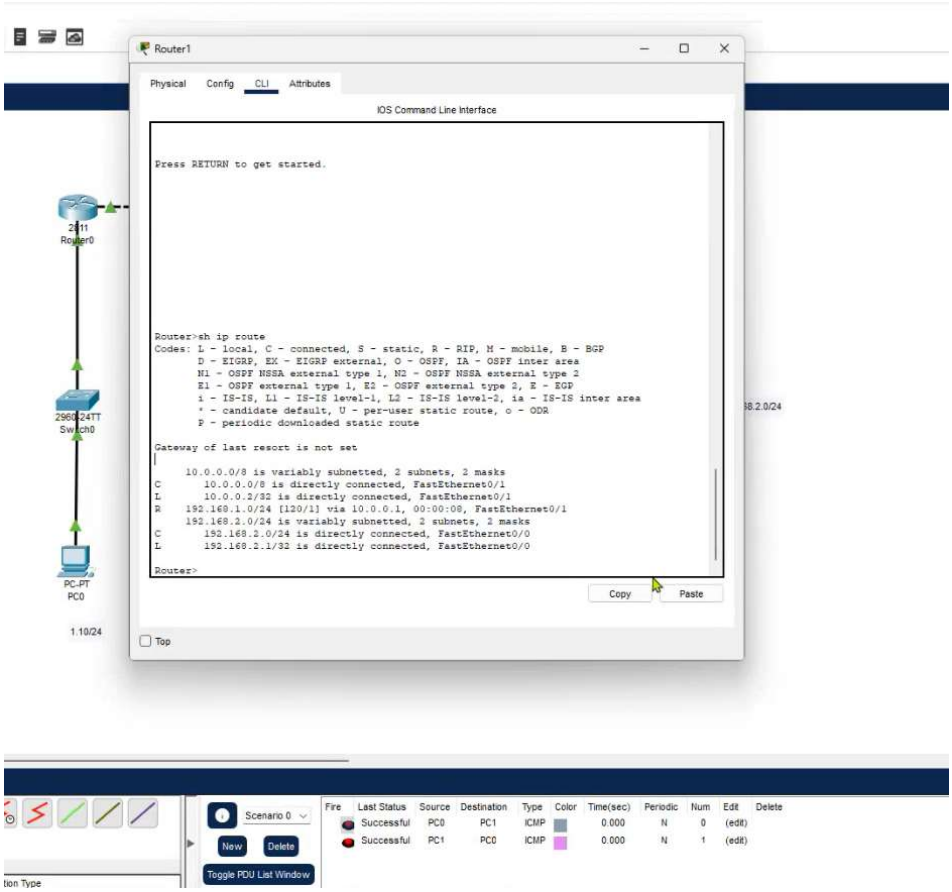
[OK]

Router#

In the above configurations, the router rip command enables RIP on the router, and the network command specifies the directly connected networks that should be advertised and learned via RIP. The “no shutdown” command will bring the interface up. “exit” command is used to return in global configuration mode and The “wr” commands save the configuration changes.

Verification:

- Check the routing table entries by using the show ip route command on each router to verify that the routes have been learned via RIP.

