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LAB - 4

3) configure default route, static route to the Router

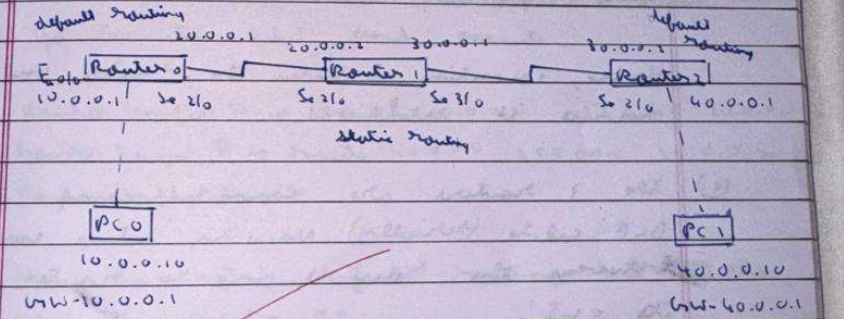
Aim of the Experiment:

Demonstration of default and static route using 3 routers

Devices used:

Router and end devices

Topology :-



Procedure:

(i) Select a generic Router R0

(ii) connect an end device PC0 to Router R0 using parallel connection fastEthernet 0/0

(iii) configure PC0 with ip address 10.0.0.10 and gateway 10.0.0.1

(iv) Similarly select another router R1 and Router R2 and connect PC1 to R2

(v) configure PC1 with ip address 40.0.0.10 and gateway 40.0.0.1

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Now go to router R0 and its CLI and

Router > enable
Router # config terminal
Router (config) # interface fastEthernet 0/0
Router (config-if) # ip address 1.0.0.0.10 255.0.0.0
Router (config-if) # no shut

Similarly select router R1 and in its CLI,
Router > enable
Router # config terminal
Router (config) # interface fastEthernet 0/0
Router (config-if) # ip address 40.0.0.10 255.0.0.0
Router (config-if) # no shut

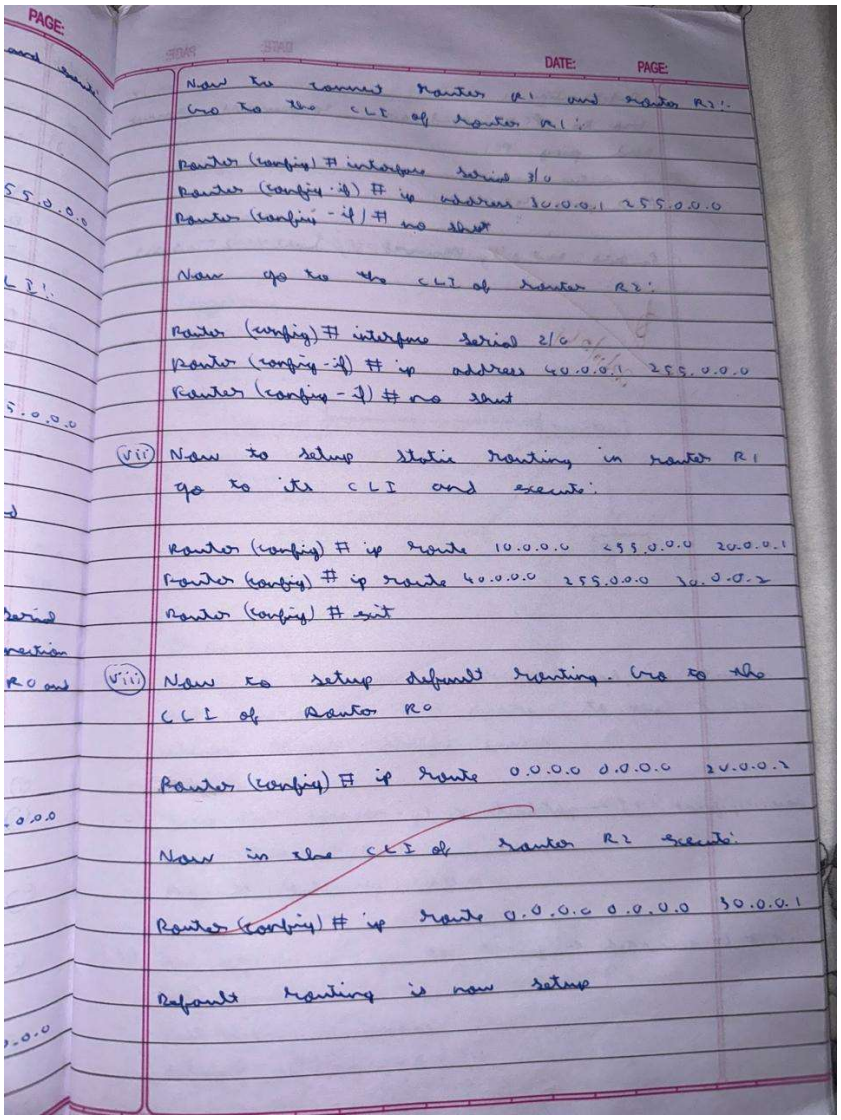
Hence, connection between the router and device is established.

