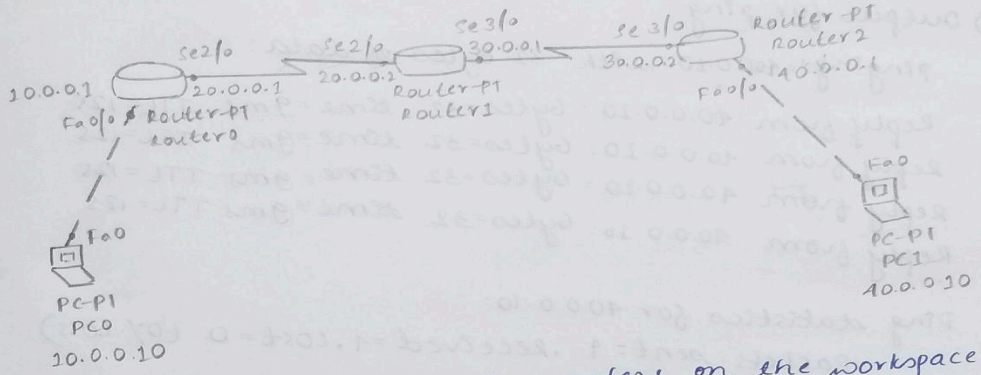
LAB-4

LAB: 04 23/10/21
EXPERIMENT: 043(6)

Question: Configure default route and static route to the Router

Aim: To configure default routing.

Topology:



Procedure: 1) Place 2 PC's and 3 routers on the workspace
2) setup the IP addresses, and Gateway of the PC's
3) setup the IP addresses and connection of the routers in its corresponding CLI
4) Go to CLI of Router1 and follow the below commands

```
Router# config terminal
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
```

This sets up the connection to the 10.0.0.0 and 40.0.0.0 network. This is called static routing

5) Go to the CLI of Router0 and follow the below commands:

```
Router# config terminal
Router(config)# ip route 0.0.0.0 0.0.0.0 20.0.0.2
```

This is called default routing and it helps with

the complete connection

6) Repeat the default routing for Router2 as well

7) After the complete configuration of the topology, ping a message from PC0 to PC1.

ping 40.0.0.10

Observation:

1) Output for ping:

Pinging 400.0.10 with 32 bytes of data:

Reply from 40.0.0.10 : bytes=32 time=9ms TTL=125
Reply from 40.0.0.10 : bytes=32 time=9ms TTL=125
Reply from 40.0.0.10 : bytes=32 time=9ms TTL=125
Reply from 40.0.0.10 : bytes=32 time=9ms TTL=125

Ping statistics for 40.0.0.10:
Packets: sent=4, Received=4, Lost=0 (0% loss)

2) show ip route for static routing - Router1

S 10.0.0.0/8 [1/0] via 20.0.0.1
C 20.0.0.0/8 is directly connected, Serial 2/0
C 30.0.0.0/8 is directly connected, Serial 3/0
S 40.0.0.0/8 [1/0] via 30.0.0.2

