Subject: Computer Networks **Name of the Student:**	
Class:	**Roll no:**
PRN:	
Date of Performance:	**Date of Submission:**
Examined by:	

EXPERIMENT NO.4

TITLE: Using a Network Simulator (e.g., packet tracer) Configure router using RIP

AIM: Installation and configuration of RIP using Cisco packet tracer.

OBJECTIVE: To Configure and analyze the performance of the Routing Information Protocol (RIP) .

SOFTWARE USED: Cisco packet Tracer 6.2

THEORY:

A router in the network needs to be able to look at the destination address in the packet and then determine which one of the output ports is the best choice to get the packet to that address. The router makes this decision by consulting a forwarding table. The fundamental problem of routing is: How do routers acquire the information in their forwarding tables? Routing algorithms are required to build the routing tables and, hence, forwarding tables. The basic problem of routing is to fi nd the lowest-cost path between any two nodes, where the cost of a path equals the sum of the costs of all the edges that make up the path. Routing is achieved in most practical networks by running routing protocols among the nodes. The protocols provide a distributed, dynamic way to solve the problem of finding the lowest-cost path in the presence of link and node failures and changing edge costs. One of the main classes of routing algorithms is the distance-vector algorithm. Each node constructs a vector containing the distances (costs) to all other nodes and distributes that vector to its immediate neighbors. RIP is the canonical example of a routing protocol built on the distance-vector algorithm. Routers running RIP send their advertisements regularly (e.g., every 30 s). A router also sends an update message whenever a triggered update from another router causes it to change its routing table. The Internet Control Message Protocol (ICMP) can be utilized to analyze the performance of the created routes. It can be used to model traffic between routers without the need for running applications in an end node. In this lab, you will set up a network that utilizes RIP as its routing protocol. You will analyze the routing tables generated in the routers, and you will observe how RIP is affected by link failures.

RIP (Routing Information Protocol) RIP is a standardized Distance Vector protocol, designed for use on smaller networks. RIP was one of the first true Distance Vector routing protocols, and is supported on a wide variety of systems.

RIP adheres to the following Distance Vector characteristics:

• RIP sends out periodic routing updates (every 30 seconds)

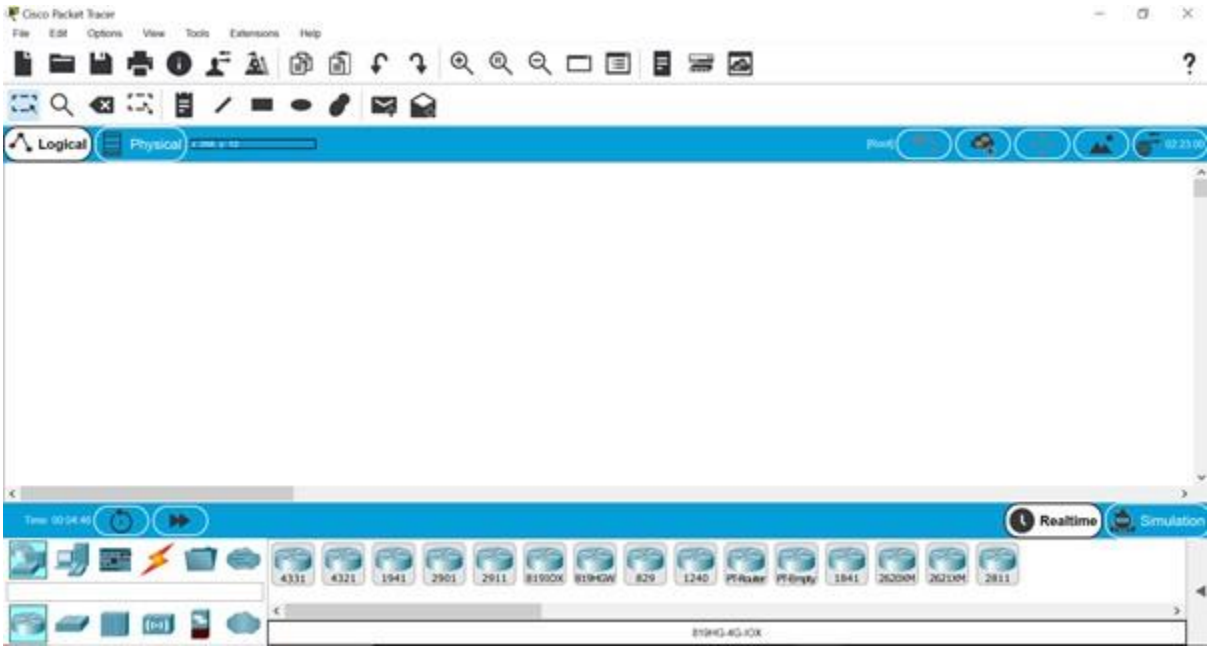
• RIP sends out the full routing table every periodic update

• RIP uses a form of distance as its metric (in this case, hopcount)

• RIP uses the Bellman-Ford Distance Vector algorithm to determine the best "path" to a particular destination.

