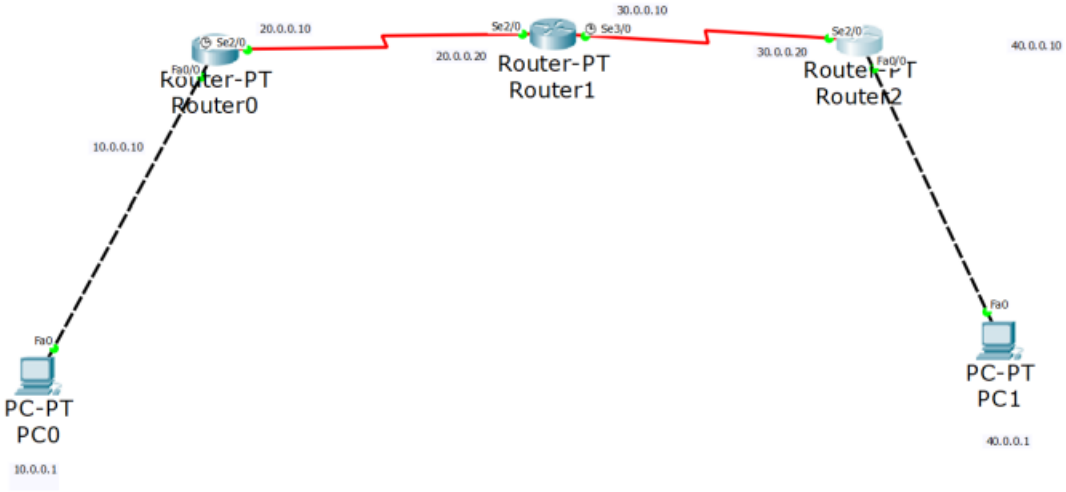
Experiment - 3

Aim: Configure default route, static route to the Router



IOS Command Line Interface

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 10.0.0.10 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#ip address 20.0.0.10 255.0.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#ip address 0.0.0.0 0.0.0.0 20.0.0.20
          ^
% Invalid input detected at '^' marker.

Router#enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip address 0.0.0.0 0.0.0.0 20.0.0.20
                  ^
% Invalid input detected at '^' marker.

Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#exit
```

IOS Command Line Interface

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Serial2/0
Router(config-if)#no ip address
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#ip address 20.0.0.20 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#ip address 30.0.0.10 255.0.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

Router(config-if)#ip route 10.0.0.0 255.0.0.0 20.0.0.0
Router(config)#ip route 40.0.0.0 255.0.0.0 30.0.0.0
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 10.0.0.0 255.0.0.0 20.0.0.10
Router(config)#ip route 40.0.0.0 255.0.0.0 30.0.0.20
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

IOS Command Line Interface

```
         --- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n


Press RETURN to get started!



Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface Serial2/0
Router(config-if)#ip address 30.0.0.20 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
ip address 40.0.0.10 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#ip route 0.0.0.0 0.0.0.0 30.0.0.10
```

Command Prompt

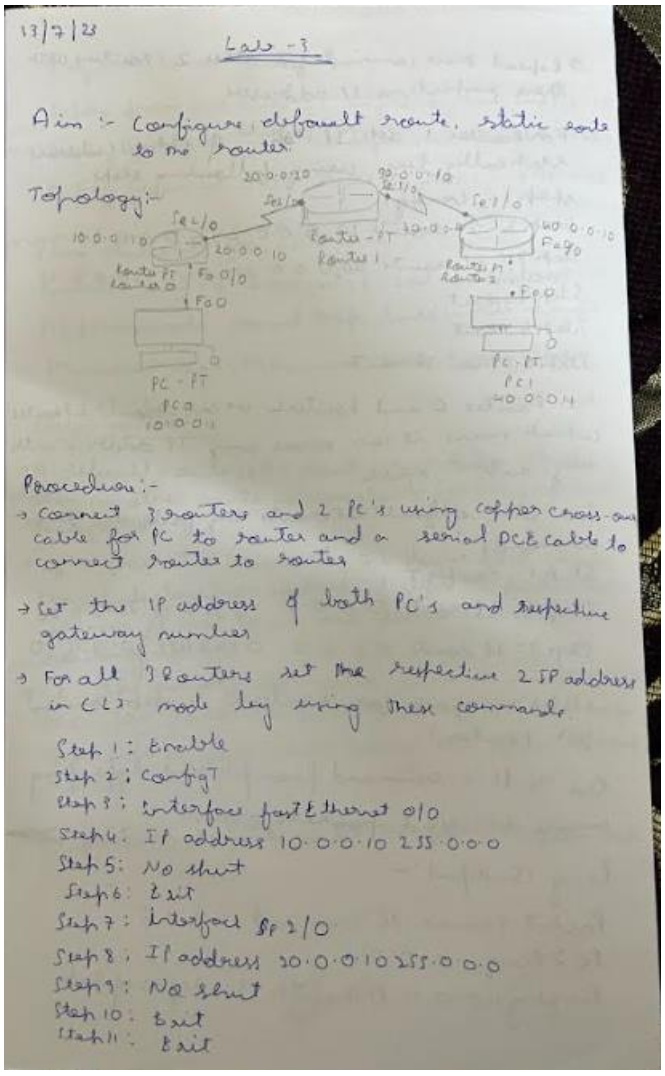
```
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Request timed out.
Reply from 40.0.0.1: bytes=32 time=13ms TTL=125
Reply from 40.0.0.1: bytes=32 time=2ms TTL=125
Reply from 40.0.0.1: bytes=32 time=20ms TTL=125

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 20ms, Average = 11ms

PC>
```



13/7/23

Lab - 3

Aim :- Configure default route, static route to the router

Topology :-

Procedure :-

→ Connect 3 routers and 2 PC's using copper cross-over cable for PC to router and a serial DCE cable to connect router to router

→ Set the IP address of both PC's and respective gateway number

→ For all 3 Routers set the respective IP address in CLI mode by using these commands

Step 1 : Enable
Step 2 : Config T
Step 3 : Interface fastEthernet 0/0
Step 4 : IP address 10.0.0.10 255.0.0.0
Step 5 : No shut
Step 6 : Exit
Step 7 : Interface Se 2/0
Step 8 : IP address 20.0.0.10 255.0.0.0
Step 9 : No shut
Step 10 : Exit
Step 11 : Exit

→ Repeat these commands for other 2 routers with their respective IP addresses.

→ For Router 1, set IP route of other 2 IP address statically by using following steps.

step 1 : configT

Step 2 : IP route 10.0.0.0 255.0.0.0 20.0.0.2

Step 3 : IP route 40.0.0.0 255.0.0.0 30.0.0.20

Step 4 : Exit

Step 5 : Exit

Step 6 : Show IP route

For Router 0 and Router 2 we set default IP route which means it can access any IP address with any subnet mask.

Set the default IP route by following these commands

Step 1 : config T

Step 2 : IP route 0.0.0.0 0.0.0.0 20.0.0.20

Step 3 : IP route 0.0.0.0 0.0.0.0 30.0.0.10

step 2 is given for Routers 0 & step 3 command for Router 1.

Go to PC's command prompt and type ping message to send packets across.

Ping Output :-

Packet Tracer PC command Line 1.0

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 = 2ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 16ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 2ms TTL = 125

Ping statistics for 40.0.0.1:

Packets: sent = 4, Received = 3, Lost = 1 (25% loss)

Approximate round trip times in milli-seconds

Minimum = 2ms, Maximum = 16ms, Average = 6ms

Observation:-

→ A default route is the route which takes effect when no other route is available for an IP address destination.

→ If a packet is received, the device first checks the IP destination address, if the IP destination address is not local the device checks its routing table

→ If the remote destination subnet is not listed then the packet is forwarded to the next hop towards its destination using the default route.

→ The process repeats until the packet is delivered.