

Department of Computer Engineering
TE: SEM V Subject: CN

Experiment: 09

Aim:

Design VPN and Configure RIP using Packet tracer

Description:

Routing Information Protocol (RIP)

Routing Information Protocol (RIP) is a dynamic routing protocol that uses hop count as a routing metric to find the best path between the source and the destination network. It is a distance-vector routing protocol that has an AD value of 120 and works on the Network layer of the OSI model. RIP uses port number 520.

Hop Count

Hop count is the number of routers occurring in between the source and destination network. The path with the lowest hop count is considered as the best route to reach a network and therefore placed in the routing table. RIP prevents routing loops by limiting the number of hops allowed in a path from source and destination. The maximum hop count allowed for RIP is 15 and a hop count of 16 is considered as network unreachable.

Features of RIP

1. Updates of the network are exchanged periodically.
2. Updates (routing information) are always broadcast.
3. Full routing tables are sent in updates.
4. Routers always trust routing information received from neighbor routers. This is also known as Routing on rumors.

Procedure:

- Develop a topology as shown in the figure 1.
- Configure all the routers
- Implement RIP protocols in router to configure the network.

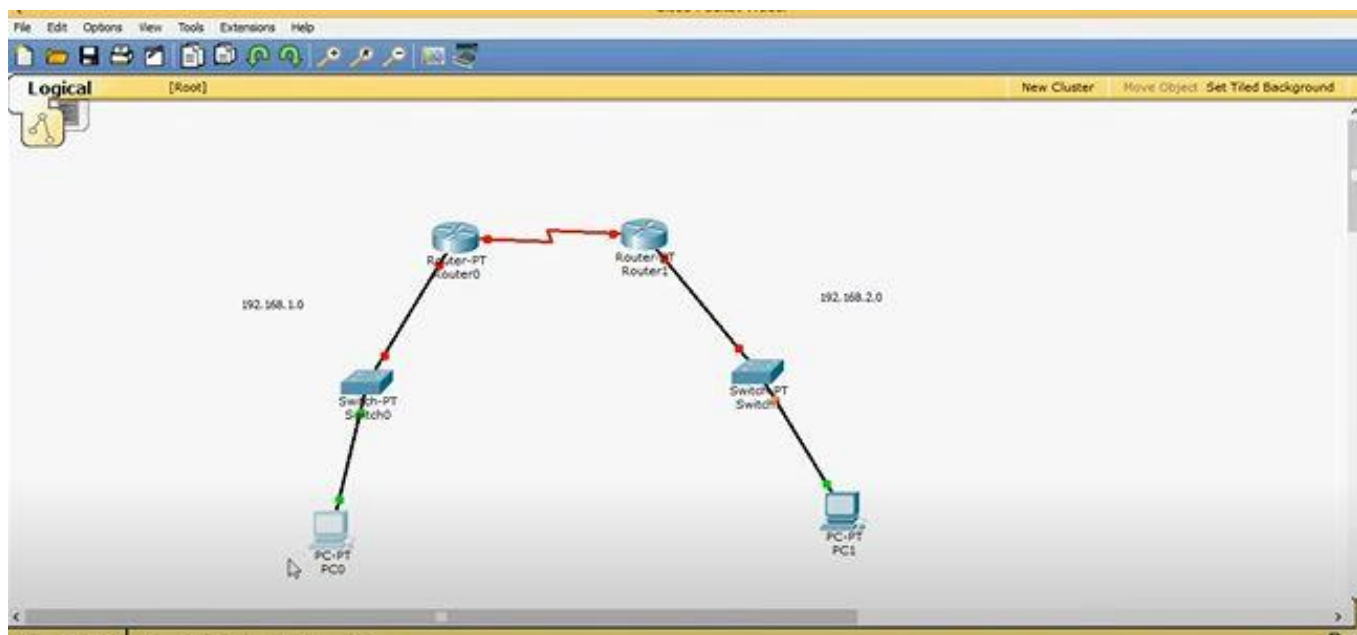


Fig1: Network Topology

PC0 IP Configuration

Click PC0, in Desktop, go to IP configuration and give IP address as given in the figure 2.

