

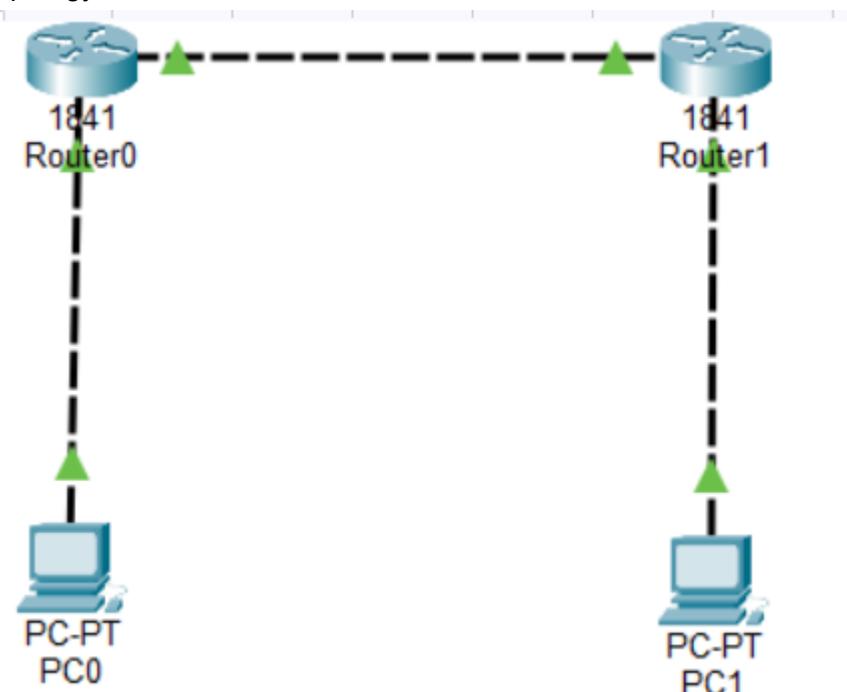
Q. Demonstrate the OSPF Routing in Packet Tracer.

Aim :To configure and demonstrate OSPF dynamic routing protocol between two networks using two routers in Packet Tracer.

Steps :

- 1.In packet tracer place 2 PCs and 2 Routers.
- 2.Connect Router0 with PC0 via FastEthernet0/0 using cross-copper cord and Router1 with PC1 via FastEthernet0/0 using cross-copper cord.
- 3.Connect both routers via FastEthernet0/1 using cross-copper cord.
- 4.Set the IP address and default gateway of both the PCs in IP configuration of both PCs respectively.
- 5.Configure OSPF routing protocol on both routers.

Topology :



Code :

Router0 configuration :

```
Router>enable
Router#configure terminal
Router(config)#hostname Router0
Router0(config)#interface FastEthernet0/0
Router0(config-if)#ip address 192.168.1.1 255.255.255.0
Router0(config-if)#no shutdown
Router0(config-if)#exit
Router0(config)#interface FastEthernet0/1
Router0(config-if)#ip address 10.0.0.1 255.255.255.0
Router0(config-if)#no shutdown
Router0(config-if)#exit
Router0(config)#router ospf 1
```

```
Router0(config-router)#network 192.168.1.0 0.0.0.255 area 0
```

```
Router0(config-router)#network 10.0.0.0 0.0.0.255 area 0
```

```
Router0(config-router)#exit
```

```
Router0(config)#exit
```

```
Router0#copy running-config startup-config
```

Router1 configuration :

```
Router>enable
```

```
Router#configure terminal
```

```
Router(config)#hostname Router1
```

```
Router1(config)#interface FastEthernet0/1
```

```
Router1(config-if)#ip address 10.0.0.2 255.255.255.0
```

```
Router1(config-if)#no shutdown
```

```
Router1(config-if)#exit
```

```
Router1(config)#interface FastEthernet0/0
```

```
Router1(config-if)#ip address 172.16.1.1 255.255.255.0
```

```
Router1(config-if)#no shutdown
```

```
Router1(config-if)#exit
```

```
Router1(config)#router ospf 1
```

```
Router1(config-router)#network 10.0.0.0 0.0.0.255 area 0
```

```
Router1(config-router)#network 172.16.1.0 0.0.0.255 area 0
```

```
Router1(config-router)#exit
```

```
Router1(config)#exit
```

```
Router1#copy running-config startup-config
```

PC0 configuration :

IP Address: 192.168.1.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

PC1 Configuration :

IP Address: 172.16.1.2

Subnet Mask: 255.255.255.0

Default Gateway: 172.16.1.1

PC0 Command Prompt :

```
C:\>ipconfig
```

```
C:\>ping 192.168.1.1
```

```
C:\>ping 10.0.0.1
```

```
C:\>ping 10.0.0.2
```

```
C:\>ping 172.16.1.1
```

```
C:\>ping 172.16.1.2
```

PC1 Command Prompt :

```
C:\>ipconfig  
C:\>ping 172.16.1.1  
C:\>ping 10.0.0.2  
C:\>ping 10.0.0.1  
C:\>ping 192.168.1.1  
C:\>ping 192.168.1.2
```

Router Verification Commands:

```
Router0#show ip route  
Router0#show ip ospf neighbour  
Router0#show ip ospf database  
Router1#show ip route  
Router1#show ip ospf neighbour
```

OUTPUT:

PC0 OUTPUT :

```
C:\>PING 172.16.1.2  
  
Pinging 172.16.1.2 with 32 bytes of data:  
  
Request timed out.  
Reply from 172.16.1.2: bytes=32 time<1ms TTL=126  
Reply from 172.16.1.2: bytes=32 time<1ms TTL=126  
Reply from 172.16.1.2: bytes=32 time<1ms TTL=126  
  
Ping statistics for 172.16.1.2:  
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC1 OUTPUT :

```
C:\>PING 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

OSPF Neighbour Output:

```
Router#show ip ospf neighbor

Neighbor ID      Pri   State          Dead Time     Address           Interface
172.16.1.1       1     FULL/BDR      00:00:34     10.0.0.2        FastEthernet0/1
```

IP Route Output:

```
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

      10.0.0.0/24 is subnetted, 1 subnets
C        10.0.0.0 is directly connected, FastEthernet0/1
O        172.16.0.0/16 [110/2] via 10.0.0.2, 00:07:45, FastEthernet0/1
C        192.168.1.0/24 is directly connected, FastEthernet0/0
```

Conclusion : The above network topology has been executed successfully and OSPF dynamic routing has been demonstrated.