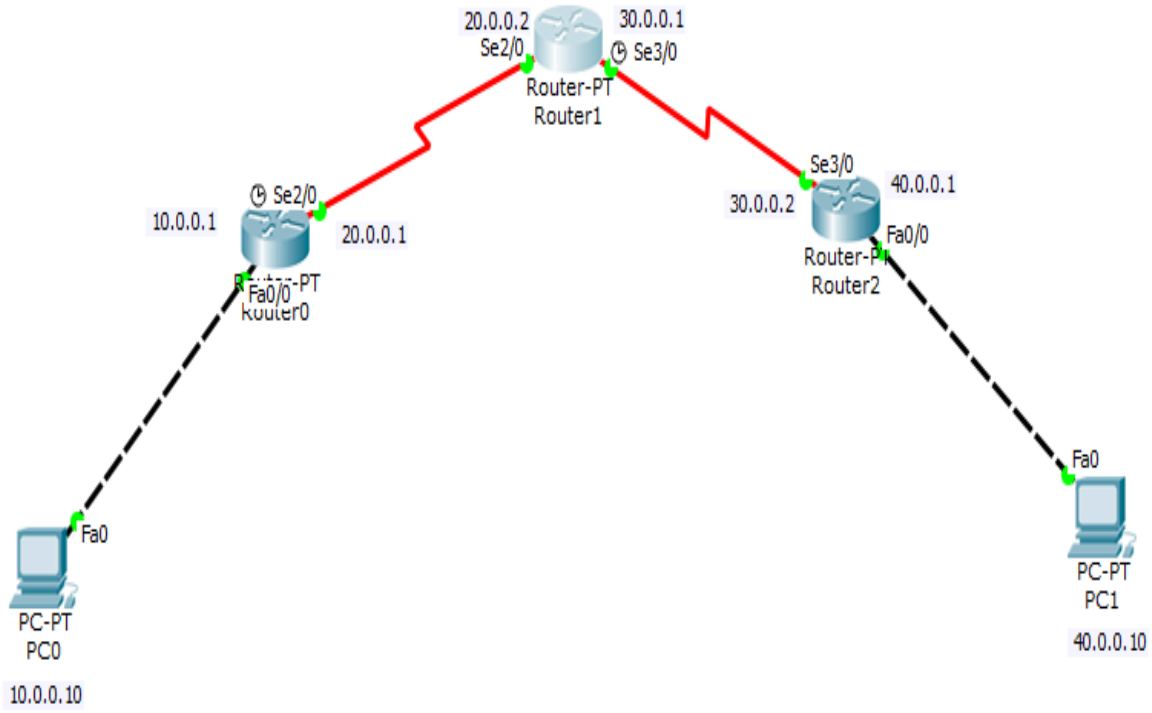
3) show ip route for default routing - Router0

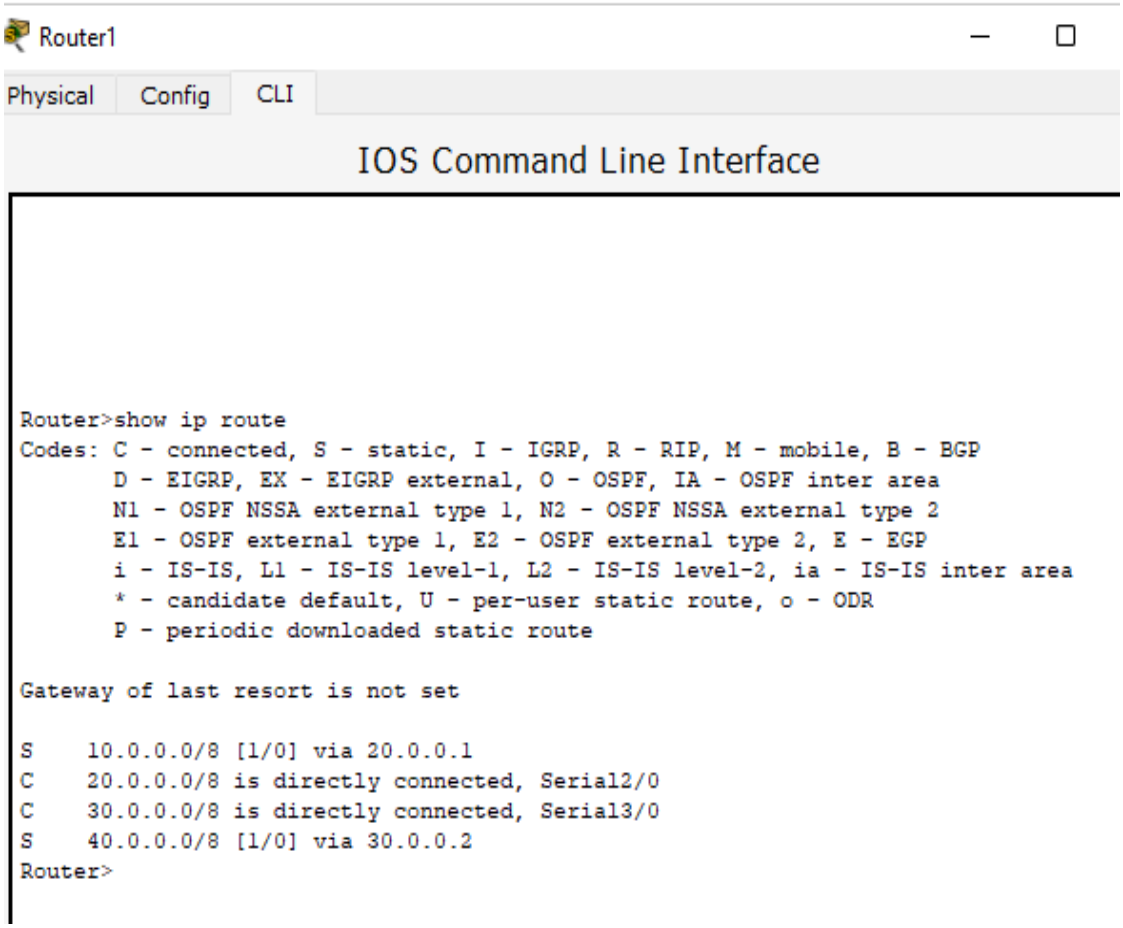
C 10.0.0.0/8 is directly connected, FastEthernet 0/0
C 20.0.0.0/8 is directly connected, Serial 2/0
S* 0.0.0.0/0 [1/0] via 20.0.0.2