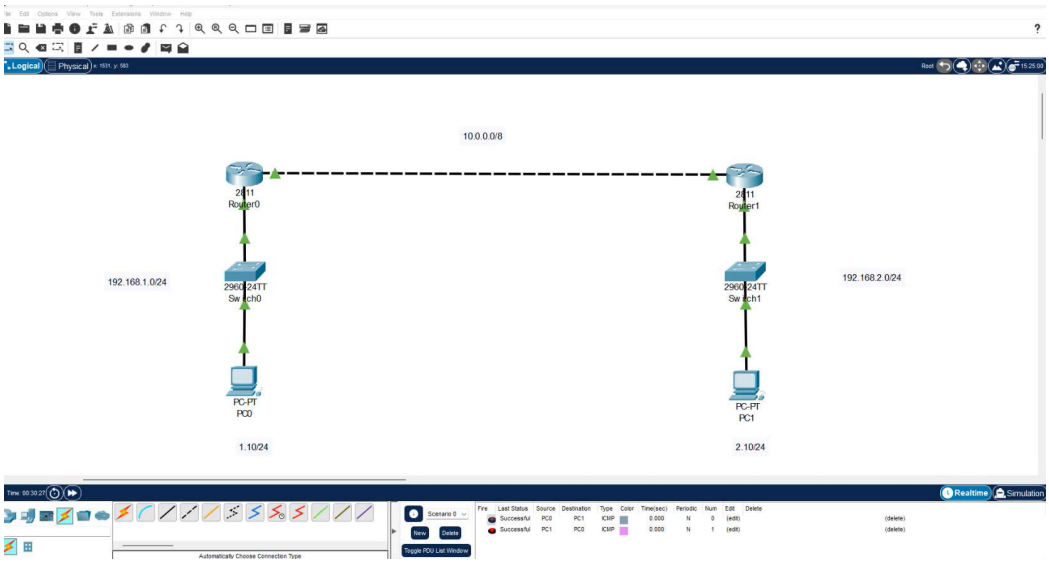


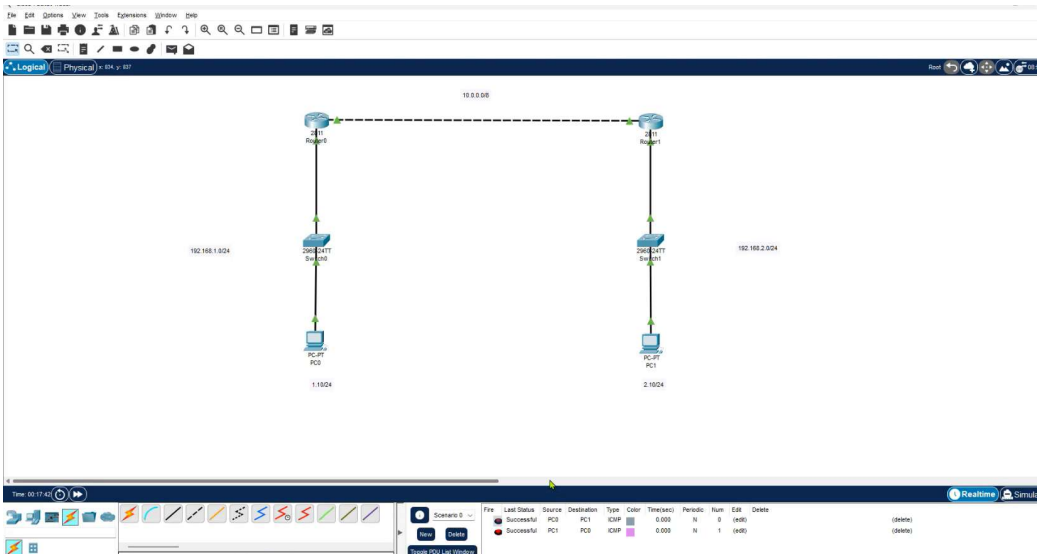
- Perform ping tests between devices in different subnets (e.g., ping from a device in the 192.168.1.0/24 subnet to a device in the 192.168.2.0/24 subnet) to verify end-to-end connectivity.

Result:

After the configuration is complete, the routers will exchange routing information using the RIP protocol. Router R1 will advertise the networks 192.168.1.0/24 and 10.0.0.0/8, while Router R2 will advertise the networks 192.168.2.0/24 and 10.0.0.0/8.

The routers will learn about the networks connected to each other and establish appropriate routes for communication between the networks. This will allow end devices, such as PC0 and PC1, to communicate with each other across the different networks.





Conclusion:

The RIP configuration process on the two Cisco routers, Router R1 and Router R2, has been successfully completed. By enabling RIP and specifying the appropriate network statements, the routers can dynamically learn and advertise routes, enabling communication between devices in different subnets (192.168.1.0/24 and 192.168.2.0/24). Connectivity can be verified through routing table entries and ping tests. While RIP is a simple routing protocol, it lacks robust security features, and more secure alternatives like OSPF or EIGRP should be considered, especially in larger or more sensitive network environments.