QUESTION: Configure default route with router

AIM: Using ip route set default route with 3 routers to route traffic to other routers over serial interface

Procedure :-

VARAD VITHAL
KJ
1BM18CS1D2

1.) Connect the PC's to the router via a switch

2) Connect the routers to each other over serial interface(s) using DCE/RS-232 cable

3) configure static IPv4 for the PC's & set their default gateway

4) Set Serial interface IPv4 address the routers.

5) Set routing paths for each routes.

6) Ping from first Lan to the other.
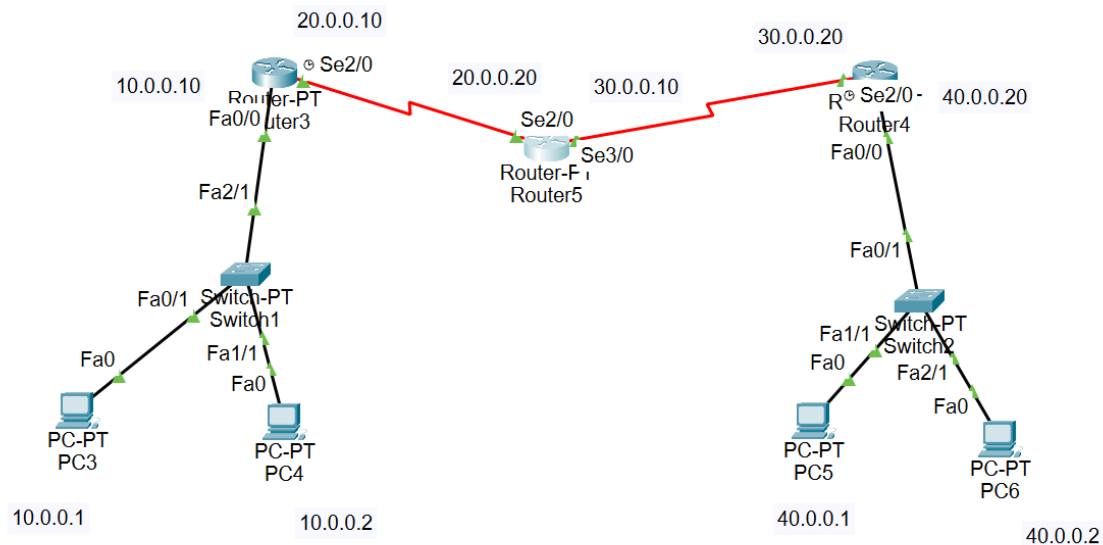
CLI Commands - for One Router

VARAD
VITHAL
KJ

IBM18CS122

1) enable
2) show ip route
3) config t
4) Interface fastethernet 0/0
5) ip address 10.0.0.10/ 255.0.0.0
6) no shut.
7) interface Serial 2/0
8) ip address 20.0.0.10 255.0.0.0
9) ip route 0.0.0.0 0.0.0.0 20.0.0.20
10) no shut

Observation:-

1) Traffic from 0.0.0.0 (Any IP range) will
be forwarded onto the Serial interface
to the address 20.0.0.10

2) No need to configure the router for
each specific IP range.

TOPOLOGY:

PROCEDURE:

1. Connect the PC's to the router via a switch
2. Connect the routers to each other over serial interface(s) using DCE/RS-232 Cable
3. Configure Static IPv4 for the PC's and set their default gateway
4. Set Serial interface IPv4 addresses of the routers
5. Set routing paths for each routers
6. Ping from first Lan to the Other

CLI COMMANDS – FOR ONE ROUTER

1. enable
2. show ip route
3. config t
4. interface fastethernet0/0
5. ip address 10.0.0.10 255.0.0.0
6. no shut
7. interface serial2/0
8. ip address 20.0.0.10 255.0.0.0
9. ip route 0.0.0.0 0.0.0.0 20.0.0.20
10. no shut

OBSERVATION :

1. Traffic from 0.0.0.0 (Any IP range) will be forwarded onto the serial interface to the address 20.0.0.10
2. No need to configure the router for each specific IP range

