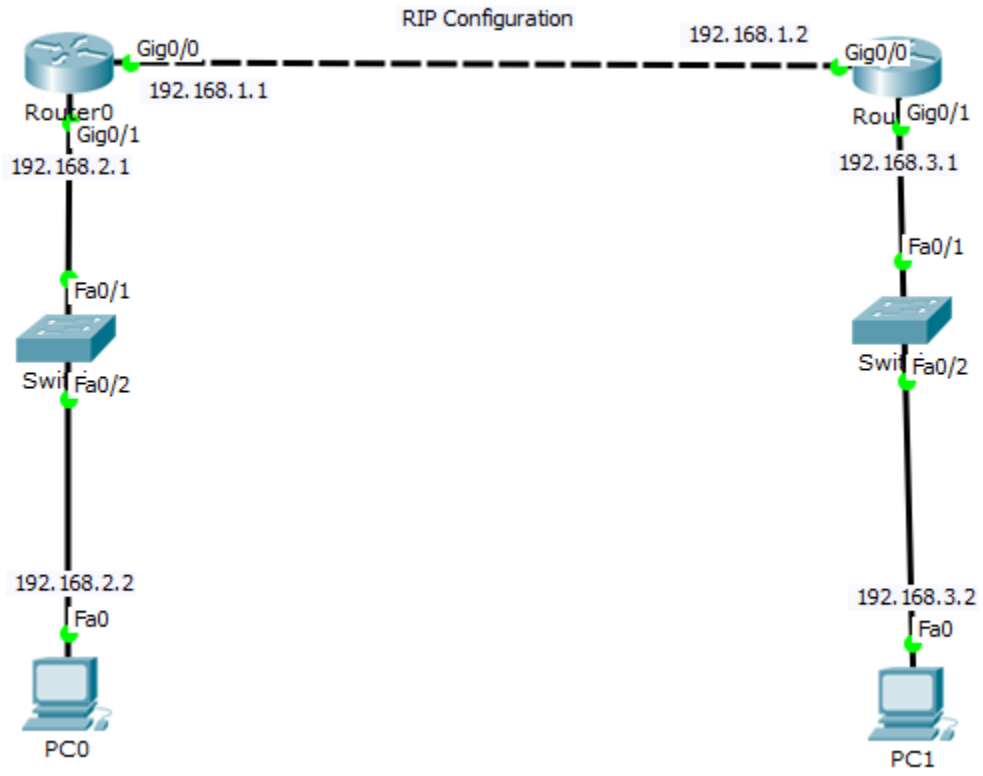
Experiment name: Configure Routing Information Protocol (RIP)

Experiment no. 6



Mark: Routers are connected through gigabit Ethernet. Not fast Ethernet.

Drag router 2901

Procedure:

(1) Drag and Drop Routers, Switches and PCs.
(2) Select cable and make sure a proper connections.
(3) Double click on router.
(4) Click on CLI Tab.
(5) First assign IP Address of on interface
(6) Assign RIP command.
(7) Mention RIP version
(8) Finally save this configuration.

IP Configuration Router0 :

```
Router>en
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface gig 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0 [ip of 1st port router 0]
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface gig 0/1
Router(config-if)#ip add 192.168.2.1 255.255.255.0 [ip of 2nd port router 0]
Router(config-if)#no shutdown
Router(config-if)#exit
```

Next→ Ip configuration Router 1

RIP Configuration Router0 :

```
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router RIP
Router(config-router)#version 2 [same for all routers]
Router(config-router)#network 192.168.1.0 [network address of 1st port router 0]
Router(config-router)#net 192.168.2.0  [network address of 2nd port router 0]
Router(config-router)#exit
Router(config)#exit
Router#
Router#wr
Building configuration...
[OK]
```