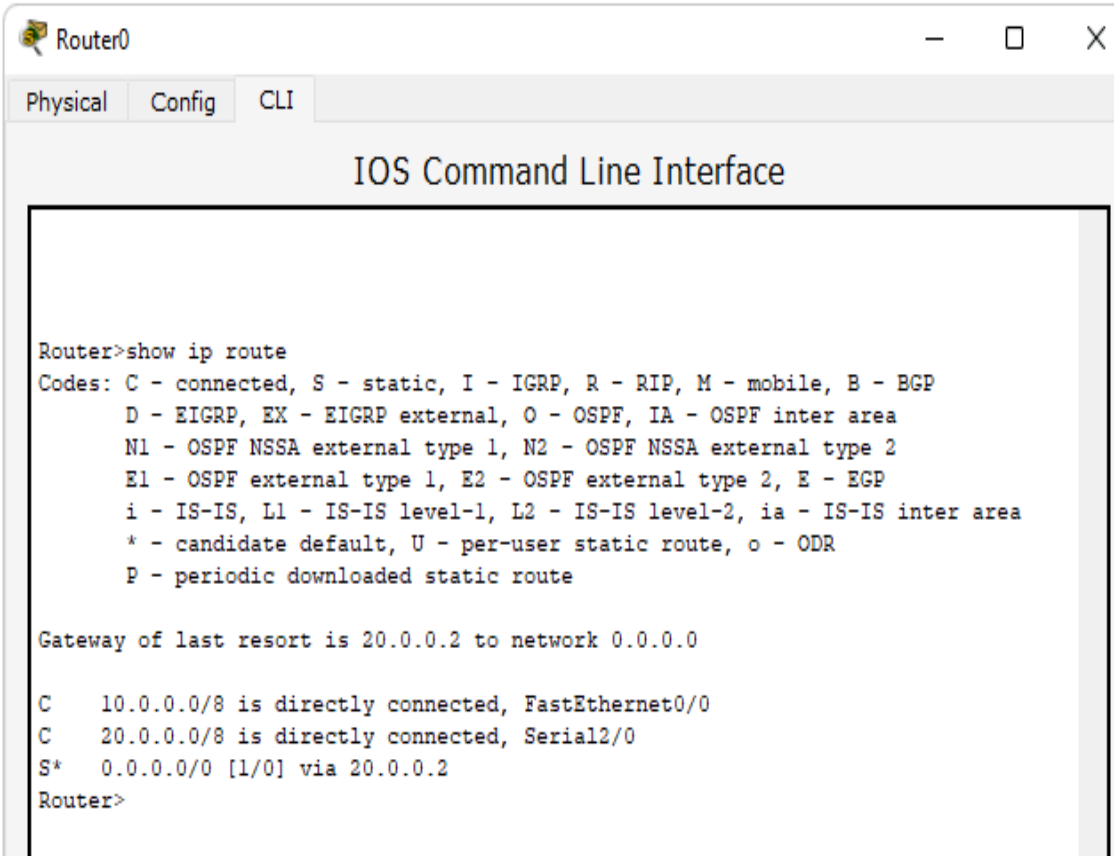
4) The output is the same as 3) output.

