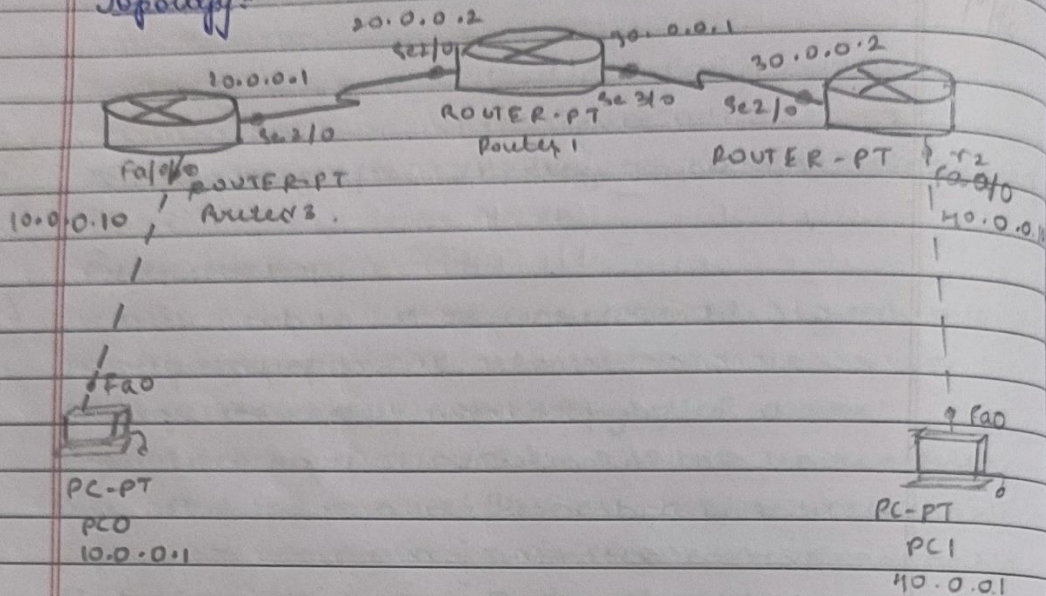


14/7/23

Experiment -3

aim: Configuration of default router.

Topology:



Procedure:

- 1) select three router and drop them to the workspace, select two end devices (PCs) and drop them to the workspace.
- 2) connect the PC's to the router using copper cross over. PC0 is connected to Router 2 using copper cross over. PC0 fastethernet 0 to fastethernet 0/0 of router 3.
- 3) router 3 is connected to router 1 using serial DTE from serial 2/0 to serial 3/0.
- 4) Router 1 is connected to router 2 using serial DTE from serial 3/0 to serial 2/0 of router 2.
- 5) PC1 is connected to router 2 using copper cross over.

from fastethernet 0 to fastethernet 0/0 of Router 2.

* IP and gateway address of PC0 is 10.0.0.1 and 10.0.0.10 is set by selecting PC0 config → fastethernet → IP address set as 10.0.0.1

config → global settings → gateway set gateway as 10.0.0.10.

* select PC1 config → fastethernet → IP address set as 40.0.0.1

config → global settings → gateway set gateway to 40.0.0.10.

* Interface of Routers are set by following commands: → select router → CLI.

for Router 3: type no end enter

Router>enable

Router#config

Router(config)# interface fastethernet 0/0

Router(config-if)# IP address 10.0.0.10 255.0.0.0

Router(config-if)# no shut

Router(config-if)# exit

Router(config)# interface serial 2/0

Router(config)# IP address 20.0.0.1 255.0.0.0

Router(config)# no shut

Router(config)# exit

similarly for Router 1:

Router>enable

Router#config

Router(config)# interface serial 2/0

Router(config-if)# IP address 30.0.0.1 255.0.0.0

Router(config-if)# no shut

Router(config-if)# exit


```
Router(config)# interface serial 3/0
Router(config-if)# IP address 30.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit
```

For Router-2

```
Router > enable
Router # config t
Router(config)# interface fastEthernet 0/0
Router(config-if)# IP address 40.0.0.10 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit
Router(config)# interface serial 2/0
Router(config-if)# IP address 30.0.0.2 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit
```

*) To set IP routes for all the routers for all router via routers for router 3 and router 2, default routing is done and for router 1, static routing is done.