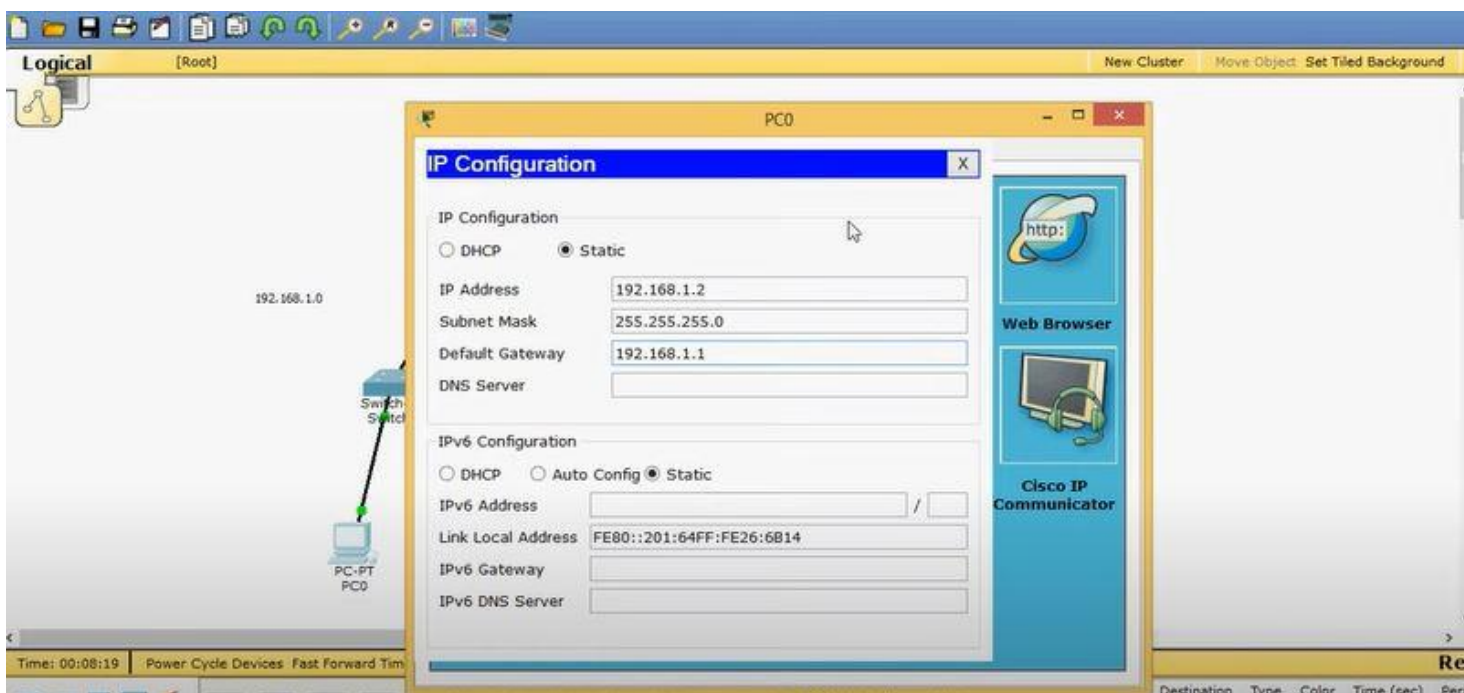


Fig2: PC0 Configuration

Repeat the same for PC1 with the configuration in figure3.