PROCEDURE:

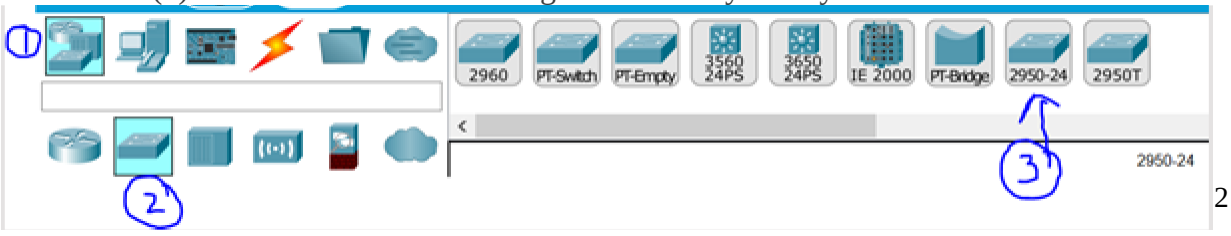
STEP 1: OPEN CISCO PACKET TRACER



Blank Cisco Packet Tracer

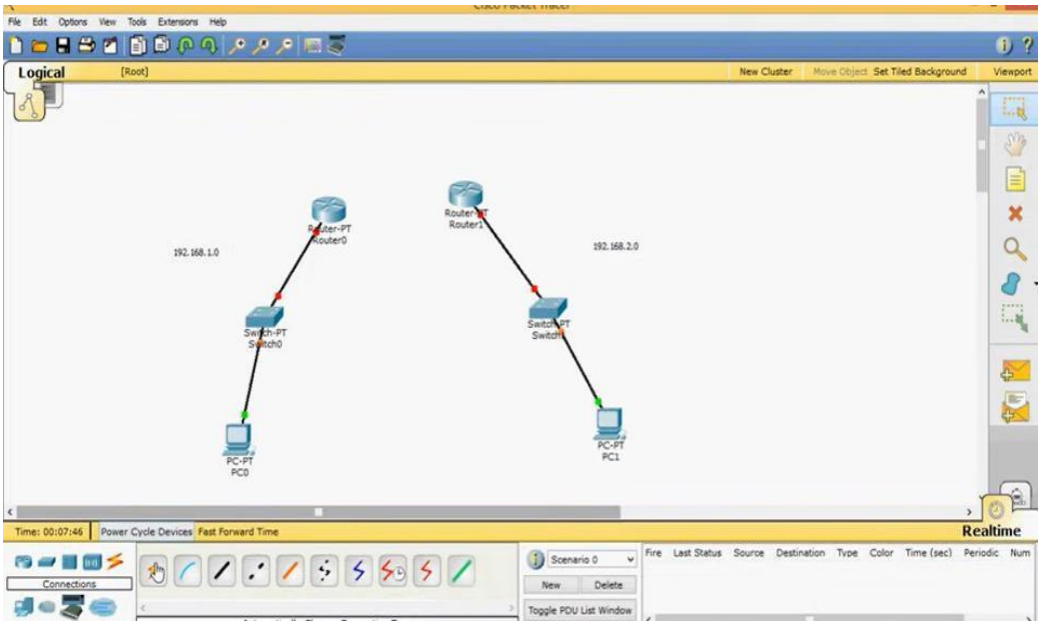
STEP 2: MAKE CONNECTIONS: As shown in the figure below, go to (1) End Devices and select (2) PC and then finally drag and drop PC on Screen.

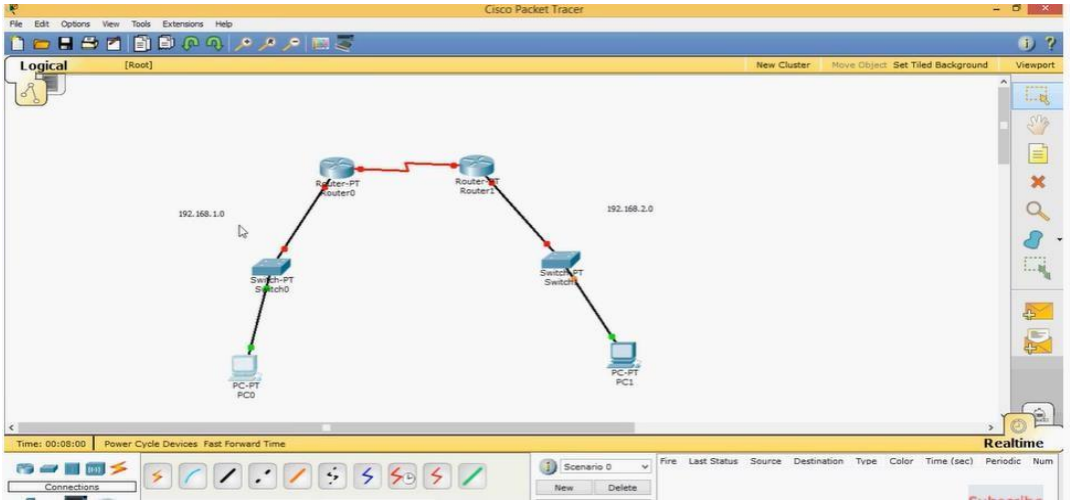
Then select a switch [I have taken Switch named as 2950–24]. Go to (1)Network device ->(2) switches ->(3) 2950–24 as shown in the figure below or you may select PT switch



