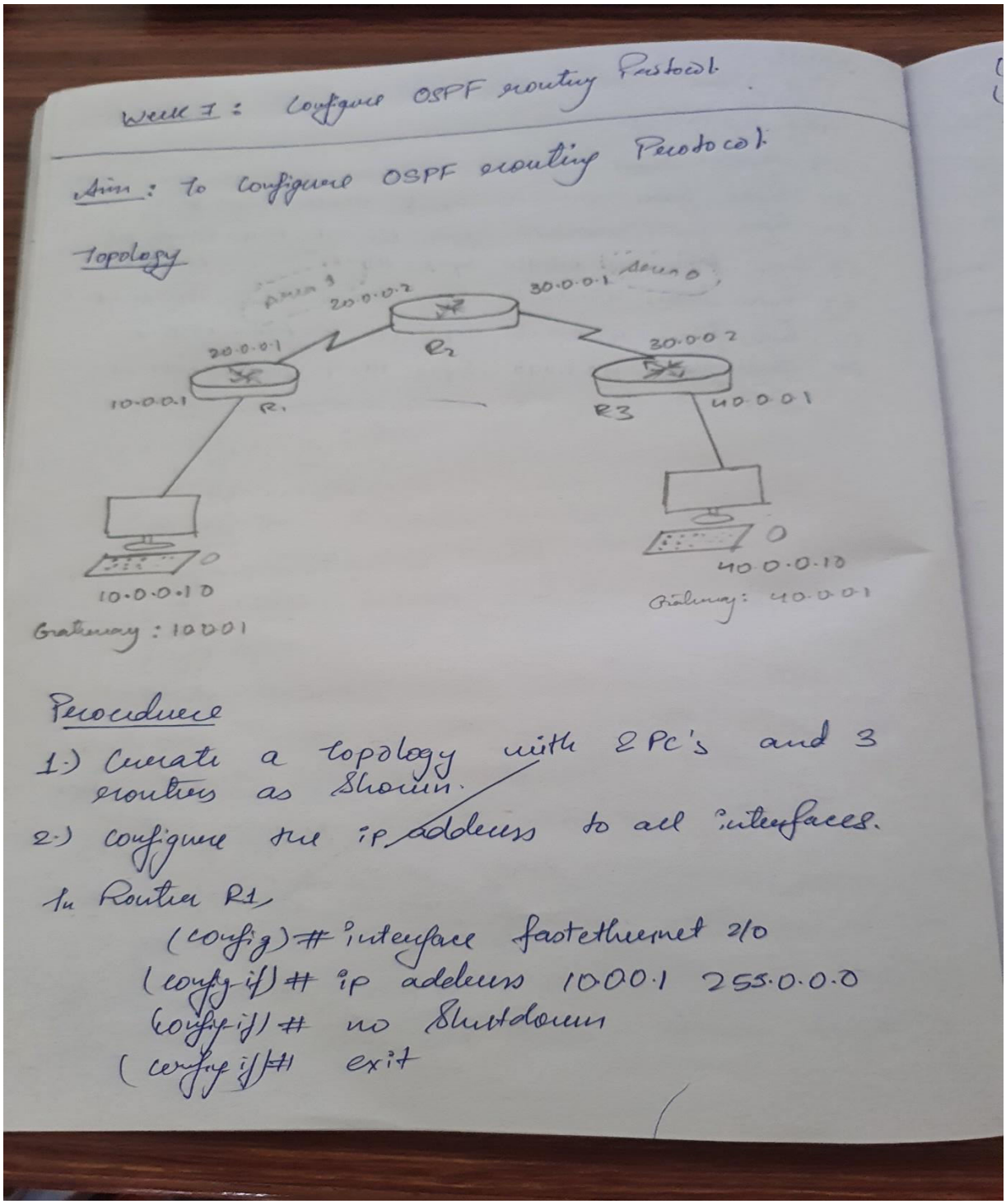
CN LAB 7

AIM: Configure OSPF routing protocol.

OBSERVATION:



(config)# interface Serial 1/0
(config-if)# ip address 20.0.0.1 255.0.0.0
(config-if)# encapsulation PPP
(config-if)# clock rate 64000
(config-if)# no Shutdown
(config-if)# exit

In Router R2

Repeat the above Steps for router R2 with ip address 20.0.0.2

(config)# interface Serial 1/0
(config-if)# ip address 200.0.2 255.0.0.0
(config-if)# encapsulation PPP
(config-if)# no Shutdown
(config-if)# exit

(config)# interface Serial 1/1
(config-if)# ip address 30.0.0.1 255.0.0.0
(config-if)# encapsulation PPP
(config-if)# no Shutdown
(config-if)# exit.

In ~~Router~~ R3

(config)# interface Serial 1/0
(config-if)# ip address 30.0.0.2 255.0.0.0
(config-if)# encapsulation PPP
(config-if)# no Shutdown
(config-if)# exit.

In Router

(config)# interface fast Ethernet 2/0
(config-if)# ip address 40.0.0.1 255.0.0.0
(config-if)# no Shutdown
(config-if)# exit.

