

EXPERIMENT-5

Objective: Set up a basic network consisting two subnetwork connected by a router and study of router configuration

Resources Required:

laptop, cisco packet tracer

Theory:

Router:

A router is a layer 3 or network layer device. It connects different networks together and sends data packets from one network to another. A router can be used both in LANs (Local Area Networks) and WANs (Wide Area Networks). It transfers data in the form of IP packets. In order to transmit data, it uses IP address mentioned in the destination field of the IP packet. Routers have a routing table in it that is refreshed periodically according to the changes in the network. In order to transmit data packets, it consults the table and uses a routing protocol. In order to prepare or refresh the routing table, routers share information among each other. Routers provide protection against broadcast storms.

Following are the advantages of using a Router:

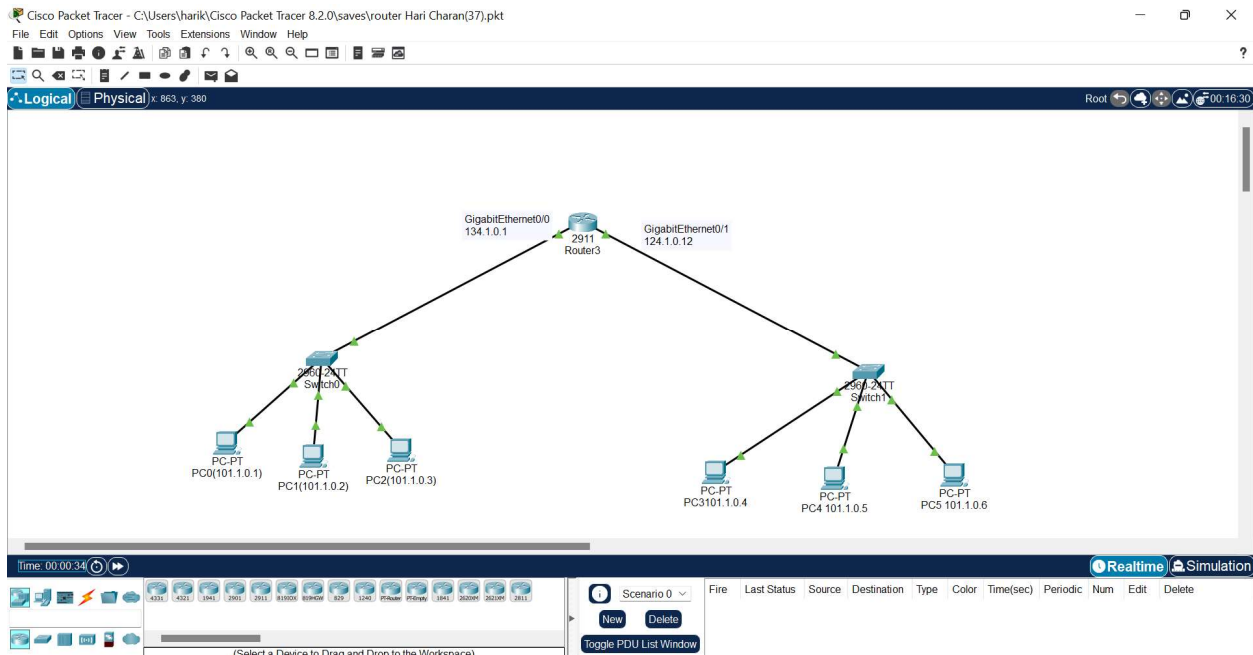
- 1.It can connect devices and provides routing facilities over different networks implementing the same protocol and structure.
- 2.Improves security by limiting the scope of data packets.
- 3.It has the filtering capability.
- 4.It can be used in a large network.
- 5.It uses full-duplex mode of communication
- 6.It has control over both the collision and broadcast domain.

Following are the disadvantages of using a Router:

- 1.It is very complex to implement.
- 2.The implementation cost is quite high.
- 3.There is a need to maintain a Routing table.
4. There is a delay in forwarding the packets due to error checking.
- 5.It requires a special system administration configuration

Procedure:

Topology:

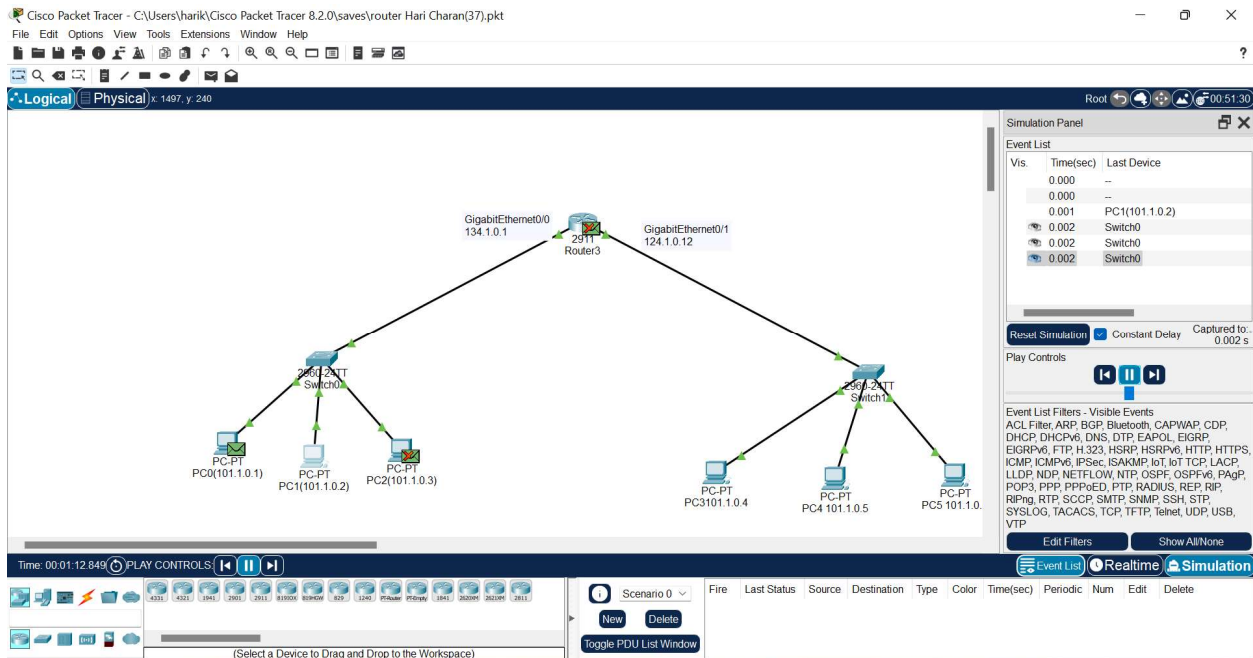


Addressing table:

Device	IP address	Subnet mask
PC0	101.1.0.1	255.0.0.0
PC1	101.1.0.2	255.0.0.0
PC2	101.1.0.3	255.0.0.0
PC3	101.1.0.4	255.0.0.0
PC4	101.1.0.5	255.0.0.0
PC5	101.1.0.6	255.0.0.0

1. Setup the above shown topology using router, switch and 6 end device pc's
2. Connect the router with two switches and the pc's using copper straight connection links.
3. Power on the devices.
4. Set the IP addresses of the PC's using above addressing table.
5. Start simulating the topology. The result is shown below.

Simulation:



Conclusion:

We have studied the basic network consisting two subnetwork connected by a router.