SCREENSHOTS :
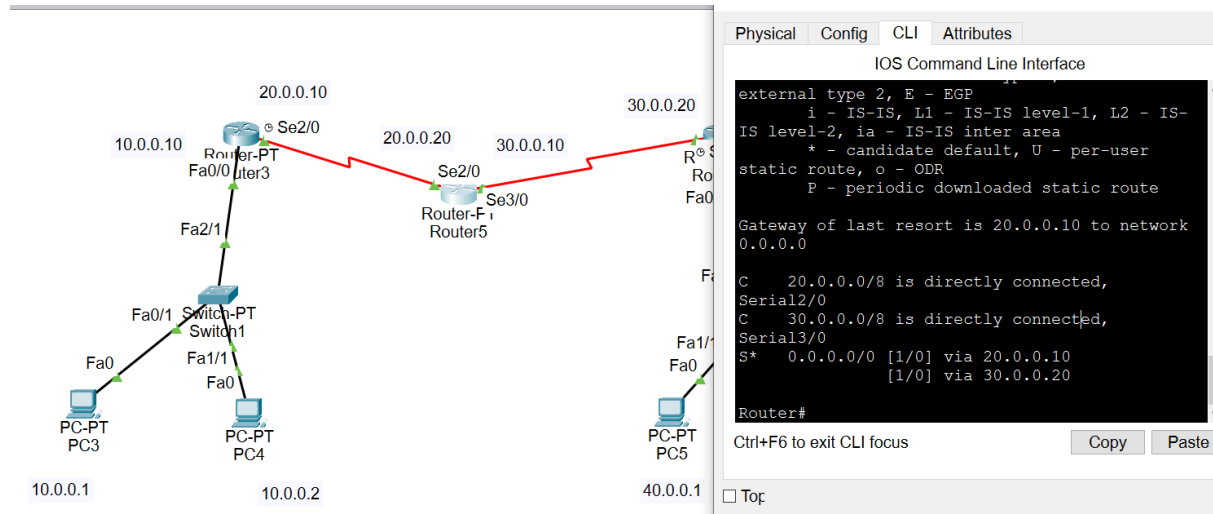
Physical | Config | CLI | Attributes
IOS Command Line Interface

```
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 20.0.0.10 to network
0.0.0.0

C    20.0.0.0/8 is directly connected,
Serial2/0
C    30.0.0.0/8 is directly connected,
Serial3/0
S*   0.0.0.0/0 [1/0] via 20.0.0.10
               [1/0] via 30.0.0.20

Router#
```
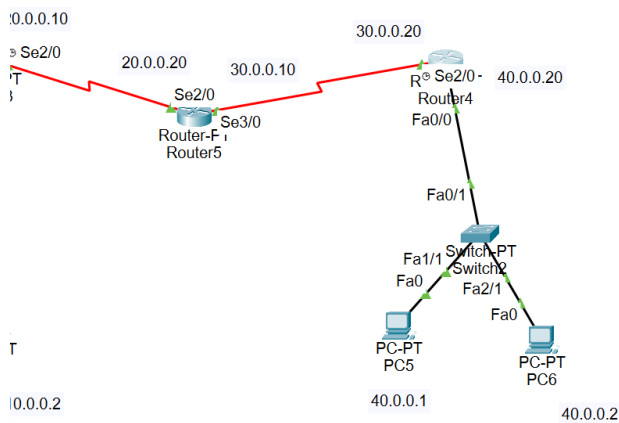
Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Physical | Config | CLI | Attributes
IOS Command Line Interface

```
FastEthernet0/0, changed state to up

%LINK-5-CHANGED: Interface Serial2/0, changed
state to up

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


Router>
Router>
Router>enable
Router#config t
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0
30.0.0.10
Router(config)#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

CLI COMMANDS :

Ip routing