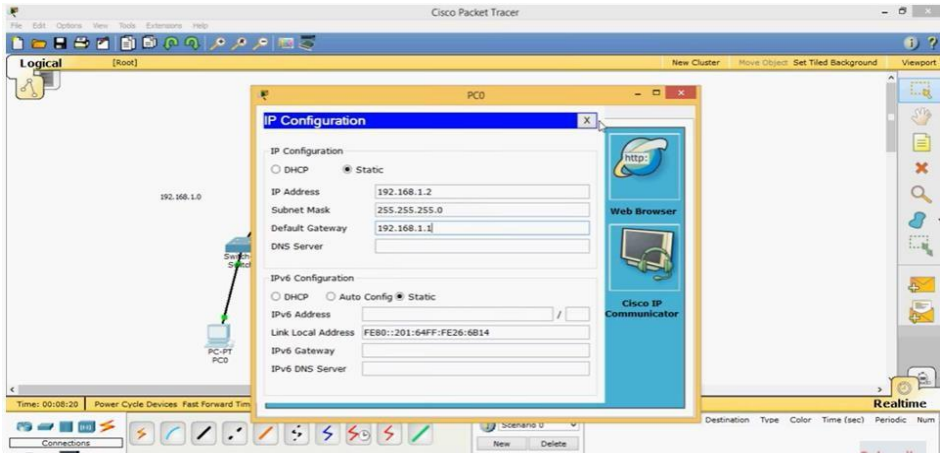
Then finally take a wire and connect PC to switch or you can click first option in connection as automatically choose connection type as shown below no .2 (use copper straight through for LAN .