Next→ RIP configuration Router 1

Simulation Process: (Router0)

```
Router#
Router#showip route

Codes: L - local, C - connected, S - static, 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

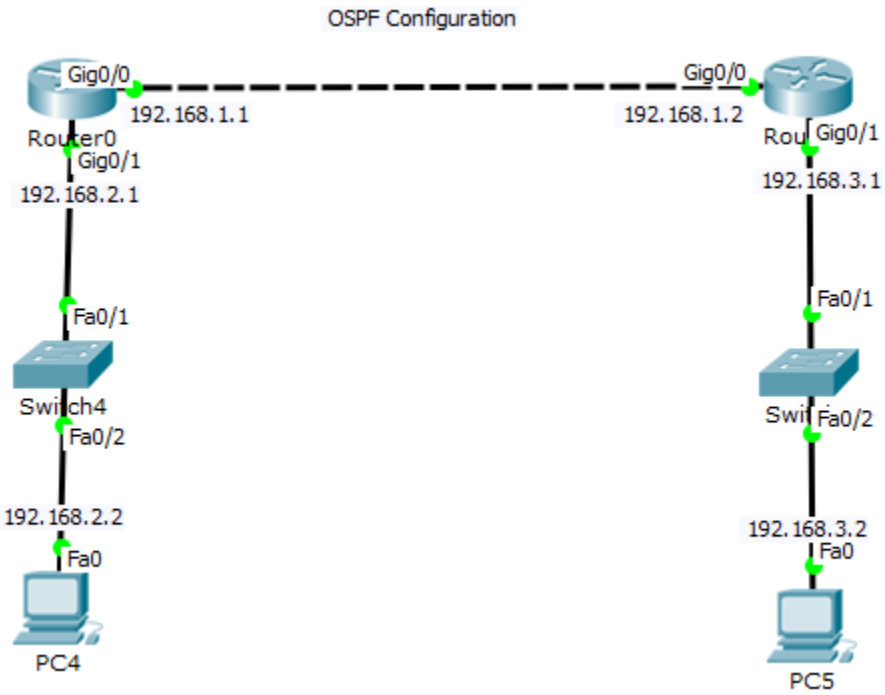
192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.1.0/24 is directly connected, GigabitEthernet0/0
L 192.168.1.2/32 is directly connected, GigabitEthernet0/0
R 192.168.2.0/24 [110/2] via 192.168.1.1, 00:00:07, GigabitEthernet0/0
192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.3.0/24 is directly connected, GigabitEthernet0/1
L 192.168.3.1/32 is directly connected, GigabitEthernet0/1

Next→ simulation of Router 1

Then transfer packets.

Experiment name: Configure Open Shortest Path First (OSPF) Routing Protocol

Experiment no. 7



ADD interface WIC-1ENET to each router for using more than 2 routers.

Fast Ethernet can also be used for router to router connections.

Procedure:

(1) Drag and Drop Routers, Switches and PCs.
(2) Select cable and make sure proper connections.
(3) Double click on router.
(4) Click on CLI Tab.
(5) First assign IP Address of on interface
(6) Assign OSPF command. (ospf then numerical value such as 1,2,3)
(7) Mention Network then Wild card mask then area.
(8) Finally save this configuration

IP Configuration Router0 :

```
Router>en
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface gig 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface gig 0/1
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown
```

Next→ Ip configuration Router 1

OSPF Configuration Router0 :

```
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router ospf 1 [same for all routers]
Router(config-router)#network 192.168.1.0 0.0.0.255 area 0   [here wild card mask is used which
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0    is inverse subnet mask,that is
Router(config-router)#exit                                      0.0.0.255 here. Search google
Router(config)#exit                                          to know more about wild card
Router#                                                      mask. Area is same for all routers]
Router#wr
Building configuration...
[OK]
```

Next→ OSPF configuration Router 1

Simulation Process: (Router0)

```
Router#
Router#showip route
```

```
Codes: L - local, C - connected, S - static, 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

     192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.0/24 is directly connected, GigabitEthernet0/0
L       192.168.1.2/32 is directly connected, GigabitEthernet0/0
O    192.168.2.0/24 [110/2] via 192.168.1.1, 00:00:07, GigabitEthernet0/0
     192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.3.0/24 is directly connected, GigabitEthernet0/1
L       192.168.3.1/32 is directly connected, GigabitEthernet0/1
```

Next→ simulation of Router 1

Then transfer packets.