(vi) The 2 routers are connected using serial DCE cable (serially). Now to setup connection between the routers. Go to router R0 in its CLI,

Router (config) # interface serial 2/0
Router (config-if) # ip address 20.0.0.1 255.0.0.0
Router (config-if) # no shut

Now go to CLI of router R1

Router (config) # interface serial 2/0
Router (config-if) # ip address 20.0.0.2 255.0.0.0
Router (config-if) # no shut



Now to connect router R1 and router R2:-
Go to the CLI of router R1:

Router (config) # interface serial 2/0
Router (config-if) # ip address 30.0.0.1 255.0.0.0
Router (config-if) # no shut

Now go to the CLI of router R2:

Router (config) # interface serial 2/0
Router (config-if) # ip address 40.0.0.1 255.0.0.0
Router (config-if) # no shut

(vii) Now to setup static routing in router R1 go to its CLI and execute:

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
Router (config) # exit

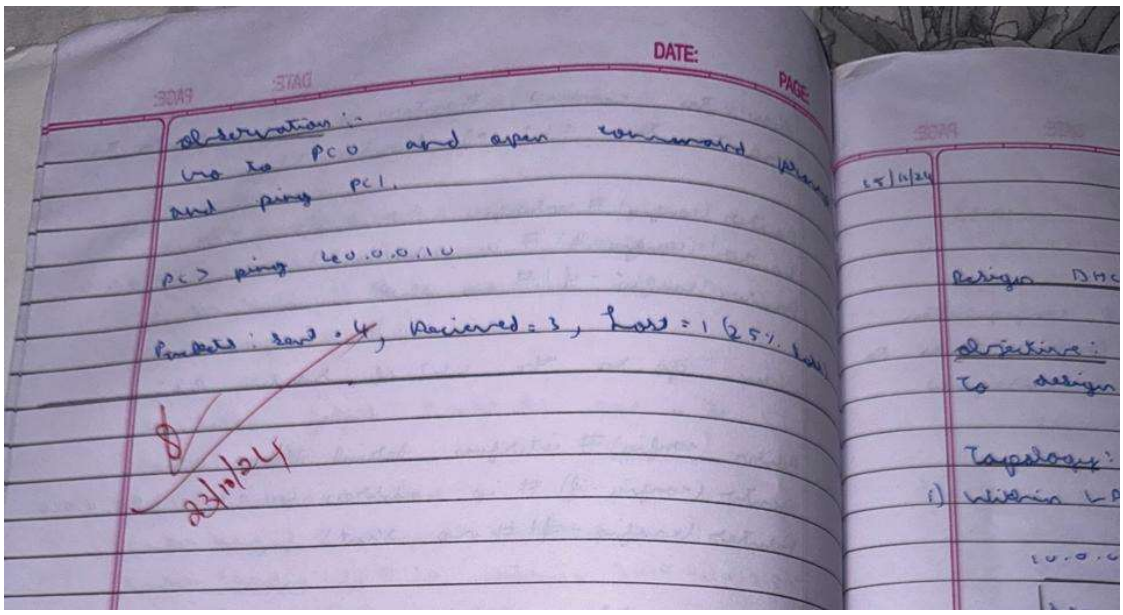
(viii) Now to setup default routing. Go to the CLI of Router R0

Router (config) # ip route 0.0.0.0 0.0.0.0 20.0.0.2

Now in the CLI of router R2 execute:

Router (config) # ip route 0.0.0.0 0.0.0.0 30.0.0.1

Default routing is now setup



Observation:-
Go to PC0 and open command prompt and ping PC1.

PC> ping 40.0.0.10

Packets: Sent = 4, Recieved = 3, Lost = 1 (25% loss)

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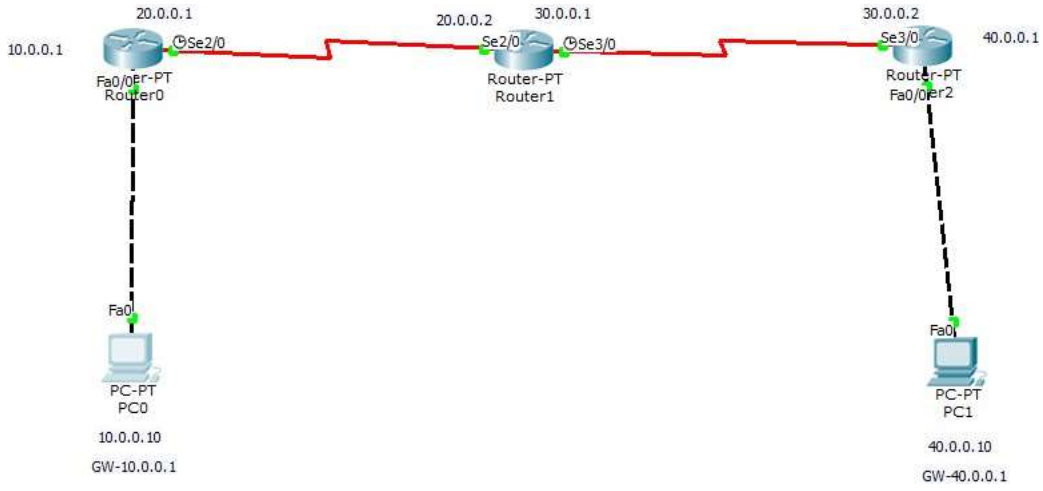