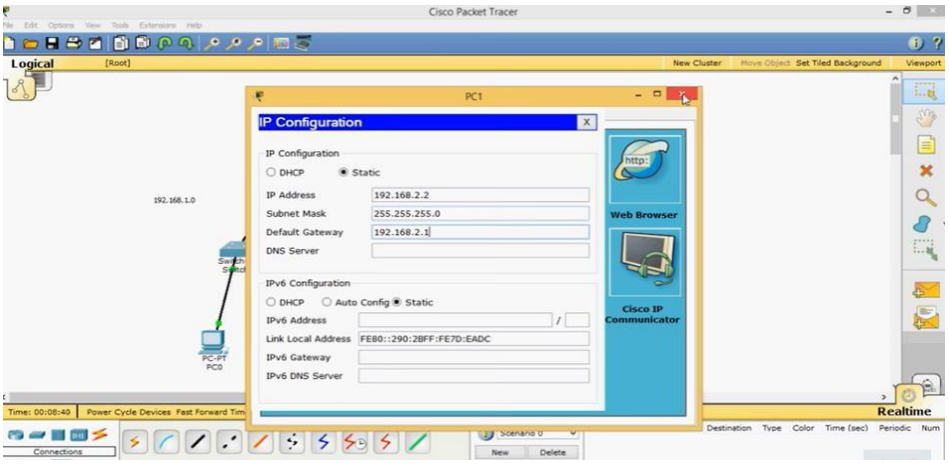
Connect Router0 and Router 1



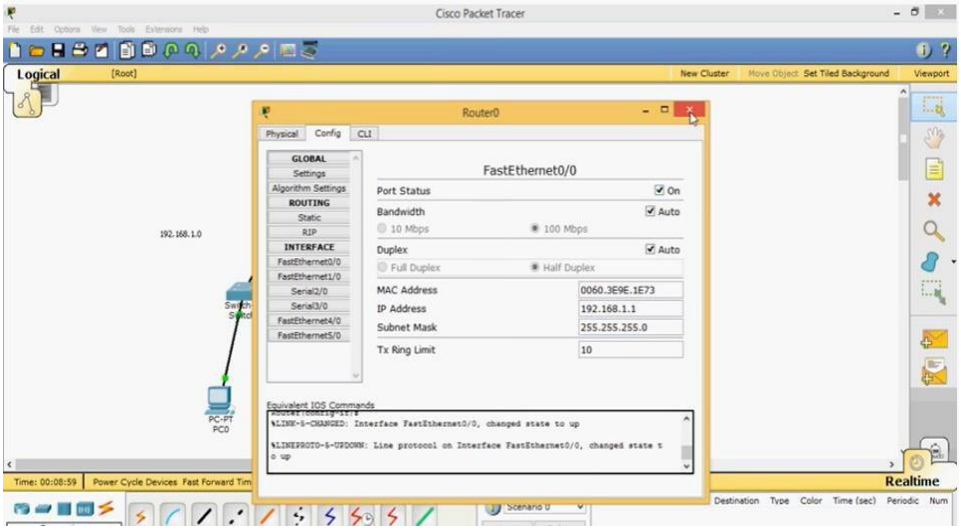


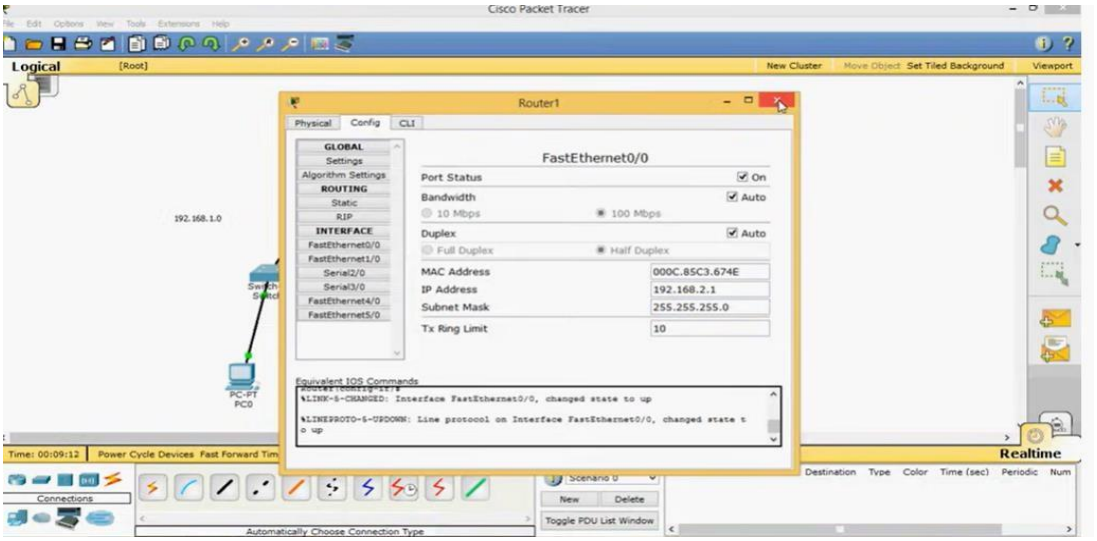
STEP 3: Configuration of IP for PC 0 &PC1