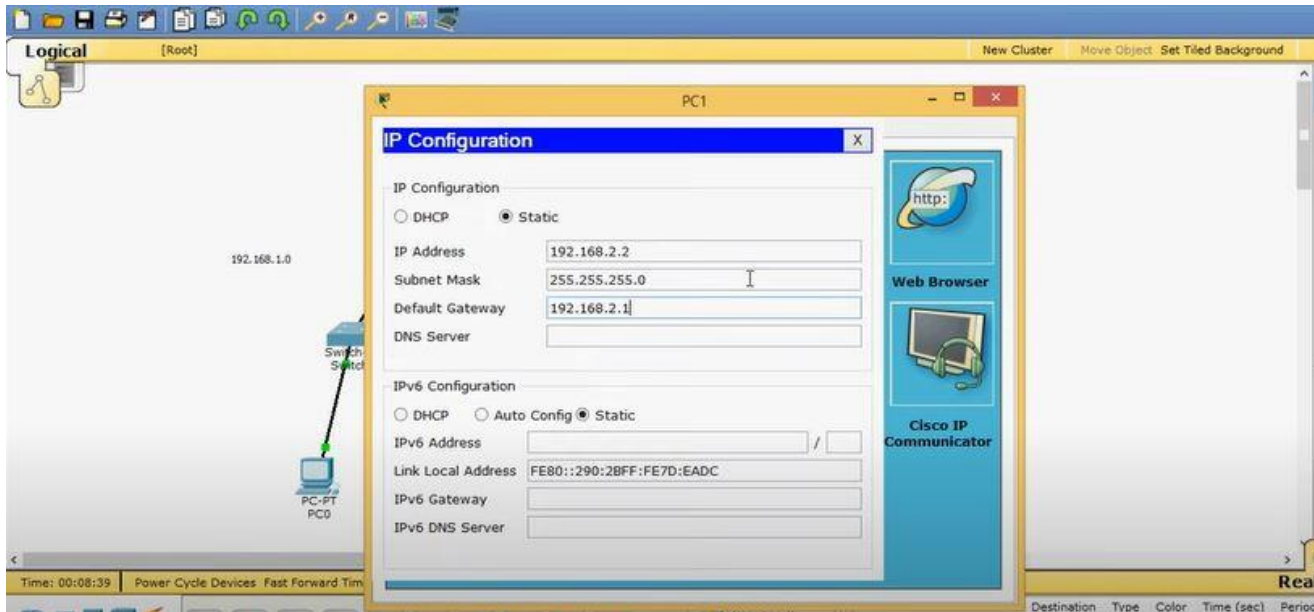
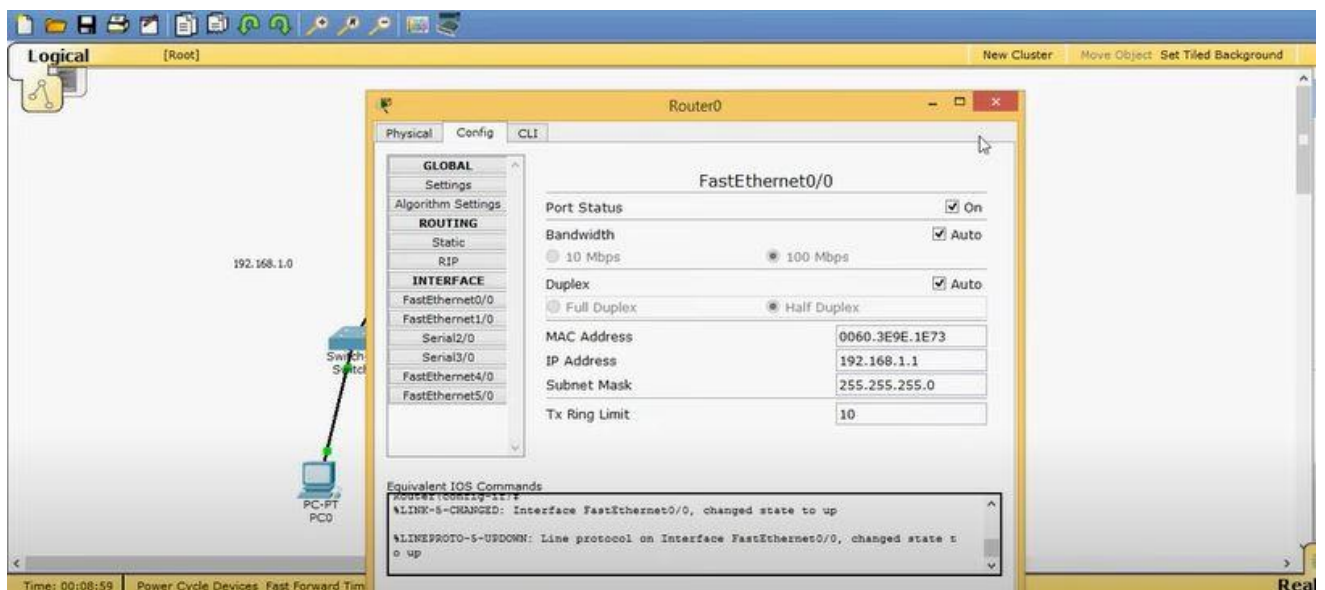


Fig3: PC1 Configuration.

Router0 and Router1 Configuration

For the Routers, we have to give the default Gateway. For that click the Router, in the Config option, select FastEthernet0/0. There give IP address as Default Gateway as in the figure 4 & 5. Make the port status as ON.