3) Now enable ip routing by configuring OSPF routing protocol in all routers

In Router R1

(config)# router ospf 1

(config-router)# router-id 1.1.1.1

(config-router)# network 10.0.0.0 255.255.255.255 area 0

(config-router)# network 20.0.0.0 255.255.255.255 area 1

(config-router)# exit.

Repeat the procedure for Router 2 & Router 3

4) In Router R1

(config-if)# interface loopback 0

(config-if)# ip address 172.16.1.252 255.255.0.0

(config-if) no shutdown

Repeat the procedure for R_2 and R_3

5) Create Virtual link between R_1, R_2 by this we create a virtual link to connect area 3 to area 0.

Router R1

(config) # router ospf 1

(config-router)# area 1 virtual-link 2.2.2.2

Repeat for other router

6) Check connectivity b/w host 10.0.0.10 to 40.0.0.10

output

Ping 40.0.0.10

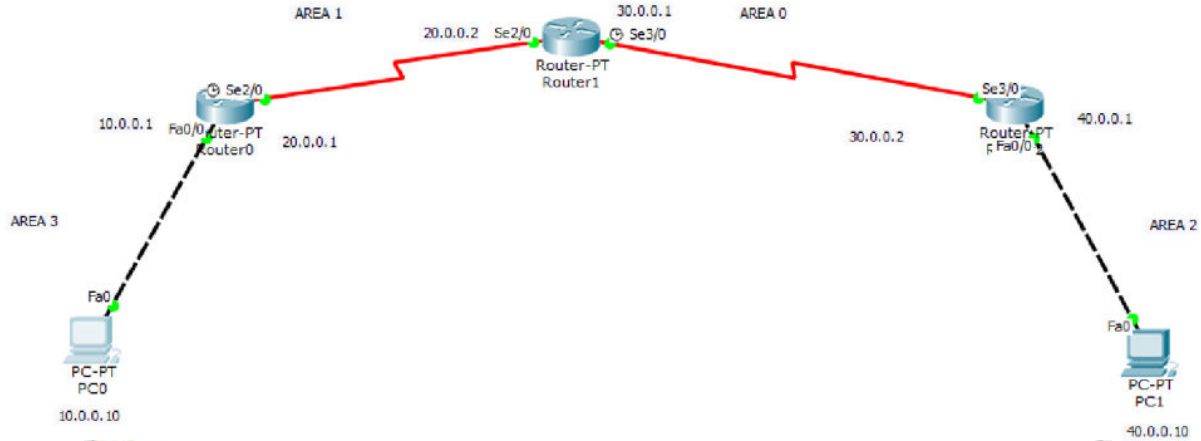
64 bytes from 40.0.0.10 seq=1 ttl =61 time = 73 ms
64 bytes from 40.0.0.10 seq=1 ttl =61 time = 64 ms
64 bytes from 40.0.0.10 seq=1 ttl =61 time =66 ms
64 bytes from 40.0.0.10 seq=1 ttl =61 time = 60 ms
64 bytes from 40.0.0.10 seq=1 ttl =61 time = 96 ms.

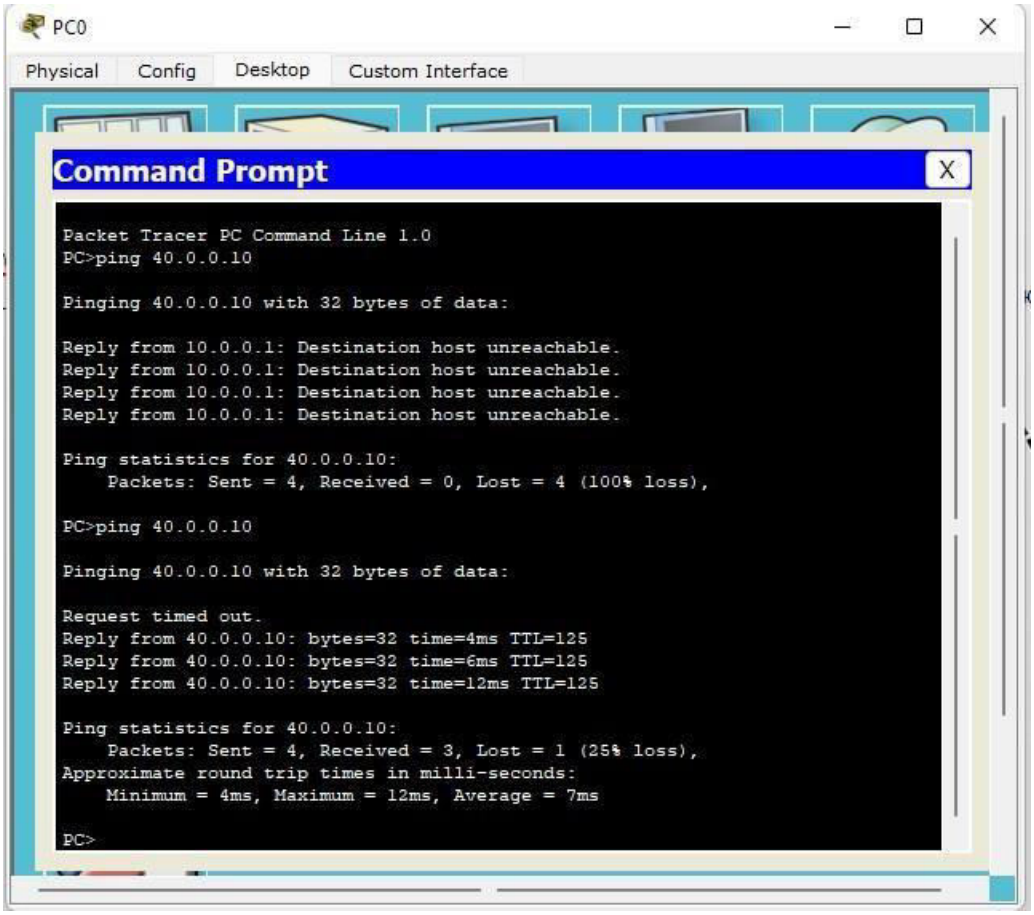
6 Packets transmitted, 5 packets received
16% packet loss round-trip min/avg/max
60.829/92.438/173.753 ms.