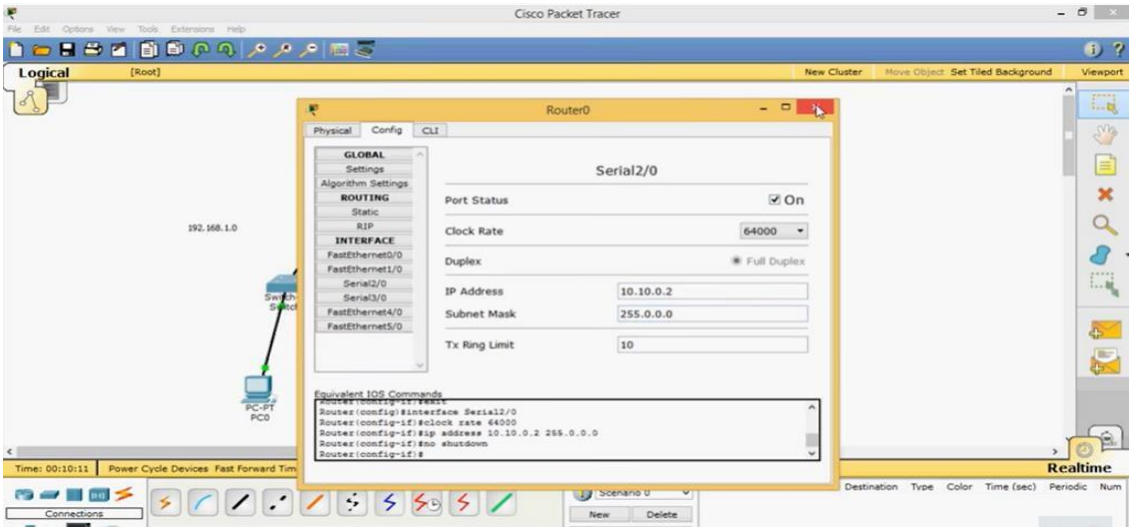


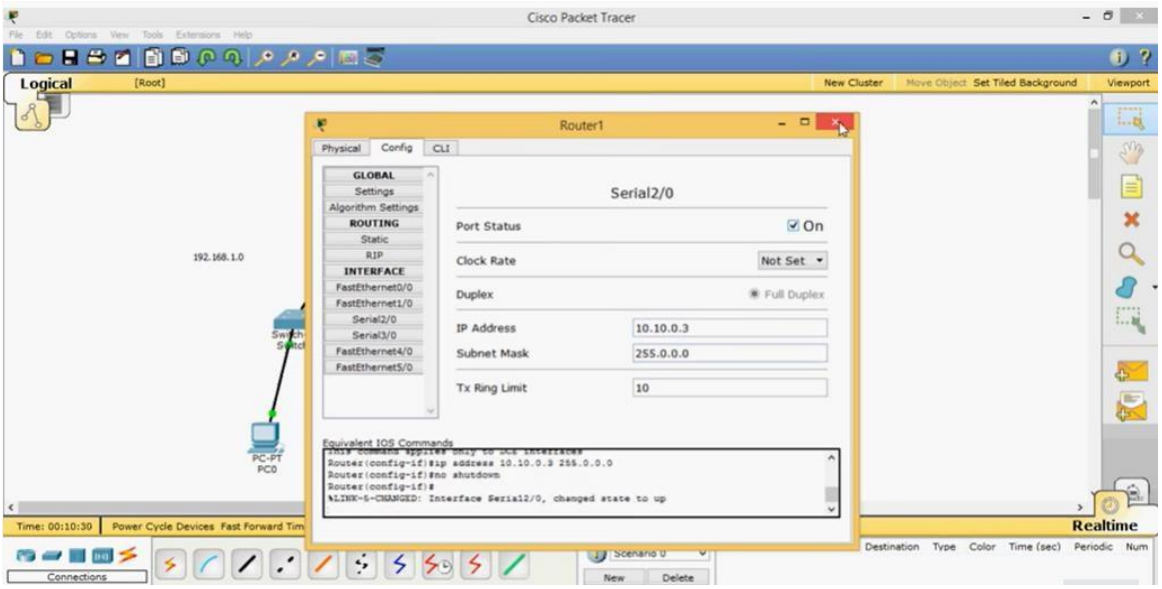
STEP 4: Configuration of Router 0 & Router 1



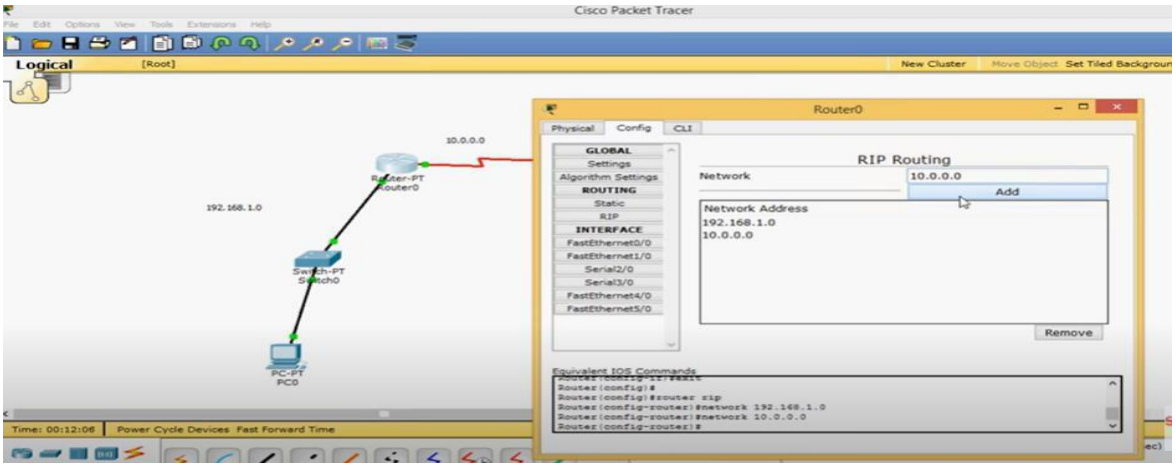


The Network between two router as IP address 10.0.0.0, We have connected a serial cable to the serial interface of the router0 &router 1, determine the interface is DTE or DCE. Since clocking is required to enable the interface, one of the two routers should function as DCE and DTE should provide clocking. Now configure serial2/0 of router 0 and router 1 as shown