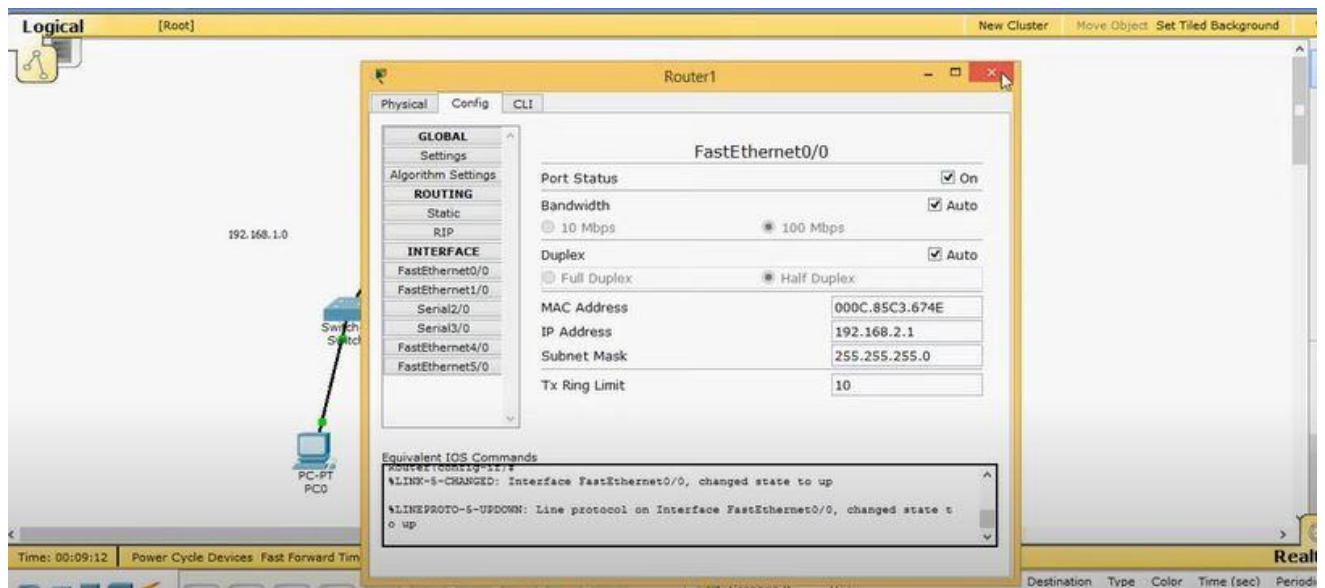
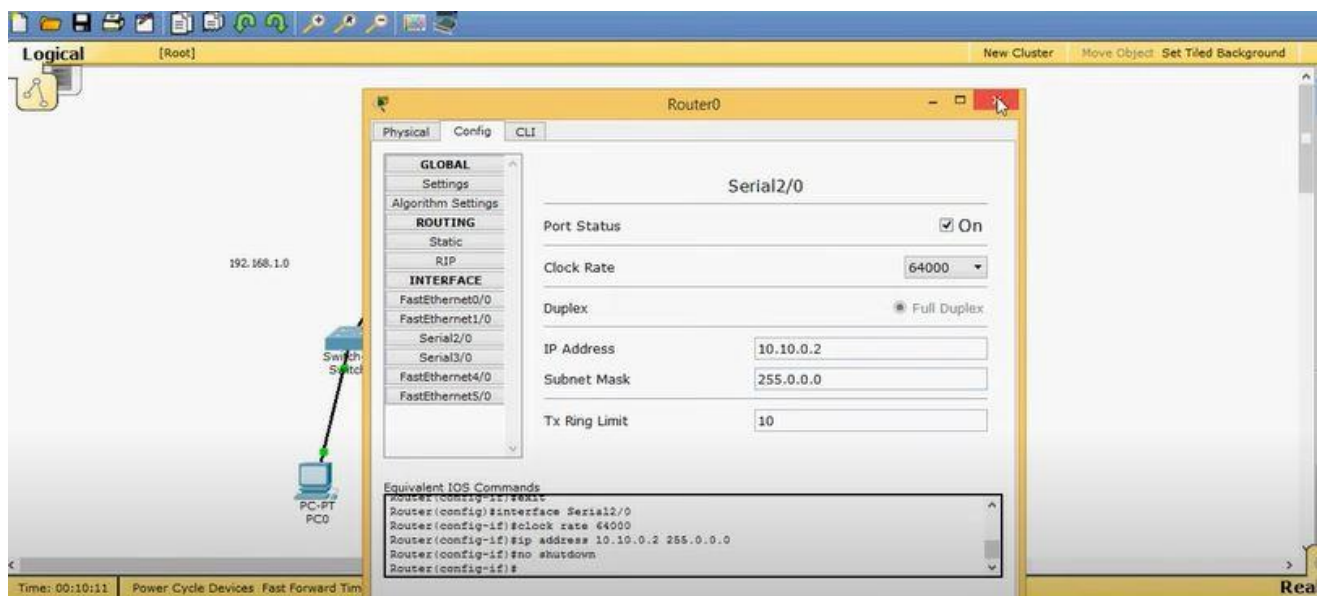


Fig 4 &5: Router configuration.

