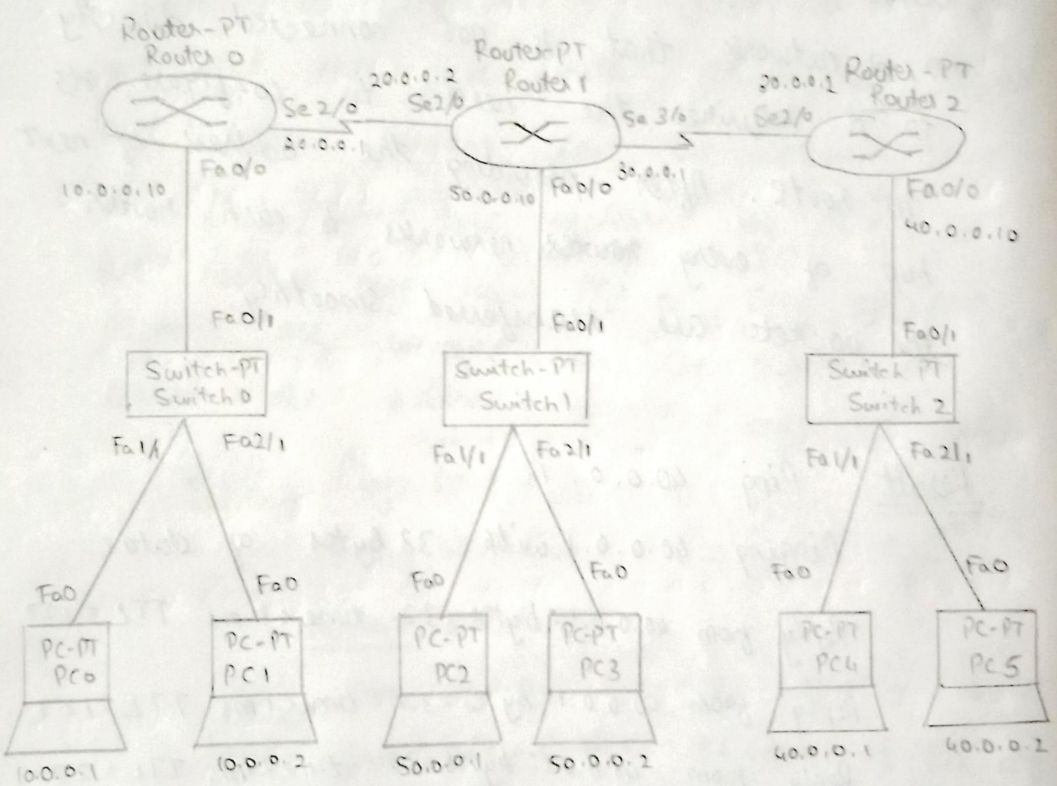
24/11/22

Lab 3

Default Route

Aim: Configuring default route to the routers

Topology:



Procedure:

- Add three routers, three switches and six PC's to the workspace.
- Configure the IP's of each PC's connected under the three switches under the network Id's of 10.0.0.0, 50.0.0.0, 40.0.0.0. All connections between PC - Switch and Switch - Router are made

using copper straight through. The connections between two routers are made using copper serial DCE.

- In the router go to CLI and type the commands

```
Router> enable
Router# configure t
Router(config)# interface Fa 0/0
Router(config-if)# ip address 10.0.0.10 25.0.0.0
Router(config-if)# no shut
Router(config-if)# exit
Router(config)# interface Serial 2/0
Router(config-if)# ip address 20.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit
Router(config)# exit
Router# exit
Router>
```

- Configure Router 2 and router 1 similarly as router 0.

- After performing all the operations on the routers the lights are all turned green. indicating a complete connection.

- Now ping a PC from that has a different network id compared to the current PC. The results are as shown.

C:\> ping 40.0.0.2

pinging 40.0.0.2 with 32 bytes of data:

Reply from 40.0.0.2: Destination host unreachable
Reply from 40.0.0.2: Destination host unreachable
Reply from 40.0.0.2: Destination host unreachable
Reply from 40.0.0.2: Destination host unreachable.

- To remove this error the static routing of all the routers need to be configured.

- In the CLI of Router 0 set a default route to Router 1

Router (config)# ip route 0.0.0.0 0.0.0.0 20.0.0.2

- In the CLI of Router 2 set a default route to Router 1

Router (config)# ip route 0.0.0.0 0.0.0.0 30.0.0.1

- In the CLI of Router 1 set the next hop of the two network address.

Router (config)# ip route 10.0.0.0 255.0.0.0 20.0.0.1
Router (config)# ip route 40.0.0.0 255.0.0.0 30.0.0.2

- If we repeate the same pinging between two PC's the request is serviced.

Observation:

The routers even though being configured in CLI would only know about the neighbouring routers that it is directly connected to. To send a packet to a network that the router is not directly connected it requires configuration of static routing. After providing default routing and static routing to every network the packets are sent successfully. The packet when pinged for the first time are given a response request timed out.