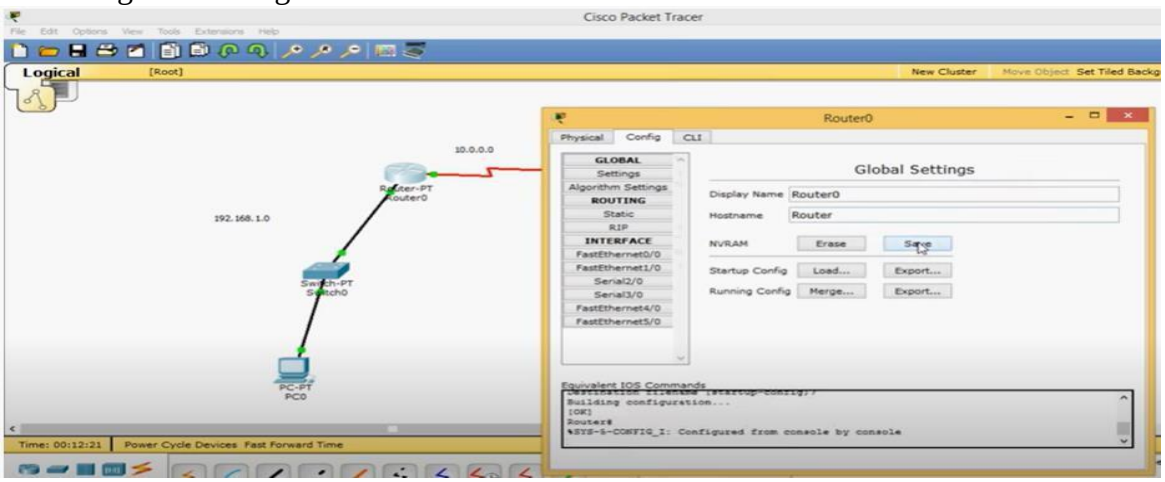




Configure Routing information in to router 0: add Network IP 192.168.1.0 and 10.0.0.0



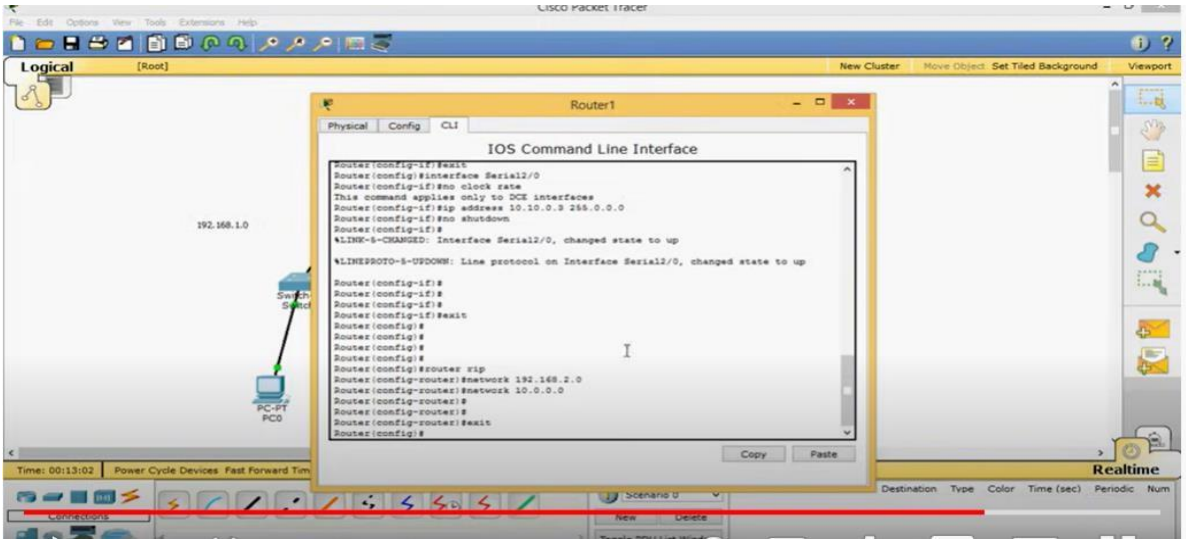
Save the global settings router 0



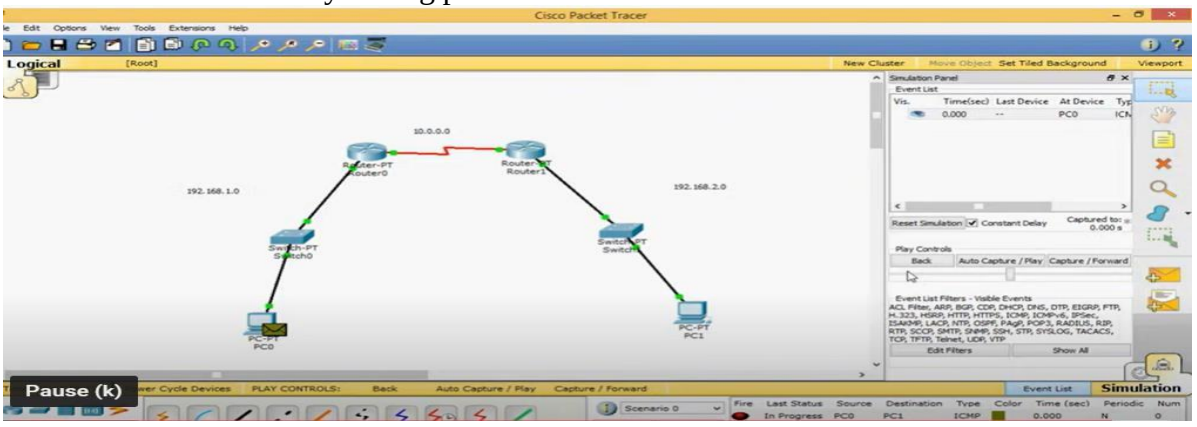
Or configure using CLI of router 1 and save global setting

