

Assignment No- B7

Aim: - Configure RIP/OSPF/BGP using packet Tracer.

Theory:-

RIP is the simplest and one of the oldest Distance Vector routing protocol. It is very easy to setup and troubleshoot. In this tutorial we will explain how to configure RIP Routing protocol with example. For demonstration we will use packet tracer network simulator software. You can use real Cisco devices or any other network simulator software for following this guide.

In this part we explained basic concept of RIP protocol such as what RIP protocol is and how it shares routing information. Later we summarized RIP routing update process in step by step guide.

Packet tracer simulator:

Packet Tracer is a cross-platform visual simulation tool designed by Cisco Systems that allows users to create network topologies and imitate modern computer networks. The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface. Packet Tracer makes use of a drag and drop user interface, allowing users to add and remove simulated network devices as they see fit. The software is mainly focused towards Certified Cisco Network Associate Academy students as an educational tool for helping them learn fundamental CCNA concepts. Students enrolled in a CCNA Academy program can freely download and use the tool free of charge for educational use.

In addition to simulating certain aspects of computer networks, Packet Tracer can also be used for collaboration. As of Packet Tracer 5.0, Packet Tracer supports a multi-user system that enables multiple users to connect multiple topologies together over a computer network. Packet Tracer also allows instructors to create activities that students have to complete.^[1] Packet Tracer is often used in educational settings as a learning aid. Cisco Systems claims that Packet Tracer is useful for network experimentation.