To configure the link between Router0 and Router1

Router0 has a clock and Router1 has no clock. So for configuring Router0, click router, select config and click Serial2/0. There we have to select clock Rate for Router0. But for Router1, make the clock rate as Not set. Give IP address in both routers as shown in figure 6 & 7.



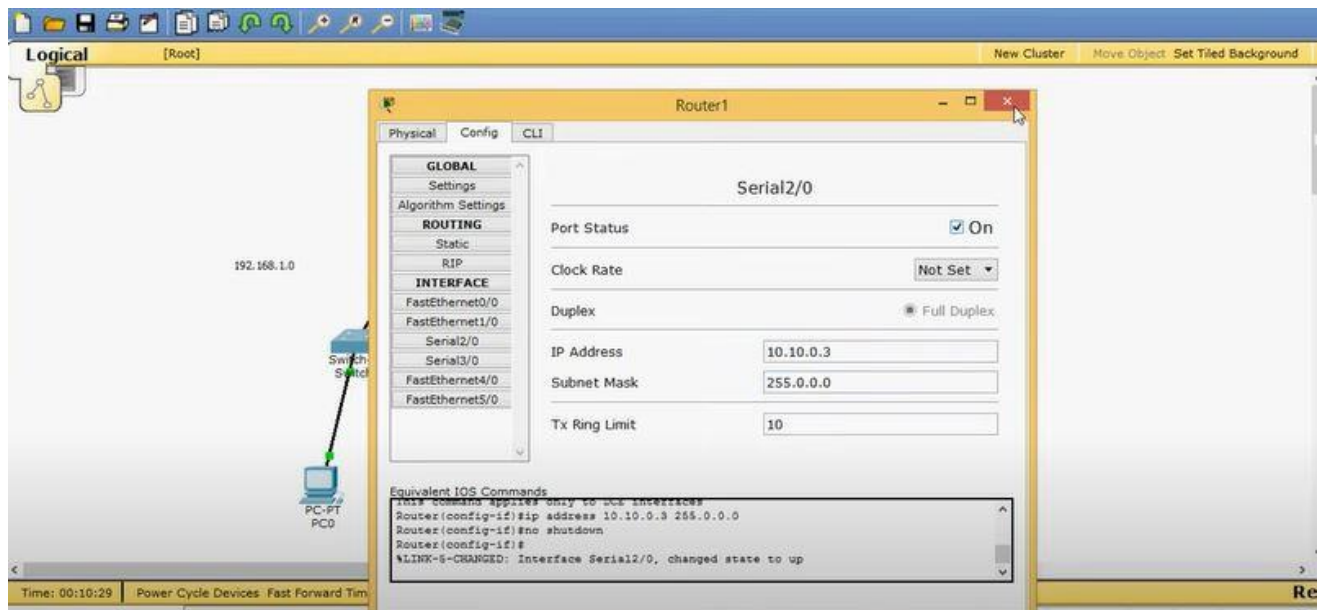


Fig 6 & 7: Router Serial2/0 configuration

Router0 RIP Routing

Go to config and click RIP button. Then add network addresses as figure 8. After that click Settings and save. (figure 9.)

