LAB NO: 10

Configuring Dynamic Routing in Cisco Packet Tracer

Objective:

To configure RIP (Routing Information Protocol) for dynamic routing between two routers, allowing them to exchange routing information and automatically update their routing tables to find the best path for data transmission.

Apparatus Required:

- Cisco Packet Tracer software
- Two routers (e.g., Cisco 1841 series)
- Two switches (e.g., 2950-24)
- Four PCs for testing end-to-end connectivity
- Ethernet cables for device interconnection

Theory:

RIP (Routing Information Protocol) is a distance-vector routing protocol that uses hop count as a metric to find the best path to a network. The maximum number of hops allowed for RIP is 15. RIP works by having routers share their routing tables with their neighbors every 30 seconds.

In this experiment, two routers will be connected, and RIP will be configured to allow them to dynamically exchange routing information, ensuring that data can flow between different networks.

**Steps to Configure and Verify Two Router Connections in Cisco Packet Tracer:**

Step 1: First, open the Cisco packet tracer desktop and select the devices given below:

S.NO	Device	Model Name	Qty.
1.	pc	pc	4
2.	switch	PT-Switch	2
3.	router	PT-Router	2

IP Addressing Table

S.NO	Device	IPv4 Address	Subnet-Mask	Default-Gateway
1.	pc0	192.168.2.1	255.255.255.0	192.168.2.3
2.	pc1	192.168.2.2	255.255.255.0	192.168.2.3
3.	pc2	192.168.3.1	255.255.255.0	192.168.3.3
4.	pc3	192.168.3.2	255.255.255.0	192.168.3.3

- Then, create a network topology as shown below the image.

- Use an Automatic connecting cable to connect the devices with others.
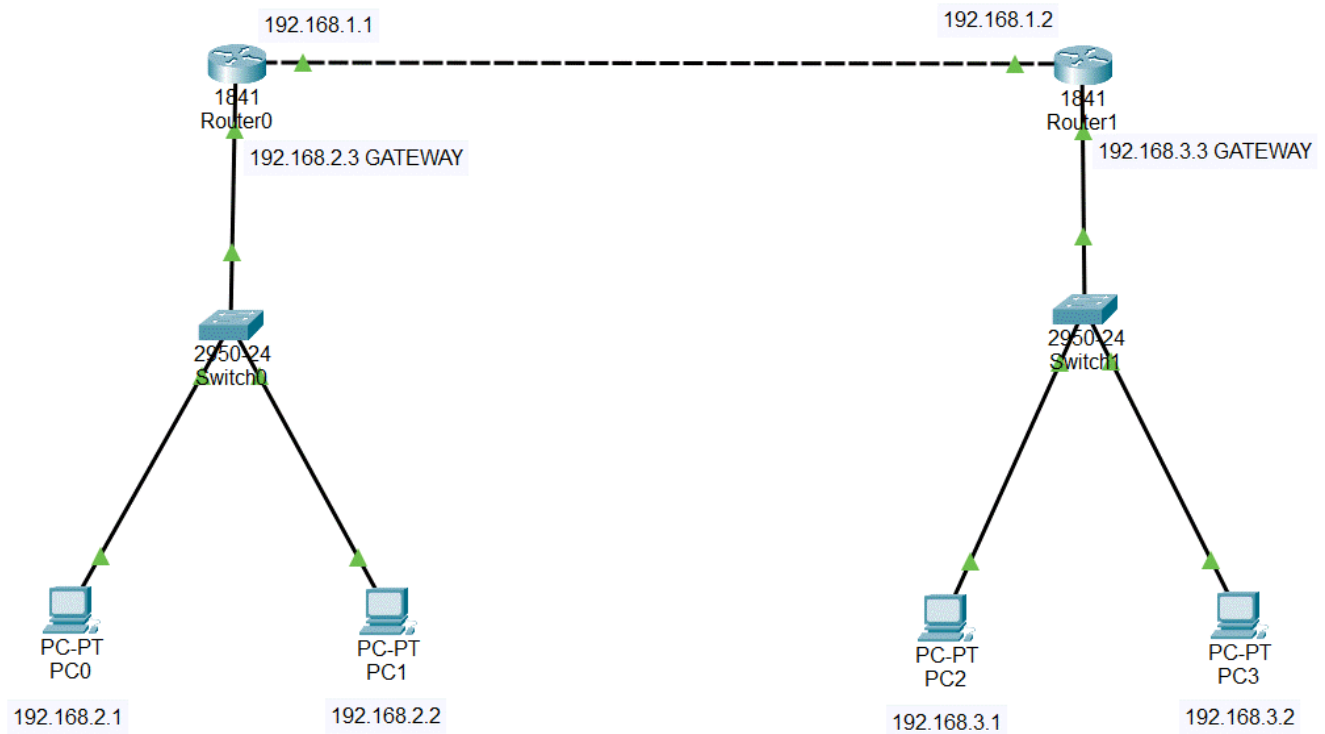
Step 2: Configure the PCs (hosts) with IPv4 address and Subnet Mask according to the IP addressing table given above.