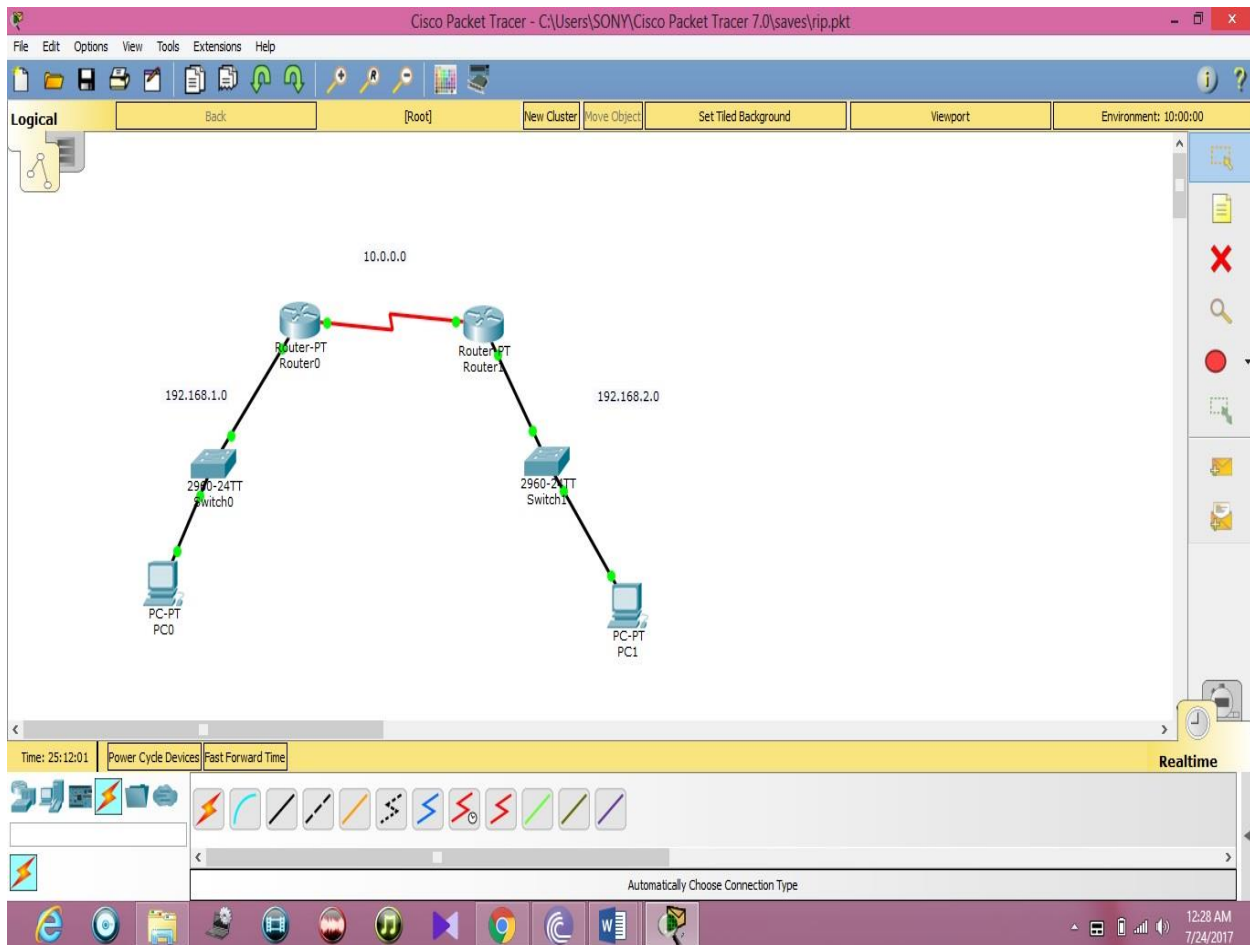
Role in education:-

Packet Tracer allows students to design complex and large networks, which is often not feasible with physical hardware, due to costs. Packet Tracer is commonly used by CCNA Academy students, since it is available to them for free.^[1] However, due to functional limitations, it is intended by Cisco to be used only as a learning aid, not a replacement for Cisco routers and switches. The application itself only has a small number of features found within the actual hardware running a current Cisco IOS version. Thus, Packet Tracer is unsuitable for modelling production networks. It has a limited command set, meaning it is not possible to practice all of the IOS commands that might be required.

Packet Tracer can be useful for understanding abstract networking concepts, such as the Enhanced Interior Gateway Routing Protocol by animating these elements in a visual

form. Packet Tracer is also useful in education by providing additional components, including an authoring system, network protocol simulation and an assessment system.

Create a topology as illustrate in following figure or download pre-created topology from our server.



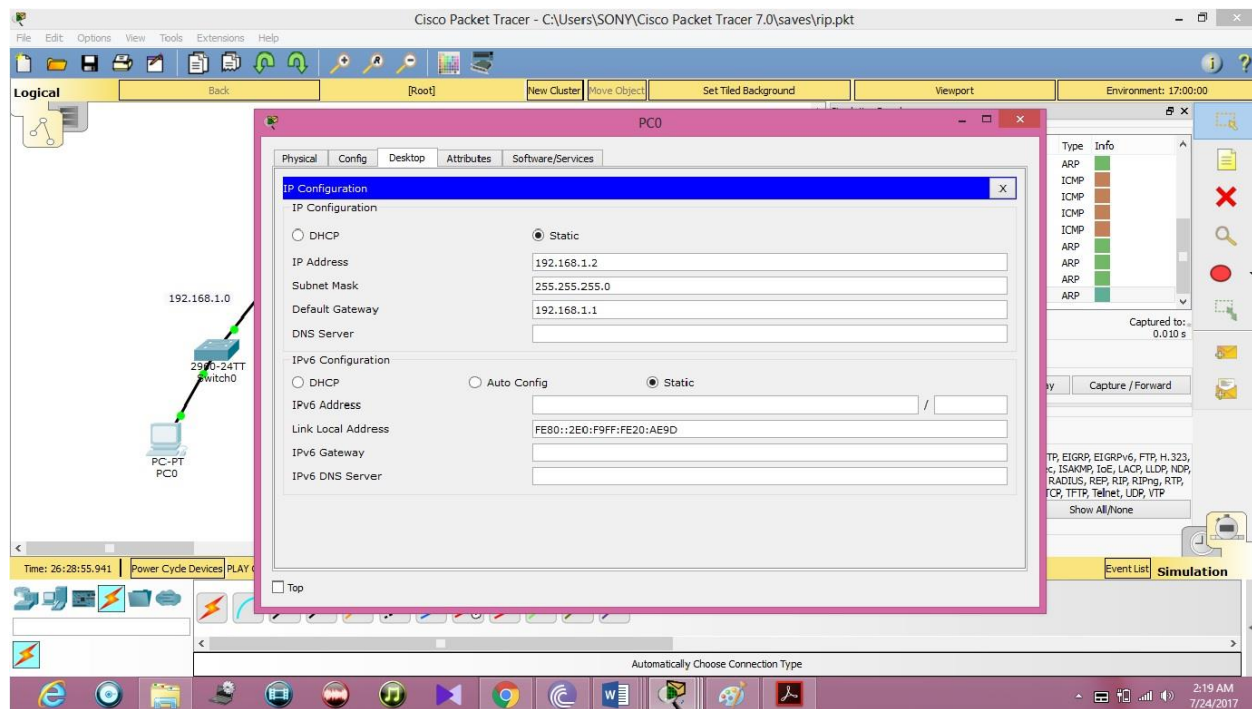
Device	Interface	IP Configuration	Connected with
PC0	Fast Ethernet0	192.168.1.2/24	Router0 Fa0/1
Router 0	Fast Ethernet0	192.168.1.1/24	PC1,Fa
Router 0	Serial2/0	10.10.0.2/8	Router1
Router 1	Fast Ethernet0	192.168.2.1/24	PC2,Fa
Router 1	Serial 2/0	10.10.0.3/8	Router0