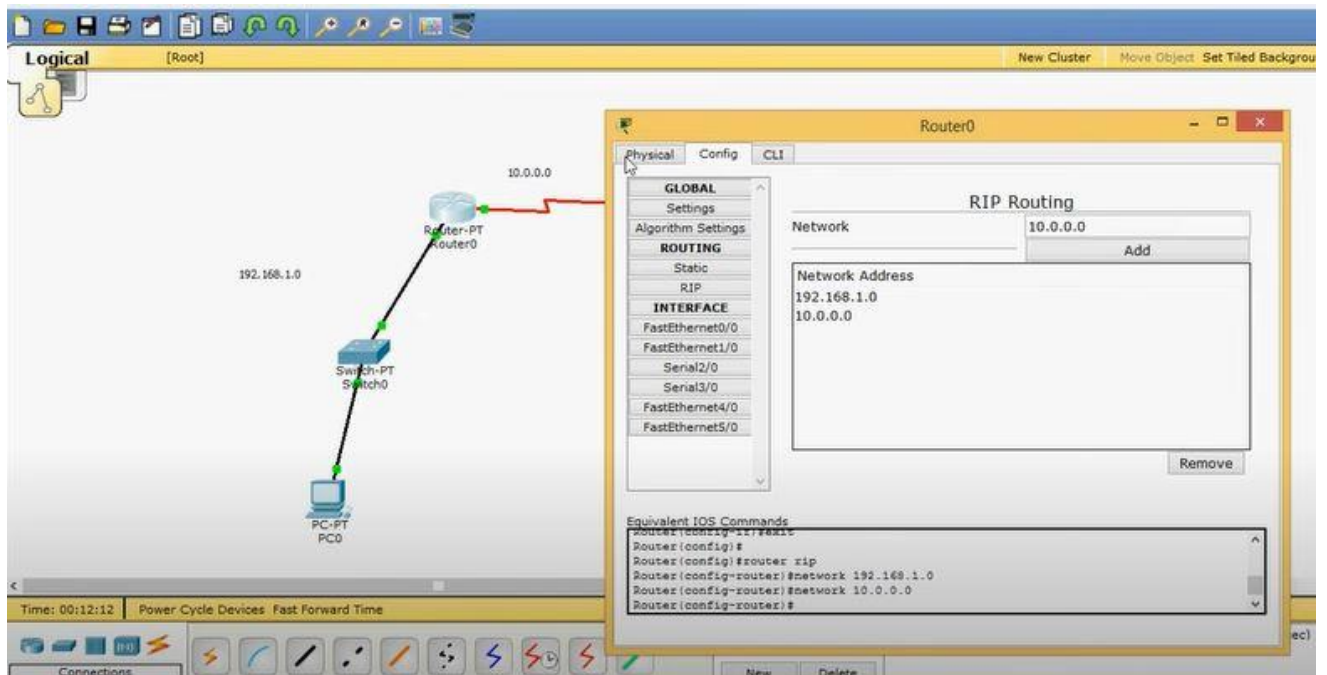


Fig: 8: Router0 RIP Routing

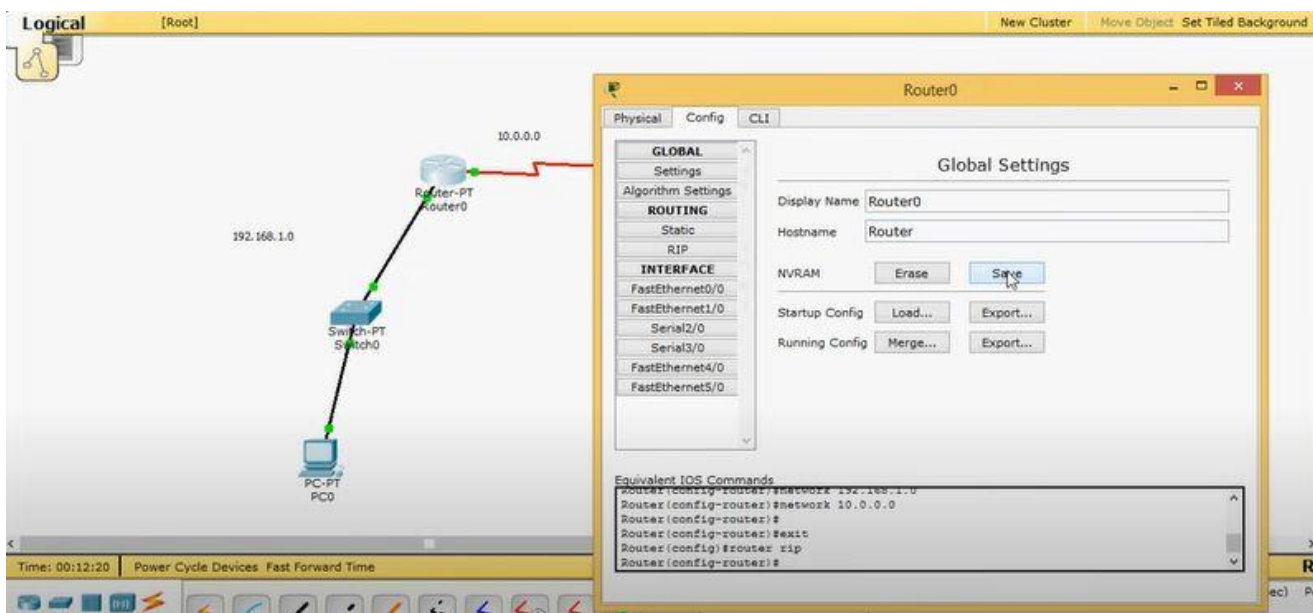


Fig9: Router0 Global Setting Save

Repeat the same for Router1 also. We can do this using CLI also. For that select the router, then click CLI and write commands as shown in figure 10. After that, to save it, go to Config, setting and click save.