- To assign an IP address in PC0, click on PC0.

- Then, go to desktop and then IP configuration and there you will IPv4 configuration.

- Fill IPv4 address and subnet mask.
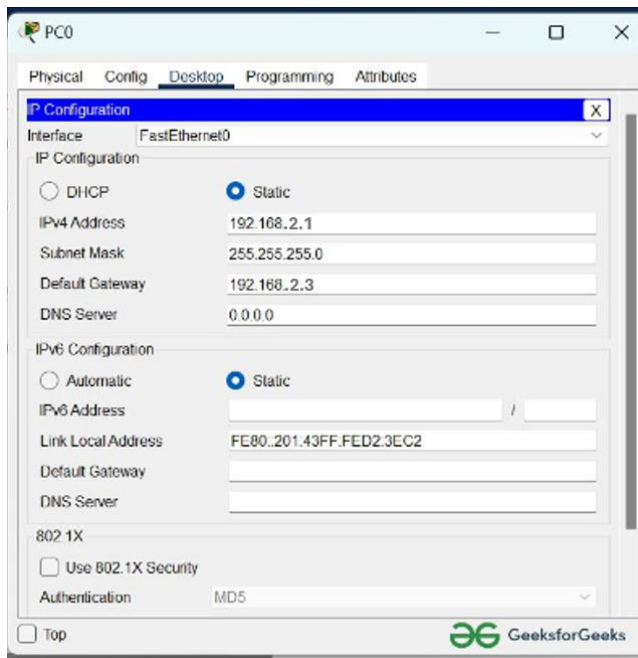
- Repeat the same procedure with other PCs to configure them thoroughly.

**Step 3: Configure router with IP address and subnet mask.**

- To assign an IP address in router0, click on router0.

- Then, go to config and then Interfaces.

- Make sure to turn on the ports

- Then, configure the IP address in FastEthernet and serial ports according to IP addressing Table.

- Fill IPv4 address and subnet mask.
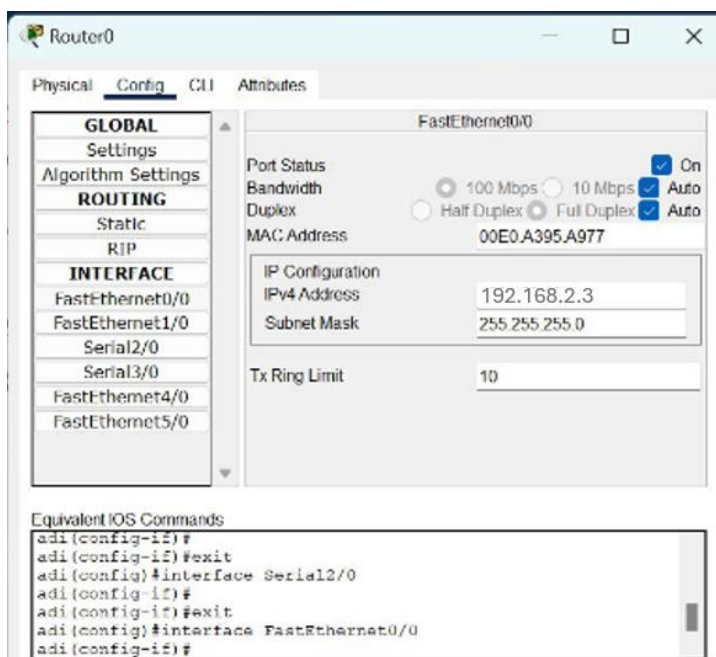
- Repeat the same procedure with other routers to configure them thoroughly.