PC1	Fast Ethernet0	192.168.2.1/24	Router1
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Assign IP address to PC0

Steps:-

1. Double click on PC0
2. Go to Desktop/IP config and set
IP-192.168.1.2
Subnet Mask- 255.255.255.0
Default Gateway- 192.168.1.1

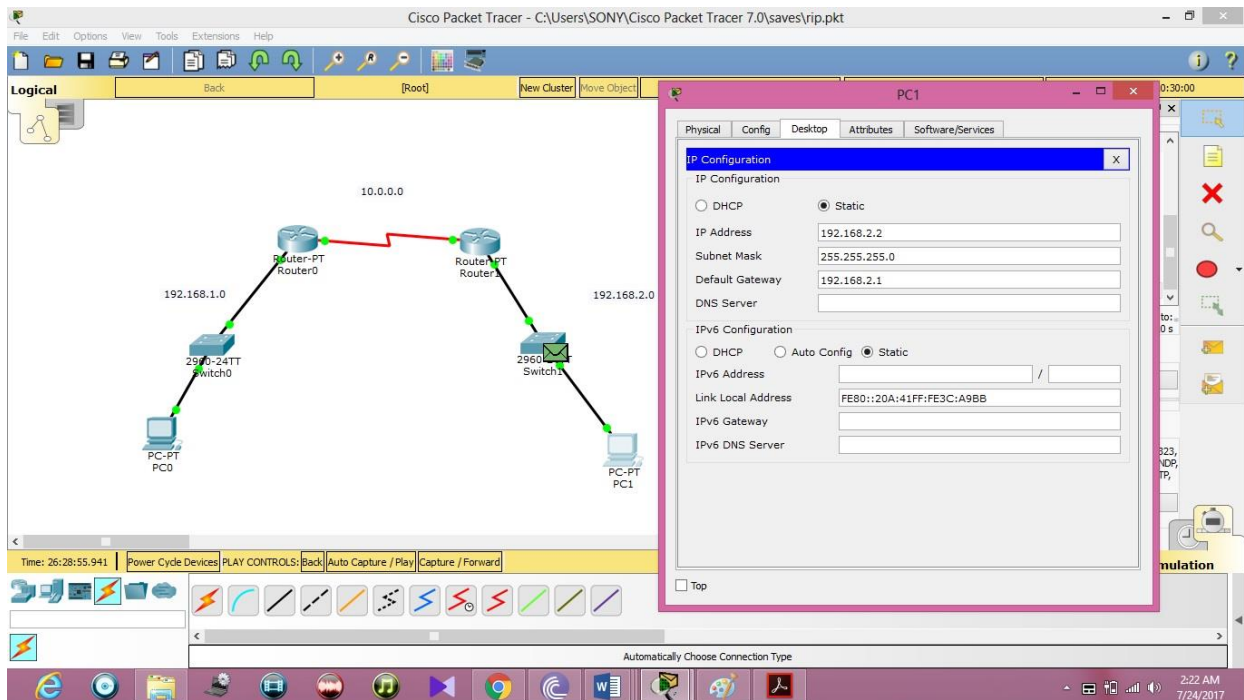


Assign IP address to PC1

Steps:-

1. Double click on PC1
2. Go to Desktop/IP config and set