Router-3

```
Router# config t
Router(config)# IP route 0.0.0.0 0.0.0.0 20.0.0.2
Router(config)# no shut
Router(config)# exit
```

show IP route

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

Similarly for router 2

```
Router# config t
```

```
Router(config)# IP route 0.0.0.0 0.0.0.0 30.0.0.1
```



```
Router(config)#exit
For router #1
static routing will be done
Router#config
Router(config)#IP nat 10.0.0.0 255.0.0.0 20.0.0.0
Router(config)#IP nat 40.0.0.0 255.0.0.0 30.0.0.0
Router(config)#exit
Show IP nat
S 10.0.0.0/8 [1/0] via 20.0.0.0
C 20.0.0.0/8 is directly connected via 2/0
C 30.0.0.0/8 is directly connected via 3/0
S 40.0.0.0/8 [1/0] via 30.0.0.0
```

Ring output (unreachable case)

ping from the command prompt of 40.0.0.1 to the 10.0.0.1

```
PC> ping 10.0.0.1
```

pinging 10.0.0.1 with 32 bytes of data
Request timed out.

Reply from 10.0.0.1: bytes=32 time=26ms TTL=125

Reply from 10.0.0.1: bytes=32 time=4ms TTL=125

Reply from 10.0.0.1: bytes=32 time=2ms TTL=125

ping statistics for 10.0.0.1:

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

Approximate round trip times in milli-seconds:

Minimum = 2ms, Maximum = 26ms, Average = 10ms

RESULT (from 40.0.0.1) to 10.0.0.1

```
PC> ping 10.0.0.1
```

pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=2ms TTL=125

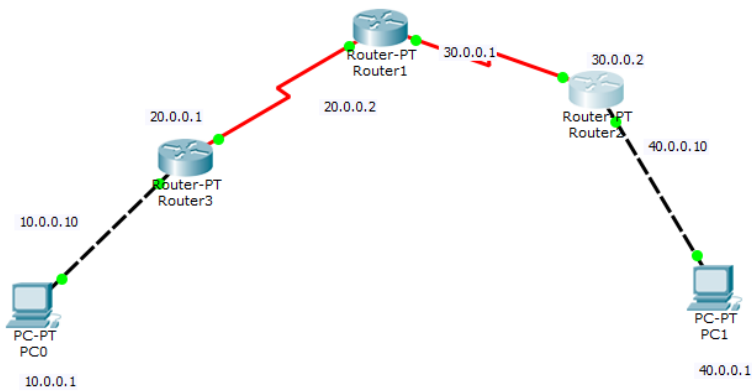
Reply from 10.0.0.1: bytes=32 time=8ms TTL=125

Reply from 10.0.0.1: bytes = 32 time = 2ms TTL = 125
Reply from 10.0.0.1: bytes = 32 time = 12ms TTL = 125
ping statistics for 10.0.0.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)

Approximate round trip times in milli-seconds:
Minimum = 2ms Maximum = 12ms Average = 6ms