Step 4: Configuring the RIP Network:

- In the graphical interface, you can see that two network addresses have been added to RIP:
    - 192.168.1.0
    - 192.168.2.0
- These addresses represent the networks that Router0 is directly connected to and are being advertised in the RIP protocol. By adding these networks to the RIP configuration, Router0 will share routes for these networks with neighboring routers that are also running RIP.
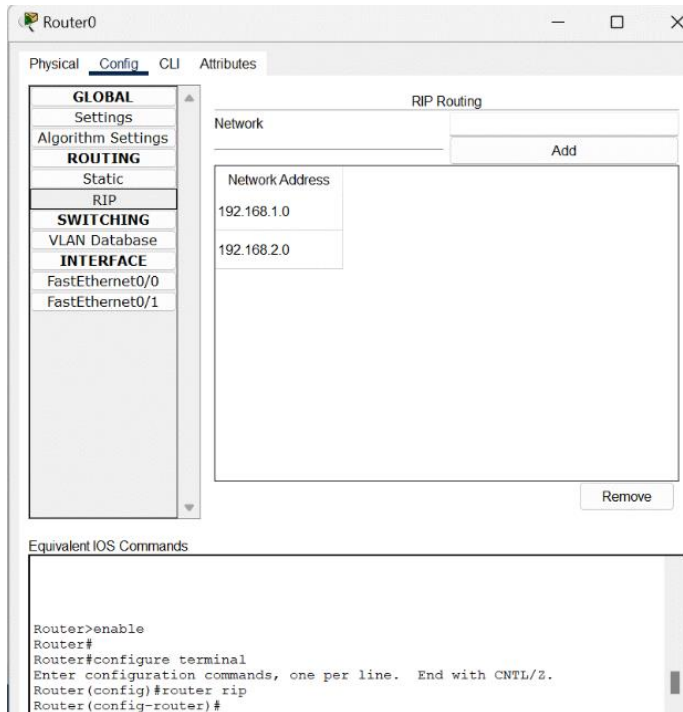
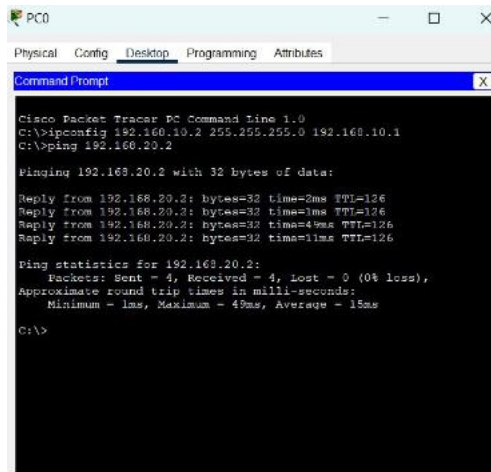**Step 5: Save the Configured setting to the RIP Network:**

Go to the settings and click on 'Save'
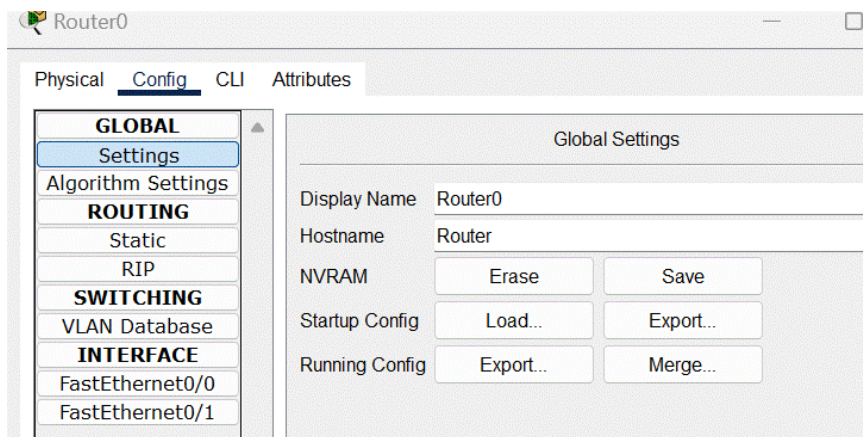
Step 6: Verifying the network by pinging the IP address of any PC.

- We will use the ping command to do so.

- First, click on PC0 then Go to the command prompt.

- Then type ping <IP address of targeted node>.

- As we can see in the below image we are getting replies which means the connection is working properly.