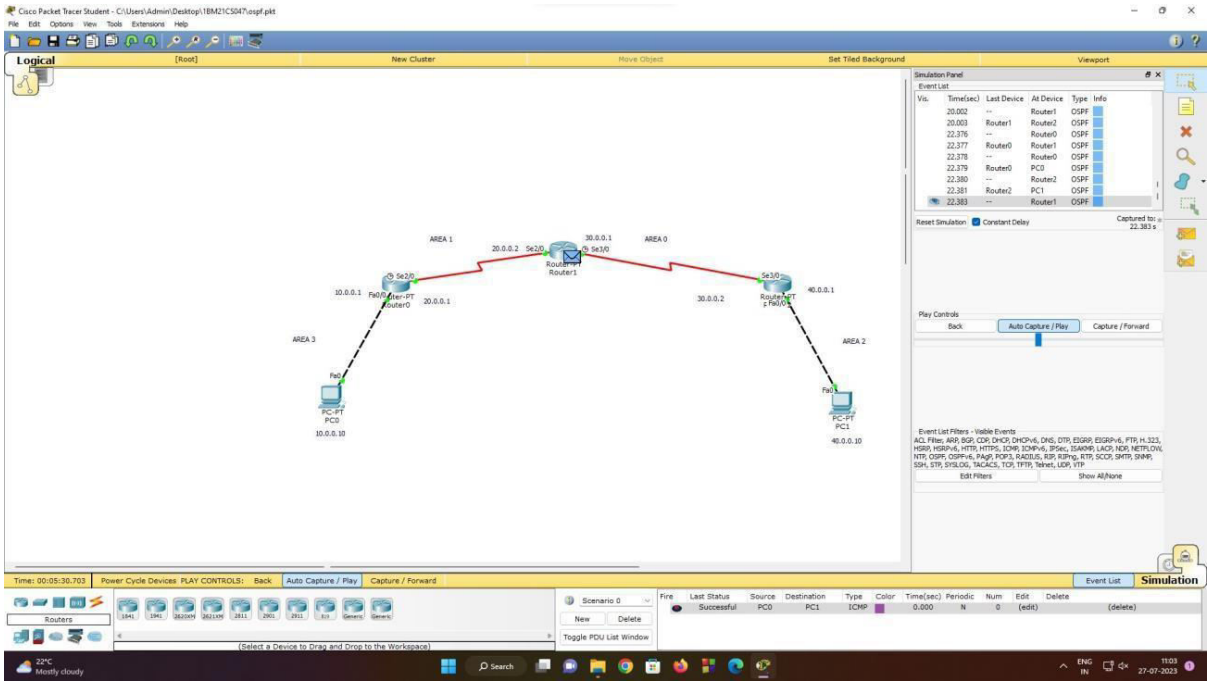
Observation

To connect routers between multiple networks, along with the OSPF routing we have to set up an loopback address and a virtual link.

SCREENSHOTS:






Cisco Packet Tracer Student - C:\Users\Admin\Desktop\1BM21CS047\ospf.pkt
Logical
AREA 1
AREA 0
AREA 3
AREA 2
20.0.0.2
30.0.0.1
10.0.0.1
20.0.0.1
30.0.0.2
40.0.0.1
PC-PT PC0
10.0.0.10
PC-PT PC1
40.0.0.10
Simulation Panel
Event List
Play Controls
Back
Auto Capture / Play
Capture / Forward
Time: 00:05:30.703
Power Cycle Devices
PLAY CONTROLS:
Routers
(Select a Device to Drag and Drop to the Workspace)
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Successful
PC0
PC1
ICMP
0.000
(edit)
(delete)
22°C
Mostly cloudy
Search
ENG
IN
11:03
27-07-2023