IP-192.168.2.2
Subnet Mask- 255.255.255.0

Default Gateway- 192.168.2.1

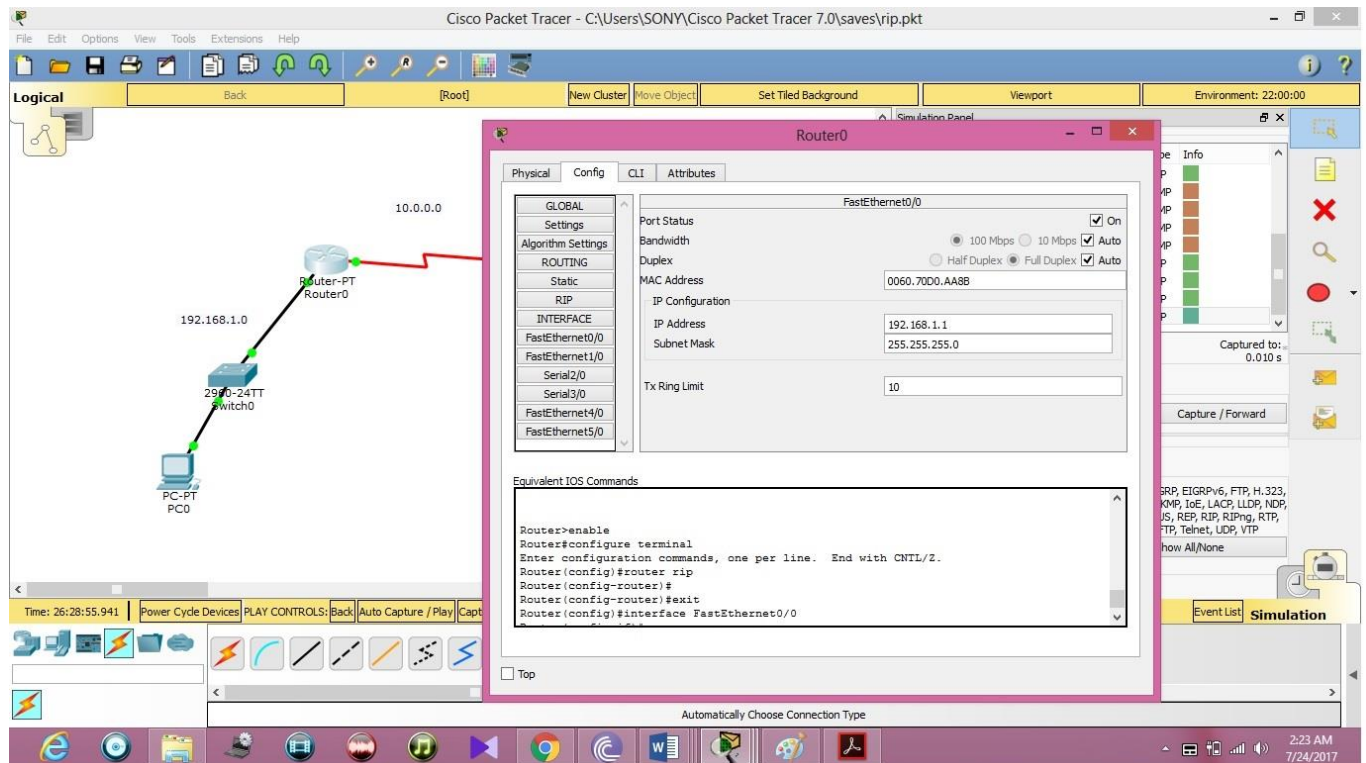


Now we have to configure Routers

Configuration of Router0

Steps:

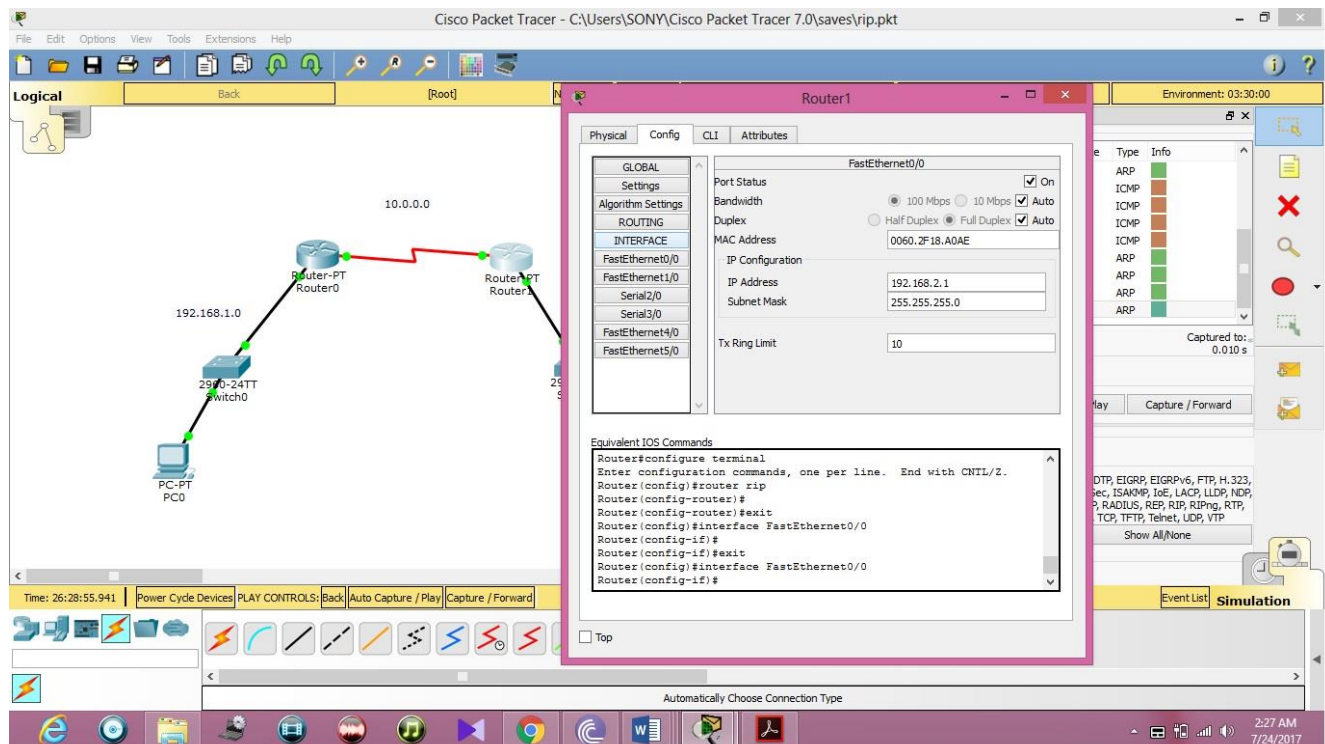
1. Double click on Router0
2. Go to Config/interface/fastEthernet0/0 and set
IP – 192.168.1.1
Subnet mask- 255.255.255.0
3. Enable 'ON' button and close it.