Result:

PC> Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data

Request timed out

Reply from 40.0.0.1: bytes = 32 time < 1ms TTL = 127

Reply from 40.0.0.1: bytes = 32 time < 1ms TTL = 127

Reply from 40.0.0.1: bytes = 32 time < 1ms TTL = 127

PC> Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data

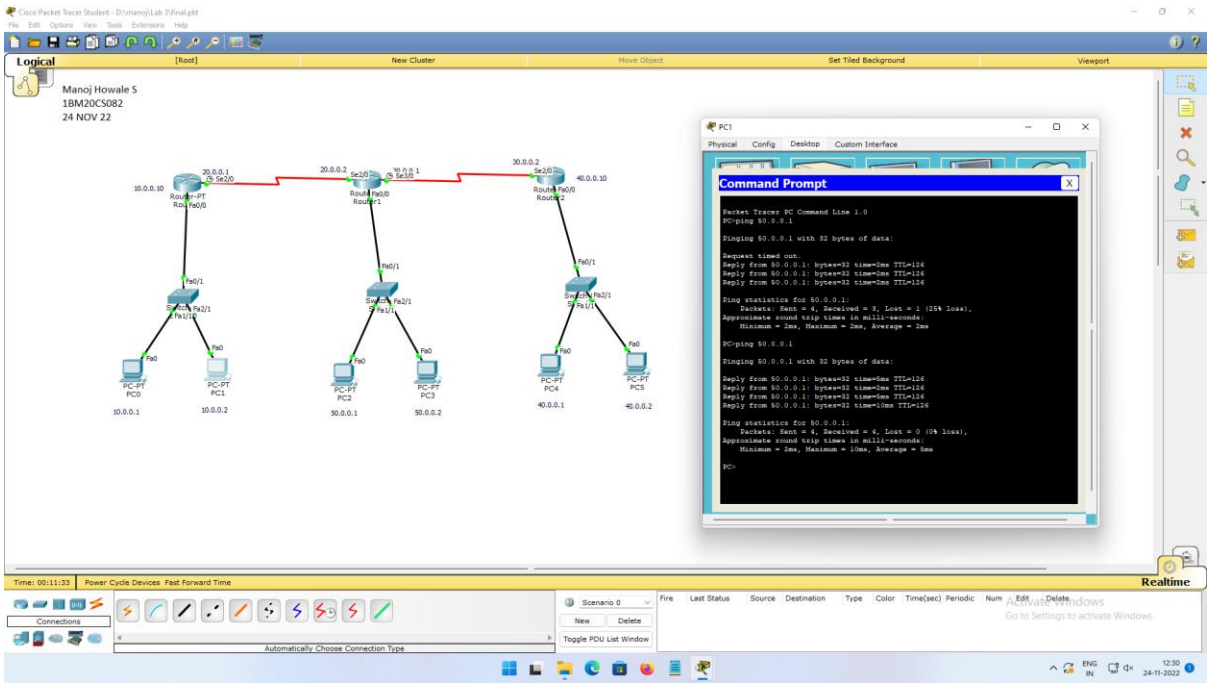
Reply from 40.0.0.1: bytes = 32 time < 1ms TTL = 127

Reply from 40.0.0.1: bytes = 32 time < 1ms TTL = 127

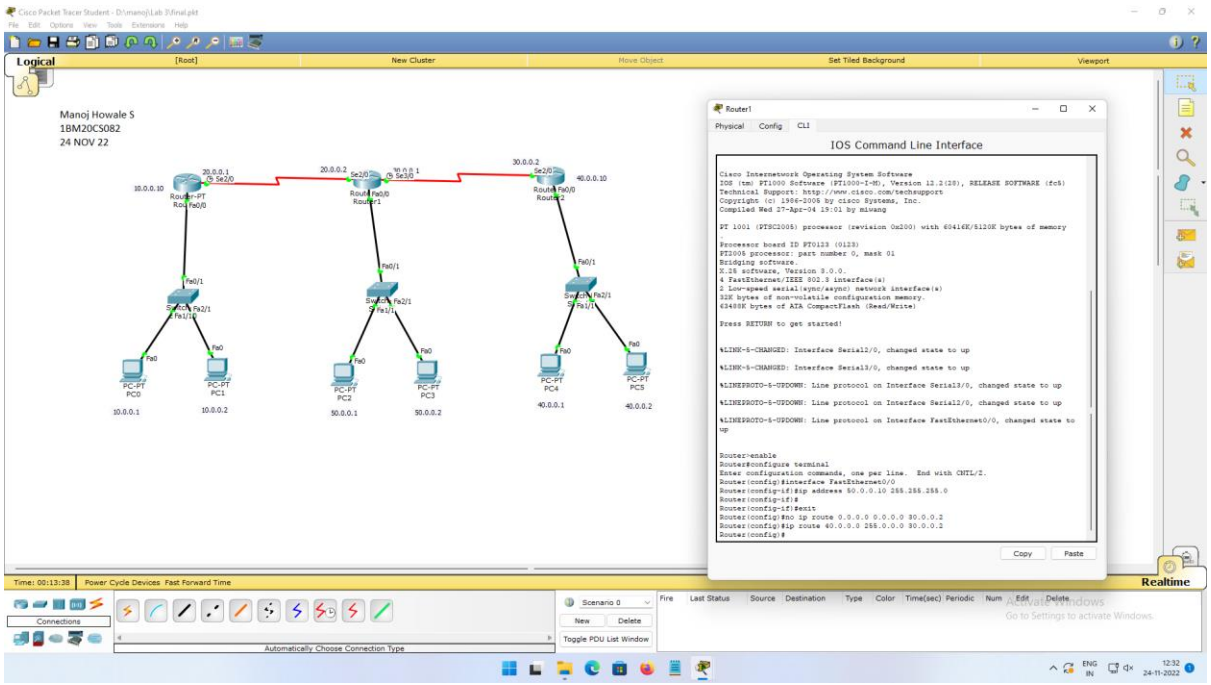
Reply from 40.0.0.1: bytes = 32 time < 1ms TTL = 127

Reply from 40.0.0.1: bytes = 32 time < 1ms TTL = 127

Final Topology -- Realtime



Final Topology – IP route



Final Topology – Destination Host Unrechable