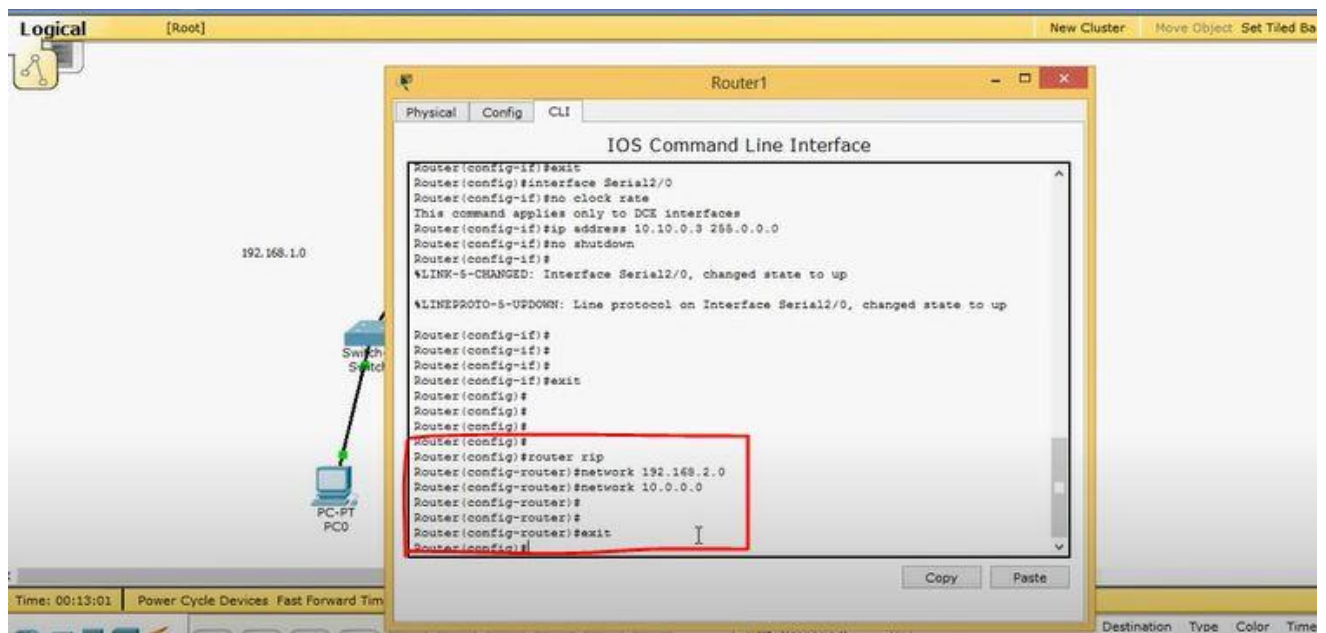


Fig 10: Router1 RIP Routing using CLI

Now to check if it is working or not, pick a packet from PC0 to PC1 in simulation and then go for capture Forward. The packet will be forwarded from PC0 to PC1 as given in figure 11 and 12.