Configuration of Router1

Steps:

1. Double click on Router1
2. Go to Config/interface/fastEthernet0/0 and set
IP – 192.168.2.1
Subnet mask- 255.255.255.0
3. Enable 'ON' button and close it.

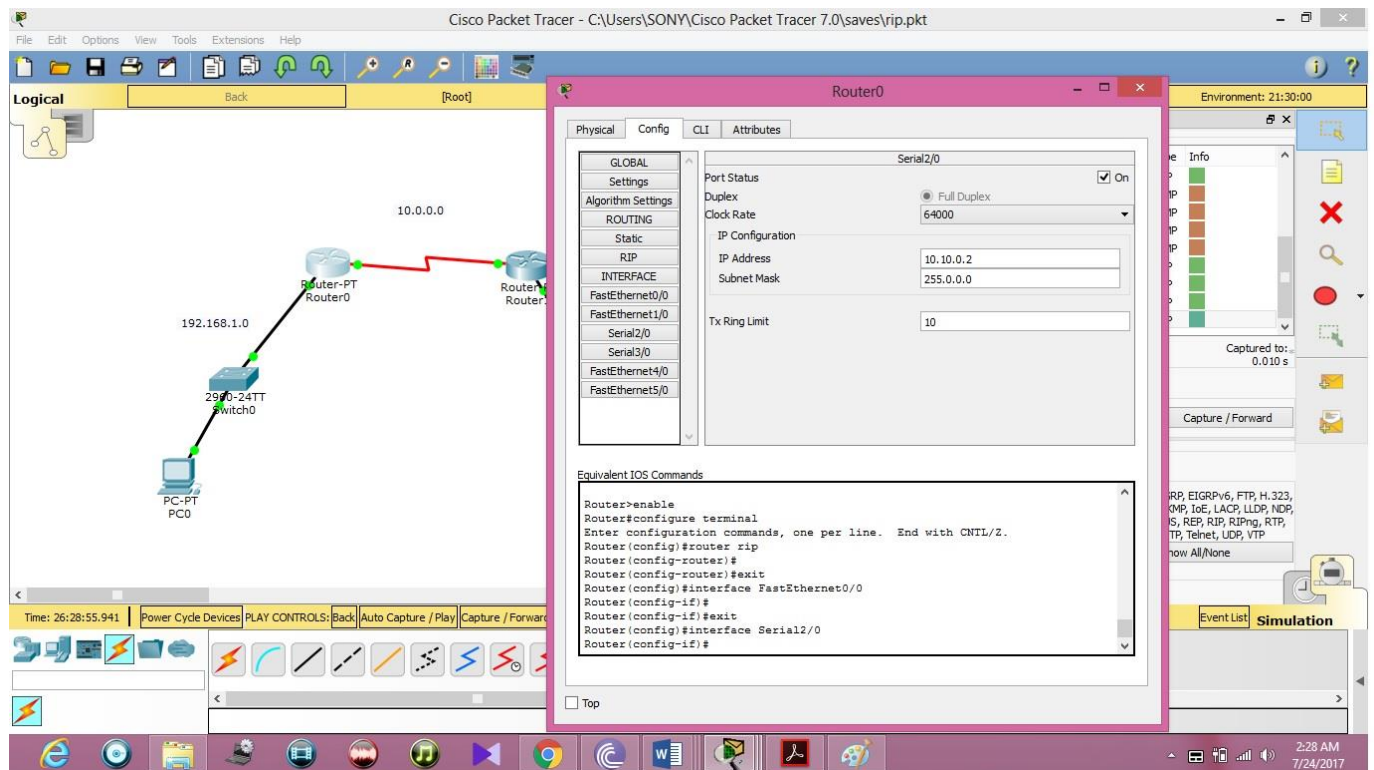


Between two routers there is another link called network 10.0.0.0, so network 1 would be 10.0.0.2 and network 2 would be 10.0.0.3.