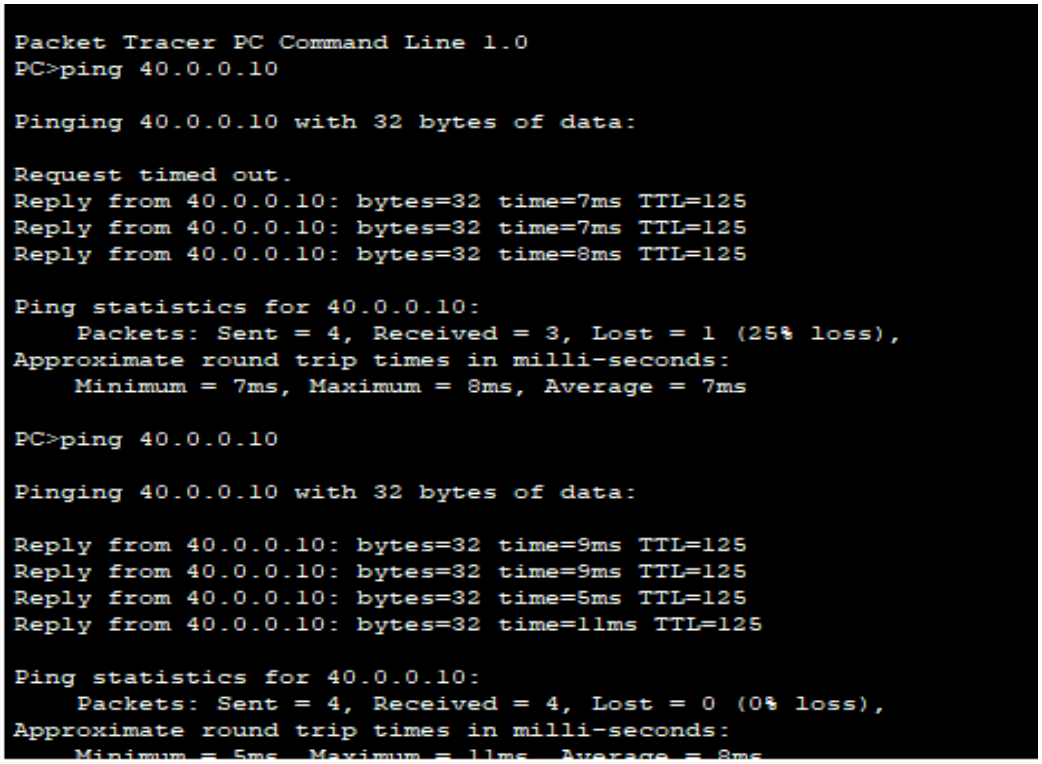
Through this experiment, we learnt to connect 2 end devices through 3 routers by static routing and default routing and exchange messages between them

TOPOLOGY


20.0.0.2
Se2/0
30.0.0.1
Se3/0
Router-PT
Router1
Se2/0
10.0.0.1
20.0.0.1
Fa0/0
Router0
Se3/0
30.0.0.2
40.0.0.1
Fa0/0
Router2
Fa0
PC-PT
PC0
10.0.0.10
Fa0
PC-PT
PC1
40.0.0.10


Router1
Physical
Config
CLI
IOS Command Line Interface
Router>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
S 10.0.0.0/8 [1/0] via 20.0.0.1
C 20.0.0.0/8 is directly connected, Serial2/0
C 30.0.0.0/8 is directly connected, Serial3/0
S 40.0.0.0/8 [1/0] via 30.0.0.2
Router>


Router0
Physical
Config
CLI
IOS Command Line Interface
Router>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is 20.0.0.2 to network 0.0.0.0
C 10.0.0.0/8 is directly connected, FastEthernet0/0
C 20.0.0.0/8 is directly connected, Serial2/0
S* 0.0.0.0/0 [1/0] via 20.0.0.2
Router>


Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.10
Pinging 40.0.0.10 with 32 bytes of data:
Request timed out.
Reply from 40.0.0.10: bytes=32 time=7ms TTL=125
Reply from 40.0.0.10: bytes=32 time=7ms TTL=125
Reply from 40.0.0.10: bytes=32 time=8ms TTL=125
Ping statistics for 40.0.0.10:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 7ms, Maximum = 8ms, Average = 7ms
PC>ping 40.0.0.10
Pinging 40.0.0.10 with 32 bytes of data:
Reply from 40.0.0.10: bytes=32 time=9ms TTL=125
Reply from 40.0.0.10: bytes=32 time=9ms TTL=125
Reply from 40.0.0.10: bytes=32 time=5ms TTL=125
Reply from 40.0.0.10: bytes=32 time=11ms TTL=125
Ping statistics for 40.0.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds: