EXPERIMENT#8: Dynamic Routing

Objective:

Your task is to configure (RIP) Routing Information Protocol between PC0, PC1, PC2 and PC4

1. Built network according to Figure 1
2. Configure RIP between the routers
3. Ping from each PC to all other PCs
4. Check Routing Table for all the routers
5. Check Routing Simulation for each PC to all other PCs
6. Connect serial interfaces between Router0 - Router1 and Router 2 – Router 3 (Figure 2)
7. Check Routing Table for all the routers
8. Check Routing Simulation for each PC to all other PCs

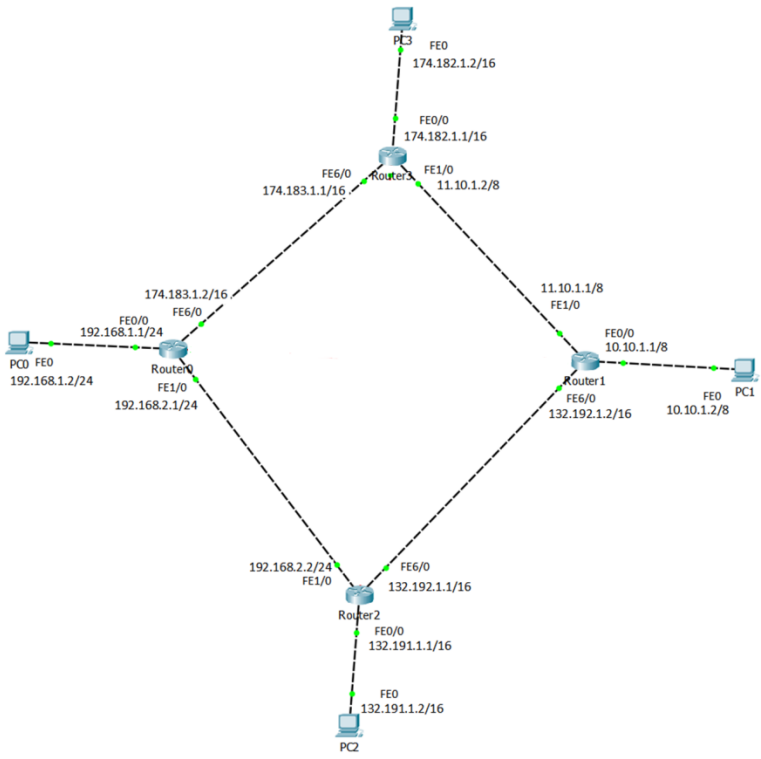


Figure 1

Tools and Materials:

In a real life Scenario:
Four Workstations with terminal Program (such as putty), four Cisco routers, four PCs, eight RJ45 cross-over cables, two serial cable (DCE)

For Lab Purpose:
Cisco Packet Tracer Software

Instructions:

Router0

```
Router>en
Router#conf t
Router(config)#hostname Router0
Router0(config)#interface FastEthernet0/0
Router0(config-if)#no shut
Router0(config-if)#ip address 192.168.1.1 255.255.255.0
Router0(config-if)#interface FastEthernet1/0
Router0(config-if)#no shut
Router0(config-if)#ip address 192.168.2.1 255.255.255.0
Router0(config-if)#interface FastEthernet6/0
Router0(config-if)#no shut
Router0(config-if)#ip address 174.183.1.2 255.255.0.0
Router0(config-if)#exit

Router0(config)#router rip
Router0(config-router)#version 2
Router0(config-router)#network 192.168.1.0
Router0(config-router)#network 192.168.2.0
Router0(config-router)#network 174.183.0.0
```

Router2

```
Router>en
Router#conf t
Router(config)#hostname Router2
Router2(config)#interface FastEthernet0/0
Router2(config-if)#no shut
Router2(config-if)#ip address 132.191.1.1 255.255.0.0
Router2(config-if)#interface FastEthernet1/0
Router2(config-if)#no shut
Router2(config-if)#ip address 192.168.2.2 255.255.255.0
Router2(config-if)#interface FastEthernet6/0
Router2(config-if)#no shut
Router2(config-if)#ip address 132.192.1.1 255.255.0.0
Router2(config-if)#exit
```

```
Router2(config)#router rip
Router2(config-router)#version 2
Router2(config-router)#network 132.191.0.0
Router2(config-router)#network 192.168.2.0
Router2(config-router)#network 132.192.0.0
```

Router1

```
Router>en
Router#conf t
Router(config)#hostname Router1
Router1(config)#interface FastEthernet0/0
Router1(config-if)#no shut
Router1(config-if)#ip address 10.10.1.1 255.0.0.0
Router1(config-if)#interface FastEthernet1/0
Router1(config-if)#no shut
Router1(config-if)#ip address 11.10.1.1 255.0.0.0
Router1(config-if)#interface FastEthernet6/0
Router1(config-if)#no shut
Router1(config-if)#ip address 132.192.1.2 255.255.0.0
Router1(config-if)#exit

Router1(config)#router rip
Router1(config-router)#version 2
Router1(config-router)#network 10.0.0.0
Router1(config-router)#network 11.0.0.0
Router1(config-router)#network 132.192.0.0
```

Router3

```
Router>en
Router#conf t
Router(config)#hostname Router3
Router3(config)#interface FastEthernet0/0
Router3(config-if)#no shut
Router3(config-if)#ip address 174.182.1.1 255.255.0.0
Router3(config-if)#interface FastEthernet1/0
Router3(config-if)#no shut
Router3(config-if)#ip address 11.10.1.2 255.0.0.0
Router3(config-if)#interface FastEthernet6/0
Router3(config-if)#no shut
Router3(config-if)#ip address 174.183.1.1 255.255.0.0
Router3(config-if)#exit

Router3(config)#router rip
```

```
Router3(config-router)#version 2
Router3(config-router)#network 174.182.0.0
Router3(config-router)#network 11.0.0.0
Router3(config-router)#network 174.183.0.0
```

Result

Router0

```
Router0#show ip route rip

R 10.0.0.0/8 [120/2] via 192.168.2.2, 00:00:04, FastEthernet1/0
[120/2] via 174.183.1.1, 00:00:03, FastEthernet6/0
R 11.0.0.0/8 [120/1] via 174.183.1.1, 00:00:03, FastEthernet6/0
R 132.191.0.0/16 [120/1] via 192.168.2.2, 00:00:04, FastEthernet1/0
R 132.192.0.0/16 [120/1] via 192.168.2.2, 00:00:04, FastEthernet1/0
R 174.182.0.0/16 [120/1] via 174.183.1.1, 00:00:03, FastEthernet6/0
```

Router2

```
Router2#show ip route rip

R 10.0.0.0/8 [120/1] via 132.192.1.2, 00:00:26, FastEthernet6/0
R 11.0.0.0/8 [120/1] via 132.192.1.2, 00:00:26, FastEthernet6/0
R 174.182.0.0/16 [120/2] via 132.192.1.2, 00:00:26, FastEthernet6/0
[120/2] via 192.168.2.1, 00:00:10, FastEthernet1/0
R 174.183.0.0/16 [120/1] via 192.168.2.1, 00:00:10, FastEthernet1/0
R 192.168.1.0/24 [120/1] via 192.168.2.1, 00:00:10, FastEthernet1/0
```

Router1

```
Router1#show ip route rip

R 132.191.0.0/16 [120/1] via 132.192.1.1, 00:00:04, FastEthernet6/0
R 174.182.0.0/16 [120/1] via 11.10.1.2, 00:00:04, FastEthernet1/0
R 174.183.0.0/16 [120/1] via 11.10.1.2, 00:00:04, FastEthernet1/0
R 192.168.1.0/24 [120/2] via 132.192.1.1, 00:00:04, FastEthernet6/0
[120/2] via 11.10.1.2, 00:00:04, FastEthernet1/0
R 192.168.2.0/24 [120/1] via 132.192.1.1, 00:00:04, FastEthernet6/0
```

Router3

```
Router3#show ip route rip

R 10.0.0.0/8 [120/1] via 11.10.1.1, 00:00:26, FastEthernet1/0
R 132.191.0.0/16 [120/2] via 11.10.1.1, 00:00:26, FastEthernet1/0
```

[120/2] via 174.183.1.2, 00:00:10, FastEthernet6/0
R 132.192.0.0/16 [120/1] via 11.10.1.1, 00:00:26, FastEthernet1/0
R 192.168.1.0/24 [120/1] via 174.183.1.2, 00:00:10, FastEthernet6/0
R 192.168.2.0/24 [120/1] via 174.183.1.2, 00:00:10, FastEthernet6/0

Configure All the PCs with appropriate static IP and gateway and Ping from each PC to all other PCs

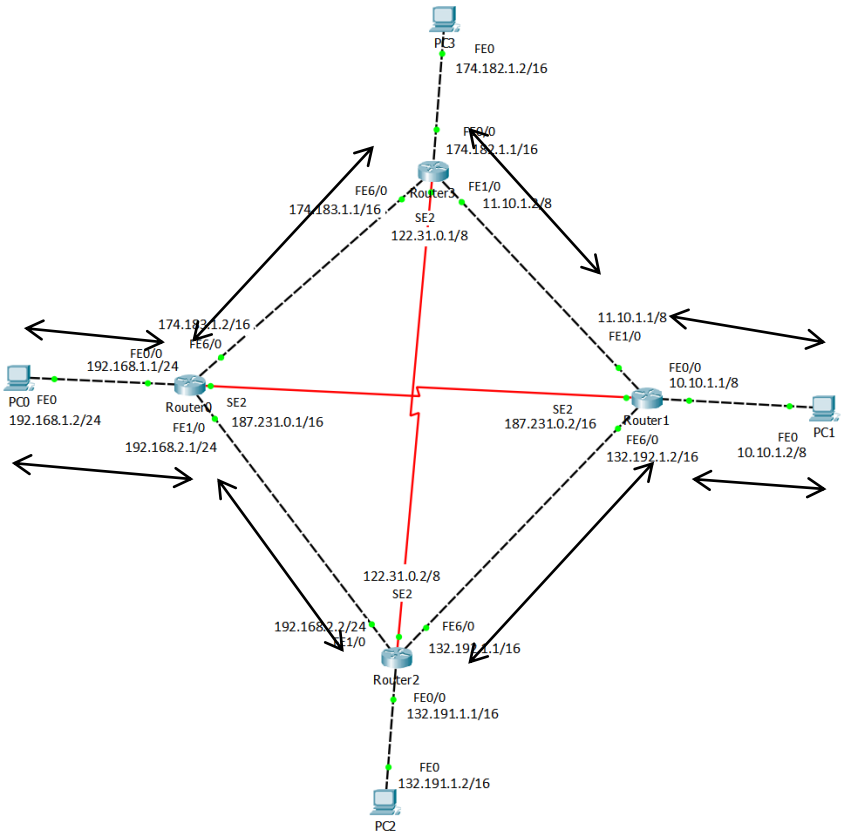
C:\>ping 10.10.1.2

Pinging 10.10.1.2 with 32 bytes of data:

Reply from 10.10.1.2: bytes=32 time=30ms TTL=125
Reply from 10.10.1.2: bytes=32 time=11ms TTL=125
Reply from 10.10.1.2: bytes=32 time=13ms TTL=125
Reply from 10.10.1.2: bytes=32 time=17ms TTL=125

Ping statistics for 10.10.1.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 11ms, Maximum = 30ms, Average = 17ms

Show simulation to verify the route of the packets



Connect serial interfaces between Router0 - Router1 and Router 2 – Router 3

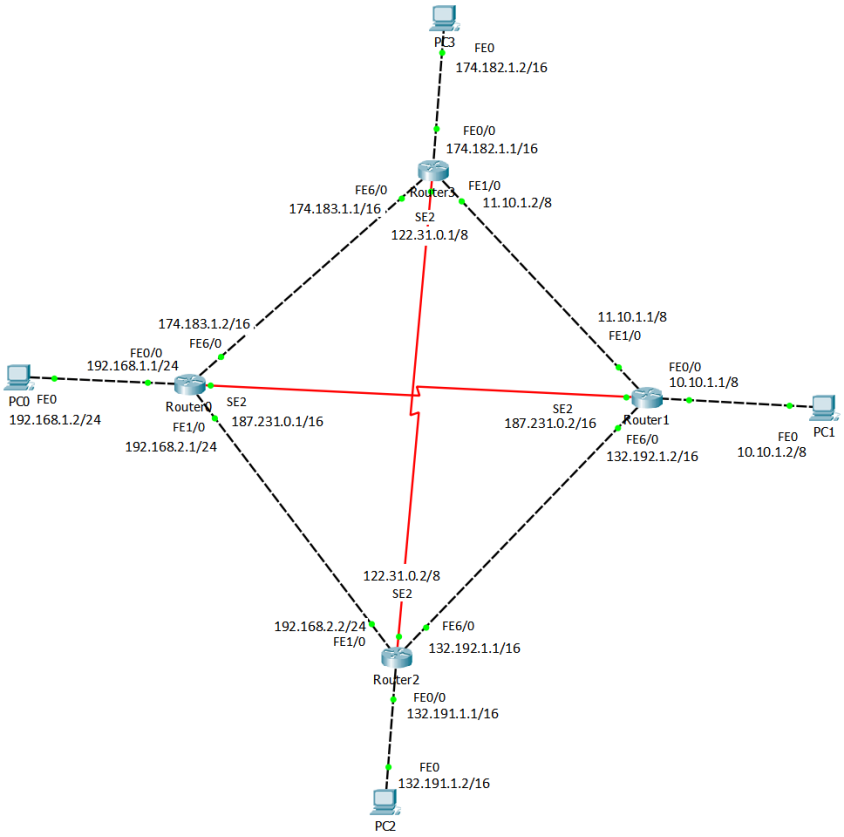


Figure 2

Instructions:

Router0

Router0#conf t
Router0(config)#interface Serial2/0
Router0(config-if)#no shut
Router0(config-if)# clock rate 64000
Router0(config-if)#ip address 187.231.0.1 255.255.0.0
Router0(config-if)#exit

Router0(config)#router rip
Router0(config-router)#version 2
Router0(config-router)#network 187.231.0.0

Router2

Router2#conf t
Router2(config)#interface Serial2/0

```
Router2(config-if)#no shut
Router2(config-if)# clock rate 64000
Router2(config-if)#ip address 122.31.0.2 255.0.0.0
Router2(config-if)#exit

Router2(config)#router rip
Router2(config-router)#version 2
Router2(config-router)#network 122.0.0.0
```

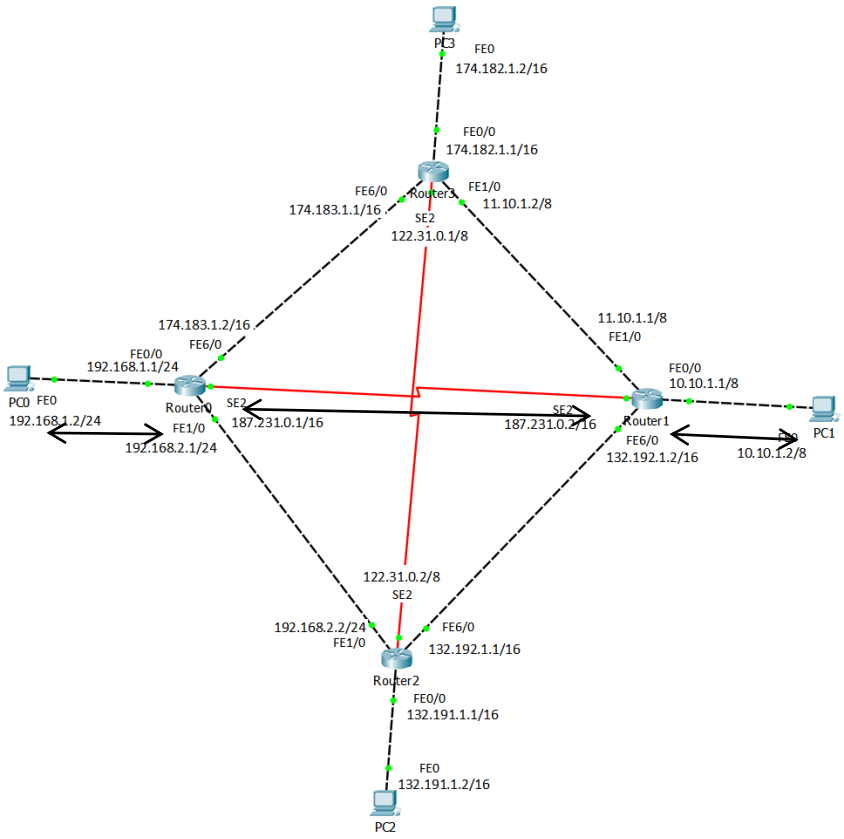
Router1

```
Router1#conf t
Router1(config)#interface Serial2/0
Router1(config-if)#no shut
Router1(config-if)#ip address 187.231.0.2 255.255.0.0
Router1(config-if)#exit

Router1(config)#router rip
Router1(config-router)#version 2
Router1(config-router)#network 187.231.0.0
```

Router3

```
Router3#conf t
Router3(config)#interface Serial2/0
Router3(config-if)#no shut
Router3(config-if)#ip address 122.31.0.1 255.0.0.0
Router3(config-if)#exit

Router3(config)#router rip
Router3(config-router)#version 2
Router3(config-router)#network 122.0.0.0
```

Show simulation to verify the route of the packets


PC3
FE0
174.182.1.2/16
FE0/0
174.182.1.1/16
Router3
FE6/0
174.183.1.1/16
FE1/0
11.10.1.2/8
SE2
122.31.0.1/8
174.183.1.2/16
FE6/0
11.10.1.1/8
FE1/0
FE0/0
192.168.1.1/24
PC0
FE0
192.168.1.2/24
Router0
SE2
187.231.0.1/16
FE1/0
192.168.2.1/24
SE2
187.231.0.2/16
FE0/0
10.10.1.1/8
Router1
FE6/0
132.192.1.2/16
PC1
10.10.1.2/8
122.31.0.2/8
SE2
192.168.2.2/24
FE1/0
FE6/0
132.192.1.1/16
Router2
FE0/0
132.191.1.1/16
FE0
132.191.1.2/16
PC2