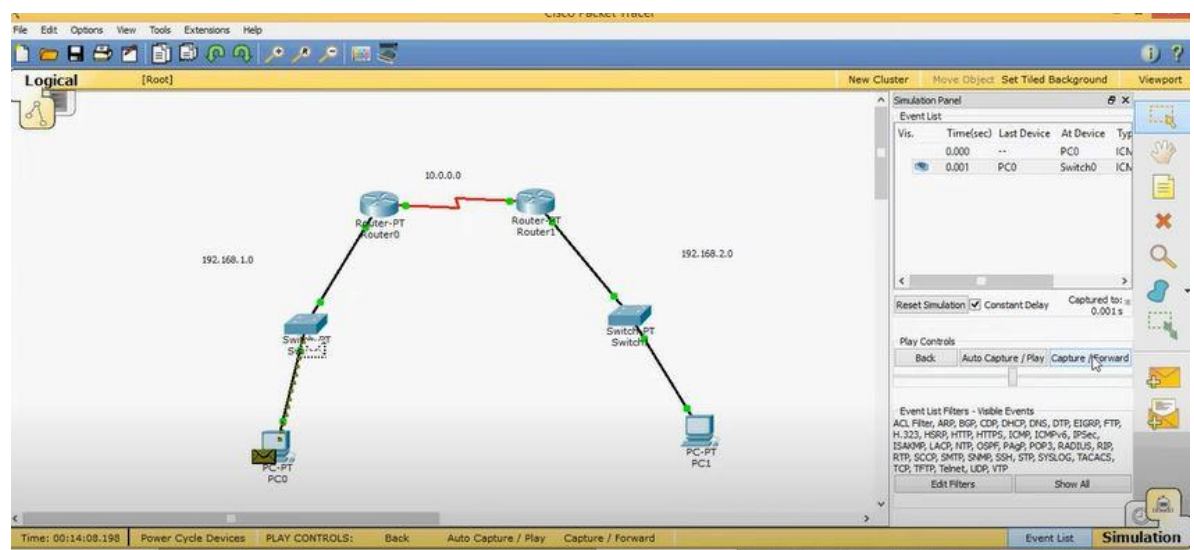
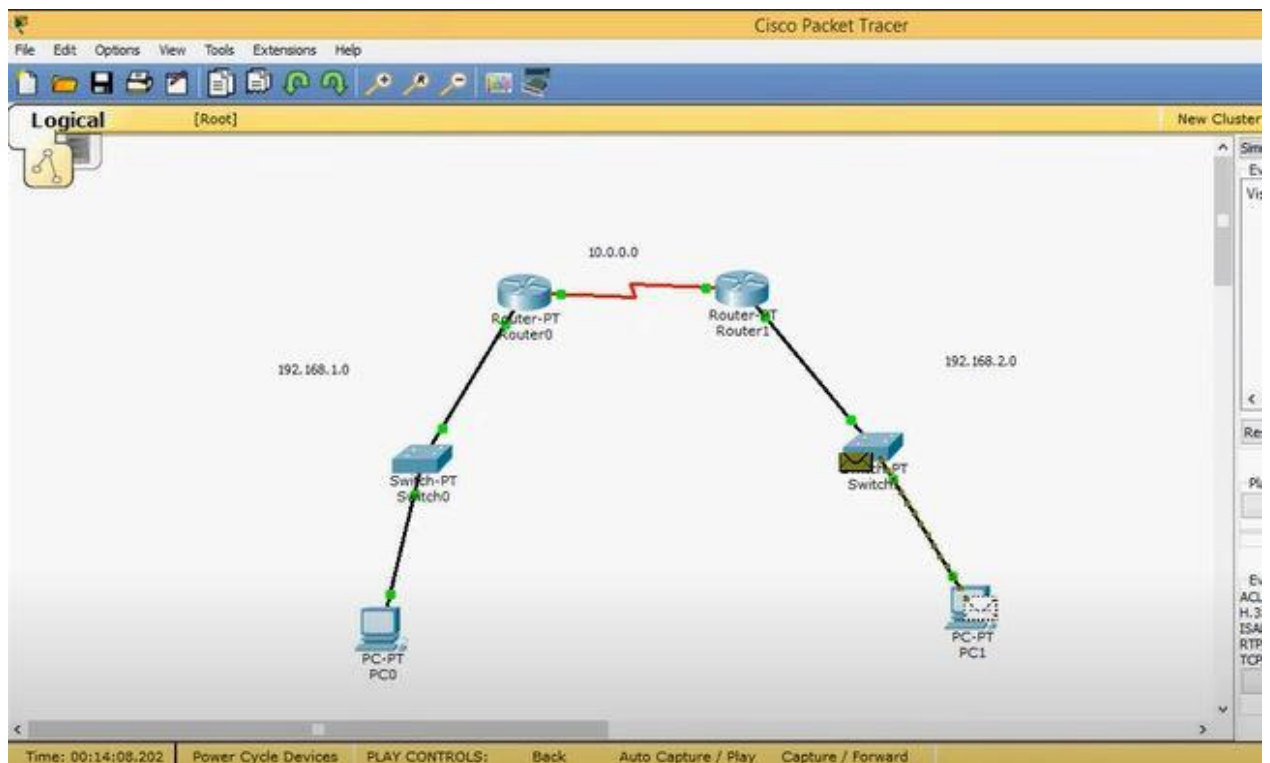


Figure 11. Packet Forward simulation



Conclusion:

In this experiment, we have set up a network topology with proper IP configuration. We have learnt how to do RIP routing configuration for routers. We understood that in a vector routing protocol, the routers exchange network reachability information with their nearest neighbours.