```
FastEthernet0/0, changed state to up

%LINK-5-CHANGED: Interface Serial2/0, changed
state to up

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


Router>
Router>
Router>enable
Router#config t
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0
30.0.0.10
Router(config)#
```



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


Router>
Router>
Router>enable
Router#config t
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0
30.0.0.10
Router(config)#ip interface serial2/0
                         ^
% Invalid input detected at '^' marker.

Router(config)#interface serial2/0
Router(config-if)#
```



```
Router>
Router>
Router>enable
Router#config t
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0
30.0.0.10
Router(config)#ip interface serial2/0
                         ^
% Invalid input detected at '^' marker.

Router(config)#interface serial2/0
Router(config-if)#ip address 30.0.0.20
255.0.0.0
Router(config-if)#
```
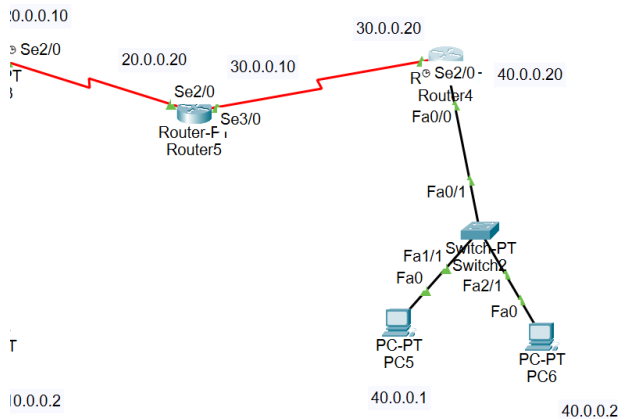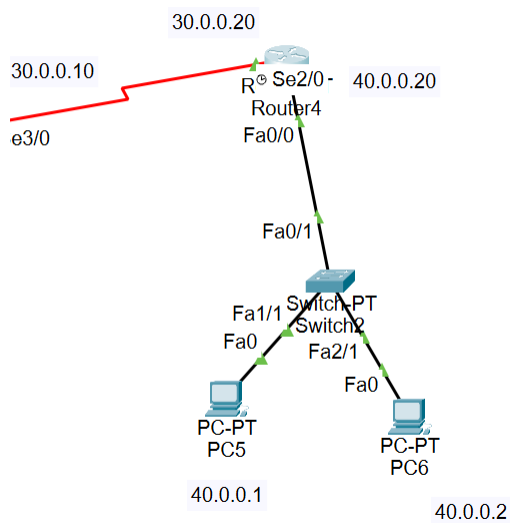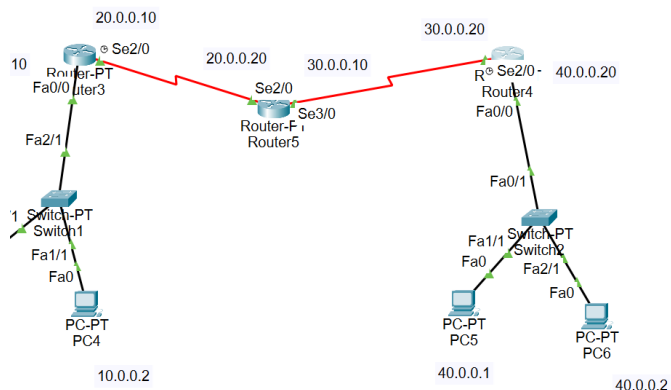
PING

20.0.0.10
Se2/0
20.0.0.20   30.0.0.10
Router-PT
0uter3
Se2/0
Router-F
Router5
Se3/0
30.0.0.20
R Se2/0
Router4
40.0.0.20
Fa0/0

Fa0/1

Fa1/1 Switch-PT
Switch2
Fa0
Fa2/1
Fa0

n-PT
h1

a0

PC-PT
PC PT

Physical | Config | Desktop | Programming | Attributes

Command Prompt   X

Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

20.0.0.10
Se2/0
20.0.0.20   30.0.0.10
Router-PT
a0/0 uter3
Se2/0
Router-F
Router5
Se3/0
30.0.0.20
R Se2/0
Router4
40.0.0.20
Fa0/0

2/1

Fa0/1

witch-PT
Switch1
a1/1
Fa0

Fa1/1 Switch-PT
Switch2
Fa0
Fa2/1

PC5

Physical | Config | Desktop | Programming | Attributes

Command Prompt   X

Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 10.0.0.2: bytes=32 time=3ms TTL=125

20.0.0.10
Se2/0
20.0.0.20   30.0.0.10
10.0.0.10
Router-PT
Fa0/0 uter3
Se2/0
Router-F
Router5
Se3/0
30.0.0.20
R Se2/0
Router4
40.0.0.20
Fa0/0

Fa2/1

Fa0/1

Fa0/1 Switch-PT
Switch1
Fa1/1
Fa0

Fa0/1

Fa1/1 Switch-PT
Switch2
Fa0
Fa2/1
Fa0

a0

PT
3

PC-PT
PC4

10.0.0.2

PC-PT
PC5

40.0.0.1

PC-PT
PC6

40.0

PC5

Physical | Config | Desktop | Programming | Attributes

Command Prompt   X

Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 10.0.0.2: bytes=32 time=3ms TTL=125
Reply from 10.0.0.2: bytes=32 time=2ms TTL=125
Reply from 10.0.0.2: bytes=32 time=2ms TTL=125

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1
(25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 3ms, Average = 2ms

C:\>