100%
2/1/23
20/1/23



Router3

Physical Config CLI

IOS Command Line Interface

```

Press RETURN to get started!

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#IP address 10.0.0.10 255.0.0.0
Router(config-if)#no shut

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
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

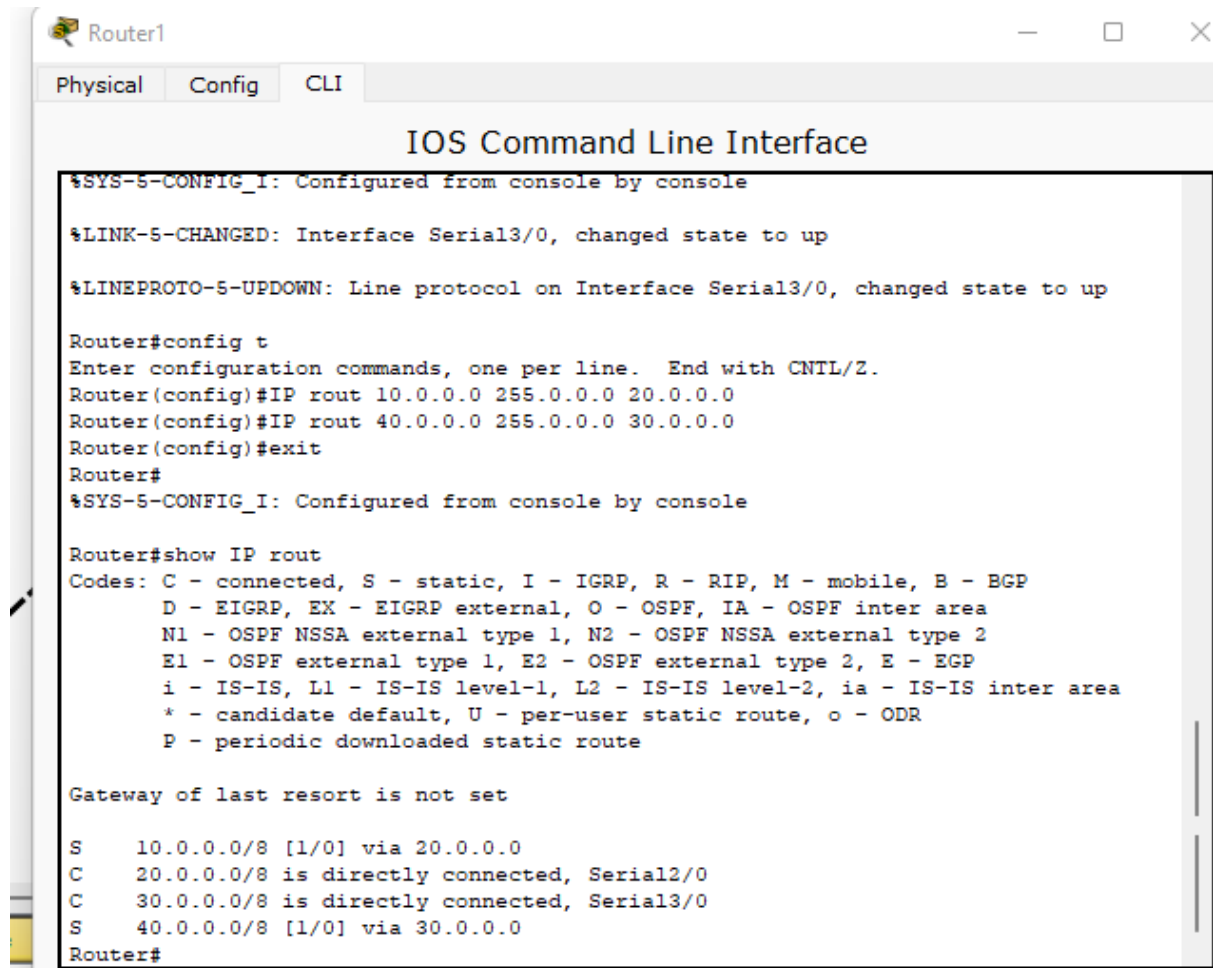
%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

%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 t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#IP rout 0.0.0.0 0.0.0.0 20.0.0.2
Router(config)#no shut
^
% Invalid input detected at '^' marker.

Router(config)#exit
Router#
  
```



Press RETURN to get started!

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#IP address 40.0.0.10 255.0.0.0
Router(config-if)#no shut

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
exit
Router(config)#interface serial 2/0
Router(config-if)#IP address 30.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

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

Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#IP rout 0.0.0.0 0.0.0.0 30.0.0.1
Router(config)#no shut
      ^
% Invalid input detected at '^' marker.

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

Command Prompt

```
PC>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Request timed out.
Reply from 10.0.0.1: bytes=32 time=26ms TTL=125
Reply from 10.0.0.1: bytes=32 time=4ms TTL=125
Reply from 10.0.0.1: bytes=32 time=2ms TTL=125

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 26ms, Average = 10ms

PC>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=2ms TTL=125
Reply from 10.0.0.1: bytes=32 time=8ms TTL=125
Reply from 10.0.0.1: bytes=32 time=4ms TTL=125
Reply from 10.0.0.1: bytes=32 time=12ms TTL=125

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 12ms, Average = 6ms

PC>
```