Physical Config CLI

IOS Command Line Interface

```
Router>enable
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

C    20.0.0.0/8 is directly connected, Serial2/0
C    30.0.0.0/8 is directly connected, Serial3/0
Router$config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)$ip route 10.0.0.0 255.0.0.0 20.0.0.1
Router(config)$ip route 40.0.0.0 255.0.0.0 30.0.0.2
Router(config)$exit
Router$
%SYS-5-CONFIG_I: Configured from console by console
exit
```

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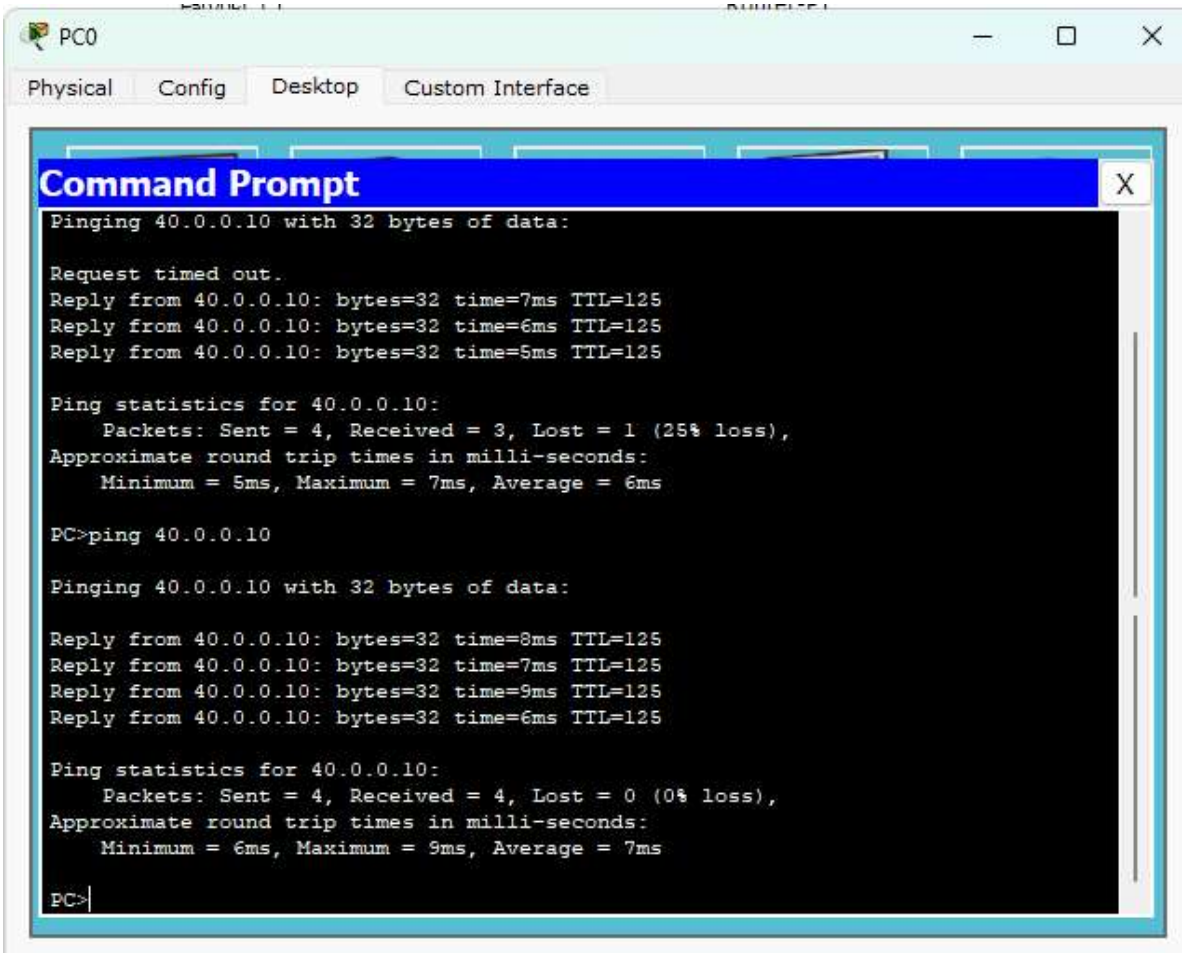
PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Pinging 40.0.0.10 with 32 bytes of data:
Request timed out.
Reply from 40.0.0.10: bytes=32 time=7ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=5ms TTL=125
Ping statistics for 40.0.0.10:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 5ms, Maximum = 7ms, Average = 6ms
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=8ms TTL=125
Reply from 40.0.0.10: bytes=32 time=7ms TTL=125
Reply from 40.0.0.10: bytes=32 time=9ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms 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:
Minimum = 6ms, Maximum = 9ms, Average = 7ms
PC>