Configuration of network with Router0

Steps:

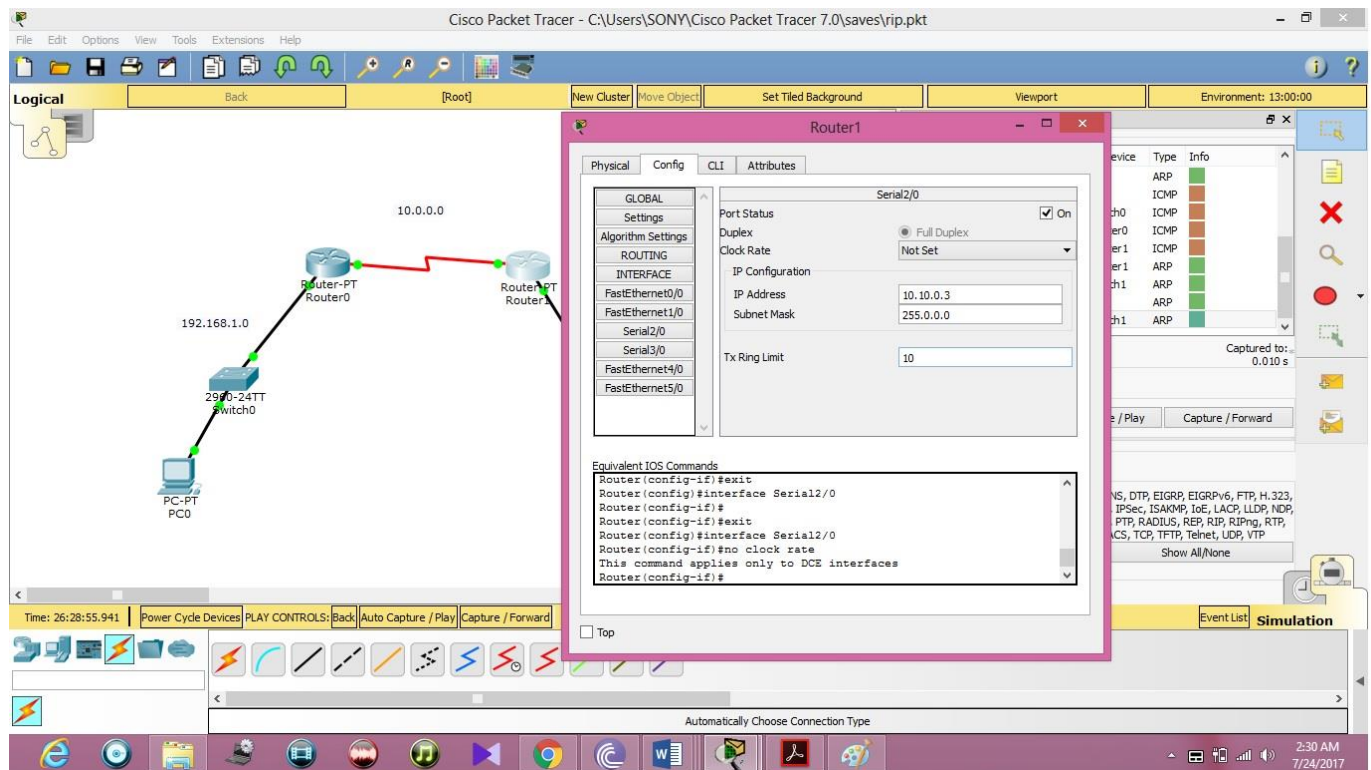
1. Double click on Router0
2. Go to config/interface/ set serial 2/0 and set clock rate 64000
3. IP- 10.10.0.2
Subnet mask- 255.0.0.0
4. Enable "ON" & close it.



Configuration of network with Router1

Steps:

1. Double click on Router1
2. Go to config/interface/ set serial 2/0 and set "not set" clock because we don't have clock on other side
3. IP- 10.10.0.3
Subnet mask- 255.0.0.0
4. Enable "ON" & close it.

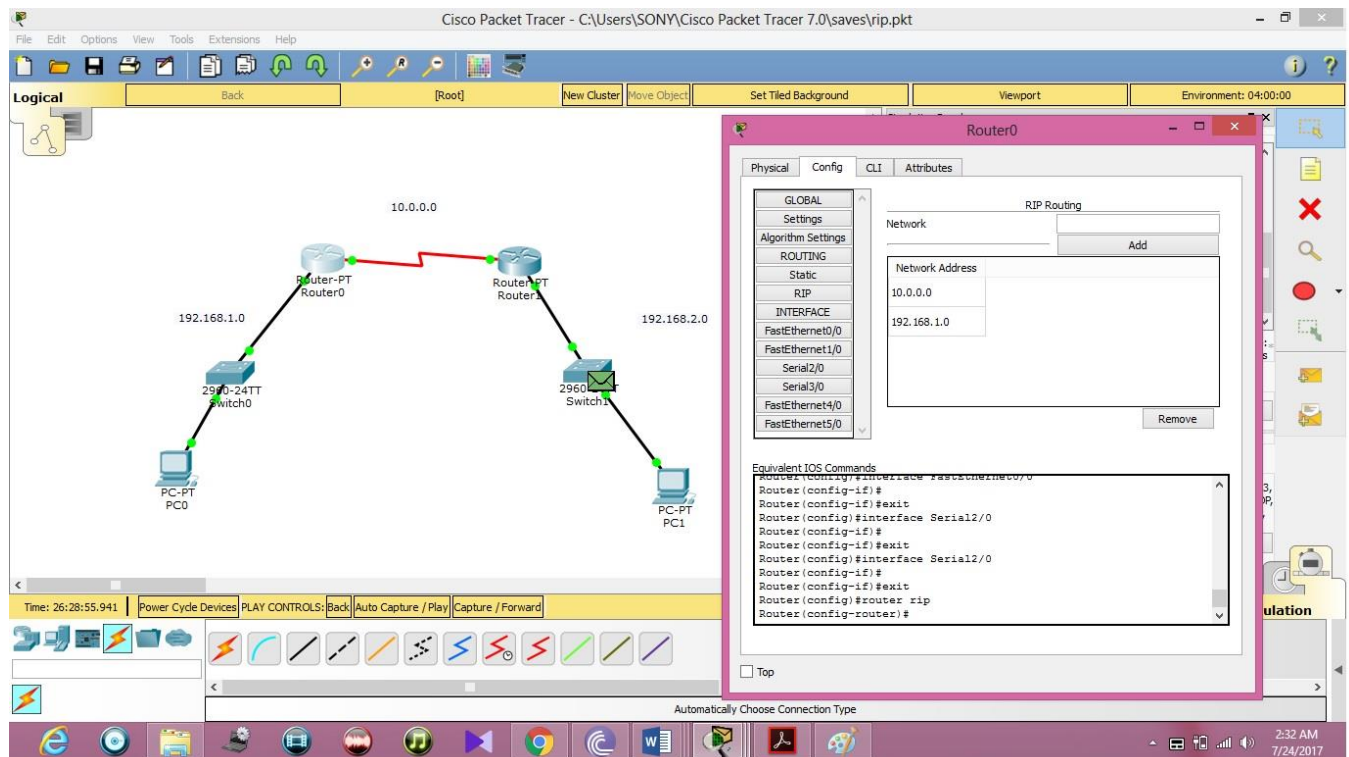


Pick packets from right side toolbar and drop on PC0 & PC1. Due to unknown network packets can't transfer from PC0 to PC1, so we have to set RIP by clicking on Router0.

Configuration of RIP for Network 1

Steps:

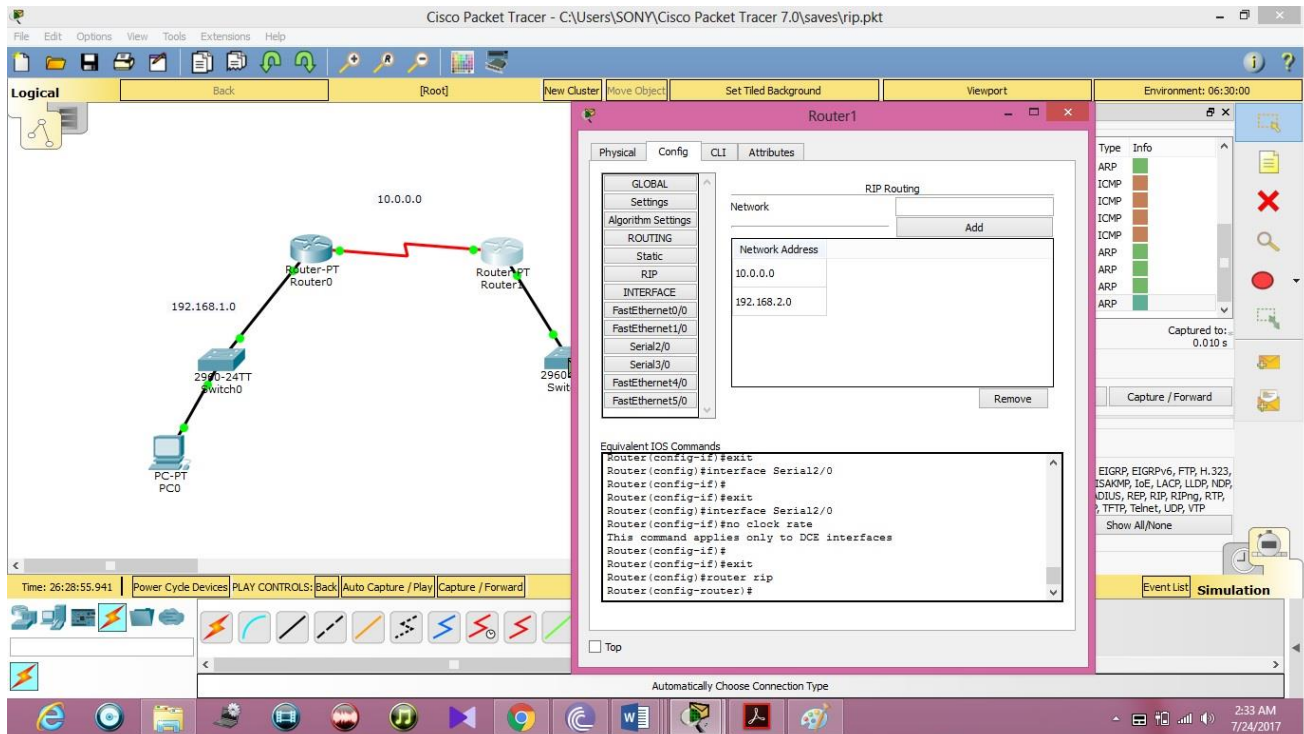
1. Go to Routing/select RIP
2. Mention/ add networks: - 192.168.1.0 & 10.0.0.0
3. Go to setting and save the configuration



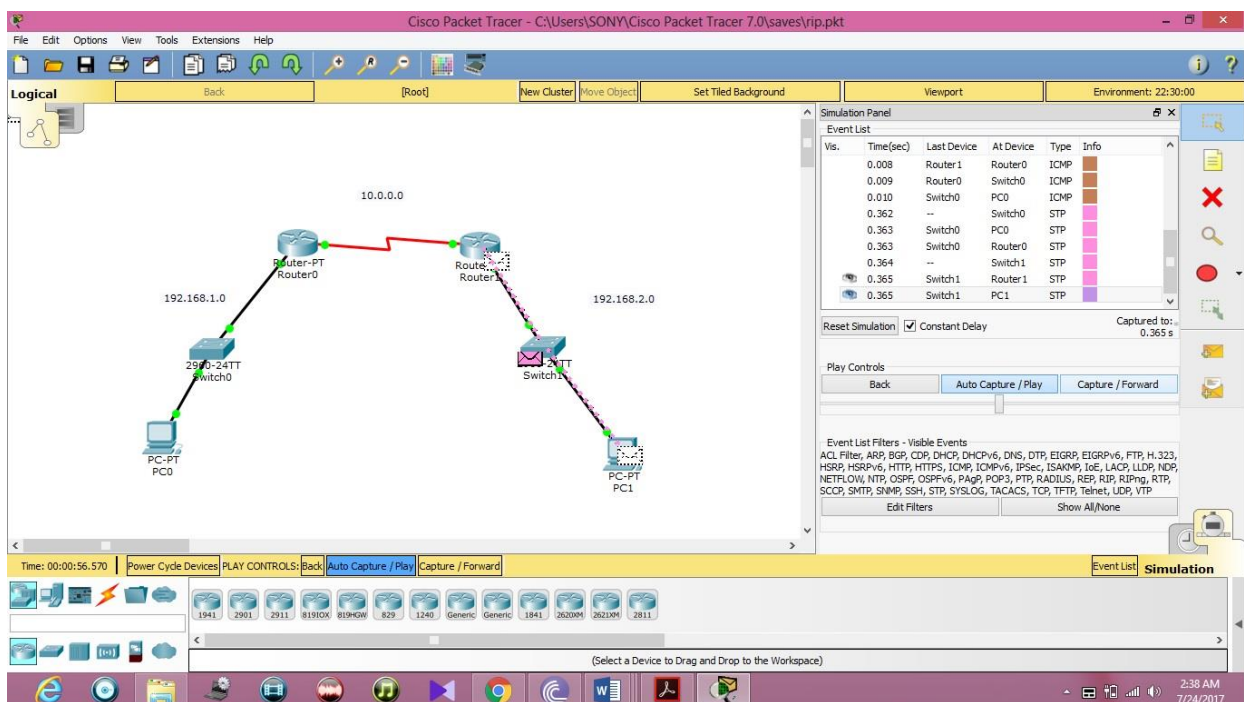
Configuration of RIP for Network 2

Steps:

1. Go to Routing/select RIP
2. Mention/ add networks: - 192.168.2.0 & 10.0.0.0
3. Go to setting and save the configuration



Now, check packet transferring from PC0 to PC1 by clicking on simulation mode. Click on capture/forward button & analyze the packet transformation



Conclusion:-

We have successfully designed topology with different network devices by using packet tracer simulator and analyzed packet transmission from different devices to different devices by using RIP protocol.