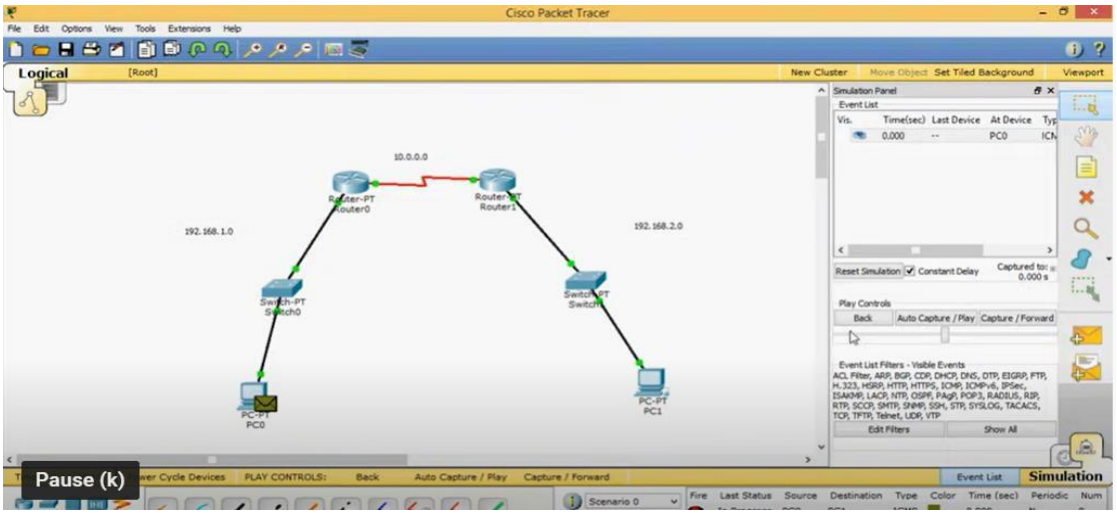
On Router1, execute the following commands to configure RIP routing.

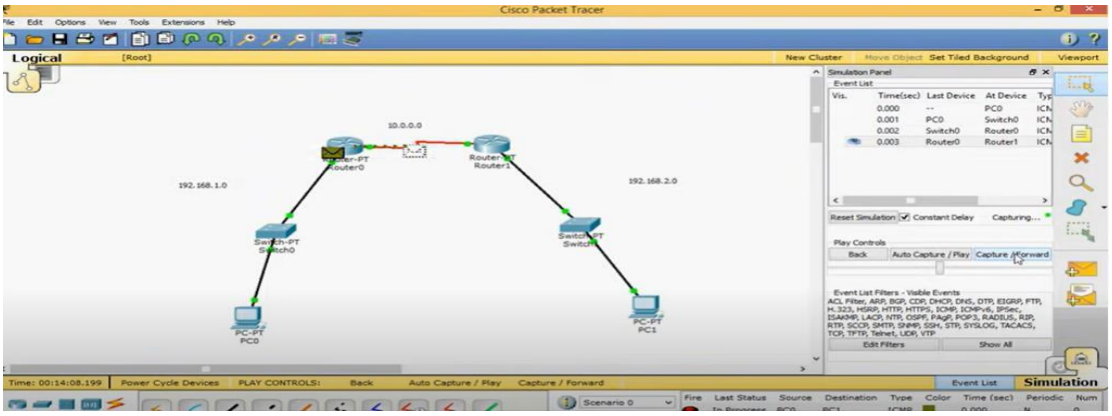
```
Router1(config)#router rip
Router1(config-router)#network 192.168.1.0
Router1(config-router)#network 10.0.0.0
Router1(config-router)#exit
```

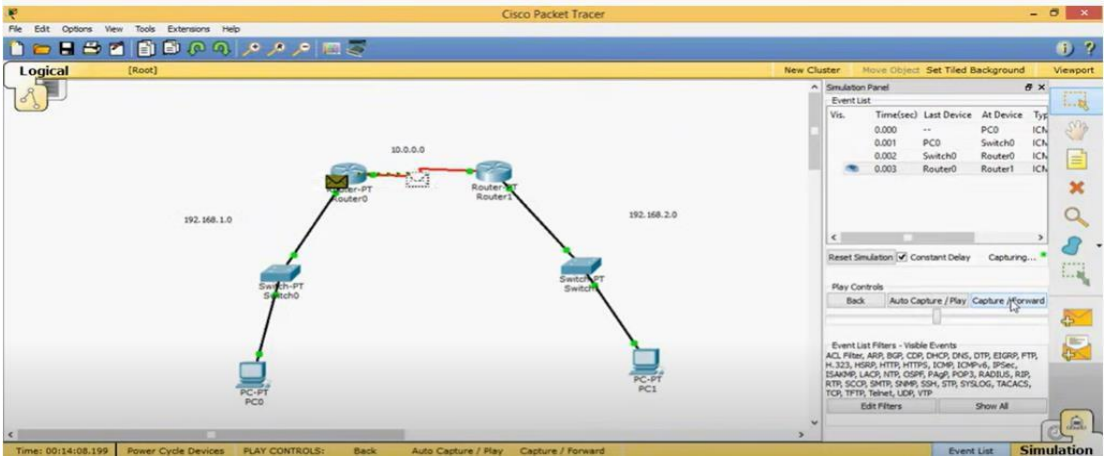


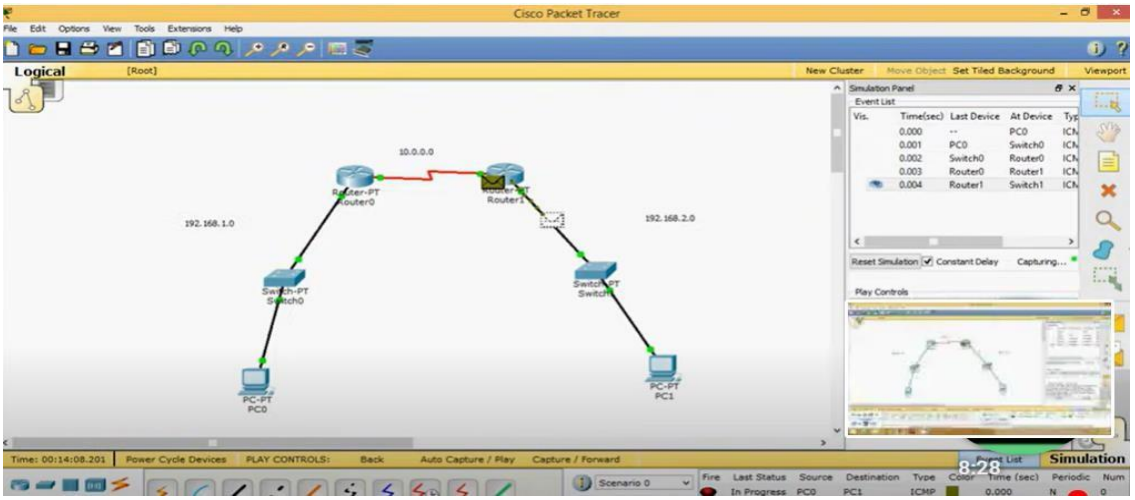
Observe the simulation by adding packet PC0& PC 1

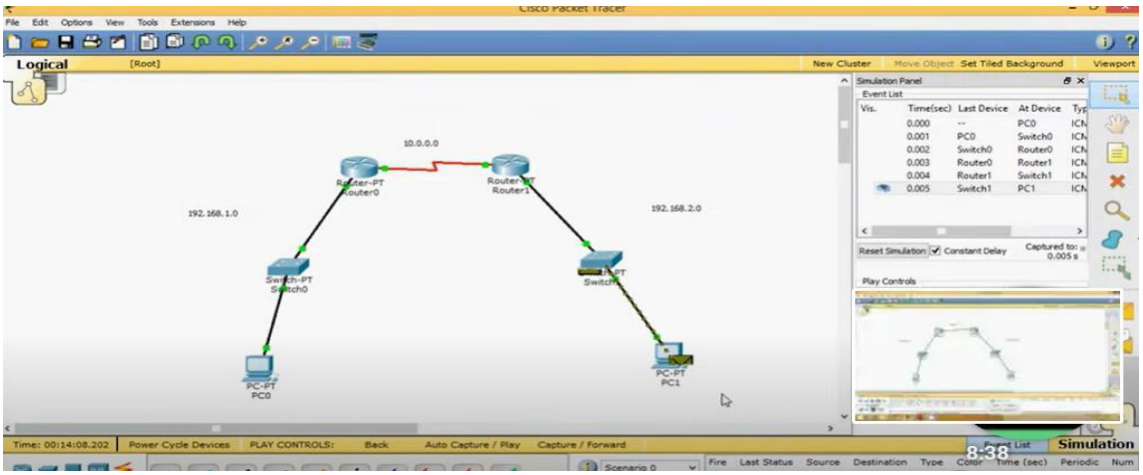



Cisco Packet Tracer
Logical
[Root]
10.0.0.0
192.168.1.0
192.168.2.0
Router0
Router1
Switch0
Switch1
PC0
PC1
Pause (k)
Simulation


Cisco Packet Tracer
Logical
[Root]
10.0.0.0
192.168.1.0
192.168.2.0
Router0
Router1
Switch0
Switch1
PC0
PC1
Simulation


Cisco Packet Tracer
Logical
[Root]
10.0.0.0
192.168.1.0
192.168.2.0
Router0
Router1
Switch0
Switch1
PC0
PC1
Simulation





OUTPUT:

CONCLUSION: